January 22, 2024
File No. 27223157.24

Mr. Mick Leat
Iowa Department of Natural Resources
Land Quality Bureau
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319-0034

Subject: 2023 Annual Water Quality Report, Leachate Control System Performance Evaluation Report, and Landfill Gas Annual Report
Ottumwa-Wapello County Landfill
West MSWLF Unit
Permit No. 90-SDP-01-75P

Dear Mick:

SCS Engineers, on behalf of the Ottumwa–Wapello County Solid Waste Commission, has completed the required groundwater monitoring and statistical analyses for the West municipal solid waste landfill (MSWLF) unit at the Ottumwa-Wapello County Landfill (Landfill) for the year 2023. Services were performed in general accordance with Iowa Administrative Code (IAC) 567-113.10 and the current requirements for implementation of the Hydrologic Monitoring System Plan for the Landfill. Please find enclosed a copy of the 2023 Annual Water Quality Report (AWQR).

An evaluation of the leachate control system for the West MSWLF unit is included in accordance with IAC 567-113.7(5)"b"(14). The 2023 Leachate Control System Performance Evaluation Report is included as an appendix to the AWQR.

The gas monitoring results for the West MSWLF unit are included in accordance with IAC 567-113.9(2)"d". The 2023 Landfill Gas Annual Report is included as an appendix to the AWQR.

If you have any questions regarding these reports, please contact Nathan Ohrt at (319) 331-9613.

Sincerely,

Nathan Ohrt
Senior Project Professional
SCS Engineers

Timothy C. Buelow, P.E.
Project Director
SCS Engineers

NPO/TCB

Copies: Mr. Zach Simonson, Ottumwa-Wapello County Solid Waste Commission

2023 ANNUAL WATER QUALITY REPORT, LEACHATE CONTROL SYSTEM PERFORMANCE EVALUATION REPORT, & LANDFILL GAS ANNUAL REPORT

FOR

OTTUMWA-WAPELLO COUNTY LANDFILL
WEST MSWLF UNIT

OTTUMWA, IOWA

SOLID WASTE PERMIT NO. 90-SDP-01-75P

SUBMITTAL DATE: JANUARY 2024

PREPARED FOR:

OTTUMWA-WAPELLO COUNTY SOLID WASTE COMMISSION

PREPARED BY:

SCS ENGINEERS

Certification

Prepared by: _____ Date: 1/22/2024

Typed: Nathan Ohrt

Reviewed by: _____ Date: 1/22/2024

Typed: Timothy C. Buelow, P.E.

Certification page (PE or ground water scientist signature) **113.10(1)"d"**

For the purposes of this rule, a "qualified groundwater scientist" means a scientist or an engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

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Executive Summary

ES.1 Period of Report Coverage

The period of report coverage is October 2022 through December 2023 and includes the sampling events summarized in Table 2.

ES.2 Report Priority

The following summarizes report priorities associated with groundwater compliance at the West municipal solid waste landfill unit (West MSWLF unit):

- Department review urgency: Seven samples have been collected from attenuation point of compliance (AZPOC) monitoring well MW-81, representing 3.5 years of sampling data. Confidence intervals calculated for monitoring well MW-81 for each of the parameters with previous statistically significant levels (SSLs) above background detected in monitoring well MW-81 demonstrate that the upper confidence limit for each parameter is below the corresponding groundwater protection standards (GWPSs). Confidence intervals were not calculated for those previous SSLs that have not been detected in MW-81: arsenic, methylene chloride, and vinyl chloride. Therefore, the corrective action remedy has satisfied the remedy completion requirements of Iowa Administrative Code (IAC) 567-113.10(9)"e"(1) and (2). The confidence interval summary table and graphs for the previous SSL parameters in monitoring well MW-81 are included in Appendix H.
- Department review impact on rules schedule: It is requested that the Iowa Department of Natural Resources (DNR) communicate what actions may be required in accordance with IAC 567-113.10(9)"e"(3) to complete the remedy.
- Actions or activities on hold pending Department review or comment: None.
- Actions and/or permit amendments needed: It is requested that semi-annual sampling for Endosulfan I in source characterization monitoring well MW-61R be discontinued as the parameter has not been detected at a quantified concentration in the most recent eight samples.

ES.3 Site Status and Applicable Rules

- Landfill Status: Active.
- Types of waste accepted: Municipal solid waste, construction and demolition waste, special waste.
- Applicable IAC rules: 2009 IAC 567-113.10.

ES.4 Comments

The Hydrologic Monitoring System Plan (HMSP) monitoring network for the West MSWLF unit includes monitoring points divided into multiple statistical monitoring programs, each with specific evaluation methods. The monitoring points and their current monitoring program are included in Table 1. A brief summary of the statistical methods and findings is included below, and more detailed discussion of the results is included in Section 6.0 of this report The statistical method and statistical software output is included in the attached Appendix D, Statistical Method and Output. Sampling during this reporting period was performed as outlined in the current permit and is summarized in Table 2.

Detection Monitoring

Detection monitoring points are evaluated for statistically significant increases (SSIs) above background using prediction limits for inorganic constituents detected in background and the double

quantification rule for inorganic constituents not detected in background and for organic compounds. Interwell statistical methods are used for monitoring wells, where downgradient monitoring wells are compared to the background dataset, which includes data from background monitoring wells MW-53 and MW-54. Intrawell statistical methods are used for groundwater underdrains GU-6 and GU-7, where the most recent sampling data is compared to the historical data for the same monitoring point. No SSIs were identified for detection monitoring well 91-MW-14 during this reporting period. The groundwater underdrains were dry during both 2023 sampling events so prediction limits were not calculated.

Assessment Monitoring

Assessment monitoring wells are evaluated using confidence intervals, or confidence bands if a statistically significant trend is present, to identify SSLs above the GWPSs. No SSLs above the GWPS were measured in the assessment monitoring wells MW-62 and 93-MW-32.

Attenuation Zone Point of Compliance (AZPOC)/Corrective Action

AZPOC monitoring well MW-81 is evaluated using confidence intervals, or confidence bands if a statistically significant trend is present, to identify SSLs above the GWPSs. No SSLs above the GWPS were measured in the AZPOC monitoring well MW-81. Monitoring well MW-81 will likely be placed into the assessment monitoring program during the upcoming reporting period upon DNR approval.

Acid Mine Drainage Monitoring

Acid mine drainage (AMD) monitoring wells are considered to be impacted by previous coal strip mining activities. The AMD wells serve the dual purpose of monitoring the effect of AMD near the West MSWLF unit while also monitoring for groundwater impact from the West MSWLF unit. The inorganic data is evaluated by both interwell and intrawell prediction limits to evaluate for SSIs. If an SSI is indicated using both interwell and intrawell methods, the AMD data for the monitoring well will be reviewed. No constituent-monitoring point pairs had indicated SSIs above background for both interwell and intrawell evaluations. Organic data for the AMD wells are evaluated using confidence intervals. No SSLs above the GWPS were identified for the organic parameters in the AMD monitoring wells. Additional parameters are collected from the AMD wells to evaluate the change in AMD conditions near the West MSWLF unit. An evaluation of the status of AMD conditions is included in Section 6.4 of this report.

Source Characterization

Source wells are evaluated using statistical trending to evaluate the change in Appendix I parameter concentrations. Additional parameters are collected from the source wells to evaluate the continuation of natural attenuation of the groundwater impact in their vicinity. An evaluation of natural attenuation is included in Section 6.5 of this report.

Corrective Action

Corrective action monitoring wells were sampled during this reporting period for parameters previously identified as SSLs to monitor the area of impact. The concentration range of constituents detected during this reporting period is included in Figure 5.

Gas Sampling

The CAMP includes subsurface venting of landfill gas and annual gas sampling as a component of the source control. A composite air sample of the gas vents in the southwest corner of the West MSWLF unit was collected in October 2023. The results of the air sampling are included in Appendix I.

Other

Due to the drought conditions, monitoring wells MW-67 and MW-73 had insufficient water to produce samples during the February 2023 sampling event and monitoring wells MW-67, MW-71, MW-73, MW-74, and MW-80 had insufficient water to produce samples during the July 2023 sampling event. Groundwater underdrain monitoring points GU-6 and GU-7 were dry during the February and July 2023 sampling events.

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Section 1.0
Acronyms/Abbreviations

ACM = Assessment of Corrective Measures
AZPOC= Attenuation Zone Point of Compliance
CAMP = Corrective Action Groundwater Monitoring Program
CL = Control Limit - Mean plus Two Standard Deviations
DNR = Iowa Department of Natural Resources
DO = Dissolved Oxygen
DQR = Double Quantification Rule
GWPS = Groundwater Protection Standard
HMSP = Hydrologic Monitoring System Plan
LEL = Lower Explosive Limit
LCL = Lower Confidence Limit
LN = Lognormal
MCL = EPA Maximum Contaminant Level
MSW = Municipal Solid Waste
N = Normal
NC = No Change
NM = Not Measured
NP = Non-Parametric
ORP = Oxidation-Reduction Potential
P = Parametric
PL = Prediction Limit
RL = Reporting Limit
SWS = DNR Statewide Standard for a protected groundwater source
SSI = Statistically Significant Increase above background
SSL = Statistically Significant Level above groundwater protection standard
SSS = Site-Specific Standard (Site-Specific GWPS)
TSS = Total Suspended Solids
UCL = Upper Confidence Limit
VOC = Volatile Organic Compound

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Section 2.0
Site Background

2.1 Site Location

The Landfill property is depicted in Figure 1, Approved Monitoring Network, and is located along 165th Avenue, approximately 1.5 miles north of State Highway 23 in Wapello County, Iowa. The Landfill property consists of approximately 250 acres and is located within the SE ¼; the E 30 acres of the S ½, S ½, NE ¼; and a portion of the W 10 acres of the S ½, S ½, NE ¼; all in Section 33, T73N, R14W, Wapello County, Iowa, as well as approximately 30 acres in the W ½ of the NE Fractional Quarter of Section 4, T72N, R14W, Wapello County, Iowa.

2.2 Geology and Hydrogeology of the Site

Previous hydrologic investigations of the Landfill were conducted by Barker Lemar Engineering Consultants (November 1999 and June/July 2003), by Foth & Van Dyke (June 1997), and by Green Environmental Services (GES), Inc. (March 1992 and April 1993). Information from these reports was compiled to create the summary below.

The Landfill is located in the Southern Iowa Drift Plain in an area of moderately well drained rolling terrain. The surficial material generally consists of loess and glacial drift of Pleistocene age and colluvial and alluvial deposits of Holocene age. Landfilled areas are on either side of the valley of an unnamed and generally intermittent creek, which flows from northeast to southwest across the Landfill property and separates the West MSWLF unit from the East MSWLF unit. Holocene alluvial and colluvial deposits are found along this creek as it extends through the Landfill property.

Coal–bearing Cherokee Group bedrock of Pennsylvanian age is also exposed at the Landfill. The west and northeast sides of the Landfill were used for strip mining coal between 1956 and 1976 and consequently have been extensively disturbed by that activity (GES, 1992). Much of the Landfill was developed by excavating coal-mine spoils or the glacial till down to bedrock. In many places, the base of the West MSWLF unit was determined by depths of the coal-mine excavation or the West MSWLF unit was established on coal-mine spoils, which were also used as daily cover.

The two areas of highest natural elevation at the Landfill are on the northwest and east central perimeter areas with elevations ranging from 800 to 810 feet above sea level (ASL). The lowest natural elevation at the Landfill is approximately 670 feet ASL along the creek bed on the southern perimeter of the property. The majority of the Landfill property slopes toward the intermittent creek that divides the property. Drainage from the Landfill is generally to the intermittent creek and is conducted via sheet runoff and numerous natural drainage ways.

The Bedrock Map of Iowa (Iowa Geological Survey, 1969) indicates that bedrock in the vicinity of the Landfill is comprised of Pennsylvanian-age shale deposits of the lower Cherokee Group or the primarily carbonate deposits of the Mississippian-age Meramec Series. Previous studies conducted at the Landfill indicate that the bedrock beneath the unconsolidated deposits is comprised of thick Pennsylvanian-age shales of the Cherokee Group with minor facies changes to limestone, sandstone, and coal within the shale matrix.

Surface mining of coal was performed in the Ottumwa area beginning in the mid-1800s. The coal was mined from Pennsylvanian-age rocks of the lower Cherokee Group. The sedimentary strata were deposited nearly horizontally with lateral facies changes. As such, contemporaneous deposits are generally present at approximately the same elevation beneath the Landfill. According to the GES report (1992) research indicates that the mined coal deposit on the Landfill property was on the order of four feet thick and occurred at an elevation of approximately 710 feet above mean sea level (ASL).

The shallower geologic materials at the Landfill would not qualify as aquifers for water supply wells because of low transmissivities (GES, 1992). However, the shallow materials are 100- to 1000-fold more conductive to groundwater flow than the deep shale. These shallow materials include mine spoils, alluvium (silt, sand, and gravel), shallow till with sand lenses, and weathered shale. The higher in-situ hydraulic conductivities show that these materials constitute the uppermost aquifer for monitoring purposes.

GES (1992) did not consider small, discontinuous beds of sandstone, limestone, and coal to function as aquifers, due to lack of continuity, even though these may be more permeable. The Mississippian limestone was also not thought to function as an aquifer due to low hydraulic conductivity.

The deeper part of the Pennsylvanian shale is considered to be an aquitard. This is shown by the low in-situ hydraulic conductivities, vertical flow rates, and transmissivities. The steep vertical flow paths also show that the shale is an aquitard. Over 50 feet of shale protects the underlying Mississippian bedrock (GES, 1992).

According to the GES report (1992), the water table is located in the uppermost aquifer, which consists of mine spoils, alluvium (silt, sand, and gravel), shallow till with sand lenses, and weathered shale. The depth to the water table across the Landfill property as measured in previous assessments varied from an average of 1 to 11 feet below ground surface (bgs) in the valley to 18 to 24 feet bgs on the hilltops. The deepest water table depths of 33 and 36 feet bgs measured during previous assessments were observed in the southwest corner of the Landfill property and are associated with sands in a buried channel.

The stratigraphy in the eastern portion of the Landfill property where coal mining does not appear to have occurred can generally be described as an overlying mantle of brown lean to sandy lean clay ranging in thickness from 0 to up to 30 feet, however, generally less than 10 feet in thickness, underlain by shale bedrock. The shallower shales are typically weathered and range in color from red to brown to gray. With depth, the bedrock becomes predominantly shale of varying shades of gray. Within the shale mass are intermittent layers of sandstone, limestone, and coal with limestone being the more predominant intermittent layer encountered. Coal was generally encountered associated with limestone layers, however, not in all cases. The interbedded limestone, sandstone, and coal layers did not appear sufficiently consistent throughout the borings to indicate a continuous layer beneath the Landfill property.

Section 3.0
Figures Discussion

The following figures are included in a Figures section following the Tables section of this report.

3.1 Figure 1 - Approved Monitoring Network

The Landfill property, hydrologic monitoring system plan (HMSP) monitoring network, source characterization monitoring wells, and corrective action monitoring wells are depicted in Figure 1. Figure 1 indicates the respective monitoring programs of the HMSP monitoring points as of the beginning of this reporting period. A summary table of the HMSP monitoring network is included in Table 1.

3.2 Figure 2 - Groundwater Contours

A groundwater contour map based on groundwater levels measured during the February 2023 sampling event is included as Figure 2. Groundwater flow is generally to the southeast over both the active and closed portions of the West MSWLF unit. The flow direction is consistent with previous groundwater contour maps. It does not appear that significant change to the hydrologic setting or flow paths has occurred. Groundwater levels measured during this reporting period are included in Table 4.

3.3 Figure 3 - Groundwater and Leachate Contours

A groundwater contour map based on groundwater levels and leachate levels measured in February 2023 is included in Figure 3. The predominant flow path is to the south/southeast; however, the contour gradient becomes somewhat varied, more generally to the south beneath the western $^{2}/_{3}^{rd}$ of the closed area and generally to the east beneath the eastern $^{1}/_{3}^{rd}$ of the closed area of the West MSWLF unit when leachate elevations are considered in the contours.

3.4 Figure 4 - Reporting Period Detection Summary – HMSP

Figure 4 shows the range of measured concentrations by monitoring point for the HMSP monitoring wells during this reporting period. Further discussion of the detected constituents is included in Section 6.0 – Data Evaluation and Summary of this report.

3.5 Figure 5 - Reporting Period Detection Summary – Corrective Action

Figure 5 shows the range of measured concentrations by monitoring wells for the source characterization and corrective action monitoring wells during this reporting period. Further discussion of the detected constituents is included in Section 6.0 – Data Evaluation and Summary of this report.

3.6 Figure 6 - Arsenic Concentration Map

A groundwater concentration map for SSL parameter arsenic is included as Figure 6. Arsenic has a background concentration of 0.00208 mg/L. Arsenic impact is generally confined to the southwest boundary of the West MSWLF unit near monitoring wells MW-74 and 93-MW-31R. The apparent elevated concentration boundary is shown in Figure 6.

Elevated TSS concentrations in monitoring well MW-71 to the west do not allow a clear determination of impact definition in that area. However, MW-78 to the northwest defines the elevated concentrations in that direction. Elevated concentrations are present to the north at monitoring well MW-73 and to the east at monitoring wells MW-61R and MW-74. A J flag concentration, which may indicate the leading edge of impact, was measured in monitoring well MW-72 to the south.

During the 2021 reporting period, monitoring well 93-MW-31R was replaced in the HMSP monitoring program by attenuation zone point of compliance (AZPOC) monitoring well MW-81. Arsenic has not been detected in monitoring well MW-81 since sampling began in 2021.

3.7 Figure 7 - Cobalt Concentration Map

A groundwater concentration map for SSL parameter cobalt is included in Figure 7. Cobalt has a background concentration of 0.01671 mg/L. Cobalt impact is generally confined to the southwest boundary of the West MSWLF unit near monitoring well MW-73. The elevated concentration boundary is shown in Figure 7.

Monitoring well MW-61R had measured cobalt concentrations below background during the 2020-2023 sampling events. The only monitoring well with cobalt concentrations above background in this area is MW-73, indicating the area of elevated concentrations is defined.

During the 2021 reporting period, monitoring wells MW-61R and MW-73 were replaced in the HMSP monitoring program by AZPOC monitoring well MW-81. Cobalt has not been measured at a quantified concentration in monitoring well MW-81 since sampling began in 2021.

3.8 Figure 8 - cis-1,2-Dichloroethene Concentration Map

A groundwater concentration map for SSL parameter cis-1,2-dichlorethene is included as Figure 8. cis-1,2-Dichlorethene impact near SSL monitoring well MW-61R is generally defined. No exceedances of the GWPS were measured 2020-2023. Concentrations above background are present in the southwest corner of the West MSWLF unit. The elevated concentration boundary is shown in Figure 8.

During the 2021 reporting period, monitoring well MW-61R was replaced in the HMSP monitoring program by AZPOC monitoring well MW-81. There have been two quantified concentrations of cis-1,2-dichlorethene measured in monitoring well MW-81, with the highest concentration being less than 2% of the GWPS.

3.9 Figure 9 - Methylene Chloride Concentration Map

A groundwater concentration map for the historically elevated methylene chloride concentrations in the vicinity of monitoring well MW-61R is included as Figure 9. As there has not been a quantified detection of methylene chloride in the West MSWLF unit HMSP monitoring network since 2011, a concentration map for methylene chloride will not be included in subsequent AWQRs.

During the 2021 reporting period, monitoring well MW-61R was replaced in the monitoring program by AZPOC monitoring well MW-81. Methylene chloride has not been detected in monitoring well MW-81 since sampling began in 2021.

3.10 Figure 10 - Tetrachloroethene Concentration Map

A groundwater concentration map for SSL parameter tetrachloroethene is included in Figure 10. Tetrachloroethene impact near SSL monitoring wells MW-61R and MW-73 is generally defined. The elevated concentration boundary is shown in Figure 10.

Outside of monitoring well MW-73, the only quantified concentration of tetrachloroethene measured during the 2023 sampling events was in monitoring well MW-78 during the July 2023 sampling event. Measured concentrations have generally decreased since the expansion of the subsurface venting system installed in October 2016. Additionally, monitoring well MW-61R has not had a quantified detection in the eleven most recent sampling events. Tetrachloroethene at monitoring well MW-73 had a statistically significant declining trend at 99% confidence ($\alpha = 0.01$) during this reporting period.

During the 2021 reporting period, monitoring wells MW-61R and MW-73 were replaced in the monitoring program by AZPOC monitoring well MW-81. There were historically four quantified concentrations of tetrachloroethene in monitoring well MW-81, with the highest concentration approximately 25% of the GWPS. During 2023, the two tetrachloroethene concentrations in monitoring well MW-81 were non-detect and a J flag.

3.11 Figure 11 - Trichloroethene Concentration Map

A groundwater concentration map for SSL parameter trichloroethene is included in Figure 11. Trichloroethene impact is generally defined near SSL monitoring wells MW-61R and MW-73. The elevated concentration boundary is shown on Figure 11.

No quantified concentrations for trichloroethene were measured outside of monitoring wells MW-73 and MW-74 during this reporting period. Measured concentrations have generally decreased since the expansion of the subsurface venting system installed in October 2016. Monitoring well MW-61R has not had a quantified detection in the eleven most recent sampling events. Trichloroethene at monitoring well MW-73 had a statistically significant declining trend at 99% confidence ($\alpha = 0.01$) during this reporting period.

During the 2021 reporting period, monitoring wells MW-61R and MW-73 were replaced in the monitoring program by AZPOC monitoring well MW-81. Trichloroethene has not been measured at a quantified concentration in monitoring well MW-81 since sampling began in 2021.

3.12 Figure 12 - Vinyl Chloride Concentration Map

A groundwater concentration map for SSL parameter vinyl chloride is included as Figure 12. Vinyl chloride impact is generally defined near monitoring wells MW-61R, MW-73, and MW-79. The elevated concentration boundary is shown on Figure 12.

Monitoring well MW-73 is bracketed by monitoring well MW-62 to the north, monitoring well MW-78 to the west, and monitoring well MW-71 to the southwest. Vinyl chloride at monitoring well MW-73 had a statistically significant declining trend at 99% confidence ($\alpha = 0.01$) during this reporting period.

Monitoring well MW-79 is bracketed by monitoring well MW-62 to the north and monitoring well MW-71 to the southwest. Monitoring well MW-80, to the west of MW-79, has not registered a detection in three of the four most recent sampling events.

Monitoring well MW-61R has not had a detection in the eleven most recent sampling events. During the 2021 reporting period, monitoring wells MW-61R, MW-73, and MW-79 were replaced in the monitoring program by AZPOC monitoring well MW-81. Vinyl chloride has not been detected in monitoring well MW-81 since sampling began in 2021.

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Section 4.0
Standards History Graphs

Standards history graphs for Appendix I metals are included in Appendix G. The prediction limits were generally below the associated GWPSs with the exception of thallium.

The prediction limit for thallium increased during the 2022 reporting period after the first detection in the background dataset; the concentration in the March 2022 sampling event was 0.00078 mg/L above the GWPS. Thallium was not detected in the HMSP monitoring network during this reporting period.

Additional information regarding the prediction limits and GWPSs can be found in Table 5.

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Section 5.0
QA/QC Summary

The quality assurance/quality control (QA/QC) program for the West MSWLF unit follows similar protocols as included in the HMSP. Data validation procedures were performed on analytical results for laboratory quality control samples and a quality assurance assessment of the data was conducted as the data were generated. The QA review procedure provided documentation of the accuracy and precision of the analytical data and confirmed that the analyses were sufficiently sensitive to detect constituents at levels below regulatory standards when technically feasible with the laboratory method utilized. SCS then conducted QA/QC data validation of the produced data, which included review of sample handling, analytical sensitivity, and blanks, accuracy, and precision. A summary of the laboratory QA/QC and data validation can be found in Appendix B-1, Laboratory Analytical Data Sheets, and Appendix B-2, Data Validation Documentation, respectively.

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Section 6.0
Data Evaluation and Summary

6.1 Statistical Evaluation

Detection Monitoring

Detection monitoring well 91-MW-14 is sampled annually and was sampled in February 2023 and statistically evaluated using interwell prediction limits compared to data from background monitoring wells MW-53 and MW-54. No SSIs were indicated. A prediction limit summary table and graphs for the 1st 2023 statistical evaluation are included in Attachment A of Appendix D, Statistical Method and Output. Current and historical analytical results are included in Attachment C-1.

Groundwater underdrains GU-6 and GU-7 were dry during the 2023 sampling events. As no samples were collected during this reporting period, prediction limits were not calculated. Historical analytical results are included in Attachment C-1.

Assessment Monitoring

Assessment monitoring wells 93-MW-32 and MW-62 are sampled annually and were sampled during the February 2023 sampling event. Monitoring wells 93-MW-32 and MW-62 were statistically evaluated using confidence intervals or confidence bands, as appropriate and Mann-Kendall trend testing. No SSLs above the GWPS were identified. Summary tables and graphs for confidence intervals for the 1st 2023 and 2nd 2023 statistical evaluation are included in Attachments A and B, respectively, of Appendix D, Statistical Method and Output. Current and historical analytical results are included in Attachment C-1.

Attenuation Zone Point of Compliance (AZPOC)/Corrective Action

AZPOC monitoring well MW-81 was sampled during the 2023 sampling events. Monitoring well MW-81 was statistically evaluated using confidence intervals or confidence bands, as appropriate, and Mann-Kendall trend testing. No SSLs above the GWPS were identified. Summary tables and graphs for confidence intervals for the 1st 2023 and 2nd 2023 statistical evaluation are included in Attachments A and B, respectively, of Appendix D, Statistical Method and Output. Current and historical analytical results are included in Attachment C-1. Confidence intervals for previous SSL parameters in monitoring well MW-81 are included in Appendix H.

AMD Monitoring

An approved alternative source demonstration established that acid mine drainage (AMD), created by historical coal mining at the site, was the cause of elevated metals concentration for monitoring wells on the east side of the West MSWLF unit. To evaluate both the effect of the AMD and monitor for groundwater impact from the West MSWLF unit, samples from monitoring wells MW-39R, MW-40, 04-MW-56, MW-58, MW-59, MW-63R, MW-64, and MW-65 were analyzed for Appendix I, TSS, and AMD parameters during the February 2023 sampling event and Appendix I and TSS during the July 2023 sampling event.

Appendix I metals were analyzed by interwell and intrawell prediction limits for the AMD monitoring wells. If an SSI is indicated using both interwell and intrawell methods, the AMD data for the monitoring well will be reviewed. No constituent-monitoring point pairs had indicated SSIs above background for both interwell and intrawell evaluations.

For the AMD monitoring wells, organic parameters and sulfide were analyzed by confidence intervals or confidence bands, as appropriate, based on diagnostic statistical evaluation. No SSLs above the

GWPS were identified. Summary tables and graphs for confidence intervals for the 1st and 2nd 2023 statistical evaluations are included in Attachments A and B, respectively, of Appendix D, Statistical Method and Output. Current and historical analytical results for Appendix II parameters are included in Attachment C-1.

Historical and 2023 data for the AMD parameters alkalinity, aluminum, iron, manganese, pH, and sulfate are presented in Appendix C-4. Time series graphs for the AMD monitoring wells and parameters are included in Appendix J. An evaluation of AMD data is included in Section 6.4 below.

Source Characterization Monitoring

Monitoring wells 93-MW-31R, MW-61R, MW-73, and MW-79 were designated as source characterization monitoring wells and replaced as points of compliance in the HMSP monitoring network with AZPOC monitoring well MW-81. With the exception of monitoring well MW-73, which had insufficient water to sample during the 2023 sampling events, the source characterization monitoring wells were analyzed for Appendix I, TSS, and natural attenuation parameters during the February 2023 sampling event and Appendix I and TSS during the July 2023 sampling event. Trending of the Appendix I parameters was evaluated by Mann-Kendall evaluation. The evaluation indicated 1,1-dichloroethane, benzene, cis-1,2-dichloroethene, nickel, tetrachloroethene, trichloroethene, and vinyl chloride in monitoring well MW-73 and cadmium in monitoring well MW-79 were decreasing at statistically significant rates at 99% confidence ($\alpha = 0.01$). Nickel in monitoring well MW-61R was increasing at a statistically significant rate at 99% confidence ($\alpha = 0.01$).

As shown on Table 11, there were 18 increasing trends indicated by a positive calculated Mann-Kendall statistic and 39 stable or decreasing trends indicated by a Mann-Kendall statistic of zero or less, which calculated to over 68% of the constituent-monitoring wells trends stable or decreasing; the percentage of stable or decreasing trends decreased by 0.1% from the 2022 evaluation. A summary table and graphs of the Mann-Kendall trending evaluation are included in Appendix K. A summary of current and historical analytical results for the source wells is included in Appendix C-2.

Monitoring well MW-61R had historical SSLs for cobalt, cis-1,2-dichlorethene, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride. During this reporting period, only cobalt and cis-1,2-dichloroethene of that list were detected, both at concentrations below the GWPSs.

Historical and 2023 data for natural attenuation parameters total organic carbon, nitrate, iron, manganese, and sulfate are presented in Appendix C-2. An evaluation of natural attenuation data is included in Section 6.6 below.

Corrective Action Monitoring

Eight corrective action monitoring wells, located near the southwest side of the West MSWLF unit, are sampled for selected parameters to monitor the status of the groundwater impact in the area. Corrective action monitoring well MW-67 had insufficient water to produce samples during the February 2023 sampling event and monitoring wells MW-67, MW-71, MW-74, and MW-80 had insufficient water to produce samples during the July 2023 sampling event.

Arsenic is regularly detected in monitoring wells MW-71 and MW-74. Arsenic concentrations were above the GWPS in monitoring well MW-74 and below the GWPS in monitoring well MW-71 during the February 2023 sampling event. Arsenic has not been detected in monitoring wells MW-66, MW-67, and MW-68 since regular sampling began in 2020. Arsenic was not detected in monitoring well MW-78 during this reporting period.

Cobalt detections are widespread, but no concentrations measured in 2022 and 2023 were greater than the 0.01691 mg/L site-specific GWPS.

Measured concentrations of VOCs above the GWPS have been generally infrequent. Monitoring well MW-80 had a concentration of vinyl chloride above the GWPS during the February 2023 sampling event.

The range of measured concentrations for the detected constituents in the impact delineation monitoring wells during this reporting period is shown on Figure 5, Reporting Period Detection Summary – Corrective Action Wells. Current and historical analytical results are included in Appendix C-3.

6.2 Data Evaluation

Groundwater monitoring for the West MSWLF unit consists of samples from monitoring wells encompassing the downgradient perimeters of the unit and two groundwater underdrain discharge points. Background monitoring well MW-53 is located to the east of the West MSWLF unit. The range of measured concentrations for the detected constituents in the HMSP monitoring wells during this reporting period is shown on Figure 4, Reporting Period Detection Summary – HMSP. The range of measured concentrations for the detected constituents in the source characterization and impact delineation monitoring wells during this reporting period is shown in Figure 5, Reporting Period Detection Summary – Corrective Action.

The Monitoring Well Maintenance and Performance Revaluation Schedule is shown on the attached Table 3. Water levels and well depths measured during this reporting period, and whether the screened intervals of the monitoring wells were submerged or exposed to the atmosphere, are included on Table 4, Monitoring Well Performance and Maintenance Summary. An evaluation of groundwater/waste separation is included in Table 4. Numerous monitoring wells and the groundwater underdrains did not produce samples during this reporting period, likely due to the drought conditions.

Monitoring wells 93-MW-32, MW-62, and MW-81 were statistically evaluated using interwell prediction limits and AMD monitoring wells MW-39R, MW-40, 04-MW-56, MW-58, MW-59, MW-63R, MW-64, and MW-65 were statistically evaluated using interwell and intrawell prediction limits to establish background concentrations of the metal parameters for the monitoring network. The background concentrations are summarized in Table 5 and included in Tables 6 and 7 to compare to measured concentrations.

During this reporting period, site-wide maximum concentrations for two inorganic parameters each were measured in monitoring wells MW-40, MW-63R, and MW-65. VOCs were measured in monitoring wells MW-40, MW-65, and MW-81. The detected VOCs did not exceed the GWPSs.

No site-wide maximum concentrations or VOCs were measured in monitoring wells 91-MW-14, 93-MW-32, MW-39R, 04-MW-56, MW-53, MW-58, MW-59, MW-62, and MW-64. Source characterization monitoring well analytical data was not considered in the identification of site-wide maximum concentrations.

Semi-VOC 2-Methylnaphthalene was measured at concentrations above the reporting limit in four monitoring wells during the February 2023 sampling event. The constituent had not previously been detected at the West MSWLF unit. There were numerous analytical qualifications of the 2-Methylnaphthalene data reported by the laboratory: the compound was found in the blank and the samples; the laboratory control sample and/or laboratory control sample duplicate was outside acceptance limits, high biased; and the laboratory control sample and/or laboratory control sample duplicate relative percent difference exceeded the control limits. These qualifications indicate the 2-Methylnaphthalene data was suspect and likely not representative of aquifer conditions. In a telephone conversation on April 24, 2023, the DNR approved that a separate retest for verification of the 2-Methylnaphthalene detections was not required and analytical results from the 2nd 2023

sampling event would be utilized as a retest sample for the 2-Methylnaphthalene detections. 2-Methylnaphthalene was not detected during the July 2023 sampling event.

6.3 Landfill Gas Sampling

The approved remedy for the West MSWLF unit is subsurface landfill gas venting and monitored natural attenuation. Gas compositional sampling was performed on November 2, 2023. As stated in the response to DNR comments regarding the ACM report dated June 11, 2020 (Doc #97902), since no vacuum was measured in the gas vents, a composite air sample from the five vents was collected. The gas sample was analyzed by EPA Methods 3C and 25C for hydrogen, oxygen, nitrogen, carbon monoxide, carbon dioxide, methane, and total non-methane organic compounds (as carbon). Laboratory results for the 2021 through 2023 gas sampling are summarized in the table below and the 2023 laboratory report is included in Appendix I.

Gas Composition Sampling Results

Analyte	2021	2022	2023
H_2	<1.3%	<1.3%	<1.6%
O_2	2.0%	7.7%	16.0%
N_2	8.0%	31.8%	56.3%
CO	<0.1%	<0.1%	<0.2%
CO_2	31.9%	24.3%	10.7%
CH_4	58.0%	36.2%	17.1%
TNMOC (as Carbon)	290 ppmC	332 ppmC	51.6 ppmC

6.4 Acid Mine Drainage Evaluation

Releases of AMD have low pH, high specific conductivity, high concentrations of iron, aluminum, and manganese, and low concentration of toxic heavy metals (Akcil and Koldas, 2004).

As included in the permit, most recently revised dated July 19, 2023 (Doc #107272), monitoring wells MW-39R, MW-40, 04-MW-56, MW-58, MW-59, MW-63R, MW-64, and MW-65 are analyzed on an annual basis for alkalinity, aluminum, iron, manganese, pH, and sulfate. The data indicated that iron, manganese, and sulfate were elevated, which is typical of AMD impact. Elevated aluminum concentrations are also typical of AMD impact; however, the aluminum concentrations were low, with only monitoring wells MW-40, MW-58, MW-63R, and MW-65 having quantified detections and only monitoring well MW-63R having a detection during this reporting period. Alkalinity appeared to separate into two groups of wells. The lower concentration group, containing monitoring wells MW-40, MW-58, and MW-59, had alkalinity concentrations 308 mg/L or less, while the higher concentration group, comprised of monitoring wells MW-39R, 04-MW-56, MW-63R, MW-64, and MW-65, had concentrations greater than 500 mg/L.

Mann-Kendall trend evaluation at 80% confidence (α=0.2) was performed for AMD parameters alkalinity, aluminum, iron, sulfate, and pH. Apparent impact from acid mine drainage (AMD) conditions remained during this reporting period. The majority of trends for AMD indicator parameters were calculated to be stable, although there were also nine statistically significant decreasing trends and eight statistically significant increasing trends. Annual sampling for the AMD parameters will continue as specified in the permit. The Mann-Kendall summary table is included in Appendix L.

6.5 Natural Attenuation Evaluation

Natural attenuation is frequently viewed in terms of primary lines of evidence and secondary lines of evidence. Primary lines of evidence are generally based on concentration trends of constituent data defined as declining, stable, or increasing. Declining or stable concentration trends would be an indication that natural attenuation is occurring. Secondary lines of evidence use geochemical indicators that monitor terminal electron acceptors. Both primary and secondary lines of evidence are discussed below.

Primary Evidence

Source monitoring wells 93-MW-31R, MW-61R, and MW-79 were analyzed for Appendix I, TSS, and natural attenuation parameters (total organic carbon, nitrate, iron, manganese, and sulfate) during the February 2023 sampling event and Appendix I and TSS during the July 2023 sampling event. It should be noted that source monitoring well MW-73 did not produce samples during this reporting period due to having insufficient water to sample. Trending of the Appendix I parameters was evaluated by Mann-Kendall analysis. The evaluation indicated 1,1-dichloroethane, benzene, cis-1,2-dichloroethene, nickel, tetrachloroethene, trichloroethene, and vinyl chloride in monitoring well MW-73 and cadmium in monitoring well MW-79 were decreasing at statistically significant rates at 99% confidence ($\alpha = 0.01$). As shown on Table 11, there were 17 increasing trends in the source wells indicated by a positive calculated Mann-Kendall statistic and 36 decreasing trends indicated by a Mann-Kendall statistic of less than zero, which calculated to approximately 68% of the constituent-monitoring wells trends decreasing. A summary table and graphs of the evaluation are included in Appendix M. Historical and 2023 natural attenuation data are presented in Appendix C-2.

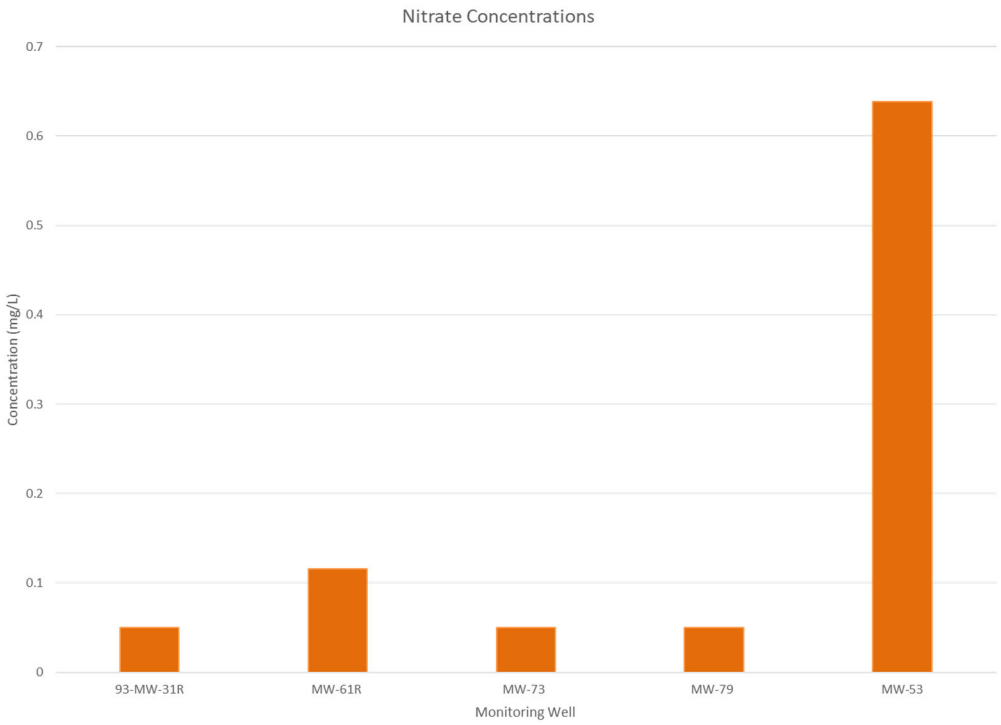
The constituents with statistically significant decreasing trends had the lowest concentrations since 2014 (or 2016 for vinyl chloride) measured during 2022; monitoring well MW-73 did not have sufficient water to produce samples during this reporting period. With approximately 68% of the trends in the source characterization monitoring wells declining, and with the clear declining concentrations of several organic constituents as shown in the graphs above, the primary evidence supports that natural attenuation is occurring.

Secondary Evidence

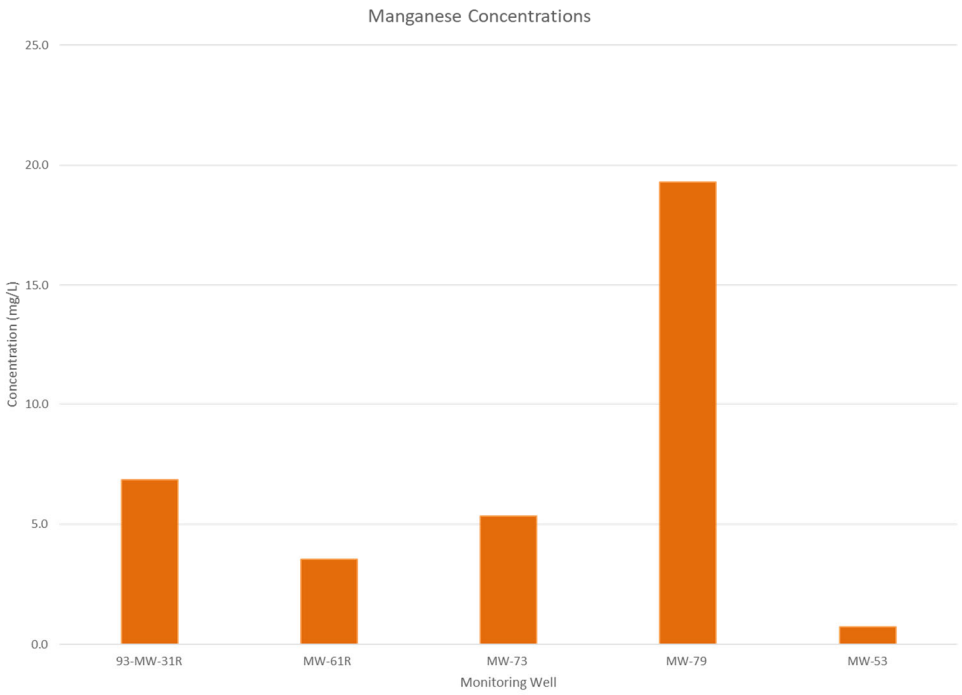
Nitrate, total manganese, total iron, sulfate, and total organic carbon concentrations were utilized to evaluate secondary evidence of natural attenuation. These constituents constitute four electron acceptors that would be consumed by microbial activity in the presence of organics. The order of usage in terms of energy provided would be nitrate, manganese, iron, then sulfate. Their use as electron acceptors would result in increased concentrations of total manganese and total iron as their reduced forms are more soluble and decreased concentrations of nitrate and sulfate.

The following graphs illustrate the nitrate, total manganese, total iron, and sulfate concentrations by well for the source characterization monitoring wells measured in February 2023 for 93-MW-31R, MW-61R, and MW-79, and March 2022 data for MW-73, and the average of historical data for background monitoring well MW-53.

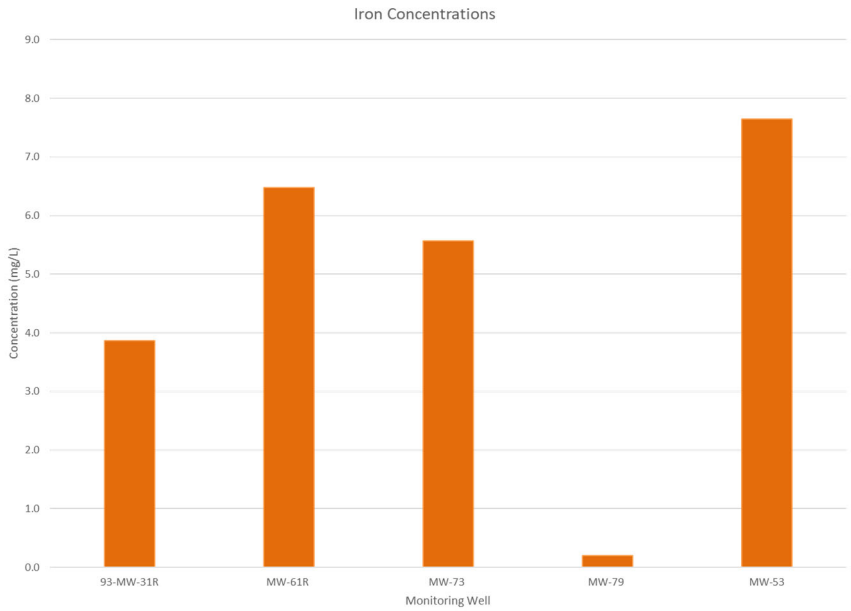
As mentioned above, nitrate would be the first electron acceptor used of the four evaluated. Generally, groundwater impacted with biodegradable compounds would be expected to have little to no nitrate present, if nitrate were originally present prior to the groundwater becoming impacted. The graph below indicates nitrate is present in the background as represented here by monitoring well MW-53. The nitrate concentrations in the source characterization monitoring wells had non-detect nitrate concentrations with the exception of a trace concentration measured in monitoring well MW-61R. These results are as expected, as the monitoring wells with impact have less nitrate than background, indicating the nitrate is likely being consumed as an electron acceptor.



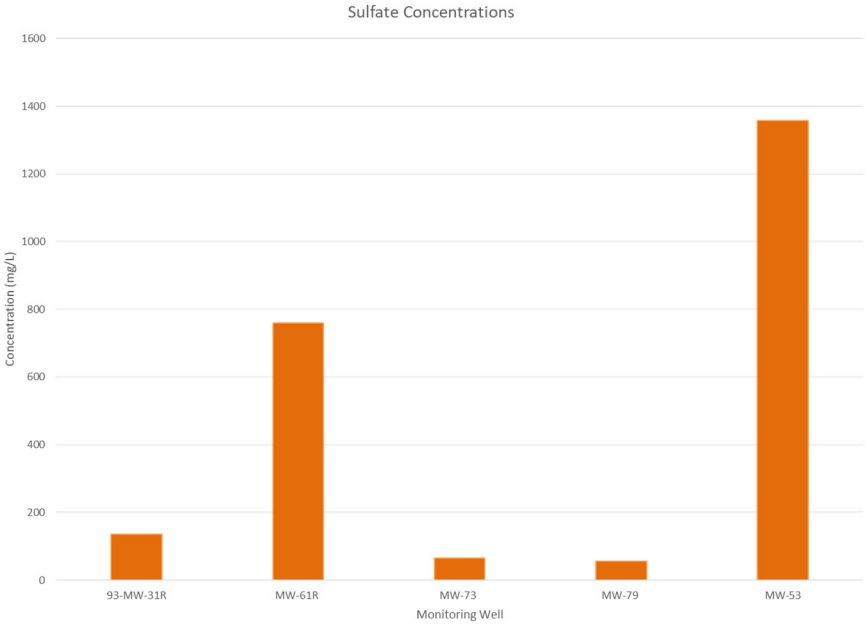
Manganese would be the second electron acceptor used of the four evaluated. The graph below indicates the elevated concentrations of total manganese in the source characterization monitoring wells that would be expected if microorganisms were using manganese as an electron acceptor. Each of the source monitoring wells have concentrations higher than background.



Iron would be the third electron acceptor used of the four evaluated. The graph below did not have the large difference between background and source characterization monitoring wells seen for manganese. None of the source characterization wells had an iron concentration higher than background. These concentrations may increase as natural attenuation continues.

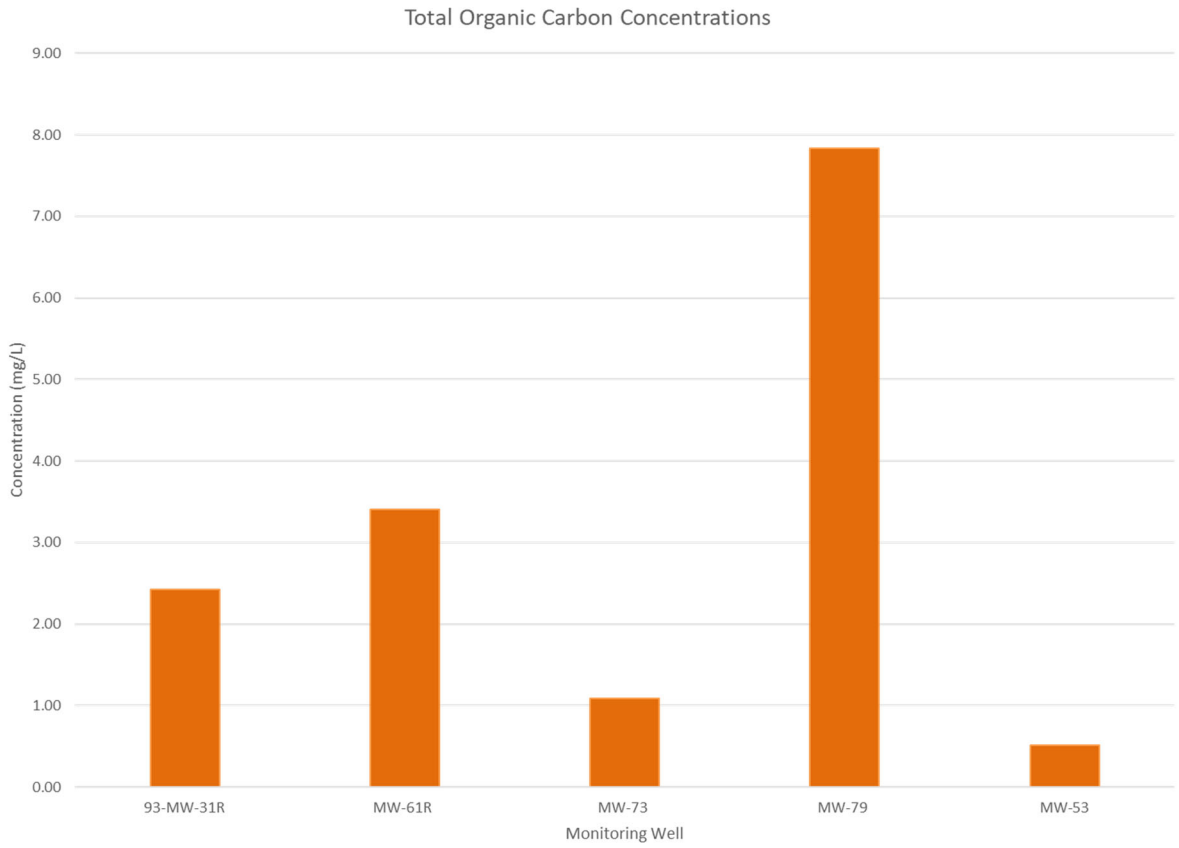


Sulfate would be the fourth electron acceptor used of the four evaluated. The graph below indicates sulfate concentrations below background in monitoring wells each of the source monitoring wells, which was the expectation as sulfate concentrations would be lowered if sulfate were being used as an electron acceptor.



The generally low concentrations of nitrate and sulfate and generally elevated concentrations of manganese are the expected results of ongoing natural attenuation. In addition, no statistically significant trends were indicated by Mann-Kendall analysis for the natural attenuation parameters as shown in Appendix M. The secondary evidence supports natural attenuation is occurring and generally stable.

Total organic carbon concentrations were analyzed. Concentrations above background indicate a carbon source present in the groundwater, primarily from landfill gas migration at the West MSWLF unit. Concentrations measured in 2023 were within the range of historical concentrations for the source characterization monitoring wells except for monitoring well MW-79, which had a significant increase in total organic carbon during this reporting period.



Section 7.0
Recommendations

7.1 Site Impact on Groundwater

Detection Monitoring

No SSIs were measured in detection monitoring well 91-MW-14 during this reporting period. Groundwater underdrains GU-6 and G-7 were dry during this reporting period.

Assessment Monitoring

No SSLs were measured in assessment monitoring wells 93-MW-32 and MW-62 during this reporting period.

AZPOC/Corrective Action Monitoring

Seven samples have been collected from AZPOC monitoring well MW-81, representing 3.5 years of sampling data. Confidence intervals calculated for monitoring well MW-81 for each of the SSLs above background parameters detected in monitoring well MW-81 demonstrate that the upper confidence limit for each parameter is below the corresponding GWPSs and the data represent that the upper confidence limit was likely below the GWPS for each parameter for the past three consecutive years. Confidence intervals were not calculated for those previous SSLs that have not been detected in MW-81: arsenic, methylene chloride, and vinyl chloride. Therefore, the corrective action remedy has satisfied the remedy completion requirements of IAC 567-113.10(9)"e"(1) and (2). It is requested that the DNR communicate what actions may be required in accordance with IAC 567-113.10(9)"e"(3) to complete the remedy.

AMD Monitoring

No SSLs were measured for the organic parameters and sulfide in monitoring wells MW-39R, MW-40, 04-MW-56, MW-58, MW-59, MW-63R, MW-64, and MW-65 during this reporting period. Apparent impact from acid mine drainage (AMD) conditions remained during this reporting period. The majority of trends for AMD indicator parameters were calculated to be stable, although there were also nine statistically significant decreasing trends and eight statistically significant increasing trends.

Source Characterization Monitoring

Trending in the source wells indicated nine statistically significant decreasing trends and one statistically significant increasing trend. Overall, 68% of the analyzed trends were decreasing.

Corrective Action

Corrective action wells showed no clear trending for metal parameters, while VOC detections were largely infrequent. Monitoring well MW-74 had the most GWPS exceedances for VOCs.

7.2 Proposed Monitoring

Anticipated groundwater sampling for the 2024 reporting period is shown in Table 2 of the attached Tables section.

Monitoring well MW-81 will likely be placed into the assessment monitoring program during the upcoming reporting period upon DNR approval. However, this is not reflected in Table 2.

7.3 Proposed Monitoring Well Changes

There are no proposed changes to the monitoring well network at this time.

Tables

Table 1
Monitoring Program Summary Table
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Monitoring Well	Formation[1]	Current Monitoring Program (Fall 2023)	Change for next sampling event	Constituents with SSIs during the 2023 Reporting Period	Constituents with SSLs	Total # of Samples in each monitoring program		
						Detection inorganic #/organic #	Assessment inorganic #/organic #	Corrective Action inorganic #/organic #
Detection Monitoring Wells								
MW-53	Shale	Background	No change	None	Not applicable	13/15	-	-
91-MW-14	Clayey silt, shale	Detection	No change	None	Not applicable	13/28	-	-
GU-6	Not applicable	Detection	No change	None	Not applicable	8/8	-	-
GU-7	Not applicable	Detection	No change	None	Not applicable	7/7	-	-
Assessment Monitoring Wells								
91-MW-32	Clayey silt, clayey silty sand	Assessment	No change	Arsenic, barium, cobalt, nickel	None	-	13/29	-
MW-62	Sandy clay	Assessment	No change	Barium	None	-	13/26	-
Attenuation Zone Point of Compliance (AZPOC)/Corrective Action Monitoring Well								
MW-81 (AZPOC)	Sand	Remedy Evaluation	No change	Barium, cis-1,2-dichloroethene	None		7/7	-
Acid Mine Drainage Monitoring Wells								
MW-39R	Sandy silty clay, shale	AMD Detection	No change	None	None	-	17/35	-
MW-40	Sandy silty clay, shale	AMD Detection	No change	Benzene, cis-1,2-dichloroethene	None	-	17/35	-
04-MW-56	Sandy lean clay	AMD Detection	No change	None	None	-	19/36	-
MW-58	Sandy silty clay, shale	AMD Detection	No change	None	None	-	17/34	-
MW-59	Sandy clay with sand and gravel seams	AMD Detection	No change	None	None	-	13/29	-
MW-63R	Shale	AMD Detection	No change	None	None	-	19/31	-
MW-64	Weathered shale	AMD Detection	No change	None	None	-	13/26	-
MW-65	Silty sandy clay, clayey sand	AMD Detection	No change	Benzene, chloroethane	None	-	16/34	-
Source Wells								
93-MW-31R	Sand	Source Characterization	No change	Not applicable	Not applicable	-	-	36/36
MW-61R	Sandy silty clay, silty sand	Source Characterization	No change	Not applicable	Not applicable	-	-	13/27
MW-73	Clayey sand, sandy clay	Source Characterization	No change	Not applicable	Not applicable	-	-	9/9
MW-79	Sandy silty clay, shale	Source Characterization	No change	Not applicable	Not applicable	-	-	9/9
Corrective Action Monitoring Wells								
MW-66	Sandy silty clay	Corrective Action						
MW-67	Clayey sand, sand	Corrective Action						
MW-68	Clayey sand, sand	Corrective Action						
MW-71	Clayey sand, silty sand, sand	Corrective Action						
MW-74	Clayey sand, sand	Corrective Action						
MW-75	Clayey sand, shale and sand	Corrective Action						
MW-78	Sandy silty clay, sand, sandy clay, shale	Corrective Action						
MW-80	Clayey sand, sandy clay, sand	Corrective Action						

Table 1
Monitoring Program Summary Table
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Monitoring Well	Formation[1]	Current Monitoring Program (Fall 2023)	Change for next sampling event	Constituents with SSIs during the 2023 Reporting Period	Constituents with SSLs	Total # of Samples in each monitoring program		
						Detection inorganic #/organic #	Assessment inorganic #/organic #	Corrective Action inorganic #/organic #
Other monitoring points								
GWP-1	Not applicable	Groundwater/Waste Separation						
GWP-2	Not applicable	Groundwater/Waste Separation						
GWP-3	Not applicable	Groundwater/Waste Separation						
91-MW-6	Shale, sandstone	Water Level						
91-MW-7	Shale	Water Level						
MW-37	Unknown	Water Level						
91-MW-25	Unknown	Water Level						

(1) Obtained from screened interval on boring logs.

Notes:
SSI = Statistically Significant Increase above background
SSL = Statistically Significant Level above groundwater protection standard
AZPOC = Attenuation Zone Point of Compliance

Comments:

1) As directed in Iowa DNR correspondence dated April 28, 2017 (Doc #89288), this report was prepared with non-low-flow inorganic data removed from statistical consideration. Samples collected since the beginning of low-flow sampling (which began with the August 2015 semi-annual sampling event) were used for analysis beginning with the 2nd 2017 semi-annual statistical evaluation.

2) The "Total # of Samples in each monitoring program" column represents inorganic samples collected since the initiation of low-flow sampling and the total samples collected for organic parameters. The samples are listed under the monitoring program of the monitoring point as of the end of this reporting period.

Table 2
Monitoring Program Implementation Schedule
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Monitoring Point	Recent Sampling Dates and Constituents				Full Appendix II Sample Dates	
	February 21-23, 2023 (1st 2023 Semi-Annual)	July 25-26 (2nd 2023 Semi-Annual)	1st 2024 Semi-Annual	2nd 2024 Semi-Annual	Previously Collected	Next Event
Detection Monitoring Points						
MW-53		Appendix I, TSS	Appendix I, TSS		Not applicable	Not applicable
91-MW-14	Appendix I metals list, TSS		Appendix I metals list, TSS		Not applicable	Not applicable
GU-6	Not sampled (dry)	Not sampled (dry)	Appendix I, TSS	Appendix I, TSS	Not applicable	Not applicable
GU-7	Not sampled (dry)	Not sampled (dry)	Appendix I, TSS	Appendix I, TSS	Not applicable	Not applicable
Assessment Monitoring Wells						
93-MW-32	Appendix II, TSS		Appendix I metals list, TSS		5/29/2012, 8/19/2013, 3/5/2018, 2/22/2023	2028
MW-62	Appendix I metals list, TSS		Appendix II, TSS		8/19/2013, 8/21/2014, 4/2/2019	2024
MW-81	Appendix I, TSS	Appendix II, TSS	Appendix I, TSS	Appendix I, TSS	10/31/2022, 7/26/2023	2028
Acid-Mine Drainage Monitoring Wells						
MW-39R	Appendix II, TSS, AMD	Appendix I, TSS, Sulfide, 2-Methylphthalene	Appendix I, TSS, Sulfide, AMD	Appendix I, TSS, Sulfide	5/29/2012, 8/19/2013, 3/6/2018, 2/22/2023	2028
MW-40	Appendix I, TSS, AMD	Appendix I, TSS	Appendix I, TSS, AMD	Appendix I, TSS	8/27/2009, 10/14/2010, 2/24/2011, 1/9/2017, 4/7/2021	2026
04-MW-56	Appendix II, TSS, AMD	Appendix I, TSS, 2-Methylphthalene	Appendix I metals list, TSS, AMD	Appendix I metals list, TSS	5/29/2012, 8/19/2013, 3/5/2018, 2/22/2023	2028
MW-58	Appendix II, TSS, AMD	Appendix I, TSS, 2-Methylphthalene	Appendix I, TSS, AMD	Appendix I, TSS	5/29/2012, 8/19/2013, 6/6/2018, 2/21/2023	2028
MW-59	Appendix I metals list, TSS, Sulfide, AMD		Appendix I metals list, TSS, Sulfide, AMD		12/21/2009, 10/14/2010, 2/24/2011, 1/9/2017, 4/7/2021	2026
MW-63R	Appendix I, TSS, Sulfide, AMD	Appendix I, TSS, Sulfide	Appendix I, TSS, Sulfide, AMD	Appendix I, TSS, Sulfide	2/6/2020, 4/7/2021	2026
MW-64	Appendix I metals list, TSS, AMD		Appendix I metals list, TSS, AMD		8/27/2009, 10/13/2011, 1/9/2017, 4/6/2021	2026
MW-65	Appendix II, TSS, AMD	Appendix I metals list, TSS, Appendix I VOCs, 2-Methylphthalene	Appendix I, TSS, Sulfide, AMD	Appendix I metals list, TSS, Appendix I VOCs, Sulfide	5/29/2012, 8/19/2013, 3/6/2018, 2/21/2023	2028
Source Monitoring Wells						
93-MW-31R	Appendix I, TSS, Natural Attenuation	Appendix I, TSS	Appendix I, TSS, Natural Attenuation	Appendix I, TSS	8/27/2009, 10/14/2010, 10/13/2011, 1/9/2017	Not applicable
MW-61R	Appendix I, TSS, Endosulfan I, Natural Attenuation	Appendix I, TSS, Endosulfan I	Appendix I, TSS, Endosulfan I*, Natural Attenuation	Appendix I, TSS, Endosulfan I*	8/27/2009, 10/14/2010, 2/24/2011, 10/22/2018	Not applicable
MW-73	Not sampled (insufficient water)	Not sampled (insufficient water)	Appendix I, TSS, Natural Attenuation	Appendix I, TSS	Not applicable	Not applicable
MW-79	Appendix I, TSS, Natural Attenuation	Appendix I, TSS	Appendix I, TSS, Natural Attenuation	Appendix I, TSS	Not applicable	Not applicable

Table 2
Monitoring Program Implementation Schedule
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Monitoring Point	Recent Sampling Dates and Constituents				Full Appendix II Sample Dates	
	February 21-23, 2023 (1st 2023 Semi-Annual)	July 25-26 (2nd 2023 Semi-Annual)	1st 2024 Semi-Annual	2nd 2024 Semi-Annual	Previously Collected	Next Event
Corrective Action Monitoring Wells						
MW-66	Arsenic, cobalt, TSS		Arsenic, cobalt, TSS		Not applicable	Not applicable
MW-67	Not sampled (insufficient water)	Not sampled (insufficient water)	Arsenic, cobalt, TSS, PCE	Arsenic, cobalt, TSS, PCE	Not applicable	Not applicable
MW-68	Arsenic, cobalt, TSS		Arsenic, cobalt, TSS		Not applicable	Not applicable
MW-71	Arsenic, cobalt, TSS, cis-1,2-DCE, TCE	Not sampled (insufficient water)	Arsenic, cobalt, TSS, cis-1,2-DCE, TCE	Arsenic, cobalt, TSS, cis-1,2-DCE, TCE	Not applicable	Not applicable
MW-74	Arsenic, cobalt, TSS, benzene, cis-1,2-DCE, PCE, TCE, vinyl chloride	Not sampled (insufficient water)	Arsenic, cobalt, TSS, benzene, cis-1,2-DCE, PCE, TCE, vinyl chloride	Arsenic, cobalt, TSS, benzene, cis-1,2-DCE, PCE, TCE, vinyl chloride	Not applicable	Not applicable
MW-75	Benzene, cis-1,2-DCE, PCE, TCE, vinyl chloride		Benzene, cis-1,2-DCE, PCE, TCE, vinyl chloride		Not applicable	Not applicable
MW-78	Cobalt, TSS, cis-1,2-DCE, TCE, PCE, vinyl chloride	Cobalt, TSS, cis-1,2-DCE, TCE, PCE, vinyl chloride	Cobalt, TSS, cis-1,2-DCE, TCE, PCE, vinyl chloride	Cobalt, TSS, cis-1,2-DCE, TCE, PCE, vinyl chloride	Not applicable	Not applicable
MW-80	cis-1,2-DCE, vinyl chloride	Not sampled (insufficient water)	cis-1,2-DCE, vinyl chloride	cis-1,2-DCE, vinyl chloride	Not applicable	Not applicable

TSS - Total Suspended Solids.
Appendix I metals list includes arsenic, barium, cadmium, copper, cobalt, lead, nickel, and zinc.
Natural Attenuation includes total organic carbon, nitrate, total iron, total manganese, and sulfate.
AMD - Acid Mine Drainage includes total alkalinity, total iron, total manganese, sulfate, and total aluminum.
* - A request to discontinue sampling for Endosulfan I in monitoring well MW-61R is included in Section ES.2, Report Priority.
cis-1,2-DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
PCE - Tetrachloroethene (perchloroethene)

Table 3
Monitoring Well Maintenance and Performance Re-Evaluation Schedule
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Compliance with:	2021	2022	2023	2024	2025
567 IAC 113.10(2)"f"(1) high and low water levels	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(2) changes in the hydrologic setting and flow paths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(3) well depths	Completed	Completed	Included	Scheduled	Scheduled
567 IAC 113.10(2)"f"(4) well recharge rates and chemistry		Completed		Scheduled	
Waste separation from ground water 113.6(2)i	Completed	Completed	See Table 4	Scheduled	Scheduled

Table 4
Monitoring Well Performance and Maintenance Summary
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Well	Top of casing	Top of Screen	Total Depth		Date of Measurements		Maximum Depth Discrepancy (ft)
					2/2023	7/2023	
MW-53	702.55	684.7	25.4	Groundwater Level (ft)	Not sampled	12.19	-3.3
				Groundwater Elevation (Ft MSL)	NA	690.36	
				Measured Well Depth (ft)	NA	28.7	
				Submerged screen	NA	Y	
MW-91-14	688.64	678.8	19.3	Groundwater Level (ft)	2.15	Not sampled	-0.7
				Groundwater Elevation (Ft MSL)	686.49	NA	
				Measured Well Depth (ft)	20.0	NA	
				Submerged screen	Y	NA	
93-MW-31R	726.26	679.7	57.2	Groundwater Level (ft)	47.90	47.89	NA
				Groundwater Elevation (Ft MSL)	678.36	678.37	
				Measured Well Depth (ft)	NM	NM	
				Submerged screen	N	N	
93-MW-32	690.56	677.5	23.0	Groundwater Level (ft)	11.32	Not sampled	3.0
				Groundwater Elevation (Ft MSL)	679.24	NA	
				Measured Well Depth (ft)	20.0	NA	
				Submerged screen	Y	NA	
MW-39R	733.81	721.3	22.5	Groundwater Level (ft)	16.19	17.25	0.2
				Groundwater Elevation (Ft MSL)	717.62	716.56	
				Measured Well Depth (ft)	22.3	22.3	
				Submerged screen	N	N	
MW-40	728.76	712.8	26.4	Groundwater Level (ft)	16.14	18.72	-0.1
				Groundwater Elevation (Ft MSL)	712.62	710.04	
				Measured Well Depth (ft)	26.5	26.5	
				Submerged screen	N	N	
04-MW-56	691.00	683.5	17.5	Groundwater Level (ft)	10.64	12.50	-0.2
				Groundwater Elevation (Ft MSL)	680.36	678.50	
				Measured Well Depth (ft)	17.7	17.7	
				Submerged screen	N	N	
MW-58	702.61	692.3	20.3	Groundwater Level (ft)	5.89	11.63	2.7
				Groundwater Elevation (Ft MSL)	696.72	690.98	
				Measured Well Depth (ft)	17.6	17.6	
				Submerged screen	Y	N	
MW-59	699.36	689.0	20.4	Groundwater Level (ft)	7.13	Not sampled	3.0
				Groundwater Elevation (Ft MSL)	692.23	NA	
				Measured Well Depth (ft)	17.4	NA	
				Submerged screen	Y	NA	
MW-61R	710.05	683.0	41.5	Groundwater Level (ft)	31.03	30.84	NA
				Groundwater Elevation (Ft MSL)	679.02	679.21	
				Measured Well Depth (ft)	NM	NM	
				Submerged screen	N	N	
MW-62	747.29	732.4	24.9	Groundwater Level (ft)	2.34	Not sampled	-0.3
				Groundwater Elevation (Ft MSL)	744.95	NA	
				Measured Well Depth (ft)	25.2	NA	
				Submerged screen	Y	NA	
MW-63R	735.06	717.1	27.8	Groundwater Level (ft)	11.81	13.15	-0.3
				Groundwater Elevation (Ft MSL)	723.25	721.91	
				Measured Well Depth (ft)	28.0	28.1	
				Submerged screen	Y	Y	
MW-64	697.76	669.8	43.0	Groundwater Level (ft)	14.67	Not sampled	1.4
				Groundwater Elevation (Ft MSL)	683.09	NA	
				Measured Well Depth (ft)	41.6	NA	
				Submerged screen	Y	NA	
MW-65	698.09	678.2	17.9	Groundwater Level (ft)	8.24	10.33	-3.9
				Groundwater Elevation (Ft MSL)	689.85	687.76	
				Measured Well Depth (ft)	21.8	21.0	
				Submerged screen	Y	Y	
MW-73	729.57	687.7	51.9	Groundwater Level (ft)	Not sampled	Not sampled	NA
				Groundwater Elevation (Ft MSL)	NA	NA	
				Measured Well Depth (ft)	NA	NA	
				Submerged screen	NA	NA	
MW-79	737.22	689.0	63.2	Groundwater Level (ft)	36.54	36.42	NA
				Groundwater Elevation (Ft MSL)	700.68	700.80	
				Measured Well Depth (ft)	NM	NM	
				Submerged screen	Y	Y	
MW-81	699.60	679.3	35.3	Groundwater Level (ft)	22.14	22.45	2.0
				Groundwater Elevation (Ft MSL)	677.46	677.15	
				Measured Well Depth (ft)	33.3	33.3	
				Submerged screen	N	N	

Notes:
1) Well depths are measured every 5 years for wells with dedicated sampling pumps. The next measurement for monitoring wells 93-MW-31R, MW-61R, and MW-73 will occur in 2025.
NM: Not measured. Monitoring well depth is measured every five years.
NA: Not Available.
Comments:
1) The monitoring wells generally produced samples during this reporting period, although the drought did result in some dry wells. However, it appears unlikely siltation is affecting the ability of the wells to consistently produce samples.

Table 4
Monitoring Well Performance and Maintenance Summary
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Groundwater/Waste Separation

Well		Date of Measurements	
		2/2023	7/2023
GWP - 1	Bottom of waste (feet MSL)	737.45	
	Groundwater Elevation (feet MSL)	Dry	Dry
	Separation distance compliant?	Yes	Yes
GWP-2	Bottom of waste (feet MSL)	738.88	
	Groundwater Elevation (feet MSL)	Dry	Dry
	Separation distance compliant?	Yes	Yes
GWP-3	Bottom of waste (feet MSL)	738.88	
	Groundwater Elevation (feet MSL)	Dry	Dry
	Separation distance compliant?	Yes	Yes

The groundwater piezometers being dry during this reporting period indicated the required separation distance was maintained.

Table 5
Background and GWPS Summary Tables
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Interwell Background/GWPS (MW-53/MW-54)

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	22	3	0.000184*	0.00256	0.00071	0.00256	PL (NP)	0.006	MCL
Arsenic (As)	mg/L	22	4	0.000455*	0.00208	0.00100	0.00208	PL (NP)	0.01	MCL
Barium (Ba)	mg/L	22	22	0.01120	0.02920	0.02011	0.02920	PL (NP)	2	MCL
Beryllium (Be)	mg/L	22	3	0.000167*	0.000864*	0.00049	0.00086	PL (NP)	0.004	MCL
Cadmium (Cd)	mg/L	22	13	0.000042*	0.00100	0.00025	0.00092	PL (P)	0.005	MCL
Chromium (Cr)	mg/L	22	1	0.0025 (1/2 RL)	0.00339*	0.00254	0.00339	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	22	20	0.000046*	0.01200	0.00238	0.01671	PL (P)	0.01671	SSS
Copper (Cu)	mg/L	22	7	0.000562*	0.00837	0.00257	0.00837	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	22	6	0.000218*	0.00232	0.00050	0.00232	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	22	20	0.00175*	0.03200	0.00770	0.03161	PL (P)	0.1	SWS
Selenium (Se)	mg/L	22	2	0.000985*	0.0044*	0.00240	0.00440	PL (NP)	0.05	MCL
Silver (Ag)	mg/L	22	3	0.000207*	0.000958*	0.00047	0.00096	PL (NP)	0.1	SWS
Thallium (Tl)	mg/L	22	1	0.0005 (1/2 RL)	0.00278	0.00065	0.00278	PL (NP)	0.00278	SSS
Vanadium (V)	mg/L	22	1	0.000637*	0.0025 (1/2 RL)	0.00242	0.00250	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	22	3	0.005 (1/2 RL)	0.03770	0.00971	0.03770	PL (NP)	2	SWS

Intrawell Background/GWPS (GU-6)

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	5	2	0.0005 (1/2 RL)	0.00245	0.00129	0.00245	PL (NP)	0.006	MCL
Arsenic (As)	mg/L	5	4	0.001 (1/2 RL)	0.00670	0.00292	0.01740	PL (P)	0.0174	MCL
Barium (Ba)	mg/L	5	5	0.03490	0.14800	0.07720	0.46020	PL (P)	2	MCL
Beryllium (Be)	mg/L	5	2	0.00036	0.00156	0.00068	0.00156	PL (NP)	0.004	MCL
Cadmium (Cd)	mg/L	5	5	0.00015	0.00081	0.00042	0.00241	PL (P)	0.005	MCL
Chromium (Cr)	mg/L	5	2	0.0025 (1/2 RL)	0.01400	0.00607	0.01400	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	5	5	0.00200	0.01270	0.00796	0.04450	PL (P)	0.0445	SSS
Copper (Cu)	mg/L	5	3	0.0025 (1/2 RL)	0.01140	0.00526	0.02645	PL (P)	1.3	MCL
Lead (Pb)	mg/L	5	4	0.00015	0.00498	0.00210	0.01613	PL (P)	0.01613	MCL
Nickel (Ni)	mg/L	5	5	0.02960	0.08090	0.05296	0.21270	PL (P)	0.2127	SWS
Selenium (Se)	mg/L	5	5	0.00308	0.00754	0.00444	0.01809	PL (P)	0.05	MCL
Silver (Ag)	mg/L	5	1	0.0005 (1/2 RL)	0.00101	0.00060	0.00101	PL (NP)	0.1	SWS
Thallium (Tl)	mg/L	5	1	0.0005 (1/2 RL)	0.00306	0.00101	0.00306	PL (NP)	0.00306	MCL
Vanadium (V)	mg/L	5	3	0.0025 (1/2 RL)	0.02230	0.00875	0.06580	PL (P)	0.0658	SWS
Zinc (Zn)	mg/L	5	5	0.02200	0.06980	0.04784	0.19110	PL (P)	2	SWS

Intrawell Background/GWPS (GU-7)

Constituent	Units	Samples	Detections	Min	Max	Mean	Background Level	Statistical Test	GWPS	Source
Antimony (Sb)	mg/L	5	1	0.0005 (1/2 RL)	0.00211	0.00102	0.00211	PL (NP)	0.006	MCL
Arsenic (As)	mg/L	5	5	0.00085	0.00424	0.00228	0.01315	PL (P)	0.01315	MCL
Barium (Ba)	mg/L	5	5	0.01350	0.03340	0.02200	0.08479	PL (P)	2	MCL
Beryllium (Be)	mg/L	5	1	0.0005 (1/2 RL)	0.00108	0.00062	0.00108	PL (NP)	0.004	MCL
Cadmium (Cd)	mg/L	5	2	0.00005 (1/2 RL)	0.00075	0.00028	0.00075	PL (NP)	0.005	MCL
Chromium (Cr)	mg/L	5	1	0.00135	0.0025 (1/2 RL)	0.00227	0.00250	PL (NP)	0.1	MCL
Cobalt (Co)	mg/L	5	5	0.02340	0.24700	0.08554	0.76220	PL (P)	0.7622	SSS
Copper (Cu)	mg/L	5	1	0.00219	0.0025 (1/2 RL)	0.00244	0.00250	PL (NP)	1.3	MCL
Lead (Pb)	mg/L	5	1	0.00018	0.00025 (1/2 RL)	0.00024	0.00025	PL (NP)	0.015	MCL
Nickel (Ni)	mg/L	5	5	0.06720	0.48300	0.17226	0.48300	PL (NP)	0.483	SWS
Selenium (Se)	mg/L	5	1	0.0025 (1/2 RL)	0.00671	0.00384	0.00671	PL (NP)	0.05	MCL
Silver (Ag)	mg/L	5	1	0.0005 (1/2 RL)	0.00111	0.00072	0.00111	PL (NP)	0.1	SWS
Thallium (Tl)	mg/L	5	1	0.0005 (1/2 RL)	0.00302	0.00100	0.00302	PL (NP)	0.00302	MCL
Vanadium (V)	mg/L	5	1	0.00150	0.005 (1/2 RL)	0.00280	0.00500	PL (NP)	0.035	SWS
Zinc (Zn)	mg/L	5	3	0.01 (1/2 RL)	0.25700	0.06170	0.25700	PL (NP)	2	SWS

Notes:
Background levels based on calculated prediction limits or the reporting limit, as applicable. Table information based on the 2nd 2023 statistical evaluation.

Acronyms/Abbreviations:
RL = Reporting Limit
GWPS = Groundwater Protection Standard
DQR = Double Quantification Rule
SSS = Site-Specific GWPS
SWS = Statewide Standard
PL = Prediction Limit
MCL = EPA Maximum Contaminant Level
NP = Non-Parametric
P = Parametric

1) Water quality results and effectiveness of the statistical data evaluation criteria: Statistical evaluations consist of prediction limits, double quantification rule, and confidence intervals/confidence bands, as appropriate. Data from the background wells is not used for development of the confidence intervals or confidence bands.

2) Changes to the previous statistical method during reporting period: There were no changes to the statistical method during this reporting period.

3) Justification for data exclusion: Inorganic data collected prior to the implementation of low-flow sampling in August 2015 was excluded from statistical consideration beginning with the 2nd 2017 statistical evaluation.

Table 6
Summary of Well/Detected Constituent Pairs With No Previous SSIs
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Well	Constituent	Units	Most recent result	Background Standard
93-MW-32	Cobalt	mg/L	0.0402	0.01671
	Nickel	mg/L	0.0451	0.03161
MW-81	Barium	mg/L	0.0668	0.0292
	cis-1,2-Dichloroethene	µg/L	0.675*	<1

Comments:

* J flag - Concentration is below the reporting limit but above the method detection limit; the concentration is estimated.

This table represents constituent/well pairs with indicated SSIs during the 2023 reporting period that did not have indicated SSIs during the 2022 reporting period.

1) Problems with the current detection network: None.

2) Schedule to implement remedies: Not applicable - completed.

3) Alternative constituent or sample frequency changes: The corrective action groundwater monitoring program (CAMP) was approved in the permit renewal dated January 15, 2021 (Doc #99596). The CAMP specified alternative constituent lists and sampling frequencies.

4) Significant changes to calculated prediction limits: None.

5) Resampling strategy: Retesting is performed on a 1-of-2 retesting scheme.

6) Data exclusion justification: Inorganic data collected prior to the implementation of low-flow

Table 7
Summary Table of Ongoing and Newly Identified SSIs
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

							Sample Dates		
Well	**Constituent**	**Units**	**Most Recent Result**	**Background Standard**	**Lower Confidence Limit**	**GWPS**	**Initial Exceedance**	**Resample(s)**	**5th Background Sample**
93-MW-32	Arsenic	mg/L	0.00886	0.00208	0.001694	0.01	2/21/2023	NA	12/16/2008
	Barium	mg/L	0.136	0.02920	0.05437	2	2/21/2023	NA	12/16/2008
	Cobalt	mg/L	0.0402	0.01671	-0.01468	0.01671	2/21/2023	NA	12/16/2008
	Nickel	mg/L	0.0451	0.03161	0.0163	0.1	2/21/2023	NA	12/16/2008
MW-62	Barium	mg/L	0.0305	0.02920	0.02981	2	2/21/2023	NA	12/16/2008
MW-81	Barium	mg/L	0.0668	0.0292	0.0575	2	2/21/2023	NA	10/31/2022
	cis-1,2-Dichloroethene	µg/L	0.675*	<1	0.3343	70	2/21/2023	NA	10/31/2022
MW-40	Benzene	µg/L	1.09	<0.5	0.7699	5	8/27/2009	NA	12/16/2008
	cis-1,2-Dichloroethene	µg/L	7.99	<1	3.078	70	8/27/2009	NA	12/16/2008
MW-65	Benzene	µg/L	1.06	<0.5	0.5838	5	8/8/2012	NA	12/16/2008
	Chloroethane	µg/L	5.07	<4	2.064	2800	3/8/2022	NA	12/16/2008

Shaded rows denote constituent/well pairs with SSIs indicated in 2023 but not in 2022. Unshaded rows denote constituent/well pairs with SSIs indicated during both the 2022 and 2023 reporting periods.

* J flag - Concentration is below the reporting limit but above the method detection limit; the concentration is estimated.

NA - Not applicable. Retesting is not applicable to monitoring wells in this monitoring program.

1) Problems with the current assessment network: None.

2) Proposed remedies: Not applicable - completed.

3) Approved alternative constituent or sample frequency changes: Alternative constituents and frequencies are summarized in Table 2 (Doc #98166).

4) Plume delineation strategies: Impact delineation monitoring wells are shown on Figure 1.

5) Property owner notifications: Property owners west of 165th Avenue across from the West MSWLF unit were notified in October 2013 and May 2020 of detected chlorinated VOCs adjacent to their properties.

Table 8
Summary Table of Ongoing and Newly Identified SSLs
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Well	Constituent	Units	Most recent result	Upper Confidence Limit	GWPS	Initial Exceedance	Upper Confidence Limit Below GWPS					
							1st Year		2nd Year		3rd Year	
None												

Notes:

Previous SSLs in monitoring wells 93-MW-31R, MW-61R, MW-73, and MW-79 are no longer present as these source wells have been replaced in the HMSP by attenuation zone point of compliance monitoring well MW-81.

Table 9
Summary of Groundwater Chemistry
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

The Summary of Groundwater Chemistry for the HMSP monitoring wells is located in Appendix C-1.

The Summary of Groundwater Chemistry for the source monitoring wells is located in Appendix C-2.

The Summary of Groundwater Chemistry for the corrective action monitoring wells is located in Appendix C-3.

The Summary of Groundwater Chemistry for acid mine drainage parameters is located in Appendix C-4.

Table 10
Historical SSI and SSL
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Key
SSI - Statistically Significant Increase above background
SSL - Statistically Significant Level above groundwater protection standards

Well	Constituent	Spring 2018	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023
Detection Monitoring Points													
91-MW-14	None												
GU-6	None												
GU-7	Benzene												
	cis-1,2-Dichloroethene												
Assessment Monitoring Wells													
93-MW-32	2-Butanone												
	Acetone												
	Toluene												
MW-62	None												
Acid Mine Drainage Monitoring Wells													
MW-39R	Cobalt												
MW-40	Cobalt												
	1,1-Dichloroethane												
	Benzene												
	cis-1,2-Dichloroethene												
	Vinyl Chloride												
04-MW-56	Cobalt												
MW-58	None												
MW-59	1,1-Dichloroethane												
	Acetone												
	Benzene												
MW-63R	Cadmium												
	Cobalt												
	Nickel												
	Zinc												
MW-64	1,1-Dichloroethane												
MW-65	Arsenic												
	1,1-Dichloroethane												
	Benzene												
	Chloroethane												
	cis-1,2-Dichloroethene												
AZPOC Monitoring Well													
MW-81	cis-1,2-Dichloroethene												
	Tetrachloroethene												
Source Characterization Monitoring Wells													
93-MW-31R	Arsenic												
MW-61R	Cobalt												
	Benzene												
	cis-1,2-Dichloroethene												
	Methylene Chloride												
	Tetrachloroethene												
	Trichloroethene												
	Vinyl Chloride												
MW-73	Cobalt												
	Tetrachloroethene												
	Trichloroethene												
	Vinyl Chloride												
MW-79	Vinyl Chloride												

Comments:
SSIs for inorganic parameters that are not confirmed are not included in this table. See Table 7 for indicated, not confirmed SSIs that were measured during this reporting period.

A detected organic parameter is considered an SSI for the purposes of this table.

Table 11
Corrective Action Trend Analysis
2023 Annual Water Quality Report
West MSWLF Unit
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

Well	Constituent	Trend	Calculated S	Critical S	Total N
Statistically Significant Trends in Source Wells					
MW-61R	Nickel	Increasing	27	21	8
MW-73	1,1-Dichloroethane	Decreasing	-19	-18	7
	Benzene	Decreasing	-26	-21	8
	cis-1,2-Dichloroethene	Decreasing	-26	-21	8
	Nickel	Decreasing	-22	-21	8
	Tetrachloroethene	Decreasing	-24	-21	8
	Trichloroethene	Decreasing	-28	-21	8
	Vinyl Chloride	Decreasing	-22	-21	8
MW-79	Cadmium	Decreasing	-24	-21	8
	cis-1,2-Dichloroethene	Decreasing	-22	-21	8

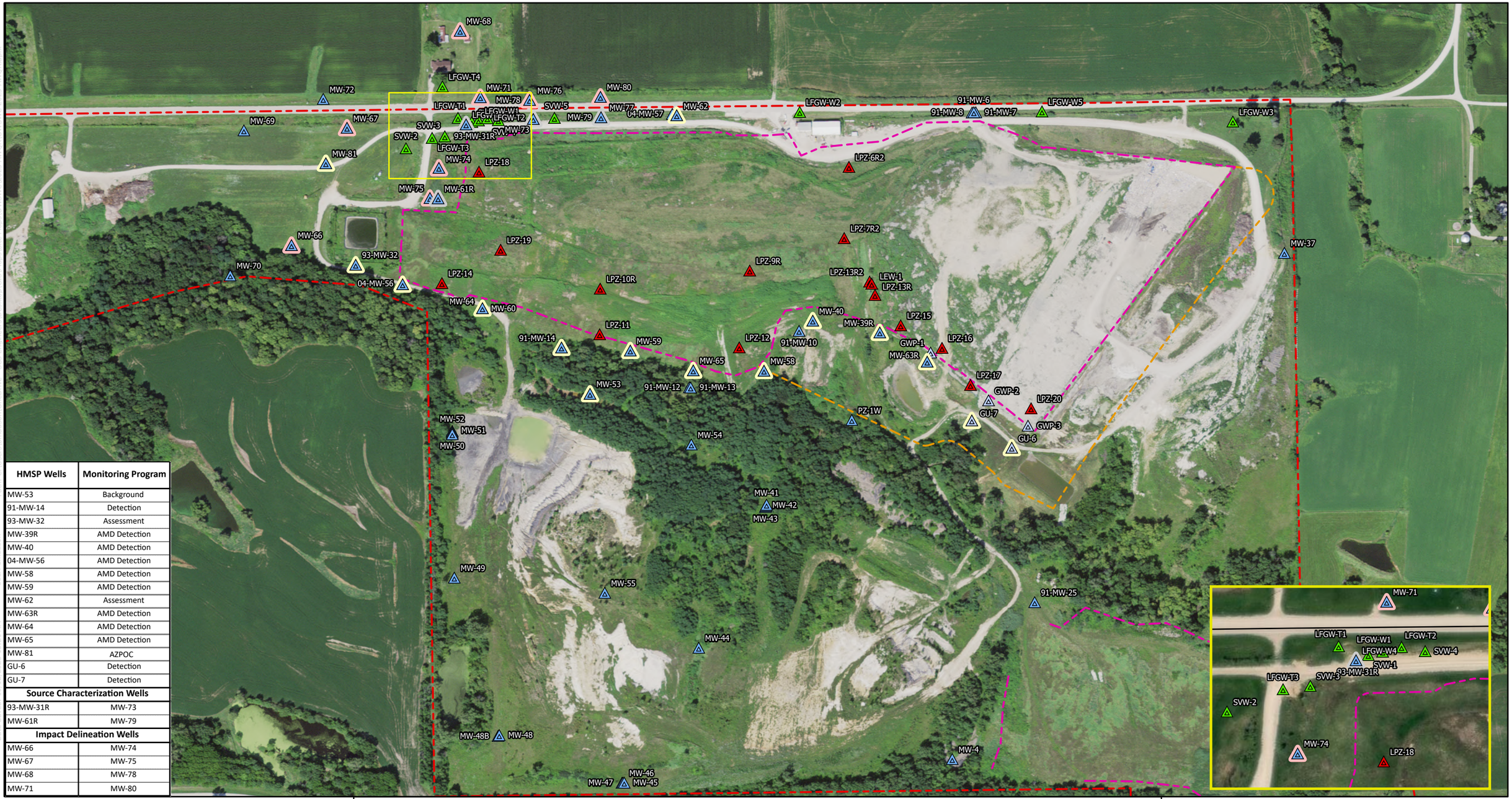
Overall Trends of Detected Appendix I Constituents in Source Wells						
	93-MW-31R	MW-61R	MW-73	MW-79	MW-81	Total
Increasing (S = >0):	3	10	1	3	1	18
Decreasing (S = ≤0):	9	0	14	13	3	39

Over 68% of the trends are stable or decreasing.
A summary table and graphs are included in Appendix K.

Notes:
N - Number of Samples
S - Mann-Kendall Statistic

Comments:
1) The approved remedy is monitored natural attenuation and subsurface gas venting (Doc #98166).
2) A subsurface landfill gas venting system in the southwestern corner of the site is treating organic groundwater impact.

Figures



HMSP Wells	Monitoring Program
MW-53	Background
91-MW-14	Detection
93-MW-32	Assessment
MW-39R	AMD Detection
MW-40	AMD Detection
04-MW-56	AMD Detection
MW-58	AMD Detection
MW-59	AMD Detection
MW-62	Assessment
MW-63R	AMD Detection
MW-64	AMD Detection
MW-65	AMD Detection
MW-81	AZPOC
GU-6	Detection
GU-7	Detection
Source Characterization Wells	
93-MW-31R	MW-73
MW-61R	MW-79
Impact Delineation Wells	
MW-66	MW-74
MW-67	MW-75
MW-68	MW-78
MW-71	MW-80

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Approved Monitoring Network

Figure 1

Legend

- HMSP Monitoring Well
- Corrective Action Monitoring Well
- Source Monitoring Well
- HMSP Groundwater Underdrain
- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Landfill Gas Well
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary

Ottumwa-Wapello County
Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: August 2023

Overview Map Scale

0 80 160 320 Feet

0 287.5 575 1,150 Feet

N S E

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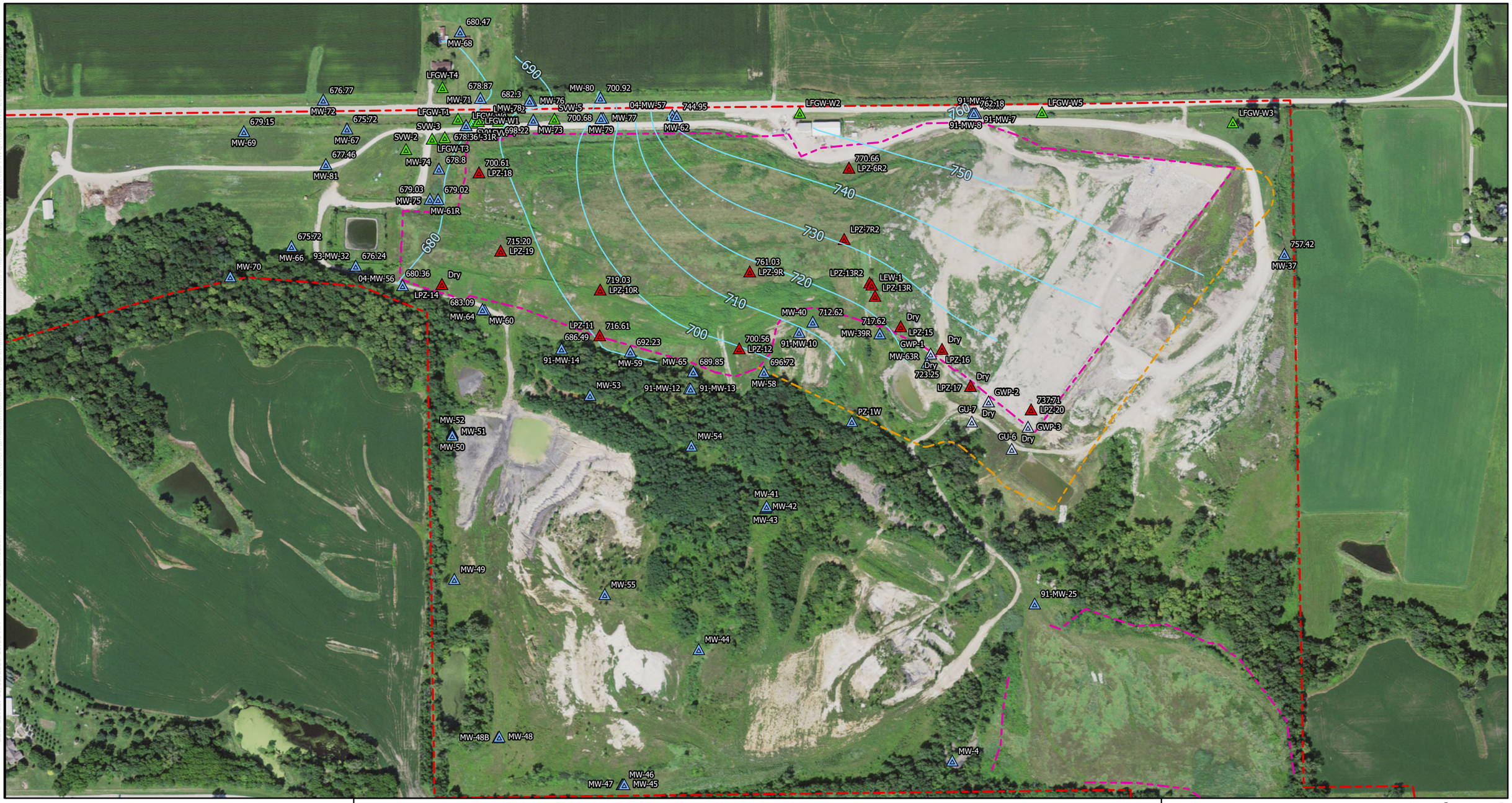

Groundwater Contours

Figure 2

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Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Leachate Monitoring Point
- Approximate Groundwater Contours Based on Measurments Taken February 23, 2023
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: August 2023

W S N E

0 287.5 575 1,150 Feet

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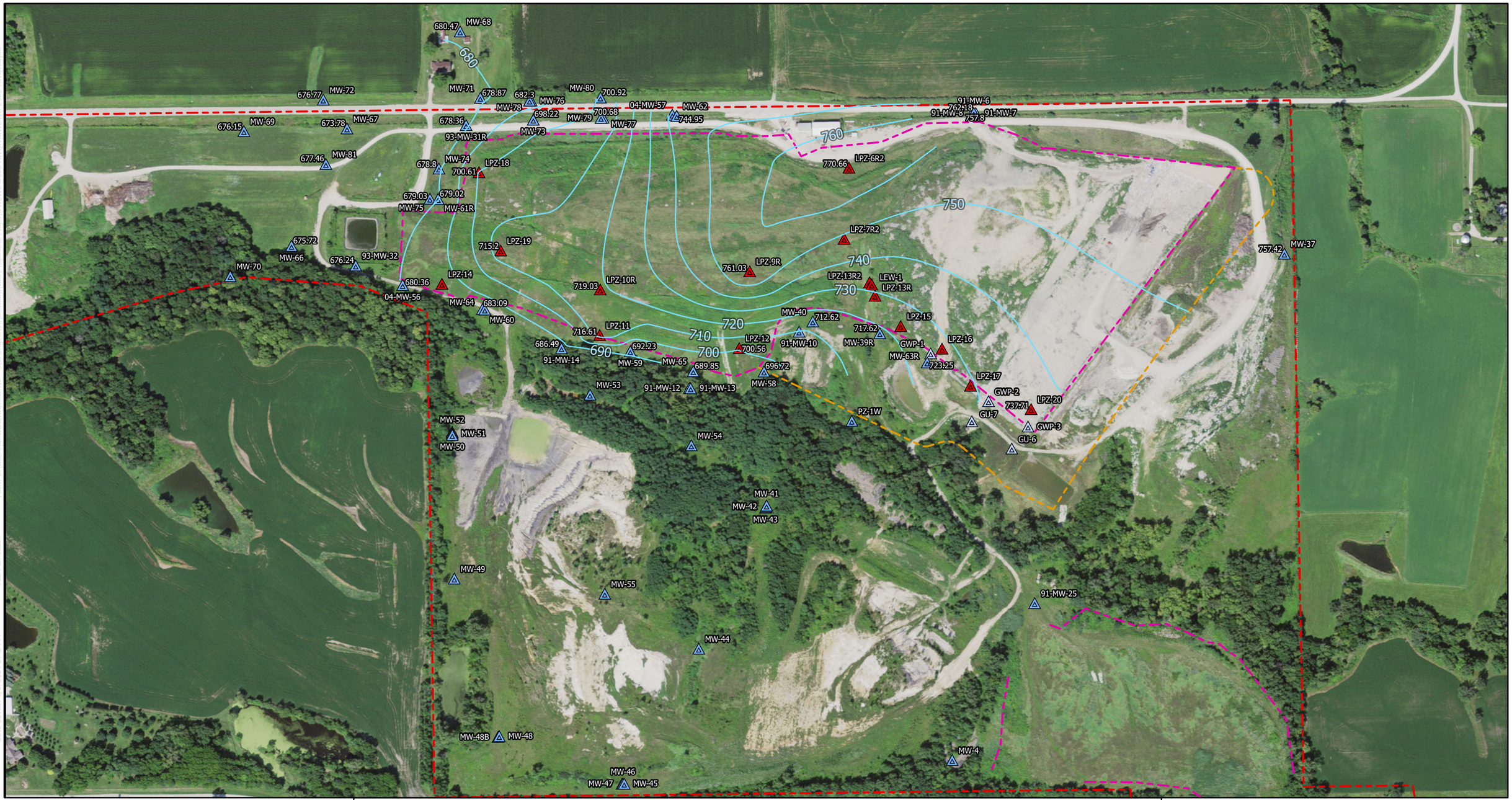

Esri, CGIAR, USGS, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS

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Groundwater and Leachate Contours

Figure 3

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Groundwater/ Leachate Contours Based on Measurments Taken on February 23, 2023 (Groundwater) and March 3, 2023 (Leachate)

Ottumwa-Wapello County
Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: August 2023

N
S
W
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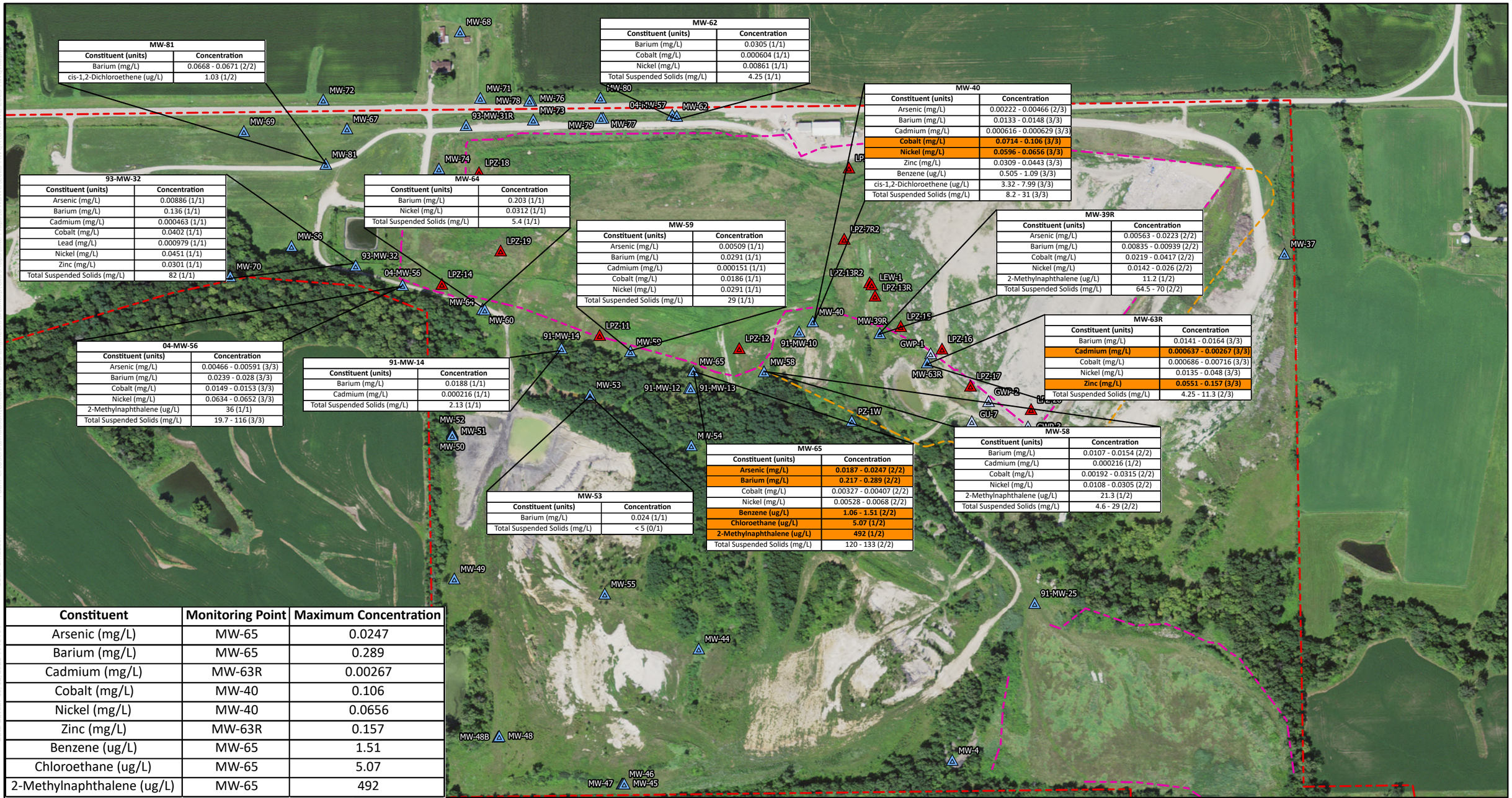
0 287.5 575 1,150 Feet



MW-81

Constituent (units)	Concentration
Barium (mg/L)	0.0668 - 0.0671 (2/2)
cis-1,2-Dichloroethene (ug/L)	1.03 (1/2)

MW-62

Constituent (units)	Concentration
Barium (mg/L)	0.0305 (1/1)
Cobalt (mg/L)	0.000604 (1/1)
Nickel (mg/L)	0.00861 (1/1)
Total Suspended Solids (mg/L)	4.25 (1/1)

MW-40

Constituent (units)	Concentration
Arsenic (mg/L)	0.00222 - 0.00466 (2/3)
Barium (mg/L)	0.0133 - 0.0148 (3/3)
Cadmium (mg/L)	0.000616 - 0.000629 (3/3)
Cobalt (mg/L)	**0.0714 - 0.106 (3/3)**
Nickel (mg/L)	**0.0596 - 0.0656 (3/3)**
Zinc (mg/L)	0.0309 - 0.0443 (3/3)
Benzene (ug/L)	0.505 - 1.09 (3/3)
cis-1,2-Dichloroethene (ug/L)	3.32 - 7.99 (3/3)
Total Suspended Solids (mg/L)	8.2 - 31 (3/3)

93-MW-32

Constituent (units)	Concentration
Arsenic (mg/L)	0.00886 (1/1)
Barium (mg/L)	0.136 (1/1)
Cadmium (mg/L)	0.000463 (1/1)
Cobalt (mg/L)	0.0402 (1/1)
Lead (mg/L)	0.000979 (1/1)
Nickel (mg/L)	0.0451 (1/1)
Zinc (mg/L)	0.0301 (1/1)
Total Suspended Solids (mg/L)	82 (1/1)

MW-64

Constituent (units)	Concentration
Barium (mg/L)	0.203 (1/1)
Nickel (mg/L)	0.0312 (1/1)
Total Suspended Solids (mg/L)	5.4 (1/1)

MW-59

Constituent (units)	Concentration
Arsenic (mg/L)	0.00509 (1/1)
Barium (mg/L)	0.0291 (1/1)
Cadmium (mg/L)	0.000151 (1/1)
Cobalt (mg/L)	0.0186 (1/1)
Nickel (mg/L)	0.0291 (1/1)
Total Suspended Solids (mg/L)	29 (1/1)

MW-39R

Constituent (units)	Concentration
Arsenic (mg/L)	0.00563 - 0.0223 (2/2)
Barium (mg/L)	0.00835 - 0.00939 (2/2)
Cobalt (mg/L)	0.0219 - 0.0417 (2/2)
Nickel (mg/L)	0.0142 - 0.026 (2/2)
2-Methylnaphthalene (ug/L)	11.2 (1/2)
Total Suspended Solids (mg/L)	64.5 - 70 (2/2)

MW-63R

Constituent (units)	Concentration
Barium (mg/L)	0.0141 - 0.0164 (3/3)
Cadmium (mg/L)	**0.000637 - 0.00267 (3/3)**
Cobalt (mg/L)	0.000686 - 0.00716 (3/3)
Nickel (mg/L)	0.0135 - 0.048 (3/3)
Zinc (mg/L)	**0.0551 - 0.157 (3/3)**
Total Suspended Solids (mg/L)	4.25 - 11.3 (2/3)

04-MW-56

Constituent (units)	Concentration
Arsenic (mg/L)	0.00466 - 0.00591 (3/3)
Barium (mg/L)	0.0239 - 0.028 (3/3)
Cobalt (mg/L)	0.0149 - 0.0153 (3/3)
Nickel (mg/L)	0.0634 - 0.0652 (3/3)
2-Methylnaphthalene (ug/L)	36 (1/1)
Total Suspended Solids (mg/L)	19.7 - 116 (3/3)

91-MW-14

Constituent (units)	Concentration
Barium (mg/L)	0.0188 (1/1)
Cadmium (mg/L)	0.000216 (1/1)
Total Suspended Solids (mg/L)	2.13 (1/1)

MW-53

Constituent (units)	Concentration
Barium (mg/L)	0.024 (1/1)
Total Suspended Solids (mg/L)	< 5 (0/1)

MW-65

Constituent (units)	Concentration
Arsenic (mg/L)	**0.0187 - 0.0247 (2/2)**
Barium (mg/L)	**0.217 - 0.289 (2/2)**
Cobalt (mg/L)	0.00327 - 0.00407 (2/2)
Nickel (mg/L)	0.00528 - 0.0068 (2/2)
Benzene (ug/L)	**1.06 - 1.51 (2/2)**
Chloroethane (ug/L)	**5.07 (1/2)**
2-Methylnaphthalene (ug/L)	**492 (1/2)**
Total Suspended Solids (mg/L)	120 - 133 (2/2)

MW-58

Constituent (units)	Concentration
Barium (mg/L)	0.0107 - 0.0154 (2/2)
Cadmium (mg/L)	0.000216 (1/2)
Cobalt (mg/L)	0.00192 - 0.0315 (2/2)
Nickel (mg/L)	0.0108 - 0.0305 (2/2)
2-Methylnaphthalene (ug/L)	21.3 (1/2)
Total Suspended Solids (mg/L)	4.6 - 29 (2/2)

Constituent	Monitoring Point	Maximum Concentration
Arsenic (mg/L)	MW-65	0.0247
Barium (mg/L)	MW-65	0.289
Cadmium (mg/L)	MW-63R	0.00267
Cobalt (mg/L)	MW-40	0.106
Nickel (mg/L)	MW-40	0.0656
Zinc (mg/L)	MW-63R	0.157
Benzene (ug/L)	MW-65	1.51
Chloroethane (ug/L)	MW-65	5.07
2-Methylnaphthalene (ug/L)	MW-65	492

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Reporting Period Detection Summary

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: October 2023

Figure 4

N S E W

0 287.5 575 1,150 Feet

GEODATA, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri, CGIAR, USGS

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MW-71	
Constituent (units)	Concentration
Arsenic (mg/L)	0.00762 (1/1)
Cobalt (mg/L)	0.002 (1/1)
Total Suspended Solids (mg/L)	216 (1/1)

93-MW-31R	
Constituent (units)	Concentration
Arsenic (mg/L)	0.00498 (1/3)
Barium (mg/L)	0.0426 - 0.0606 (3/3)
Cadmium (mg/L)	0.000793 - 0.00094 (3/3)
Cobalt (mg/L)	0.00679 - 0.00738 (3/3)
Nickel (mg/L)	0.0132 - 0.0193 (3/3)
cis-1,2-Dichloroethene (ug/L)	4.84 - 5.88 (3/3)
Total Suspended Solids (mg/L)	8.63 (1/3)

MW-78	
Constituent (units)	Concentration
Cobalt (mg/L)	0.00342 - 0.00559 (2/2)
Tetrachloroethene (ug/L)	1.24 (1/2)
Total Suspended Solids (mg/L)	10.4 - 16.5 (2/2)

MW-80	
Constituent (units)	Concentration
cis-1,2-Dichloroethene (ug/L)	9.28 (1/1)
Vinyl chloride (ug/L)	2.26 (1/1)

MW-79	
Constituent (units)	Concentration
Barium (mg/L)	0.0951 - 0.105 (2/2)
Cadmium (mg/L)	0.00143 - 0.0017 (2/2)
Cobalt (mg/L)	0.00245 - 0.0028 (2/2)
Nickel (mg/L)	0.0223 - 0.0223 (2/2)
1,1-Dichloroethane (ug/L)	2.26 - 2.74 (2/2)
Benzene (ug/L)	0.526 (1/2)
Carbon disulfide (ug/L)	5.98 (1/2)
cis-1,2-Dichloroethene (ug/L)	38.2 - 38.8 (2/2)
Vinyl chloride (ug/L)	4.54 - 4.98 (2/2)
Total Suspended Solids (mg/L)	2 - 5.75 (2/2)

MW-66	
Constituent (units)	Concentration
Cobalt (mg/L)	0.00168 (1/1)
Total Suspended Solids (mg/L)	29.7 (1/1)

MW-74	
Constituent (units)	Concentration
Arsenic (mg/L)	0.0288 (1/1)
Cobalt (mg/L)	0.00587 (1/1)
cis-1,2-Dichloroethene (ug/L)	25.9 (1/1)
Trichloroethene (ug/L)	1.07 (1/1)
Total Suspended Solids (mg/L)	16 (1/1)

MW-61R	
Constituent (units)	Concentration
Arsenic (mg/L)	0.00456 - 0.00649 (2/2)
Barium (mg/L)	0.015 - 0.0217 (2/2)
Cadmium (mg/L)	0.000242 - 0.00135 (2/2)
Cobalt (mg/L)	0.00986 - 0.0117 (2/2)
Copper (mg/L)	0.0101 - 0.012 (2/2)
Lead (mg/L)	0.000785 - 0.00456 (2/2)
Nickel (mg/L)	0.0279 - 0.0321 (2/2)
Vanadium (mg/L)	0.00567 (1/2)
Zinc (mg/L)	0.0234 - 0.048 (2/2)
cis-1,2-Dichloroethene (ug/L)	7.37 - 17.3 (2/2)
Total Suspended Solids (mg/L)	86 - 378 (2/2)

MW-71, MW-78, MW-76, MW-80, 94-MW-57, MW-62, 91-MW-6, 91-MW-8, 91-MW-7, 93-MW-31R, MW-73, MW-79, MW-77, MW-69, MW-67, MW-81, MW-74, LPZ-18, MW-75, MW-61R, MW-66, MW-70, MW-60, LPZ-10R, LPZ-9R, LPZ-13R2, LEW-1, LPZ-13R, MW-37, MW-40, MW-39R, LPZ-15, LPZ-11, 91-MW-14, MW-59, LPZ-12, 91-MW-10, GWP-1, LPZ-16, MW-65, MW-58, MW-63R, LPZ-17, MW-53, 91-MW-12, 91-MW-13, GWP-2, LPZ-20, PZ-1W, GU-7, GWP-3, MW-52, MW-51, MW-50, MW-54, GU-6, MW-41, MW-42, MW-43, MW-49, MW-55, 91-MW-25, MW-44, MW-48B, MW-48, MW-4, MW-46, MW-47, MW-45

Reporting Period Detection Summary - Corrective Action

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Source Well
- Corrective Action Well

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
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W S N E

0 287.5 575 1,150 Feet

Figure 5

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MW-71	Arsenic (mg/L)	TSS (mg/L)
8/25/2021	0.01	2290
3/8/2022	0.00905	532
6/22/2022	0.0122	568
2/21/2023	0.00762	216

MW-78	Arsenic (mg/L)	TSS (mg/L)
4/1/2019	<0.002	21
8/26/2019	<0.002	24.3
8/20/2020	0.00213	118
6/22/2022	<0.002	9.87

MW-72	Arsenic (mg/L)	TSS (mg/L)
10/3/2018	0.000843*	12
8/26/2019	0.000796*	2.88

MW-67	Arsenic (mg/L)	TSS (mg/L)
4/5/2021	<0.002	1*
8/25/2021	<0.002	1.63*
3/8/2022	<0.002	4.33*
6/22/2022	<0.002	<1.88

MW-79	Arsenic (mg/L)	TSS (mg/L)
3/8/2022	<0.002	31.7
6/22/2022	<0.002	3.38
2/21/2023	<0.002	2
7/25/2023	<0.002	5.75

MW-73	Arsenic (mg/L)	TSS (mg/L)
4/5/2021	0.00884	14.5
8/25/2021	0.0152	25.5
3/8/2022	0.00653	6
6/22/2022	0.0115	15.7

MW-81	Arsenic (mg/L)	TSS (mg/L)
6/22/2022	<0.002	0.75*
10/31/2022	<0.002	3
2/21/2023	<0.002	<1.88
7/25/2023	<0.002	<1.88

93-MW-31R	Arsenic (mg/L)	TSS (mg/L)
3/8/2022	0.00577	13
6/22/2022	0.00397	12.8
2/21/2023	0.00498	8.63
7/25/2023	0.00122*	3.5*

MW-74	Arsenic (mg/L)	TSS (mg/L)
8/25/2021	0.0338	22
3/8/2022	0.0264	85
6/22/2022	0.0161	61
2/21/2023	0.0288	16

MW-61R	Arsenic (mg/L)	TSS (mg/L)
3/8/2022	0.00628	17.7
6/22/2022	0.00544	334
2/21/2023	0.00649	378
7/25/2023	0.00456	86

MW-68, MW-71, MW-72, MW-78, MW-76, MW-80, MW-73, 04-MW-57, MW-62, 93-MW-31R, MW-79, MW-77, MW-67, MW-81, MW-74, LPZ-18, MW-75, MW-61R, MW-66, 93-MW-32, LPZ-19, 04-MW-56, LPZ-14, MW-64, MW-60, LPZ-11, 91-MW-14, MW-59, MW-65, MW-53, 91-MW-12, 91-MW-13, MW-52, MW-51, MW-50, MW-54, MW-41, MW-42, MW-43, MW-49, MW-55, MW-44, MW-48B, MW-48, MW-46, MW-47, MW-45, 91-MW-6, 91-MW-8, 91-MW-7, LPZ-7R2, LPZ-9R, LPZ-13R2, LEW-1, LPZ-13R, MW-37, MW-40, MW-39R, LPZ-15, LPZ-12, 91-MW-10, GWP-1, LPZ-16, MW-58, MW-63R, LPZ-17, GWP-2, LPZ-20, GU-7, GWP-3, GU-6, PZ-1W, 91-MW-25, MW-4

Arsenic Concentration Map

Figure 6

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

Arsenic Prediction Limit = 0.00208 mg/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: October 2023

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MW-68	Cobalt (mg/L)	TSS (mg/L)
11/24/2020	0.00144	90
4/5/2021	0.00105	66.3
3/8/2022	0.000665	12.7
2/21/2023	0.000255*	1.75*

MW-78	Cobalt (mg/L)	TSS (mg/L)
3/8/2022	0.00694	18.7
6/22/2022	0.00682	9.87
2/21/2023	0.00342	10.4
7/25/2023	0.00559	16.5

MW-71	Cobalt (mg/L)	TSS (mg/L)
8/25/2021	0.0168	2290
3/8/2022	0.00464	532
6/22/2022	0.00605	568
2/21/2023	0.002	216

MW-79	Cobalt (mg/L)	TSS (mg/L)
3/8/2022	0.00272	31.7
6/22/2022	0.00185	3.38
2/21/2023	0.00245	2
7/25/2023	0.0028	5.75

MW-67	Cobalt (mg/L)	TSS (mg/L)
4/5/2021	0.000329*	1*
8/25/2021	0.000375*	1.63*
3/8/2022	0.00105	4.33*
6/22/2022	0.000199*	<1.88

MW-73	Cobalt (mg/L)	TSS (mg/L)
4/5/2021	0.0677	14.5
8/25/2021	0.0579	25.5
3/8/2022	0.0552	6
6/22/2022	0.0512	15.7

MW-81	Cobalt (mg/L)	TSS (mg/L)
6/22/2022	<0.0005	0.75*
10/31/2022	0.000312*	3
2/21/2023	0.000193*	<1.88
7/25/2023	0.00022*	<1.88

93-MW-31R	Cobalt (mg/L)	TSS (mg/L)
3/8/2022	0.0118	13
6/22/2022	0.0109	12.8
2/21/2023	0.00679	8.63
7/25/2023	0.00702	3.5*

MW-74	Cobalt (mg/L)	TSS (mg/L)
8/25/2021	0.0166	22
3/8/2022	0.0018	85
6/22/2022	0.00377	61
2/21/2023	0.00587	16

MW-61R	Cobalt (mg/L)	TSS (mg/L)
3/8/2022	0.00914	17.7
6/22/2022	0.0087	334
2/21/2023	0.0117	378
7/25/2023	0.00986	86

MW-68, MW-72, MW-71, MW-78, MW-76, MW-80, 04-MW-57, MW-62, 91-MW-6, 91-MW-8, 91-MW-7, MW-73, MW-79, MW-77, MW-69, MW-67, 93-MW-31R, MW-81, MW-74, LPZ-18, MW-75, MW-61R, LPZ-6R2, MW-66, LPZ-19, LPZ-7R2, MW-37, 93-MW-32, 04-MW-56, LPZ-14, LPZ-9R, LPZ-13R2, LEW-1, LPZ-13R, MW-64, MW-60, MW-40, MW-39R, LPZ-15, LPZ-11, 91-MW-14, MW-59, LPZ-12, 91-MW-10, GWP-1, LPZ-16, MW-65, MW-58, MW-63R, LPZ-17, MW-12, 91-MW-13, GWP-2, LPZ-20, PZ-1W, GU-7, GWP-3, MW-52, MW-51, MW-50, MW-54, GU-6, MW-41, MW-42, MW-43, MW-49, MW-55, 91-MW-25, MW-44, MW-48B, MW-48, MW-4, MW-46, MW-47, MW-45

Cobalt Concentration Map

Figure 7

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

Cobalt Prediction Limit = 0.01671 mg/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
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W S N E

0 287.5 575 1,150 Feet

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MW-74	cis-1,2-Dichloroethene (ug/L)
8/25/2021	44.8
3/8/2022	63.7
6/22/2022	57.7
2/21/2023	25.9

MW-71	cis-1,2-Dichloroethene (ug/L)
8/25/2021	0.319*
3/8/2022	0.273*
6/22/2022	0.4*
2/21/2023	<1

MW-78	cis-1,2-Dichloroethene (ug/L)
3/8/2022	0.577*
6/22/2022	0.621*
2/21/2023	0.634*
7/25/2023	0.61*

MW-80	cis-1,2-Dichloroethene (ug/L)
8/25/2021	0.474*
3/8/2022	0.249*
6/22/2022	0.25*
2/21/2023	9.28

MW-62	cis-1,2-Dichloroethene (ug/L)
10/2/2018	<1
4/1/2019	<1
8/26/2019	<1
6/16/2020	<1

MW-81	cis-1,2-Dichloroethene (ug/L)
6/22/2022	0.535*
10/31/2022	0.671*
2/21/2023	1.03
7/25/2023	0.675*

MW-75	cis-1,2-Dichloroethene (ug/L)
11/24/2020	<1
4/5/2021	<1
3/8/2022	<1
2/21/2023	<1

MW-79	cis-1,2-Dichloroethene (ug/L)
3/8/2022	17.2
6/22/2022	17.6
2/21/2023	38.8
7/25/2023	38.2

MW-73	cis-1,2-Dichloroethene (ug/L)
4/5/2021	46.1
8/25/2021	34.9
3/8/2022	31.8
6/22/2022	29.2

MW-61R	cis-1,2-Dichloroethene (ug/L)
3/8/2022	10.5
6/22/2022	10.4
2/21/2023	7.37
7/25/2023	17.3

93-MW-31R	cis-1,2-Dichloroethene (ug/L)
3/8/2022	20.7
6/22/2022	15.6
2/21/2023	4.84
7/25/2023	5.88

MW-72 MW-71 MW-78 MW-76 MW-80 MW-73 04-MW-57 MW-62 91-MW-6 91-MW-8 91-MW-7 93-MW-31R MW-79 MW-77 MW-69 MW-67 MW-81 MW-74 LPZ-18 MW-75 MW-61R LPZ-19 93-MW-32 MW-70 04-MW-56 LPZ-14 LPZ-10R MW-64 LPZ-9R LPZ-13R2 LEW-1 LPZ-13R MW-40 MW-39R LPZ-15 LPZ-12 91-MW-10 GWP-1 LPZ-16 MW-65 MW-58 MW-63R LPZ-17 MW-53 91-MW-12 91-MW-13 GWP-2 LPZ-20 PZ-1W GU-7 GWP-3 MW-52 MW-51 MW-50 MW-54 GU-6 MW-41 MW-42 MW-43 MW-37 MW-49 MW-55 91-MW-25 MW-44 MW-48B MW-48 MW-4 MW-46 MW-47 MW-45

cis-1,2-Dichloroethene Concentration Map

Figure 8

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

cis-1,2-Dichloroethene Prediction Limit = < 1 ug/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
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W S N E

0 287.5 575 1,150 Feet

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MW-73	Methylene Chloride (ug/L)
4/5/2021	<5
8/25/2021	<5
3/8/2022	<5
6/22/2022	<5

MW-74	Methylene Chloride (ug/L)
8/3/2017	0.274*
4/1/2019	<5
8/26/2019	<5
8/20/2020	<5

MW-79	Methylene Chloride (ug/L)
3/8/2022	<5
6/22/2022	<5
2/21/2023	<5
7/25/2023	<5

MW-75	Methylene Chloride (ug/L)
4/5/2016	<5
9/13/2016	<5
4/19/2017	<5
10/3/2018	<5

93-MW-31R	Methylene Chloride (ug/L)
3/8/2022	<5
6/22/2022	<5
2/21/2023	<5
7/25/2023	<5

MW-61R	Methylene Chloride (ug/L)
3/8/2022	<5
6/22/2022	<5
2/21/2023	<5
7/25/2023	<5

MW-68, MW-71, MW-78, MW-76, MW-73, MW-80, 04-MW-57, MW-62, 91-MW-6, 91-MW-8, 91-MW-7, 93-MW-31R, MW-79, MW-77, MW-81, MW-74, LPZ-18, LPZ-6R2, MW-75, MW-61R, MW-66, LPZ-19, 93-MW-32, MW-70, LPZ-10R, LPZ-9R, LPZ-7R2, MW-37, LPZ-13R2, LEW-1, LPZ-13R, MW-40, MW-39R, LPZ-15, LPZ-11, 91-MW-14, MW-59, LPZ-12, 91-MW-10, GWP-1, LPZ-16, MW-65, MW-58, MW-63R, LPZ-17, MW-53, 91-MW-12, 91-MW-13, GWP-2, LPZ-20, PZ-1W, GU-7, GWP-3, MW-52, MW-51, MW-50, MW-54, GU-6, MW-41, MW-42, MW-43, MW-49, MW-55, 91-MW-25, MW-44, MW-48B, MW-48, MW-4, MW-46, MW-47, MW-45

Methylene Chloride Concentration Map

Figure 9

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

Methylene Chloride Prediction Limit = < 5 ug/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
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W, S, N, E

0 287.5 575 1,150 Feet

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MW-72	Tetrachloroethene (ug/L)
9/13/2016	<1
4/19/2017	<1
10/3/2018	<1
8/26/2019	<1

MW-71	Tetrachloroethene (ug/L)
10/22/2018	<1
4/1/2019	<1
8/26/2019	0.83*
8/20/2020	<1

MW-78	Tetrachloroethene (ug/L)
3/8/2022	1.15
6/22/2022	1.2
2/21/2023	0.788*
7/25/2023	1.24

MW-69	Tetrachloroethene (ug/L)
4/4/2016	<1
9/13/2016	<1
4/19/2017	0.66*
8/26/2019	<1

MW-67	Tetrachloroethene (ug/L)
4/5/2021	0.539*
8/25/2021	<1
3/8/2022	0.5*
6/22/2022	0.615*

MW-79	Tetrachloroethene (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-73	Tetrachloroethene (ug/L)
4/5/2021	4.28
8/25/2021	3.69
3/8/2022	2.9
6/22/2022	2.98

MW-81	Tetrachloroethene (ug/L)
6/22/2022	1.16
10/31/2022	1.04
2/21/2023	<1
7/25/2023	0.797*

93-MW-31R	Tetrachloroethene (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-66	Tetrachloroethene (ug/L)
8/21/2014	<1
8/12/2015	<1
10/3/2018	<1
8/26/2019	<1

MW-74	Tetrachloroethene (ug/L)
8/25/2021	<1
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1

MW-75	Tetrachloroethene (ug/L)
11/24/2020	<1
4/5/2021	<1
3/8/2022	<1
2/21/2023	<1

MW-61R	Tetrachloroethene (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-72 MW-71 MW-78 MW-76 MW-80 MW-73 04-MW-57 MW-62 MW-79 MW-77 MW-6 91-MW-7 MW-69 MW-67 93-MW-31R MW-81 MW-74 LPZ-18 LPZ-6R2 MW-75 MW-61R MW-66 93-MW-32 LPZ-19 LPZ-9 MW-37 04-MW-56 LPZ-14 LPZ-10R MW-64 MW-60 MW-40 MW-39R LPZ-15 LPZ-16 91-MW-14 LPZ-11 MW-59 MW-65 SWP-1 MW-63R LPZ-17 GWP-2 LPZ-20 91-MW-12 91-MW-13 MW-53 PZ-1W GU-7 GWP-3 MW-52 MW-50 MW-54 GU-6 MW-41 MW-42 MW-43 MW-49 MW-55 91-MW-25 MW-44 MW-48B MW-48 MW-4 MW-46 MW-47 MW-45

Tetrachloroethene Concentration Map

Figure 10

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

Tetrachloroethene Prediction Limit = < 1 ug/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
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0 287.5 575 1,150 Feet

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MW-71	Trichloroethene (ug/L)
8/25/2021	<1
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1

MW-78	Trichloroethene (ug/L)
3/8/2022	0.605*
6/22/2022	0.543*
2/21/2023	<1
7/25/2023	<1

MW-79	Trichloroethene (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-67	Trichloroethene (ug/L)
8/13/2015	<1
4/4/2016	<1
9/13/2016	<1
4/19/2017	<1

MW-62	Trichloroethene (ug/L)
10/2/2018	<1
4/1/2019	<1
8/26/2019	<1
6/16/2020	<1

MW-81	Trichloroethene (ug/L)
6/22/2022	0.634*
10/31/2022	0.612*
2/21/2023	0.73*
7/25/2023	0.658*

MW-73	Trichloroethene (ug/L)
4/5/2021	7.49
8/25/2021	6.35
3/8/2022	6.15
6/22/2022	5.78

MW-74	Trichloroethene (ug/L)
8/25/2021	4.1
3/8/2022	<1
6/22/2022	0.926*
2/21/2023	1.07

MW-66	Trichloroethene (ug/L)
8/8/2012	<1
12/27/2012	<1
2/13/2014	<1
8/21/2014	<1

MW-61R	Trichloroethene (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-75	Trichloroethene (ug/L)
11/24/2020	<1
4/5/2021	<1
3/8/2022	<1
2/21/2023	<1

MW-72 MW-71 MW-78 MW-76 MW-80 04-MW-57 MW-62 91-MW-6 91-MW-7 MW-67 93-MW-31R MW-73 MW-79 MW-77 MW-81 MW-74 LPZ-18 LPZ-6R2 MW-75 MW-61R MW-66 LPZ-19 LPZ-7R2 MW-37 93-MW-32 MW-70 04-MW-56 LPZ-14 LPZ-10R LPZ-13R2 LEW-1 LPZ-13R MW-64 MW-60 MW-40 MW-39R LPZ-15 LPZ-11 91-MW-14 MW-59 LPZ-12 91-MW-10 GWP-1 LPZ-16 MW-65 MW-58 MW-63R LPZ-17 91-MW-12 91-MW-13 GWP-2 LPZ-20 PZ-1W GU-7 GWP-3 MW-52 MW-51 MW-50 MW-54 GU-6 MW-41 MW-42 MW-43 MW-49 MW-55 91-MW-25 MW-44 MW-48B MW-48 MW-4 MW-47 MW-46 MW-45

Trichloroethene Concentration Map

Figure 11

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

Trichloroethene Prediction Limit = < 1 ug/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
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0 287.5 575 1,150 Feet

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MW-74	Vinyl chloride (ug/L)
8/25/2021	1.36
3/8/2022	1.65
6/22/2022	1.92
2/21/2023	0.926*

MW-71	Vinyl chloride (ug/L)
10/22/2018	<1
4/1/2019	<1
8/26/2019	<1
8/20/2020	<1

MW-78	Vinyl chloride (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-80	Vinyl chloride (ug/L)
8/25/2021	<1
3/8/2022	<1
6/22/2022	<1
2/21/2023	2.26

MW-62	Vinyl chloride (ug/L)
10/2/2018	<1
4/1/2019	<1
8/26/2019	<1
6/16/2020	<1

MW-79	Vinyl chloride (ug/L)
3/8/2022	0.796*
6/22/2022	1.15
2/21/2023	4.54
7/25/2023	4.98

MW-81	Vinyl chloride (ug/L)
6/22/2022	<1
10/31/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-73	Vinyl chloride (ug/L)
4/5/2021	4.56
8/25/2021	2.99
3/8/2022	2.63
6/22/2022	3.23

MW-75	Vinyl chloride (ug/L)
11/24/2020	<1
4/5/2021	<1
3/8/2022	<1
2/21/2023	<1

93-MW-31R	Vinyl chloride (ug/L)
3/8/2022	2.4
6/22/2022	1.7
2/21/2023	0.403*
7/25/2023	<1

MW-61R	Vinyl chloride (ug/L)
3/8/2022	<1
6/22/2022	<1
2/21/2023	<1
7/25/2023	<1

MW-72 MW-71 MW-78 MW-76 MW-80 04-MW-57 MW-62 91-MW-6 91-MW-8 91-MW-7 MW-69 MW-67 93-MW-31R MW-73 MW-79 MW-77 MW-81 MW-74 LPZ-18 MW-75 MW-61R MW-66 LFZ-19 93-MW-72 MW-70 04-MW-56 LPZ-14 MW-64 MW-60 LPZ-10R LPZ-7R2 LPZ-13R2 LEW-1 LPZ-13R MW-37 MW-40 MW-39R LPZ-15 LPZ-12 91-MW-10 GWP-1 LPZ-16 MW-65 MW-58 MW-63R LPZ-17 MW-53 91-MW-12 91-MW-13 GWP-2 LPZ-20 PZ-1W GU-7 GWP-3 MW-52 MW-51 MW-50 MW-54 GU-6 MW-41 MW-42 MW-43 MW-49 MW-55 91-MW-25 MW-44 MW-48B MW-48 MW-4 MW-47 MW-46 MW-45

Vinyl Chloride Concentration Map

Legend

- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Approximate Property Boundary
- SSL Well
- Approximate Waste Boundary
- Approximate Future Waste Boundary
- Approximate Extent of Impact

Vinyl Chloride Prediction Limit = < 1 ug/L

* J Flag concentrations are not included in the lists of detected parameters

Ottumwa-Wapello County Landfill
Ottumwa, IA
Project No: 27223157.24
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Figure 12

W S N E

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Appendix A

Field Sampling Forms

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**91-MW-14**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	20.0
Initial Static Water Level (feet):	2.15
Initial Groundwater Elevation (ft-amsl):	686.49
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
1:46 PM	Purging start time.						
1:49 PM	7.5	5.6	1630.2	7.07	-38.2	5.6	
1:52 PM	7.4	5.2	1635.6	7.12	-16.3	5.5	
1:55 PM	7.4	5.1	1637.1	7.13	-2.2	6.5	
1:58 PM	7.3	5.0	1636.6	7.14	7.7	8.1	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**93-MW-31R**	Date:	**2/24/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS	
Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	47.90
Initial Groundwater Elevation (ft-amsl):	678.36
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
10:28 AM	Purging start time.						
10:31 AM	8.5	4.0	988.8	6.37	71.3	37.3	
10:34 AM	7.5	3.5	995.0	6.37	71.9	35.2	
10:37 AM	6.8	3.5	994.6	6.39	72.4	33.1	
10:40 AM	6.2	3.5	995.8	6.40	72.2	32.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**93-MW-32**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	20.0
Initial Static Water Level (feet):	11.32
Initial Groundwater Elevation (ft-amsl):	676.24
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
10:47 AM	Purging start time.						
10:50 AM	8.5	1.4	986.2	5.56	1.2	11.2	
10:53 AM	8.1	0.8	987.3	5.50	7.9	9.5	
10:56 AM	7.2	0.7	993.4	5.52	6.9	9.1	
10:59 AM	7.3	0.6	990.7	5.53	5.6	12.3	
11:02 AM	7.4	0.6	987.0	5.53	4.8	20.6	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.3
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-39R**	Date:	**2/21/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	22.3
Initial Static Water Level (feet):	16.19
Initial Groundwater Elevation (ft-amsl):	717.62
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
1:29 PM	Purging start time.						
1:32 PM	10.5	1.2	3466.8	6.15	-67.0	4.9	
1:35 PM	10.5	0.7	3469.5	6.16	-59.1	4.1	
1:38 PM	10.5	0.5	3473.4	6.18	-58.6	3.9	
1:41 PM	10.5	0.5	3462.8	6.18	-59.0	4.4	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-40**	Date:	**2/21/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	26.5
Initial Static Water Level (feet):	16.14
Initial Groundwater Elevation (ft-amsl):	712.62
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:15 PM	Purging start time.						
2:18 PM	11.8	1.0	1445.1	5.82	-8.0	3.8	
2:21 PM	12.1	0.7	1438.2	5.79	-2.5	3.7	
2:24 PM	12.0	0.5	1431.9	5.79	-2.5	3.7	
2:27 PM	12.1	0.4	1413.9	5.79	-1.8	7.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**04-MW-56**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	17.7
Initial Static Water Level (feet):	10.64
Initial Groundwater Elevation (ft-amsl):	680.36
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
11:36 AM	Purging start time.						
11:39 AM	7.6	1.1	1859.1	6.11	-43.2	4.2	
11:42 AM	7.7	0.7	1905.7	6.19	-53.0	6.6	
11:45 AM	7.8	0.6	1908.6	6.21	-56.3	3.6	
11:48 AM	7.9	0.6	1907.8	6.23	-57.5	3.7	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-58**	Date:	**2/21/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	17.6
Initial Static Water Level (feet):	5.89
Initial Groundwater Elevation (ft-amsl):	696.72
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:56 PM	Purging start time.						
2:59 PM	6.9	2.2	1746.8	6.42	14.3	9.4	
3:02 PM	6.8	1.8	1721.2	6.39	35.1	10.0	
3:05 PM	6.8	1.6	1735.9	6.36	35.9	7.4	
3:08 PM	6.9	1.5	1741.0	6.35	36.8	7.2	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-59**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	17.4
Initial Static Water Level (feet):	7.13
Initial Groundwater Elevation (ft-amsl):	692.23
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
1:08 PM	Purging start time.						
1:11 PM	4.5	2.1	1785.3	6.65	-86.5	6.0	
1:14 PM	4.5	1.1	1774.2	6.55	-63.6	6.2	
1:17 PM	4.3	0.8	1759.7	6.53	-54.3	7.9	
1:20 PM	4.3	0.7	1753.4	6.52	-50.6	8.5	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-61R**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	31.03
Initial Groundwater Elevation (ft-amsl):	679.02
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
11:37 AM	Purging start time.						
11:40 AM	8.7	5.9	1353.9	6.29	52.8	341.0	
11:43 AM	10.4	5.3	1354.8	6.22	87.9	302.3	
11:46 AM	10.5	5.1	1373.5	6.20	103.7	299.7	
11:49 AM	10.6	4.8	1387.9	6.20	111.6	323.6	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-62**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	25.2
Initial Static Water Level (feet):	2.34
Initial Groundwater Elevation (ft-amsl):	744.95
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:22 PM	Purging start time.						
3:25 PM	7.0	2.0	1383.1	6.57	24.2	6.8	
3:28 PM	7.3	1.1	1379.0	6.40	56.4	7.6	
3:31 PM	7.3	0.9	1377.5	6.36	75.7	10.3	
3:34 PM	7.2	0.8	1376.4	6.36	86.6	9.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-63R**	Date:	**2/21/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	28.0
Initial Static Water Level (feet):	11.81
Initial Groundwater Elevation (ft-amsl):	723.25
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
12:35 PM	Purging start time.						
12:38 PM	9.9	1.9	3238.0	6.56	151.7	8.1	
12:41 PM	10.0	1.2	3251.3	6.64	139.0	7.9	
12:44 PM	10.1	1.1	3250.8	6.67	132.1	7.7	
12:47 PM	10.1	1.0	3251.7	6.68	126.7	8.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-64**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	41.6
Initial Static Water Level (feet):	14.67
Initial Groundwater Elevation (ft-amsl):	683.09
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
12:29 PM	Purging start time.						
12:32 PM	5.8	1.9	2013.7	6.92	-72.4	12.6	
12:35 PM	5.6	1.1	2010.9	6.95	-48.9	13.1	
12:38 PM	5.7	0.9	2009.8	6.95	-43.4	12.8	
12:41 PM	5.7	0.7	2003.0	6.95	-46.2	12.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-65**	Date:	**2/21/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	21.8
Initial Static Water Level (feet):	8.24
Initial Groundwater Elevation (ft-amsl):	689.85
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:40 PM	Purging start time.						
3:43 PM	8.6	1.6	2013.5	6.53	-101.5	17.5	
3:46 PM	8.7	0.8	2018.4	6.53	-107.9	45.5	
3:49 PM	8.6	0.6	2020.0	6.53	-111.6	53.0	
3:52 PM	8.4	0.5	2020.7	6.53	-114.5	46.4	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	162.50

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-73**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	0.00
Initial Groundwater Elevation (ft-amsl):	0.00
Equipment Used:	NA

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	SWL was below the pump. Could not purge water. Attempted to remove pump but the well head was frozen shut and could not be removed. No sample taken.

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-79**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	36.54
Initial Groundwater Elevation (ft-amsl):	700.68
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
4:28 PM	Purging start time.						
4:31 PM	6.4	1.6	1302.7	6.34	-40.8	6.3	
4:34 PM	7.3	0.9	1333.0	6.25	-20.2	6.0	
4:37 PM	7.0	0.8	1332.5	6.24	-11.4	6.1	
4:40 PM	7.2	0.7	1328.4	6.24	-7.9	6.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-81**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	33.3
Initial Static Water Level (feet):	22.14
Initial Groundwater Elevation (ft-amsl):	677.46
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
4:25 PM	Purging start time.						
4:28 PM	9.9	3.8	414.5	6.21	131.9	4.7	
4:31 PM	10.4	3.0	426.4	6.24	132.4	4.4	
4:34 PM	10.5	2.7	433.9	6.26	132.0	4.3	
4:37 PM	10.5	2.5	437.2	6.28	132.1	4.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-66**	Date:	**2/22/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	18.9
Initial Static Water Level (feet):	10.17
Initial Groundwater Elevation (ft-amsl):	675.72
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:51 PM	Purging start time.						
3:54 PM	7.5	9.2	344.2	6.50	68.1	35.9	
3:57 PM	7.6	8.9	332.1	6.12	107.8	32.1	
4:00 PM	7.6	8.9	329.9	5.95	138.9	33.8	
4:03 PM	7.6	9.0	326.4	5.88	157.5	34.2	
4:06 PM	7.5	9.1	324.1	5.84	168.8	36.1	
4:09 PM	7.5	9.1	322.4	5.82	176.2	35.9	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.6
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	141.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-67**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Andrew Phillips

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	34.79
Initial Groundwater Elevation (ft-amsl):	673.78
Equipment Used:	Portable submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	SWL was 34.79 and was below the pump. Attempted to lower the pump and use the portable submersible pump but was unable to draw water to the surface.

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-68**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	47.60
Initial Groundwater Elevation (ft-amsl):	680.47
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
1:05 PM	Purging start time.						
1:08 PM	7.3	7.3	480.8	7.05	-84.6	14.3	
1:11 PM	8.6	7.8	474.4	6.85	-48.9	11.4	
1:14 PM	9.3	7.9	471.3	6.76	-18.5	8.9	
1:17 PM	10.8	7.8	472.4	6.69	7.4	7.7	
1:20 PM	10.3	7.7	474.8	6.66	28.8	6.8	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	3.2
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	213.33

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-71**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	48.60
Initial Groundwater Elevation (ft-amsl):	678.87
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
1:35 PM	Purging start time.						
1:38 PM	9.3	2.7	329.2	7.05	-22.8	264.5	
1:41 PM	10.1	1.8	362.8	6.87	-37.2	548.5	
1:44 PM	10.0	1.2	409.1	6.64	-22.1	534.0	
1:47 PM	9.0	1.0	424.8	6.54	-7.0	421.3	
1:50 PM	8.9	0.9	432.3	6.49	3.5	324.2	
1:53 PM	9.1	7.3	4.5	6.48	10.3	48.8	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	3.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-74**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	38.71
Initial Groundwater Elevation (ft-amsl):	678.80
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
12:15 PM	Purging start time.						
12:18 PM	8.7	2.0	1770.1	6.59	-52.7	97.4	
12:21 PM	9.5	1.3	1766.9	6.47	-50.0	46.2	
12:24 PM	9.3	1.2	1786.6	6.46	-49.4	47.5	
12:27 PM	5.9	1.3	1793.3	6.53	-48.9	41.7	
12:30 PM	12.7	0.9	1755.3	6.37	-47.9	24.1	
12:33 PM	13.1	0.7	1776.8	6.38	-50.9	16.4	
12:36 PM	13.8	0.6	1744.4	6.37	-50.3	11.9	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	3.2
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	21:00
Average Purge Rate (mL/min):	152.38

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-75**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	31.34
Initial Groundwater Elevation (ft-amsl):	678.25
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
10:55 AM	Purging start time.						
10:58 AM	10.7	1.3	1909.7	5.79	-16.8	44.4	
11:01 AM	10.4	0.8	1956.2	5.83	-21.7	34.9	
11:04 AM	9.9	0.7	1950.3	5.85	-22.8	25.7	
11:07 AM	10.1	0.6	1935.0	5.84	-23.3	19.7	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-78**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	51.04
Initial Groundwater Elevation (ft-amsl):	682.30
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:22 PM	Purging start time.						
3:25 PM	8.3	2.2	435.9	6.50	22.5	77.0	
3:28 PM	8.4	1.2	435.1	6.40	36.3	45.2	
3:31 PM	8.7	1.0	434.4	6.38	48.8	26.6	
3:34 PM	9.0	0.9	433.3	6.37	58.9	16.7	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	162.50

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**OWSWC.23001**		
Monitoring Well/Piezometer ID:	**MW-80**	Date:	**2/23/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	40.7
Initial Static Water Level (feet):	34.88
Initial Groundwater Elevation (ft-amsl):	700.92
Equipment Used:	Non-Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:55 PM	Purging start time.						
3:58 PM	8.0	1.4	1496.3	5.95	-43.6	464.8	
4:01 PM	6.7	0.8	1501.2	6.02	-37.7	519.1	
4:04 PM	7.2	0.6	1473.3	6.04	-35.9	474.1	
4:07 PM	7.9	0.5	1463.0	6.03	-35.5	360.9	
4:10 PM	7.5	0.5	1503.6	6.03	-36.0	259.4	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	15:00
Average Purge Rate (mL/min):	133.33

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-53**	Date:	**7/27/2023**
Gradient:	Up	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	28.7
Initial Static Water Level (feet):	12.11
Initial Groundwater Elevation (ft-amsl):	690.44
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:19 PM	Purging start time.						
2:22 PM	18.9	1.3	2834.1	7.58	315.3	9.1	
2:25 PM	19.3	0.8	2792.4	7.06	289.5	8.3	
2:28 PM	18.6	0.7	2807.7	6.98	271.6	6.9	
2:31 PM	18.1	0.6	2797.4	6.97	258.5	9.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**93-MW-31R**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS

Well/Piezometer Capped?	Yes
Litter/Standing Water?	No

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)

Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	47.89
Initial Groundwater Elevation (ft-amsl):	678.37
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
10:33 AM	Purging start time.						
10:36 AM	16.0	1.6	1046.5	6.87	102.2	19.7	
10:39 AM	15.6	1.2	989.6	6.64	122.4	16.1	
10:42 AM	16.0	1.1	960.4	6.59	126.3	14.3	
10:45 AM	15.7	1.1	915.1	6.43	118.7	11.8	
10:48 AM	15.8	1.1	888.9	6.42	112.1	11.4	
10:51 AM	15.8	1.2	877.0	6.43	108.8	11.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	3.2
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	177.78

D. WELL MAINTENANCE

Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-39R**	Date:	**7/25/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	22.3
Initial Static Water Level (feet):	17.25
Initial Groundwater Elevation (ft-amsl):	716.56
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
4:35 PM	Purging start time.						
4:38 PM	19.7	1.8	4042.0	6.30	59.8	7.4	
4:41 PM	20.0	1.1	4025.7	6.17	57.5	6.9	
4:44 PM	19.6	0.8	4003.9	6.18	56.0	6.6	
4:47 PM	18.9	0.6	4022.0	6.18	54.5	7.2	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-40**	Date:	**7/25/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	26.5
Initial Static Water Level (feet):	18.72
Initial Groundwater Elevation (ft-amsl):	710.04
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
9:55 AM	Purging start time.						
9:58 AM	18.6	1.4	1507.1	5.85	110.5	6.2	
10:01 AM	18.2	0.9	1500.3	5.75	117.6	5.6	
10:04 AM	18.1	0.7	1488.0	5.75	118.5	5.8	
10:07 AM	18.4	0.6	1459.4	5.71	119.5	8.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**04-MW-56**	Date:	**7/26/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	17.7
Initial Static Water Level (feet):	12.50
Initial Groundwater Elevation (ft-amsl):	678.50
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
12:49 PM	Purging start time.						
12:52 PM	21.8	1.3	2162.8	6.57	59.9	72.2	
12:55 PM	21.9	0.8	2149.7	6.26	59.8	51.9	
12:58 PM	20.8	0.6	2149.8	6.24	60.2	45.5	
1:01 PM	21.3	0.5	2130.0	6.19	61.5	206.5	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.9
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	158.33

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-58**	Date:	**7/26/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	17.6
Initial Static Water Level (feet):	11.63
Initial Groundwater Elevation (ft-amsl):	690.98
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
10:29 AM	Purging start time.						
10:32 AM	18.7	1.7	3118.8	6.27	113.0	8.1	
10:35 AM	18.7	1.0	3129.1	6.18	104.8	11.6	
10:38 AM	18.7	0.8	3124.7	6.17	102.3	14.3	
10:41 AM	19.2	0.7	3134.3	6.12	100.4	12.0	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-61R**	Date:	**7/26/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	30.84
Initial Groundwater Elevation (ft-amsl):	679.21
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
4:29 PM	Purging start time.						
4:32 PM	19.0	1.5	2840.0	6.77	143.0	97.4	
4:35 PM	21.3	1.1	2848.6	6.33	145.2	79.4	
4:38 PM	23.1	4.6	2882.5	6.29	142.0	91.5	
4:41 PM	20.3	1.4	2915.3	6.25	148.8	79.7	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.1
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	175.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-63R**	Date:	**7/25/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	28.1
Initial Static Water Level (feet):	13.15
Initial Groundwater Elevation (ft-amsl):	721.91
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
3:37 PM	Purging start time.						
3:40 PM	20.4	1.6	3336.9	6.77	309.7	9.4	
3:43 PM	19.5	1.1	3359.2	6.73	301.2	14.9	
3:46 PM	19.0	0.8	3339.0	6.72	295.3	10.3	
3:49 PM	18.8	0.7	3332.0	6.71	290.5	14.1	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-65**	Date:	**7/26/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	21.0
Initial Static Water Level (feet):	10.33
Initial Groundwater Elevation (ft-amsl):	687.76
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
11:09 AM	Purging start time.						
11:12 AM	18.1	1.8	2251.8	6.71	19.0	7.8	
11:15 AM	17.6	1.1	2074.3	6.67	8.0	11.3	
11:18 AM	17.8	0.8	2012.0	6.65	5.3	13.4	
11:21 AM	17.4	0.7	1974.1	6.63	4.9	14.7	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-67**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	35.27
Initial Groundwater Elevation (ft-amsl):	673.30
Equipment Used:	NA

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Insufficient water to collect a sample.

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-71**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	48.95
Initial Groundwater Elevation (ft-amsl):	678.52
Equipment Used:	NA

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Insufficient water to collect a sample.

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-73**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	40.00
Initial Groundwater Elevation (ft-amsl):	689.57
Equipment Used:	NA

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Insufficient water to collect a sample.

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-74**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	Dry
Initial Groundwater Elevation (ft-amsl):	NA
Equipment Used:	

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Monitoring well was dry.

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-78**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	50.77
Initial Groundwater Elevation (ft-amsl):	682.57
Equipment Used:	Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
12:28 PM	Purging start time.						
12:31 PM	19.0	1.4	467.5	6.99	80.6	44.0	
12:34 PM	19.6	0.9	464.1	6.48	102.5	47.9	
12:37 PM	18.3	0.8	464.4	6.47	117.2	24.5	
12:40 PM	18.1	0.7	461.9	6.39	128.0	17.3	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	1.8
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	150.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-79**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	NM
Initial Static Water Level (feet):	36.42
Initial Groundwater Elevation (ft-amsl):	700.80
Equipment Used:	Non-Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
11:43 AM	Purging start time.						
11:46 AM	20.2	1.5	1503.7	6.30	11.1	6.9	
11:49 AM	20.4	1.0	1519.8	6.14	46.5	8.5	
11:52 AM	21.2	0.9	1517.0	6.08	66.7	8.2	
11:55 AM	20.9	0.8	1515.8	6.08	71.6	8.5	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	12:00
Average Purge Rate (mL/min):	166.67

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-80**	Date:	**7/27/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	40.8
Initial Static Water Level (feet):	37.98
Initial Groundwater Elevation (ft-amsl):	697.82
Equipment Used:	Non-Dedicated Submersible

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
	Purging start time.						
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	0.0
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	
Average Purge Rate (mL/min):	0.00

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	Insufficient water to collect a sample.

FORM FOR GROUNDWATER SAMPLING

Project:	**Ottumwa-Wapello County Landfill, West MSWLF Unit**		
Monitoring Well/Piezometer ID:	**MW-81**	Date:	**7/26/2023**
Gradient:	Down	Sampler:	Scott Stoller

A. MW/PIEZOMETER CONDITIONS		
Well/Piezometer Capped?	Yes	
Litter/Standing Water?	No	

B. GROUNDWATER ELEVATION MEASUREMENT (+/- 0.01 foot, MSL)	
Measured Well Total Depth (feet):	33.3
Initial Static Water Level (feet):	22.45
Initial Groundwater Elevation (ft-amsl):	677.15
Equipment Used:	Dedicated Tubing – Peristaltic Pump

C. WELL PURGING

FIELD PARAMETERS [stabilization criteria] RECORD EVERY 3 MINUTES

Time	**Temperature (°C) 10%**	Dissolved Oxygen (mg/L)	**Specific Conductivity (µS/cm) +/- 10%**	**pH (S.U.) +/- 0.1**	ORP (mV)	Turbidity (FNU)	
2:42 PM	Purging start time.						
2:45 PM	22.6	4.1	454.7	7.19	375.0	9.5	
2:48 PM	22.1	3.7	443.8	6.64	345.0	11.9	
2:51 PM	21.2	3.5	443.1	6.53	323.7	13.5	
2:54 PM	22.3	3.3	447.5	6.39	304.9	14.1	
2:57 PM	21.4	3.3	455.4	6.38	290.9	12.9	
3:00 PM	22.8	3.1	448.8	6.31	279.6	12.5	
	Parameters stabilized, sample collected.						

Quantity of Water Removed from Well (liters):	2.4
Was well pumped/bailed dry?	No
Total Amount of Time Purged (minutes:seconds):	18:00
Average Purge Rate (mL/min):	133.33

D. WELL MAINTENANCE		
Does the well require any future maintenance?	No	
If yes, explain:		

Additional Comments:	

Appendix B-1

Laboratory Analytical Data Sheets

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ANALYTICAL REPORT

PREPARED FOR

Attn: Nathan Ohrt
Evora Consulting
1690 All State Court
Suite 100
West Des Moines, Iowa 50265

Generated 3/15/2023 6:46:45 PM

JOB DESCRIPTION

OWSWC 1st 2023 HMSP

JOB NUMBER

310-250324-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

my EOL

Job Notes

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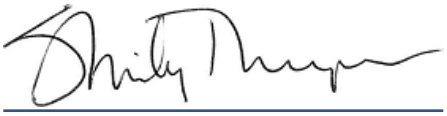

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Authorized for release by
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Job ID: 310-250324-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-250324-1

Comments
No additional comments.

Receipt
The samples were received on 2/24/2023 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were -0.8º C, -0.1º C, 0.0º C, 0.2º C and 0.2º C.

Receipt Exceptions

One or more containers for the following sample was received broken or leaking: MW-58 (310-250324-8).

GC/MS VOA
Method 8260D: The method blank for analytical batch 310-380041 contained chloromethane above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-380041 recovered above the upper control limit for Trichlorofluoromethane (20.5%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The following samples was collected in an unpreserved vial; therefore, the pH was outside the required criteria when verified by the laboratory. The samples were analyzed within the 7-day holding time specified for unpreserved samples: 93-MW-32 (310-250324-4), MW-39R (310-250324-5), 04-MW-56 (310-250324-7) and MW-65 (310-250324-14). There are preserved vials available.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270E: The continuing calibration verification (CCV) associated with batch 310-380222 recovered above the upper control limit for 1,4-Naphthoquinone (20.7%D), 4-Nitrophenol (24.5%D), Ethyl parathion (33.9%D), Diethyl phthalate (22.7%D), Di-n-butyl phthalate (22.4%D), Methyl parathion (39.6%D), Fluoranthene (20.2%D), 2,4-Dinitrotoluene (26.0%D), o-Toluidine (24.1%D), 1,3-Dinitrobenzene (25.3%D), Pentachlorophenol (30.0%D), Phorate (22.8%D), Di-n-octyl phthalate (29.2%D) and Fluorene (27.3%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270E: Surrogate recovery for the following samples were outside control limits: 93-MW-32 (310-250324-4) and MW-65 (310-250324-14). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The method blank for preparation batch 310-380056 contained 2-Methylnaphthalene above the reporting limit (RL). There was insufficient holding time to perform a re-extraction and/or re-analysis; therefore, the data have been reported.

Method 8270E: The laboratory control sample (LCS) for preparation batch 310-380056 and analytical batch 310-380222 recovered outside acceptance limits for 2-Methylnaphthalene. There was insufficient holding time to perform a re-extraction or re-analysis; therefore, the data have been reported.

Method 8270E: The laboratory control sample (LCS) for preparation batch 310-380056 and analytical batch 310-380222 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene and Fluorene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E: The laboratory control sample duplicate (LCSD) for preparation batch 310-380056 and analytical batch 310-380222 recovered outside control limits for the following analytes: Diethyl phthalate These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 310-250324-1 (Continued)

Laboratory: Eurofins Cedar Falls (Continued)

HPLC/IC
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method 9034: The following samples were received at the Chicago lab with insufficient time remaining to perform the analysis within holding time: MW-39R (310-250324-5), MW-58 (310-250324-8), MW-63R (310-250324-12), MW-65 (310-250324-14) and MW-D1 (310-250324-18) The client was contacted and the lab was instructed to cancel the analysis by the client.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-380056.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-380057.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-250324-2	91-MW-14	Ground Water	02/22/23 13:58	02/24/23 16:30
310-250324-3	93-MW 31R	Ground Water	02/22/23 10:49	02/24/23 16:30
310-250324-4	93-MW-32	Ground Water	02/24/23 10:40	02/24/23 16:30
310-250324-5	MW-39R	Ground Water	02/21/23 13:41	02/24/23 16:30
310-250324-6	MW-40	Ground Water	02/21/23 14:27	02/24/23 16:30
310-250324-7	04-MW-56	Ground Water	02/22/23 11:36	02/24/23 16:30
310-250324-8	MW-58	Ground Water	02/21/23 15:08	02/24/23 16:30
310-250324-9	MW-59	Ground Water	02/22/23 13:20	02/24/23 16:30
310-250324-10	MW-61R	Ground Water	02/23/23 11:37	02/24/23 16:30
310-250324-11	MW-62	Ground Water	02/22/23 15:22	02/24/23 16:30
310-250324-12	MW-63R	Ground Water	02/21/23 12:47	02/24/23 16:30
310-250324-13	MW-64	Ground Water	02/22/23 12:28	02/24/23 16:30
310-250324-14	MW-65	Ground Water	02/21/23 15:52	02/24/23 16:30
310-250324-16	MW-79	Ground Water	02/23/23 16:40	02/24/23 16:30
310-250324-17	MW-81	Ground Water	02/22/23 16:17	02/24/23 16:30
310-250324-18	MW-D1	Ground Water	02/21/23 12:47	02/24/23 16:30
310-250324-19	MW-D2	Ground Water	02/21/23 14:27	02/24/23 16:30
310-250324-22	Trip Blank 1	Water	02/24/23 00:00	02/24/23 16:30
310-250324-23	Trip Blank 2	Water	02/24/23 00:00	02/24/23 16:30

Detection Summary

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 91-MW-14 — Lab Sample ID: 310-250324-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0188		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000216		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.000404	J F1	0.000500	0.000190	mg/L	1		6020B	Total/NA
Lead	0.000377	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Total Suspended Solids	2.13		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: 93-MW 31R — Lab Sample ID: 310-250324-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.590	J	1.00	0.220	ug/L	1		8260D	Total/NA
Benzene	0.346	J	0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	4.84		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.403	J	1.00	0.180	ug/L	1		8260D	Total/NA
Sulfate	135		5.00	2.00	mg/L	5		9056A	Total/NA
Arsenic	0.00498		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0606		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000793		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.00679		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.00245	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Nickel	0.0193		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00293	J	0.00500	0.000960	mg/L	1		6020B	Total/NA
Iron	3.86		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	6.84		0.0400	0.0144	mg/L	4		6020B	Total/NA
Total Organic Carbon - Duplicates	2.42		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	8.63		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: 93-MW-32 — Lab Sample ID: 310-250324-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	8.47	J B *1 *+	9.26	0.546	ug/L	1		8270E	Total/NA
Arsenic	0.00886		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.136		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000463		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.0402		0.000500	0.000190	mg/L	1		6020B	Total/NA
Lead	0.000979		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0451		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0301		0.0200	0.0100	mg/L	1		6020B	Total/NA
Total Suspended Solids	82.0		7.50	2.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-39R — Lab Sample ID: 310-250324-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	11.2	B *1 *+	9.43	0.557	ug/L	1		8270E	Total/NA
Acetonitrile	0.603	J	10.0	0.570	mg/L	1		8015C	Total/NA
Sulfate	1430		50.0	20.0	mg/L	50		9056A	Total/NA
Arsenic	0.00563		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.00835		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cobalt	0.0417		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0260		0.00500	0.00190	mg/L	1		6020B	Total/NA
Iron	46.5		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	4.40		0.0700	0.0252	mg/L	7		6020B	Total/NA
Total Suspended Solids	64.5		7.50	2.55	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-39R (Continued) — Lab Sample ID: 310-250324-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Alkalinity as CaCO3 to pH 4.5	823		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	823		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-40 — Lab Sample ID: 310-250324-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.694	J	1.00	0.220	ug/L	1		8260D	Total/NA
Benzene	0.708		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	4.77		1.00	0.210	ug/L	1		8260D	Total/NA
Sulfate	473		20.0	8.00	mg/L	20		9056A	Total/NA
Arsenic	0.00222		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0133		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000617		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.0714		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0596		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0309		0.0200	0.0100	mg/L	1		6020B	Total/NA
Iron	12.0		0.100	0.0360	mg/L	1		6020B	Total/NA
Aluminum	0.0393	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Manganese	31.2		0.100	0.0360	mg/L	10		6020B	Total/NA
Total Suspended Solids	8.75		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	308		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	308		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: 04-MW-56 — Lab Sample ID: 310-250324-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroethane	1.11	J	4.00	0.790	ug/L	1		8260D	Total/NA
2-Methylnaphthalene	36.0	B *1 *+	10.0	0.590	ug/L	1		8270E	Total/NA
N-Nitrosodiphenylamine	3.34	J	10.0	0.750	ug/L	1		8270E	Total/NA
Sulfate	272		20.0	8.00	mg/L	20		9056A	Total/NA
Arsenic	0.00591		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0239		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cobalt	0.0153		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0652		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00120	J	0.00500	0.000960	mg/L	1		6020B	Total/NA
Iron	30.7		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	8.26		0.0400	0.0144	mg/L	4		6020B	Total/NA
Total Suspended Solids	19.7		5.00	1.70	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	750		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	750		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-58 — Lab Sample ID: 310-250324-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	21.3	B *1 *+	10.0	0.590	ug/L	1		8270E	Total/NA
Sulfate	762		50.0	20.0	mg/L	50		9056A	Total/NA
Barium	0.0154		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000216		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.00192		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.00203	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Nickel	0.0108		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00104	J	0.00500	0.000960	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-58 (Continued) — Lab Sample ID: 310-250324-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Zinc	0.0168	J	0.0200	0.0100	mg/L	1		6020B	Total/NA
Iron	1.55		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	0.508		0.0100	0.00360	mg/L	1		6020B	Total/NA
Total Suspended Solids	4.60		3.00	1.02	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	179		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	179		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-59 — Lab Sample ID: 310-250324-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	953		20.0	8.00	mg/L	20		9056A	Total/NA
Arsenic	0.00509		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0291		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000151		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.0186		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.00224	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Nickel	0.0291		0.00500	0.00190	mg/L	1		6020B	Total/NA
Iron	17.5		0.100	0.0360	mg/L	1		6020B	Total/NA
Aluminum	0.0215	J	0.0500	0.0170	mg/L	1		6020B	Total/NA
Manganese	7.17		0.0400	0.0144	mg/L	4		6020B	Total/NA
Total Suspended Solids	29.0		7.50	2.55	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	277		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	277		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-61R — Lab Sample ID: 310-250324-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.623	J	1.00	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	7.37		1.00	0.210	ug/L	1		8260D	Total/NA
Nitrate as N	0.116		0.100	0.0420	mg/L	1		9056A	Total/NA
Sulfate	760		10.0	4.00	mg/L	10		9056A	Total/NA
Arsenic	0.00649		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0217		0.00200	0.000880	mg/L	1		6020B	Total/NA
Beryllium	0.000460	J	0.00100	0.000270	mg/L	1		6020B	Total/NA
Cadmium	0.00135		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Chromium	0.00218	J	0.00500	0.00110	mg/L	1		6020B	Total/NA
Cobalt	0.0117		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.0120		0.00500	0.00180	mg/L	1		6020B	Total/NA
Lead	0.00456		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0279		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00199	J	0.00500	0.000960	mg/L	1		6020B	Total/NA
Vanadium	0.00567		0.00500	0.00110	mg/L	1		6020B	Total/NA
Zinc	0.0480		0.0200	0.0100	mg/L	1		6020B	Total/NA
Iron	6.48		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	3.54		0.0100	0.00360	mg/L	1		6020B	Total/NA
Total Organic Carbon - Duplicates	3.41		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	378		30.0	10.2	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-62 — Lab Sample ID: 310-250324-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0305		0.00200	0.000880	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-62 (Continued) — Lab Sample ID: 310-250324-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.000604		0.000500	0.000190	mg/L	1		6020B	Total/NA
Lead	0.000411	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.00861		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	4.25		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-63R — Lab Sample ID: 310-250324-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.14	J	10.0	3.10	ug/L	1		8260D	Total/NA
Sulfate	1970		100	40.0	mg/L	100		9056A	Total/NA
Barium	0.0164		0.00200	0.000880	mg/L	1		6020B	Total/NA
Beryllium	0.000317	J	0.00100	0.000270	mg/L	1		6020B	Total/NA
Cadmium	0.00267		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.00716		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.00217	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Lead	0.000296	J	0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0480		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00172	J	0.00500	0.000960	mg/L	1		6020B	Total/NA
Zinc	0.157		0.0200	0.0100	mg/L	1		6020B	Total/NA
Iron	0.415		0.100	0.0360	mg/L	1		6020B	Total/NA
Aluminum	0.688		0.0500	0.0170	mg/L	1		6020B	Total/NA
Manganese	1.06		0.0100	0.00360	mg/L	1		6020B	Total/NA
Total Suspended Solids	11.3		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	507		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	507		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-64 — Lab Sample ID: 310-250324-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	56.6		10.0	4.00	mg/L	10		9056A	Total/NA
Arsenic	0.000904	J	0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.203		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cobalt	0.000464	J	0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0312		0.00500	0.00190	mg/L	1		6020B	Total/NA
Iron	2.17		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	0.182		0.0100	0.00360	mg/L	1		6020B	Total/NA
Total Suspended Solids	5.40		3.00	1.02	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	753		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	753		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-65 — Lab Sample ID: 310-250324-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.977	J	1.00	0.220	ug/L	1		8260D	Total/NA
Benzene	1.51		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	5.07		4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.766	J	1.00	0.210	ug/L	1		8260D	Total/NA
Bis(2-ethylhexyl) phthalate	8.42	J	9.43	5.19	ug/L	1		8270E	Total/NA
2-Methylnaphthalene	492	B *1 *+	18.9	1.11	ug/L	2		8270E	Total/NA
Sulfate	280		20.0	8.00	mg/L	20		9056A	Total/NA
Arsenic	0.0247		0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.289		0.00200	0.000880	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-65 (Continued) — Lab Sample ID: 310-250324-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00407		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.00528		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.000983	J	0.00500	0.000960	mg/L	1		6020B	Total/NA
Iron	66.1		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	3.97		0.0100	0.00360	mg/L	1		6020B	Total/NA
Total Suspended Solids	133		15.0	5.10	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	823		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	823		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-79 — Lab Sample ID: 310-250324-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	2.74		1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.612	J	1.00	0.230	ug/L	1		8260D	Total/NA
Benzene	0.526		0.500	0.220	ug/L	1		8260D	Total/NA
Carbon disulfide	5.98		1.00	0.450	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	38.8		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	4.54		1.00	0.180	ug/L	1		8260D	Total/NA
Sulfate	55.4		1.00	0.400	mg/L	1		9056A	Total/NA
Barium	0.0951		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.00170		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.00245		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0223		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0105	J	0.0200	0.0100	mg/L	1		6020B	Total/NA
Iron	0.197		0.100	0.0360	mg/L	1		6020B	Total/NA
Manganese	19.3		0.0700	0.0252	mg/L	7		6020B	Total/NA
Total Organic Carbon - Duplicates	7.83		1.00	0.470	mg/L	1		9060A	Total/NA
Total Suspended Solids	2.00		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-81 — Lab Sample ID: 310-250324-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.359	J	1.00	0.220	ug/L	1		8260D	Total/NA
Acetone	3.41	J	10.0	3.10	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	1.03		1.00	0.210	ug/L	1		8260D	Total/NA
Trichloroethene	0.730	J	1.00	0.430	ug/L	1		8260D	Total/NA
Barium	0.0671		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.0000620	J	0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.000193	J	0.000500	0.000190	mg/L	1		6020B	Total/NA

Client Sample ID: MW-D1 — Lab Sample ID: 310-250324-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	1950		50.0	20.0	mg/L	50		9056A	Total/NA
Barium	0.0142		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000771		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.00129		0.000500	0.000190	mg/L	1		6020B	Total/NA
Nickel	0.0199		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0551		0.0200	0.0100	mg/L	1		6020B	Total/NA
Iron	0.107		0.100	0.0360	mg/L	1		6020B	Total/NA
Aluminum	0.124		0.0500	0.0170	mg/L	1		6020B	Total/NA
Manganese	0.510		0.0100	0.00360	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-D1 (Continued) — Lab Sample ID: 310-250324-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	4.25		1.88	0.638	mg/L	1		I-3765-85	Total/NA
Total Alkalinity as CaCO3 to pH 4.5	513		5.00	2.30	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	513		5.00	2.30	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-D2 — Lab Sample ID: 310-250324-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.556	J	1.00	0.220	ug/L	1		8260D	Total/NA
Acetone	4.12	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	0.505		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	3.32		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.287	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.00164	J	0.00200	0.000750	mg/L	1		6020B	Total/NA
Barium	0.0136		0.00200	0.000880	mg/L	1		6020B	Total/NA
Cadmium	0.000629		0.000100	0.0000550	mg/L	1		6020B	Total/NA
Cobalt	0.0731		0.000500	0.000190	mg/L	1		6020B	Total/NA
Copper	0.00206	J	0.00500	0.00180	mg/L	1		6020B	Total/NA
Nickel	0.0600		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0320		0.0200	0.0100	mg/L	1		6020B	Total/NA
Total Suspended Solids	8.20		3.00	1.02	mg/L	1		I-3765-85	Total/NA

Client Sample ID: Trip Blank 1 — Lab Sample ID: 310-250324-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.83	J	10.0	3.10	ug/L	1		8260D	Total/NA

Client Sample ID: Trip Blank 2 — Lab Sample ID: 310-250324-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.31	J	10.0	3.10	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 91-MW-14

Date Collected: 02/22/23 13:58
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-2

Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:03	1
Barium	**0.0188**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:03	1
Cadmium	**0.000216**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:03	1
Cobalt	**0.000404**	**J F1**	0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:03	1
Copper	<0.00500	F1	0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:03	1
Lead	**0.000377**	**J**	0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:03	1
Nickel	<0.00500		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:03	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.13**		1.88	0.638	mg/L			02/27/23 15:44	1

Client Sample ID: 93-MW 31R
Date Collected: 02/22/23 10:49
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-3
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 15:39	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 15:39	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 15:39	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 15:39	1
1,1-Dichloroethane	**0.590**	**J**	1.00	0.220	ug/L			02/27/23 15:39	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 15:39	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 15:39	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 15:39	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 15:39	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 15:39	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 15:39	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 15:39	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 15:39	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 15:39	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 15:39	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 15:39	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 15:39	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 15:39	1
Benzene	**0.346**	**J**	0.500	0.220	ug/L			02/27/23 15:39	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 15:39	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 15:39	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 15:39	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 15:39	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 15:39	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 15:39	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 15:39	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 15:39	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 15:39	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 15:39	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 15:39	1
cis-1,2-Dichloroethene	**4.84**		1.00	0.210	ug/L			02/27/23 15:39	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 15:39	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 15:39	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 15:39	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 15:39	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 15:39	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 15:39	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 15:39	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 15:39	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 15:39	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 15:39	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 15:39	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 15:39	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 15:39	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 15:39	1
Vinyl chloride	**0.403**	**J**	1.00	0.180	ug/L			02/27/23 15:39	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*122*		*80 - 128*		*02/27/23 15:39*	*1*

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 93-MW 31R

Date Collected: 02/22/23 10:49
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-3

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/27/23 15:39*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/27/23 15:39*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**135**		5.00	2.00	mg/L			02/25/23 01:07	5

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:37	1
Arsenic	**0.00498**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:37	1
Barium	**0.0606**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:37	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:37	1
Cadmium	**0.000793**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:37	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:37	1
Cobalt	**0.00679**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:37	1
Copper	**0.00245**	**J**	0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:37	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:37	1
Nickel	**0.0193**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:37	1
Selenium	**0.00293**	**J**	0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:37	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:37	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:37	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:37	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:37	1
Iron	**3.86**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:37	1
Manganese	**6.84**		0.0400	0.0144	mg/L		03/03/23 09:55	03/07/23 13:07	4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates (SW846 9060A)	**2.42**		1.00	0.470	mg/L			03/07/23 15:17	1
Total Suspended Solids (USGS I-3765-85)	**8.63**		1.88	0.638	mg/L			02/27/23 15:44	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 93-MW-32
Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 16:03	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 16:03	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 16:03	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 16:03	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 16:03	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 16:03	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			02/27/23 16:03	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 16:03	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			02/27/23 16:03	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 16:03	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 16:03	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 16:03	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 16:03	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 16:03	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			02/27/23 16:03	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			02/27/23 16:03	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 16:03	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			02/27/23 16:03	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 16:03	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 16:03	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 16:03	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 16:03	1
Acrolein	<10.0		10.0	3.60	ug/L			02/27/23 16:03	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 16:03	1
Allyl chloride	<2.00		2.00	0.700	ug/L			02/27/23 16:03	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 16:03	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 16:03	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 16:03	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 16:03	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 16:03	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 16:03	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 16:03	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 16:03	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 16:03	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 16:03	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 16:03	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 16:03	1
Chloroprene	<1.00		1.00	0.230	ug/L			02/27/23 16:03	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 16:03	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 16:03	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 16:03	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			02/27/23 16:03	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			02/27/23 16:03	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 16:03	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 16:03	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			02/27/23 16:03	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			02/27/23 16:03	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 16:03	1
Naphthalene	<5.00		5.00	3.00	ug/L			02/27/23 16:03	1

Client Sample ID: 93-MW-32
Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propionitrile	<10.0		10.0	3.40	ug/L			02/27/23 16:03	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 16:03	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 16:03	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 16:03	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 16:03	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 16:03	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 16:03	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 16:03	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 16:03	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 16:03	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 16:03	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 16:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/27/23 16:03*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/27/23 16:03*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*02/27/23 16:03*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<9.26		9.26	0.593	ug/L		02/27/23 11:26	03/01/23 11:16	1
Acenaphthylene	<9.26		9.26	0.667	ug/L		02/27/23 11:26	03/01/23 11:16	1
Acetophenone	<9.26		9.26	0.639	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Acetylaminofluorene	<9.26		9.26	2.50	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Aminobiphenyl	<9.26		9.26	2.04	ug/L		02/27/23 11:26	03/01/23 11:16	1
Anthracene	<9.26		9.26	0.806	ug/L		02/27/23 11:26	03/01/23 11:16	1
Benzo[a]anthracene	<9.26		9.26	0.787	ug/L		02/27/23 11:26	03/01/23 11:16	1
Benzo[a]pyrene	<9.26		9.26	7.50	ug/L		02/27/23 11:26	03/01/23 11:16	1
Benzo[b]fluoranthene	<9.26		9.26	4.54	ug/L		02/27/23 11:26	03/01/23 11:16	1
Benzo[g,h,i]perylene	<9.26		9.26	5.83	ug/L		02/27/23 11:26	03/01/23 11:16	1
Benzo[k]fluoranthene	<9.26		9.26	2.04	ug/L		02/27/23 11:26	03/01/23 11:16	1
Benzyl alcohol	<9.26		9.26	1.20	ug/L		02/27/23 11:26	03/01/23 11:16	1
Bis(2-chloroethoxy)methane	<9.26		9.26	0.704	ug/L		02/27/23 11:26	03/01/23 11:16	1
Bis(2-chloroethyl)ether	<9.26		9.26	0.759	ug/L		02/27/23 11:26	03/01/23 11:16	1
bis (2-chloroisopropyl) ether	<9.26		9.26	0.500	ug/L		02/27/23 11:26	03/01/23 11:16	1
Bis(2-ethylhexyl) phthalate	<9.26		9.26	5.09	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Bromophenyl phenyl ether	<9.26		9.26	0.648	ug/L		02/27/23 11:26	03/01/23 11:16	1
Butyl benzyl phthalate	<9.26		9.26	5.00	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Chloroaniline	<9.26		9.26	0.574	ug/L		02/27/23 11:26	03/01/23 11:16	1
Chlorobenzilate	<9.26		9.26	3.33	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Chloro-3-methylphenol	<9.26		9.26	0.778	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Chloronaphthalene	<9.26		9.26	0.593	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Chlorophenol	<9.26		9.26	0.500	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Chlorophenyl phenyl ether	<9.26		9.26	0.639	ug/L		02/27/23 11:26	03/01/23 11:16	1
Chrysene	<9.26		9.26	0.806	ug/L		02/27/23 11:26	03/01/23 11:16	1
Diallate	<9.26		9.26	3.70	ug/L		02/27/23 11:26	03/01/23 11:16	1
Dibenz(a,h)anthracene	<9.26		9.26	3.61	ug/L		02/27/23 11:26	03/01/23 11:16	1
Dibenzofuran	<9.26		9.26	0.685	ug/L		02/27/23 11:26	03/01/23 11:16	1
3,3'-Dichlorobenzidine	<9.26		9.26	1.30	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,4-Dichlorophenol	<9.26		9.26	0.787	ug/L		02/27/23 11:26	03/01/23 11:16	1

Client Sample ID: 93-MW-32
Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	<9.26		9.26	0.639	ug/L		02/27/23 11:26	03/01/23 11:16	1
Diethyl phthalate	<9.26	*+	9.26	1.57	ug/L		02/27/23 11:26	03/01/23 11:16	1
Dimethoate	<9.26		9.26	3.33	ug/L		02/27/23 11:26	03/01/23 11:16	1
7,12-Dimethylbenz(a)anthracene	<9.26		9.26	1.76	ug/L		02/27/23 11:26	03/01/23 11:16	1
3,3'-Dimethylbenzidine	<9.26		9.26	1.39	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,4-Dimethylphenol	<9.26		9.26	0.537	ug/L		02/27/23 11:26	03/01/23 11:16	1
Dimethyl phthalate	<9.26		9.26	0.926	ug/L		02/27/23 11:26	03/01/23 11:16	1
Di-n-butyl phthalate	<9.26		9.26	5.19	ug/L		02/27/23 11:26	03/01/23 11:16	1
1,3-Dinitrobenzene	<9.26		9.26	2.96	ug/L		02/27/23 11:26	03/01/23 11:16	1
4,6-Dinitro-2-methylphenol	<9.26		9.26	6.39	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,4-Dinitrophenol	<18.5		18.5	12.0	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,4-Dinitrotoluene	<9.26	*+	9.26	5.93	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,6-Dinitrotoluene	<9.26		9.26	0.481	ug/L		02/27/23 11:26	03/01/23 11:16	1
Di-n-octyl phthalate	<18.5		18.5	6.48	ug/L		02/27/23 11:26	03/01/23 11:16	1
Dinoseb	<9.26		9.26	2.22	ug/L		02/27/23 11:26	03/01/23 11:16	1
Diphenylamine	<9.26		9.26	5.56	ug/L		02/27/23 11:26	03/01/23 11:16	1
Disulfoton	<9.26		9.26	2.22	ug/L		02/27/23 11:26	03/01/23 11:16	1
Ethyl methanesulfonate	<9.26		9.26	3.33	ug/L		02/27/23 11:26	03/01/23 11:16	1
Ethyl parathion	<9.26		9.26	2.04	ug/L		02/27/23 11:26	03/01/23 11:16	1
Famphur	<9.26		9.26	3.52	ug/L		02/27/23 11:26	03/01/23 11:16	1
Fluoranthene	<9.26		9.26	1.57	ug/L		02/27/23 11:26	03/01/23 11:16	1
Fluorene	<9.26	*+	9.26	0.731	ug/L		02/27/23 11:26	03/01/23 11:16	1
Hexachlorobenzene	<9.26		9.26	0.648	ug/L		02/27/23 11:26	03/01/23 11:16	1
Hexachlorobutadiene	<9.26		9.26	0.796	ug/L		02/27/23 11:26	03/01/23 11:16	1
Hexachlorocyclopentadiene	<9.26		9.26	4.72	ug/L		02/27/23 11:26	03/01/23 11:16	1
Hexachloroethane	<9.26		9.26	0.898	ug/L		02/27/23 11:26	03/01/23 11:16	1
Hexachloropropene	<9.26		9.26	2.41	ug/L		02/27/23 11:26	03/01/23 11:16	1
Indeno(1,2,3-cd)pyrene	<9.26		9.26	3.89	ug/L		02/27/23 11:26	03/01/23 11:16	1
Isodrin	<9.26		9.26	4.35	ug/L		02/27/23 11:26	03/01/23 11:16	1
Isophorone	<9.26		9.26	0.861	ug/L		02/27/23 11:26	03/01/23 11:16	1
Isosafrole	<9.26		9.26	2.13	ug/L		02/27/23 11:26	03/01/23 11:16	1
Kepone	<9.26		9.26	0.926	ug/L		02/27/23 11:26	03/01/23 11:16	1
Methapyrilene	<9.26		9.26	0.704	ug/L		02/27/23 11:26	03/01/23 11:16	1
3-Methylcholanthrene	<9.26		9.26	0.296	ug/L		02/27/23 11:26	03/01/23 11:16	1
Methyl methanesulfonate	<9.26		9.26	3.06	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Methylnaphthalene	**8.47**	**J B *1 *+**	9.26	0.546	ug/L		02/27/23 11:26	03/01/23 11:16	1
Methyl parathion	<9.26		9.26	2.13	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Methylphenol	<9.26		9.26	0.602	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Methylphenol (and/or 3-Methylphenol)	<9.26		9.26	0.648	ug/L		02/27/23 11:26	03/01/23 11:16	1
1,4-Naphthoquinone	<9.26		9.26	3.33	ug/L		02/27/23 11:26	03/01/23 11:16	1
1-Naphthylamine	<9.26		9.26	2.31	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Naphthylamine	<9.26		9.26	1.94	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Nitroaniline	<9.26		9.26	5.46	ug/L		02/27/23 11:26	03/01/23 11:16	1
3-Nitroaniline	<9.26		9.26	2.50	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Nitroaniline	<9.26		9.26	1.20	ug/L		02/27/23 11:26	03/01/23 11:16	1
Nitrobenzene	<9.26		9.26	0.741	ug/L		02/27/23 11:26	03/01/23 11:16	1
5-Nitro-o-toluidine	<9.26		9.26	2.59	ug/L		02/27/23 11:26	03/01/23 11:16	1
2-Nitrophenol	<9.26		9.26	6.30	ug/L		02/27/23 11:26	03/01/23 11:16	1
4-Nitrophenol	<9.26		9.26	7.04	ug/L		02/27/23 11:26	03/01/23 11:16	1

Client Sample ID: 93-MW-32
Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodiethylamine	<9.26		9.26	3.15	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosodimethylamine	<9.26		9.26	0.667	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosodi-n-butylamine	<9.26		9.26	3.61	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosodi-n-propylamine	<9.26		9.26	0.852	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosodiphenylamine	<9.26		9.26	0.694	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosomethylethylamine	<9.26		9.26	4.54	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosopiperidine	<9.26		9.26	2.50	ug/L		02/27/23 11:26	03/01/23 11:16	1
N-Nitrosopyrrolidine	<9.26		9.26	3.33	ug/L		02/27/23 11:26	03/01/23 11:16	1
o,o',o''-Triethylphosphorothioate	<9.26		9.26	2.96	ug/L		02/27/23 11:26	03/01/23 11:16	1
o-Toluidine	<9.26		9.26	2.69	ug/L		02/27/23 11:26	03/01/23 11:16	1
p-Dimethylamino azobenzene	<9.26		9.26	2.04	ug/L		02/27/23 11:26	03/01/23 11:16	1
Pentachlorobenzene	<9.26		9.26	2.59	ug/L		02/27/23 11:26	03/01/23 11:16	1
Pentachloronitrobenzene	<9.26		9.26	5.37	ug/L		02/27/23 11:26	03/01/23 11:16	1
Pentachlorophenol	<9.26		9.26	8.89	ug/L		02/27/23 11:26	03/01/23 11:16	1
Phenacetin	<9.26		9.26	1.76	ug/L		02/27/23 11:26	03/01/23 11:16	1
Phenanthrene	<9.26		9.26	0.731	ug/L		02/27/23 11:26	03/01/23 11:16	1
Phenol	<9.26		9.26	1.02	ug/L		02/27/23 11:26	03/01/23 11:16	1
1,4-Phenylenediamine	<9.26		9.26	1.76	ug/L		02/27/23 11:26	03/01/23 11:16	1
Phorate	<9.26		9.26	2.96	ug/L		02/27/23 11:26	03/01/23 11:16	1
Pronamide	<9.26		9.26	2.50	ug/L		02/27/23 11:26	03/01/23 11:16	1
Pyrene	<9.26		9.26	0.731	ug/L		02/27/23 11:26	03/01/23 11:16	1
Safrole	<9.26		9.26	2.59	ug/L		02/27/23 11:26	03/01/23 11:16	1
1,2,4,5-Tetrachlorobenzene	<9.26		9.26	0.500	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,3,4,6-Tetrachlorophenol	<9.26		9.26	4.91	ug/L		02/27/23 11:26	03/01/23 11:16	1
Thionazin	<9.26		9.26	3.24	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,4,5-Trichlorophenol	<9.26		9.26	4.91	ug/L		02/27/23 11:26	03/01/23 11:16	1
2,4,6-Trichlorophenol	<9.26		9.26	4.63	ug/L		02/27/23 11:26	03/01/23 11:16	1
1,3,5-Trinitrobenzene	<9.26		9.26	2.13	ug/L		02/27/23 11:26	03/01/23 11:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*114*	*S1+*	*28 - 110*	*02/27/23 11:26*	*03/01/23 11:16*	*1*
2-Fluorophenol (Surr)	*80*		*13 - 110*	*02/27/23 11:26*	*03/01/23 11:16*	*1*
Nitrobenzene-d5 (Surr)	*101*		*27 - 115*	*02/27/23 11:26*	*03/01/23 11:16*	*1*
Phenol-d5 (Surr)	*69*		*12 - 110*	*02/27/23 11:26*	*03/01/23 11:16*	*1*
Terphenyl-d14 (Surr)	*100*		*10 - 125*	*02/27/23 11:26*	*03/01/23 11:16*	*1*
2,4,6-Tribromophenol (Surr)	*92*		*15 - 121*	*02/27/23 11:26*	*03/01/23 11:16*	*1*

Method: SW846 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<10.0		10.0	0.570	mg/L			02/28/23 14:03	1
Isobutanol	<10.0		10.0	0.550	mg/L			02/28/23 14:03	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0615		0.0615	0.0308	ug/L		02/27/23 11:32	03/07/23 14:42	1
alpha-BHC	<0.0615		0.0615	0.0279	ug/L		02/27/23 11:32	03/07/23 14:42	1
beta-BHC	<0.0615		0.0615	0.0356	ug/L		02/27/23 11:32	03/07/23 14:42	1
Chlordane (technical)	<1.92		1.92	0.779	ug/L		02/27/23 11:32	03/07/23 14:42	1
4,4'-DDD	<0.0615		0.0615	0.0260	ug/L		02/27/23 11:32	03/07/23 14:42	1
4,4'-DDE	<0.0615		0.0615	0.0260	ug/L		02/27/23 11:32	03/07/23 14:42	1

Client Sample ID: 93-MW-32

Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4

Matrix: Ground Water

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	<0.0615		0.0615	0.0404	ug/L		02/27/23 11:32	03/07/23 14:42	1
delta-BHC	<0.0615		0.0615	0.0260	ug/L		02/27/23 11:32	03/07/23 14:42	1
Dieldrin	<0.0615		0.0615	0.0250	ug/L		02/27/23 11:32	03/07/23 14:42	1
Endosulfan I	<0.0615		0.0615	0.0317	ug/L		02/27/23 11:32	03/07/23 14:42	1
Endosulfan II	<0.0615		0.0615	0.0279	ug/L		02/27/23 11:32	03/07/23 14:42	1
Endosulfan sulfate	<0.0615		0.0615	0.0288	ug/L		02/27/23 11:32	03/07/23 14:42	1
Endrin	<0.0615		0.0615	0.0250	ug/L		02/27/23 11:32	03/07/23 14:42	1
Endrin aldehyde	<0.0615		0.0615	0.0279	ug/L		02/27/23 11:32	03/07/23 14:42	1
gamma-BHC (Lindane)	<0.0615		0.0615	0.0346	ug/L		02/27/23 11:32	03/07/23 14:42	1
Heptachlor	<0.0615		0.0615	0.0317	ug/L		02/27/23 11:32	03/07/23 14:42	1
Heptachlor epoxide	<0.0615		0.0615	0.0279	ug/L		02/27/23 11:32	03/07/23 14:42	1
Methoxychlor	<0.0615		0.0615	0.0394	ug/L		02/27/23 11:32	03/07/23 14:42	1
Toxaphene	<1.92		1.92	0.663	ug/L		02/27/23 11:32	03/07/23 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*32*		*10 - 136*	*02/27/23 11:32*	*03/07/23 14:42*	*1*
Tetrachloro-m-xylene	*60*		*10 - 130*	*02/27/23 11:32*	*03/07/23 14:42*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.769		0.769	0.163	ug/L		02/27/23 11:32	03/07/23 14:42	1
PCB-1221	<0.769		0.769	0.163	ug/L		02/27/23 11:32	03/07/23 14:42	1
PCB-1232	<0.769		0.769	0.163	ug/L		02/27/23 11:32	03/07/23 14:42	1
PCB-1242	<0.769		0.769	0.163	ug/L		02/27/23 11:32	03/07/23 14:42	1
PCB-1248	<0.769		0.769	0.106	ug/L		02/27/23 11:32	03/07/23 14:42	1
PCB-1254	<0.769		0.769	0.106	ug/L		02/27/23 11:32	03/07/23 14:42	1
PCB-1260	<0.769		0.769	0.106	ug/L		02/27/23 11:32	03/07/23 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*32*		*10 - 136*	*02/27/23 11:32*	*03/07/23 14:42*	*1*
Tetrachloro-m-xylene (Surr)	*60*		*10 - 130*	*02/27/23 11:32*	*03/07/23 14:42*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:39	1
Arsenic	**0.00886**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:39	1
Barium	**0.136**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:39	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:39	1
Cadmium	**0.000463**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:39	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:39	1
Cobalt	**0.0402**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:39	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:39	1
Lead	**0.000979**		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:39	1
Nickel	**0.0451**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:39	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:39	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:39	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:39	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:39	1
Zinc	**0.0301**		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:39	1
Tin	<0.00500		0.00500	0.00300	mg/L		03/03/23 09:55	03/06/23 16:39	1

Client Sample Results

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 93-MW-32

Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4

Matrix: Ground Water

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		03/03/23 12:12	03/06/23 13:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<0.0100		0.0100	0.00430	mg/L		02/28/23 09:52	02/28/23 20:07	1
Sulfide (SW846 9034)	<1.00		1.00	0.231	mg/L		03/01/23 18:06	03/01/23 23:15	1
Total Suspended Solids (USGS I-3765-85)	**82.0**		7.50	2.55	mg/L			02/27/23 15:44	1

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 11:39	1
2,4,5-TP (Silvex)	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 11:39	1
2,4-D	<2.0		2.0		ug/L		02/27/23 16:59	03/13/23 11:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dichlorobenzoic Acid	*107*		*31 - 116*	*02/27/23 16:59*	*03/13/23 11:39*	*1*

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-39R
Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 16:27	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 16:27	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 16:27	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 16:27	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 16:27	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 16:27	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			02/27/23 16:27	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 16:27	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			02/27/23 16:27	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 16:27	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 16:27	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 16:27	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 16:27	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 16:27	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			02/27/23 16:27	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			02/27/23 16:27	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 16:27	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			02/27/23 16:27	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 16:27	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 16:27	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 16:27	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 16:27	1
Acrolein	<10.0		10.0	3.60	ug/L			02/27/23 16:27	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 16:27	1
Allyl chloride	<2.00		2.00	0.700	ug/L			02/27/23 16:27	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 16:27	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 16:27	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 16:27	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 16:27	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 16:27	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 16:27	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 16:27	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 16:27	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 16:27	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 16:27	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 16:27	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 16:27	1
Chloroprene	<1.00		1.00	0.230	ug/L			02/27/23 16:27	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 16:27	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 16:27	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 16:27	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			02/27/23 16:27	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			02/27/23 16:27	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 16:27	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 16:27	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			02/27/23 16:27	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			02/27/23 16:27	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 16:27	1
Naphthalene	<5.00		5.00	3.00	ug/L			02/27/23 16:27	1

Client Sample ID: MW-39R
Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propionitrile	<10.0		10.0	3.40	ug/L			02/27/23 16:27	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 16:27	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 16:27	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 16:27	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 16:27	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 16:27	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 16:27	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 16:27	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 16:27	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 16:27	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 16:27	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*125*		*80 - 128*		*02/27/23 16:27*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/27/23 16:27*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*02/27/23 16:27*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<9.43		9.43	0.604	ug/L		02/27/23 11:26	03/01/23 11:41	1
Acenaphthylene	<9.43		9.43	0.679	ug/L		02/27/23 11:26	03/01/23 11:41	1
Acetophenone	<9.43		9.43	0.651	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Acetylaminofluorene	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Aminobiphenyl	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 11:41	1
Anthracene	<9.43		9.43	0.821	ug/L		02/27/23 11:26	03/01/23 11:41	1
Benzo[a]anthracene	<9.43		9.43	0.802	ug/L		02/27/23 11:26	03/01/23 11:41	1
Benzo[a]pyrene	<9.43		9.43	7.64	ug/L		02/27/23 11:26	03/01/23 11:41	1
Benzo[b]fluoranthene	<9.43		9.43	4.62	ug/L		02/27/23 11:26	03/01/23 11:41	1
Benzo[g,h,i]perylene	<9.43		9.43	5.94	ug/L		02/27/23 11:26	03/01/23 11:41	1
Benzo[k]fluoranthene	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 11:41	1
Benzyl alcohol	<9.43		9.43	1.23	ug/L		02/27/23 11:26	03/01/23 11:41	1
Bis(2-chloroethoxy)methane	<9.43		9.43	0.717	ug/L		02/27/23 11:26	03/01/23 11:41	1
Bis(2-chloroethyl)ether	<9.43		9.43	0.774	ug/L		02/27/23 11:26	03/01/23 11:41	1
bis (2-chloroisopropyl) ether	<9.43		9.43	0.509	ug/L		02/27/23 11:26	03/01/23 11:41	1
Bis(2-ethylhexyl) phthalate	<9.43		9.43	5.19	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Bromophenyl phenyl ether	<9.43		9.43	0.660	ug/L		02/27/23 11:26	03/01/23 11:41	1
Butyl benzyl phthalate	<9.43		9.43	5.09	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Chloroaniline	<9.43		9.43	0.585	ug/L		02/27/23 11:26	03/01/23 11:41	1
Chlorobenzilate	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Chloro-3-methylphenol	<9.43		9.43	0.792	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Chloronaphthalene	<9.43		9.43	0.604	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Chlorophenol	<9.43		9.43	0.509	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Chlorophenyl phenyl ether	<9.43		9.43	0.651	ug/L		02/27/23 11:26	03/01/23 11:41	1
Chrysene	<9.43		9.43	0.821	ug/L		02/27/23 11:26	03/01/23 11:41	1
Diallate	<9.43		9.43	3.77	ug/L		02/27/23 11:26	03/01/23 11:41	1
Dibenz(a,h)anthracene	<9.43		9.43	3.68	ug/L		02/27/23 11:26	03/01/23 11:41	1
Dibenzofuran	<9.43		9.43	0.698	ug/L		02/27/23 11:26	03/01/23 11:41	1
3,3'-Dichlorobenzidine	<9.43		9.43	1.32	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,4-Dichlorophenol	<9.43		9.43	0.802	ug/L		02/27/23 11:26	03/01/23 11:41	1

Client Sample ID: MW-39R
Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	<9.43		9.43	0.651	ug/L		02/27/23 11:26	03/01/23 11:41	1
Diethyl phthalate	<9.43	*+	9.43	1.60	ug/L		02/27/23 11:26	03/01/23 11:41	1
Dimethoate	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 11:41	1
7,12-Dimethylbenz(a)anthracene	<9.43		9.43	1.79	ug/L		02/27/23 11:26	03/01/23 11:41	1
3,3'-Dimethylbenzidine	<9.43		9.43	1.42	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,4-Dimethylphenol	<9.43		9.43	0.547	ug/L		02/27/23 11:26	03/01/23 11:41	1
Dimethyl phthalate	<9.43		9.43	0.943	ug/L		02/27/23 11:26	03/01/23 11:41	1
Di-n-butyl phthalate	<9.43		9.43	5.28	ug/L		02/27/23 11:26	03/01/23 11:41	1
1,3-Dinitrobenzene	<9.43		9.43	3.02	ug/L		02/27/23 11:26	03/01/23 11:41	1
4,6-Dinitro-2-methylphenol	<9.43		9.43	6.51	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,4-Dinitrophenol	<18.9		18.9	12.3	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,4-Dinitrotoluene	<9.43	*+	9.43	6.04	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,6-Dinitrotoluene	<9.43		9.43	0.491	ug/L		02/27/23 11:26	03/01/23 11:41	1
Di-n-octyl phthalate	<18.9		18.9	6.60	ug/L		02/27/23 11:26	03/01/23 11:41	1
Dinoseb	<9.43		9.43	2.26	ug/L		02/27/23 11:26	03/01/23 11:41	1
Diphenylamine	<9.43		9.43	5.66	ug/L		02/27/23 11:26	03/01/23 11:41	1
Disulfoton	<9.43		9.43	2.26	ug/L		02/27/23 11:26	03/01/23 11:41	1
Ethyl methanesulfonate	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 11:41	1
Ethyl parathion	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 11:41	1
Famphur	<9.43		9.43	3.58	ug/L		02/27/23 11:26	03/01/23 11:41	1
Fluoranthene	<9.43		9.43	1.60	ug/L		02/27/23 11:26	03/01/23 11:41	1
Fluorene	<9.43	*+	9.43	0.745	ug/L		02/27/23 11:26	03/01/23 11:41	1
Hexachlorobenzene	<9.43		9.43	0.660	ug/L		02/27/23 11:26	03/01/23 11:41	1
Hexachlorobutadiene	<9.43		9.43	0.811	ug/L		02/27/23 11:26	03/01/23 11:41	1
Hexachlorocyclopentadiene	<9.43		9.43	4.81	ug/L		02/27/23 11:26	03/01/23 11:41	1
Hexachloroethane	<9.43		9.43	0.915	ug/L		02/27/23 11:26	03/01/23 11:41	1
Hexachloropropene	<9.43		9.43	2.45	ug/L		02/27/23 11:26	03/01/23 11:41	1
Indeno(1,2,3-cd)pyrene	<9.43		9.43	3.96	ug/L		02/27/23 11:26	03/01/23 11:41	1
Isodrin	<9.43		9.43	4.43	ug/L		02/27/23 11:26	03/01/23 11:41	1
Isophorone	<9.43		9.43	0.877	ug/L		02/27/23 11:26	03/01/23 11:41	1
Isosafrole	<9.43		9.43	2.17	ug/L		02/27/23 11:26	03/01/23 11:41	1
Kepone	<9.43		9.43	0.943	ug/L		02/27/23 11:26	03/01/23 11:41	1
Methapyrilene	<9.43		9.43	0.717	ug/L		02/27/23 11:26	03/01/23 11:41	1
3-Methylcholanthrene	<9.43		9.43	0.302	ug/L		02/27/23 11:26	03/01/23 11:41	1
Methyl methanesulfonate	<9.43		9.43	3.11	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Methylnaphthalene	**11.2**	**B *1 *+**	9.43	0.557	ug/L		02/27/23 11:26	03/01/23 11:41	1
Methyl parathion	<9.43		9.43	2.17	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Methylphenol	<9.43		9.43	0.613	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Methylphenol (and/or 3-Methylphenol)	<9.43		9.43	0.660	ug/L		02/27/23 11:26	03/01/23 11:41	1
1,4-Naphthoquinone	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 11:41	1
1-Naphthylamine	<9.43		9.43	2.36	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Naphthylamine	<9.43		9.43	1.98	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Nitroaniline	<9.43		9.43	5.57	ug/L		02/27/23 11:26	03/01/23 11:41	1
3-Nitroaniline	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Nitroaniline	<9.43		9.43	1.23	ug/L		02/27/23 11:26	03/01/23 11:41	1
Nitrobenzene	<9.43		9.43	0.755	ug/L		02/27/23 11:26	03/01/23 11:41	1
5-Nitro-o-toluidine	<9.43		9.43	2.64	ug/L		02/27/23 11:26	03/01/23 11:41	1
2-Nitrophenol	<9.43		9.43	6.42	ug/L		02/27/23 11:26	03/01/23 11:41	1
4-Nitrophenol	<9.43		9.43	7.17	ug/L		02/27/23 11:26	03/01/23 11:41	1

Client Sample ID: MW-39R

Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5

Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodiethylamine	<9.43		9.43	3.21	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosodimethylamine	<9.43		9.43	0.679	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosodi-n-butylamine	<9.43		9.43	3.68	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosodi-n-propylamine	<9.43		9.43	0.868	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosodiphenylamine	<9.43		9.43	0.708	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosomethylethylamine	<9.43		9.43	4.62	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosopiperidine	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 11:41	1
N-Nitrosopyrrolidine	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 11:41	1
o,o',o''-Triethylphosphorothioate	<9.43		9.43	3.02	ug/L		02/27/23 11:26	03/01/23 11:41	1
o-Toluidine	<9.43		9.43	2.74	ug/L		02/27/23 11:26	03/01/23 11:41	1
p-Dimethylamino azobenzene	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 11:41	1
Pentachlorobenzene	<9.43		9.43	2.64	ug/L		02/27/23 11:26	03/01/23 11:41	1
Pentachloronitrobenzene	<9.43		9.43	5.47	ug/L		02/27/23 11:26	03/01/23 11:41	1
Pentachlorophenol	<9.43		9.43	9.06	ug/L		02/27/23 11:26	03/01/23 11:41	1
Phenacetin	<9.43		9.43	1.79	ug/L		02/27/23 11:26	03/01/23 11:41	1
Phenanthrene	<9.43		9.43	0.745	ug/L		02/27/23 11:26	03/01/23 11:41	1
Phenol	<9.43		9.43	1.04	ug/L		02/27/23 11:26	03/01/23 11:41	1
1,4-Phenylenediamine	<9.43		9.43	1.79	ug/L		02/27/23 11:26	03/01/23 11:41	1
Phorate	<9.43		9.43	3.02	ug/L		02/27/23 11:26	03/01/23 11:41	1
Pronamide	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 11:41	1
Pyrene	<9.43		9.43	0.745	ug/L		02/27/23 11:26	03/01/23 11:41	1
Safrole	<9.43		9.43	2.64	ug/L		02/27/23 11:26	03/01/23 11:41	1
1,2,4,5-Tetrachlorobenzene	<9.43		9.43	0.509	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,3,4,6-Tetrachlorophenol	<9.43		9.43	5.00	ug/L		02/27/23 11:26	03/01/23 11:41	1
Thionazin	<9.43		9.43	3.30	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,4,5-Trichlorophenol	<9.43		9.43	5.00	ug/L		02/27/23 11:26	03/01/23 11:41	1
2,4,6-Trichlorophenol	<9.43		9.43	4.72	ug/L		02/27/23 11:26	03/01/23 11:41	1
1,3,5-Trinitrobenzene	<9.43		9.43	2.17	ug/L		02/27/23 11:26	03/01/23 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*101*		*28 - 110*	*02/27/23 11:26*	*03/01/23 11:41*	*1*
2-Fluorophenol (Surr)	*73*		*13 - 110*	*02/27/23 11:26*	*03/01/23 11:41*	*1*
Nitrobenzene-d5 (Surr)	*88*		*27 - 115*	*02/27/23 11:26*	*03/01/23 11:41*	*1*
Phenol-d5 (Surr)	*63*		*12 - 110*	*02/27/23 11:26*	*03/01/23 11:41*	*1*
Terphenyl-d14 (Surr)	*93*		*10 - 125*	*02/27/23 11:26*	*03/01/23 11:41*	*1*
2,4,6-Tribromophenol (Surr)	*86*		*15 - 121*	*02/27/23 11:26*	*03/01/23 11:41*	*1*

Method: SW846 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	**0.603**	**J**	10.0	0.570	mg/L			02/28/23 14:41	1
Isobutanol	<10.0		10.0	0.550	mg/L			02/28/23 14:41	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0593		0.0593	0.0296	ug/L		02/27/23 11:32	03/07/23 14:55	1
alpha-BHC	<0.0593		0.0593	0.0269	ug/L		02/27/23 11:32	03/07/23 14:55	1
beta-BHC	<0.0593		0.0593	0.0343	ug/L		02/27/23 11:32	03/07/23 14:55	1
Chlordane (technical)	<1.85		1.85	0.750	ug/L		02/27/23 11:32	03/07/23 14:55	1
4,4'-DDD	<0.0593		0.0593	0.0250	ug/L		02/27/23 11:32	03/07/23 14:55	1
4,4'-DDE	<0.0593		0.0593	0.0250	ug/L		02/27/23 11:32	03/07/23 14:55	1

Client Sample ID: MW-39R

Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5

Matrix: Ground Water

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	<0.0593		0.0593	0.0389	ug/L		02/27/23 11:32	03/07/23 14:55	1
delta-BHC	<0.0593		0.0593	0.0250	ug/L		02/27/23 11:32	03/07/23 14:55	1
Dieldrin	<0.0593		0.0593	0.0241	ug/L		02/27/23 11:32	03/07/23 14:55	1
Endosulfan I	<0.0593		0.0593	0.0306	ug/L		02/27/23 11:32	03/07/23 14:55	1
Endosulfan II	<0.0593		0.0593	0.0269	ug/L		02/27/23 11:32	03/07/23 14:55	1
Endosulfan sulfate	<0.0593		0.0593	0.0278	ug/L		02/27/23 11:32	03/07/23 14:55	1
Endrin	<0.0593		0.0593	0.0241	ug/L		02/27/23 11:32	03/07/23 14:55	1
Endrin aldehyde	<0.0593		0.0593	0.0269	ug/L		02/27/23 11:32	03/07/23 14:55	1
gamma-BHC (Lindane)	<0.0593		0.0593	0.0333	ug/L		02/27/23 11:32	03/07/23 14:55	1
Heptachlor	<0.0593		0.0593	0.0306	ug/L		02/27/23 11:32	03/07/23 14:55	1
Heptachlor epoxide	<0.0593		0.0593	0.0269	ug/L		02/27/23 11:32	03/07/23 14:55	1
Methoxychlor	<0.0593		0.0593	0.0380	ug/L		02/27/23 11:32	03/07/23 14:55	1
Toxaphene	<1.85		1.85	0.639	ug/L		02/27/23 11:32	03/07/23 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*36*		*10 - 136*	*02/27/23 11:32*	*03/07/23 14:55*	*1*
Tetrachloro-m-xylene	*72*		*10 - 130*	*02/27/23 11:32*	*03/07/23 14:55*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.741		0.741	0.157	ug/L		02/27/23 11:32	03/07/23 14:55	1
PCB-1221	<0.741		0.741	0.157	ug/L		02/27/23 11:32	03/07/23 14:55	1
PCB-1232	<0.741		0.741	0.157	ug/L		02/27/23 11:32	03/07/23 14:55	1
PCB-1242	<0.741		0.741	0.157	ug/L		02/27/23 11:32	03/07/23 14:55	1
PCB-1248	<0.741		0.741	0.102	ug/L		02/27/23 11:32	03/07/23 14:55	1
PCB-1254	<0.741		0.741	0.102	ug/L		02/27/23 11:32	03/07/23 14:55	1
PCB-1260	<0.741		0.741	0.102	ug/L		02/27/23 11:32	03/07/23 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*36*		*10 - 136*	*02/27/23 11:32*	*03/07/23 14:55*	*1*
Tetrachloro-m-xylene (Surr)	*72*		*10 - 130*	*02/27/23 11:32*	*03/07/23 14:55*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1430**		50.0	20.0	mg/L			03/01/23 16:49	50

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:42	1
Arsenic	**0.00563**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:42	1
Barium	**0.00835**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:42	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:42	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:42	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:42	1
Cobalt	**0.0417**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:42	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:42	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:42	1
Nickel	**0.0260**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:42	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:42	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:42	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:42	1

Client Sample ID: MW-39R

Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5

Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:42	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:42	1
Tin	<0.00500		0.00500	0.00300	mg/L		03/03/23 09:55	03/06/23 16:42	1
Iron	**46.5**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:42	1
Aluminum	<0.0500		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 16:42	1
Manganese	**4.40**		0.0700	0.0252	mg/L		03/03/23 09:55	03/07/23 13:10	7

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		03/03/23 12:12	03/06/23 13:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<0.0100		0.0100	0.00430	mg/L		02/28/23 09:52	02/28/23 19:54	1
Total Suspended Solids (USGS I-3765-85)	**64.5**		7.50	2.55	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**823**		5.00	2.30	mg/L			03/01/23 15:54	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**823**		5.00	2.30	mg/L			03/01/23 15:54	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 15:54	1

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 12:12	1
2,4,5-TP (Silvex)	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 12:12	1
2,4-D	<2.0		2.0		ug/L		02/27/23 16:59	03/13/23 12:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dichlorobenzoic Acid	*100*		*31 - 116*	*02/27/23 16:59*	*03/13/23 12:12*	*1*

Client Sample ID: MW-40
Date Collected: 02/21/23 14:27
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-6
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 18:04	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 18:04	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 18:04	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 18:04	1
1,1-Dichloroethane	**0.694**	**J**	1.00	0.220	ug/L			02/27/23 18:04	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 18:04	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 18:04	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 18:04	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 18:04	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 18:04	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 18:04	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 18:04	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 18:04	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 18:04	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 18:04	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 18:04	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 18:04	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 18:04	1
Benzene	**0.708**		0.500	0.220	ug/L			02/27/23 18:04	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 18:04	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 18:04	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 18:04	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 18:04	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 18:04	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 18:04	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 18:04	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 18:04	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 18:04	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 18:04	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 18:04	1
cis-1,2-Dichloroethene	**4.77**		1.00	0.210	ug/L			02/27/23 18:04	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 18:04	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 18:04	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 18:04	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 18:04	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 18:04	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 18:04	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 18:04	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 18:04	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 18:04	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 18:04	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 18:04	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 18:04	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 18:04	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 18:04	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 18:04	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 18:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*117*		*80 - 128*		*02/27/23 18:04*	*1*

Client Sample ID: MW-40
Date Collected: 02/21/23 14:27
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-6
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*02/27/23 18:04*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/27/23 18:04*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**473**		20.0	8.00	mg/L			03/01/23 17:36	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:45	1
Arsenic	**0.00222**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:45	1
Barium	**0.0133**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:45	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:45	1
Cadmium	**0.000617**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:45	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:45	1
Cobalt	**0.0714**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:45	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:45	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:45	1
Nickel	**0.0596**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:45	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:45	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:45	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:45	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:45	1
Zinc	**0.0309**		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:45	1
Iron	**12.0**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:45	1
Aluminum	**0.0393**	**J**	0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 16:45	1
Manganese	**31.2**		0.100	0.0360	mg/L		03/03/23 09:55	03/07/23 13:14	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**8.75**		1.88	0.638	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**308**		5.00	2.30	mg/L			03/01/23 16:09	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**308**		5.00	2.30	mg/L			03/01/23 16:09	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 16:09	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 04-MW-56

Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 16:51	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 16:51	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 16:51	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 16:51	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 16:51	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 16:51	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			02/27/23 16:51	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 16:51	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			02/27/23 16:51	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 16:51	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 16:51	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 16:51	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 16:51	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 16:51	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			02/27/23 16:51	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			02/27/23 16:51	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 16:51	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			02/27/23 16:51	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 16:51	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 16:51	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 16:51	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 16:51	1
Acrolein	<10.0		10.0	3.60	ug/L			02/27/23 16:51	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 16:51	1
Allyl chloride	<2.00		2.00	0.700	ug/L			02/27/23 16:51	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 16:51	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 16:51	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 16:51	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 16:51	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 16:51	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 16:51	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 16:51	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 16:51	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 16:51	1
Chloroethane	**1.11**	**J**	4.00	0.790	ug/L			02/27/23 16:51	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 16:51	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 16:51	1
Chloroprene	<1.00		1.00	0.230	ug/L			02/27/23 16:51	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 16:51	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 16:51	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 16:51	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			02/27/23 16:51	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			02/27/23 16:51	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 16:51	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 16:51	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			02/27/23 16:51	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			02/27/23 16:51	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 16:51	1
Naphthalene	<5.00		5.00	3.00	ug/L			02/27/23 16:51	1

Client Sample ID: 04-MW-56
Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propionitrile	<10.0		10.0	3.40	ug/L			02/27/23 16:51	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 16:51	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 16:51	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 16:51	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 16:51	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 16:51	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 16:51	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 16:51	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 16:51	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 16:51	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 16:51	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/27/23 16:51*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*02/27/23 16:51*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/27/23 16:51*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<10.0		10.0	0.640	ug/L		02/27/23 11:26	03/01/23 12:06	1
Acenaphthylene	<10.0		10.0	0.720	ug/L		02/27/23 11:26	03/01/23 12:06	1
Acetophenone	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Acetylaminofluorene	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Aminobiphenyl	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
Anthracene	<10.0		10.0	0.870	ug/L		02/27/23 11:26	03/01/23 12:06	1
Benzo[a]anthracene	<10.0		10.0	0.850	ug/L		02/27/23 11:26	03/01/23 12:06	1
Benzo[a]pyrene	<10.0		10.0	8.10	ug/L		02/27/23 11:26	03/01/23 12:06	1
Benzo[b]fluoranthene	<10.0		10.0	4.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
Benzo[g,h,i]perylene	<10.0		10.0	6.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
Benzo[k]fluoranthene	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
Benzyl alcohol	<10.0		10.0	1.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
Bis(2-chloroethoxy)methane	<10.0		10.0	0.760	ug/L		02/27/23 11:26	03/01/23 12:06	1
Bis(2-chloroethyl)ether	<10.0		10.0	0.820	ug/L		02/27/23 11:26	03/01/23 12:06	1
bis (2-chloroisopropyl) ether	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 12:06	1
Bis(2-ethylhexyl) phthalate	<10.0		10.0	5.50	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Bromophenyl phenyl ether	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 12:06	1
Butyl benzyl phthalate	<10.0		10.0	5.40	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Chloroaniline	<10.0		10.0	0.620	ug/L		02/27/23 11:26	03/01/23 12:06	1
Chlorobenzilate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Chloro-3-methylphenol	<10.0		10.0	0.840	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Chloronaphthalene	<10.0		10.0	0.640	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Chlorophenol	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Chlorophenyl phenyl ether	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 12:06	1
Chrysene	<10.0		10.0	0.870	ug/L		02/27/23 11:26	03/01/23 12:06	1
Diallate	<10.0		10.0	4.00	ug/L		02/27/23 11:26	03/01/23 12:06	1
Dibenz(a,h)anthracene	<10.0		10.0	3.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
Dibenzofuran	<10.0		10.0	0.740	ug/L		02/27/23 11:26	03/01/23 12:06	1
3,3'-Dichlorobenzidine	<10.0		10.0	1.40	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,4-Dichlorophenol	<10.0		10.0	0.850	ug/L		02/27/23 11:26	03/01/23 12:06	1

Client Sample ID: 04-MW-56
Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 12:06	1
Diethyl phthalate	<10.0	*+	10.0	1.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
Dimethoate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
7,12-Dimethylbenz(a)anthracene	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
3,3'-Dimethylbenzidine	<10.0		10.0	1.50	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,4-Dimethylphenol	<10.0		10.0	0.580	ug/L		02/27/23 11:26	03/01/23 12:06	1
Dimethyl phthalate	<10.0		10.0	1.00	ug/L		02/27/23 11:26	03/01/23 12:06	1
Di-n-butyl phthalate	<10.0		10.0	5.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
1,3-Dinitrobenzene	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
4,6-Dinitro-2-methylphenol	<10.0		10.0	6.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,4-Dinitrophenol	<20.0		20.0	13.0	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,4-Dinitrotoluene	<10.0	*+	10.0	6.40	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,6-Dinitrotoluene	<10.0		10.0	0.520	ug/L		02/27/23 11:26	03/01/23 12:06	1
Di-n-octyl phthalate	<20.0		20.0	7.00	ug/L		02/27/23 11:26	03/01/23 12:06	1
Dinoseb	<10.0		10.0	2.40	ug/L		02/27/23 11:26	03/01/23 12:06	1
Diphenylamine	<10.0		10.0	6.00	ug/L		02/27/23 11:26	03/01/23 12:06	1
Disulfoton	<10.0		10.0	2.40	ug/L		02/27/23 11:26	03/01/23 12:06	1
Ethyl methanesulfonate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
Ethyl parathion	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
Famphur	<10.0		10.0	3.80	ug/L		02/27/23 11:26	03/01/23 12:06	1
Fluoranthene	<10.0		10.0	1.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
Fluorene	<10.0	*+	10.0	0.790	ug/L		02/27/23 11:26	03/01/23 12:06	1
Hexachlorobenzene	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 12:06	1
Hexachlorobutadiene	<10.0		10.0	0.860	ug/L		02/27/23 11:26	03/01/23 12:06	1
Hexachlorocyclopentadiene	<10.0		10.0	5.10	ug/L		02/27/23 11:26	03/01/23 12:06	1
Hexachloroethane	<10.0		10.0	0.970	ug/L		02/27/23 11:26	03/01/23 12:06	1
Hexachloropropene	<10.0		10.0	2.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
Indeno(1,2,3-cd)pyrene	<10.0		10.0	4.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
Isodrin	<10.0		10.0	4.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
Isophorone	<10.0		10.0	0.930	ug/L		02/27/23 11:26	03/01/23 12:06	1
Isosafrole	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
Kepone	<10.0		10.0	1.00	ug/L		02/27/23 11:26	03/01/23 12:06	1
Methapyrilene	<10.0		10.0	0.760	ug/L		02/27/23 11:26	03/01/23 12:06	1
3-Methylcholanthrene	<10.0		10.0	0.320	ug/L		02/27/23 11:26	03/01/23 12:06	1
Methyl methanesulfonate	<10.0		10.0	3.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Methylnaphthalene	**36.0**	**B *1 *+**	10.0	0.590	ug/L		02/27/23 11:26	03/01/23 12:06	1
Methyl parathion	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Methylphenol	<10.0		10.0	0.650	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Methylphenol (and/or 3-Methylphenol)	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 12:06	1
1,4-Naphthoquinone	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
1-Naphthylamine	<10.0		10.0	2.50	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Naphthylamine	<10.0		10.0	2.10	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Nitroaniline	<10.0		10.0	5.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
3-Nitroaniline	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Nitroaniline	<10.0		10.0	1.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
Nitrobenzene	<10.0		10.0	0.800	ug/L		02/27/23 11:26	03/01/23 12:06	1
5-Nitro-o-toluidine	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 12:06	1
2-Nitrophenol	<10.0		10.0	6.80	ug/L		02/27/23 11:26	03/01/23 12:06	1
4-Nitrophenol	<10.0		10.0	7.60	ug/L		02/27/23 11:26	03/01/23 12:06	1

Client Sample ID: 04-MW-56
Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodiethylamine	<10.0		10.0	3.40	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosodimethylamine	<10.0		10.0	0.720	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosodi-n-butylamine	<10.0		10.0	3.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosodi-n-propylamine	<10.0		10.0	0.920	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosodiphenylamine	**3.34**	**J**	10.0	0.750	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosomethylethylamine	<10.0		10.0	4.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosopiperidine	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
N-Nitrosopyrrolidine	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
o,o',o''-Triethylphosphorothioate	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
o-Toluidine	<10.0		10.0	2.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
p-Dimethylamino azobenzene	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
Pentachlorobenzene	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 12:06	1
Pentachloronitrobenzene	<10.0		10.0	5.80	ug/L		02/27/23 11:26	03/01/23 12:06	1
Pentachlorophenol	<10.0		10.0	9.60	ug/L		02/27/23 11:26	03/01/23 12:06	1
Phenacetin	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
Phenanthrene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 12:06	1
Phenol	<10.0		10.0	1.10	ug/L		02/27/23 11:26	03/01/23 12:06	1
1,4-Phenylenediamine	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 12:06	1
Phorate	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 12:06	1
Pronamide	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:06	1
Pyrene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 12:06	1
Safrole	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 12:06	1
1,2,4,5-Tetrachlorobenzene	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,3,4,6-Tetrachlorophenol	<10.0		10.0	5.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
Thionazin	<10.0		10.0	3.50	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,4,5-Trichlorophenol	<10.0		10.0	5.30	ug/L		02/27/23 11:26	03/01/23 12:06	1
2,4,6-Trichlorophenol	<10.0		10.0	5.00	ug/L		02/27/23 11:26	03/01/23 12:06	1
1,3,5-Trinitrobenzene	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 12:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*28 - 110*	*02/27/23 11:26*	*03/01/23 12:06*	*1*
2-Fluorophenol (Surr)	*52*		*13 - 110*	*02/27/23 11:26*	*03/01/23 12:06*	*1*
Nitrobenzene-d5 (Surr)	*63*		*27 - 115*	*02/27/23 11:26*	*03/01/23 12:06*	*1*
Phenol-d5 (Surr)	*45*		*12 - 110*	*02/27/23 11:26*	*03/01/23 12:06*	*1*
Terphenyl-d14 (Surr)	*67*		*10 - 125*	*02/27/23 11:26*	*03/01/23 12:06*	*1*
2,4,6-Tribromophenol (Surr)	*63*		*15 - 121*	*02/27/23 11:26*	*03/01/23 12:06*	*1*

Method: SW846 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<10.0		10.0	0.570	mg/L			02/28/23 15:00	1
Isobutanol	<10.0		10.0	0.550	mg/L			02/28/23 15:00	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0640		0.0640	0.0320	ug/L		02/27/23 11:32	03/07/23 15:08	1
alpha-BHC	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 15:08	1
beta-BHC	<0.0640		0.0640	0.0370	ug/L		02/27/23 11:32	03/07/23 15:08	1
Chlordane (technical)	<2.00		2.00	0.810	ug/L		02/27/23 11:32	03/07/23 15:08	1
4,4'-DDD	<0.0640		0.0640	0.0270	ug/L		02/27/23 11:32	03/07/23 15:08	1
4,4'-DDE	<0.0640		0.0640	0.0270	ug/L		02/27/23 11:32	03/07/23 15:08	1

Client Sample ID: 04-MW-56

Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7

Matrix: Ground Water

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	<0.0640		0.0640	0.0420	ug/L		02/27/23 11:32	03/07/23 15:08	1
delta-BHC	<0.0640		0.0640	0.0270	ug/L		02/27/23 11:32	03/07/23 15:08	1
Dieldrin	<0.0640		0.0640	0.0260	ug/L		02/27/23 11:32	03/07/23 15:08	1
Endosulfan I	<0.0640		0.0640	0.0330	ug/L		02/27/23 11:32	03/07/23 15:08	1
Endosulfan II	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 15:08	1
Endosulfan sulfate	<0.0640		0.0640	0.0300	ug/L		02/27/23 11:32	03/07/23 15:08	1
Endrin	<0.0640		0.0640	0.0260	ug/L		02/27/23 11:32	03/07/23 15:08	1
Endrin aldehyde	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 15:08	1
gamma-BHC (Lindane)	<0.0640		0.0640	0.0360	ug/L		02/27/23 11:32	03/07/23 15:08	1
Heptachlor	<0.0640		0.0640	0.0330	ug/L		02/27/23 11:32	03/07/23 15:08	1
Heptachlor epoxide	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 15:08	1
Methoxychlor	<0.0640		0.0640	0.0410	ug/L		02/27/23 11:32	03/07/23 15:08	1
Toxaphene	<2.00		2.00	0.690	ug/L		02/27/23 11:32	03/07/23 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*25*		*10 - 136*	*02/27/23 11:32*	*03/07/23 15:08*	*1*
Tetrachloro-m-xylene	*62*		*10 - 130*	*02/27/23 11:32*	*03/07/23 15:08*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 15:08	1
PCB-1221	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 15:08	1
PCB-1232	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 15:08	1
PCB-1242	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 15:08	1
PCB-1248	<0.800		0.800	0.110	ug/L		02/27/23 11:32	03/07/23 15:08	1
PCB-1254	<0.800		0.800	0.110	ug/L		02/27/23 11:32	03/07/23 15:08	1
PCB-1260	<0.800		0.800	0.110	ug/L		02/27/23 11:32	03/07/23 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*25*		*10 - 136*	*02/27/23 11:32*	*03/07/23 15:08*	*1*
Tetrachloro-m-xylene (Surr)	*62*		*10 - 130*	*02/27/23 11:32*	*03/07/23 15:08*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**272**		20.0	8.00	mg/L			03/01/23 17:52	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:48	1
Arsenic	**0.00591**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:48	1
Barium	**0.0239**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:48	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:48	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:48	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:48	1
Cobalt	**0.0153**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:48	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:48	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:48	1
Nickel	**0.0652**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:48	1
Selenium	**0.00120**	**J**	0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:48	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:48	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:48	1

Client Sample ID: 04-MW-56
Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7
Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:48	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:48	1
Tin	<0.00500		0.00500	0.00300	mg/L		03/03/23 09:55	03/06/23 16:48	1
Iron	**30.7**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:48	1
Aluminum	<0.0500		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 16:48	1
Manganese	**8.26**		0.0400	0.0144	mg/L		03/03/23 09:55	03/07/23 13:17	4

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		03/03/23 12:12	03/06/23 13:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<0.0100		0.0100	0.00430	mg/L		02/28/23 09:52	02/28/23 19:55	1
Sulfide (SW846 9034)	<1.00		1.00	0.231	mg/L		03/01/23 18:12	03/01/23 23:26	1
Total Suspended Solids (USGS I-3765-85)	**19.7**		5.00	1.70	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**750**		5.00	2.30	mg/L			03/01/23 16:20	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**750**		5.00	2.30	mg/L			03/01/23 16:20	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 16:20	1

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 12:45	1
2,4,5-TP (Silvex)	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 12:45	1
2,4-D	<2.0		2.0		ug/L		02/27/23 16:59	03/13/23 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dichlorobenzoic Acid	*102*		*31 - 116*	*02/27/23 16:59*	*03/13/23 12:45*	*1*

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-58

Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 15:15	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 15:15	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 15:15	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 15:15	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 15:15	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 15:15	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			02/27/23 15:15	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 15:15	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			02/27/23 15:15	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 15:15	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 15:15	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 15:15	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 15:15	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 15:15	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			02/27/23 15:15	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			02/27/23 15:15	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 15:15	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			02/27/23 15:15	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 15:15	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 15:15	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 15:15	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 15:15	1
Acrolein	<10.0		10.0	3.60	ug/L			02/27/23 15:15	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 15:15	1
Allyl chloride	<2.00		2.00	0.700	ug/L			02/27/23 15:15	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 15:15	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 15:15	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 15:15	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 15:15	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 15:15	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 15:15	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 15:15	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 15:15	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 15:15	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 15:15	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 15:15	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 15:15	1
Chloroprene	<1.00		1.00	0.230	ug/L			02/27/23 15:15	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 15:15	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 15:15	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 15:15	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			02/27/23 15:15	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			02/27/23 15:15	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 15:15	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 15:15	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			02/27/23 15:15	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			02/27/23 15:15	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 15:15	1
Naphthalene	<5.00		5.00	3.00	ug/L			02/27/23 15:15	1

Client Sample ID: MW-58
Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propionitrile	<10.0		10.0	3.40	ug/L			02/27/23 15:15	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 15:15	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 15:15	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 15:15	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 15:15	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 15:15	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 15:15	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 15:15	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 15:15	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 15:15	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 15:15	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*123*		*80 - 128*		*02/27/23 15:15*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*02/27/23 15:15*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/27/23 15:15*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<10.0		10.0	0.640	ug/L		02/27/23 11:26	03/01/23 12:30	1
Acenaphthylene	<10.0		10.0	0.720	ug/L		02/27/23 11:26	03/01/23 12:30	1
Acetophenone	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Acetylaminofluorene	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Aminobiphenyl	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
Anthracene	<10.0		10.0	0.870	ug/L		02/27/23 11:26	03/01/23 12:30	1
Benzo[a]anthracene	<10.0		10.0	0.850	ug/L		02/27/23 11:26	03/01/23 12:30	1
Benzo[a]pyrene	<10.0		10.0	8.10	ug/L		02/27/23 11:26	03/01/23 12:30	1
Benzo[b]fluoranthene	<10.0		10.0	4.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
Benzo[g,h,i]perylene	<10.0		10.0	6.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
Benzo[k]fluoranthene	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
Benzyl alcohol	<10.0		10.0	1.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
Bis(2-chloroethoxy)methane	<10.0		10.0	0.760	ug/L		02/27/23 11:26	03/01/23 12:30	1
Bis(2-chloroethyl)ether	<10.0		10.0	0.820	ug/L		02/27/23 11:26	03/01/23 12:30	1
bis (2-chloroisopropyl) ether	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 12:30	1
Bis(2-ethylhexyl) phthalate	<10.0		10.0	5.50	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Bromophenyl phenyl ether	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 12:30	1
Butyl benzyl phthalate	<10.0		10.0	5.40	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Chloroaniline	<10.0		10.0	0.620	ug/L		02/27/23 11:26	03/01/23 12:30	1
Chlorobenzilate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Chloro-3-methylphenol	<10.0		10.0	0.840	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Chloronaphthalene	<10.0		10.0	0.640	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Chlorophenol	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Chlorophenyl phenyl ether	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 12:30	1
Chrysene	<10.0		10.0	0.870	ug/L		02/27/23 11:26	03/01/23 12:30	1
Diallate	<10.0		10.0	4.00	ug/L		02/27/23 11:26	03/01/23 12:30	1
Dibenz(a,h)anthracene	<10.0		10.0	3.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
Dibenzofuran	<10.0		10.0	0.740	ug/L		02/27/23 11:26	03/01/23 12:30	1
3,3'-Dichlorobenzidine	<10.0		10.0	1.40	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,4-Dichlorophenol	<10.0		10.0	0.850	ug/L		02/27/23 11:26	03/01/23 12:30	1

Client Sample ID: MW-58
Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 12:30	1
Diethyl phthalate	<10.0	*+	10.0	1.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
Dimethoate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
7,12-Dimethylbenz(a)anthracene	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
3,3'-Dimethylbenzidine	<10.0		10.0	1.50	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,4-Dimethylphenol	<10.0		10.0	0.580	ug/L		02/27/23 11:26	03/01/23 12:30	1
Dimethyl phthalate	<10.0		10.0	1.00	ug/L		02/27/23 11:26	03/01/23 12:30	1
Di-n-butyl phthalate	<10.0		10.0	5.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
1,3-Dinitrobenzene	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
4,6-Dinitro-2-methylphenol	<10.0		10.0	6.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,4-Dinitrophenol	<20.0		20.0	13.0	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,4-Dinitrotoluene	<10.0	*+	10.0	6.40	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,6-Dinitrotoluene	<10.0		10.0	0.520	ug/L		02/27/23 11:26	03/01/23 12:30	1
Di-n-octyl phthalate	<20.0		20.0	7.00	ug/L		02/27/23 11:26	03/01/23 12:30	1
Dinoseb	<10.0		10.0	2.40	ug/L		02/27/23 11:26	03/01/23 12:30	1
Diphenylamine	<10.0		10.0	6.00	ug/L		02/27/23 11:26	03/01/23 12:30	1
Disulfoton	<10.0		10.0	2.40	ug/L		02/27/23 11:26	03/01/23 12:30	1
Ethyl methanesulfonate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
Ethyl parathion	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
Famphur	<10.0		10.0	3.80	ug/L		02/27/23 11:26	03/01/23 12:30	1
Fluoranthene	<10.0		10.0	1.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
Fluorene	<10.0	*+	10.0	0.790	ug/L		02/27/23 11:26	03/01/23 12:30	1
Hexachlorobenzene	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 12:30	1
Hexachlorobutadiene	<10.0		10.0	0.860	ug/L		02/27/23 11:26	03/01/23 12:30	1
Hexachlorocyclopentadiene	<10.0		10.0	5.10	ug/L		02/27/23 11:26	03/01/23 12:30	1
Hexachloroethane	<10.0		10.0	0.970	ug/L		02/27/23 11:26	03/01/23 12:30	1
Hexachloropropene	<10.0		10.0	2.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
Indeno(1,2,3-cd)pyrene	<10.0		10.0	4.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
Isodrin	<10.0		10.0	4.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
Isophorone	<10.0		10.0	0.930	ug/L		02/27/23 11:26	03/01/23 12:30	1
Isosafrole	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
Kepone	<10.0		10.0	1.00	ug/L		02/27/23 11:26	03/01/23 12:30	1
Methapyrilene	<10.0		10.0	0.760	ug/L		02/27/23 11:26	03/01/23 12:30	1
3-Methylcholanthrene	<10.0		10.0	0.320	ug/L		02/27/23 11:26	03/01/23 12:30	1
Methyl methanesulfonate	<10.0		10.0	3.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Methylnaphthalene	**21.3**	**B *1 *+**	10.0	0.590	ug/L		02/27/23 11:26	03/01/23 12:30	1
Methyl parathion	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Methylphenol	<10.0		10.0	0.650	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Methylphenol (and/or 3-Methylphenol)	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 12:30	1
1,4-Naphthoquinone	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
1-Naphthylamine	<10.0		10.0	2.50	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Naphthylamine	<10.0		10.0	2.10	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Nitroaniline	<10.0		10.0	5.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
3-Nitroaniline	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Nitroaniline	<10.0		10.0	1.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
Nitrobenzene	<10.0		10.0	0.800	ug/L		02/27/23 11:26	03/01/23 12:30	1
5-Nitro-o-toluidine	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 12:30	1
2-Nitrophenol	<10.0		10.0	6.80	ug/L		02/27/23 11:26	03/01/23 12:30	1
4-Nitrophenol	<10.0		10.0	7.60	ug/L		02/27/23 11:26	03/01/23 12:30	1

Client Sample ID: MW-58
Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodiethylamine	<10.0		10.0	3.40	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosodimethylamine	<10.0		10.0	0.720	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosodi-n-butylamine	<10.0		10.0	3.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosodi-n-propylamine	<10.0		10.0	0.920	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosodiphenylamine	<10.0		10.0	0.750	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosomethylethylamine	<10.0		10.0	4.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosopiperidine	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
N-Nitrosopyrrolidine	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
o,o',o''-Triethylphosphorothioate	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
o-Toluidine	<10.0		10.0	2.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
p-Dimethylamino azobenzene	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
Pentachlorobenzene	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 12:30	1
Pentachloronitrobenzene	<10.0		10.0	5.80	ug/L		02/27/23 11:26	03/01/23 12:30	1
Pentachlorophenol	<10.0		10.0	9.60	ug/L		02/27/23 11:26	03/01/23 12:30	1
Phenacetin	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
Phenanthrene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 12:30	1
Phenol	<10.0		10.0	1.10	ug/L		02/27/23 11:26	03/01/23 12:30	1
1,4-Phenylenediamine	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 12:30	1
Phorate	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 12:30	1
Pronamide	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 12:30	1
Pyrene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 12:30	1
Safrole	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 12:30	1
1,2,4,5-Tetrachlorobenzene	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,3,4,6-Tetrachlorophenol	<10.0		10.0	5.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
Thionazin	<10.0		10.0	3.50	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,4,5-Trichlorophenol	<10.0		10.0	5.30	ug/L		02/27/23 11:26	03/01/23 12:30	1
2,4,6-Trichlorophenol	<10.0		10.0	5.00	ug/L		02/27/23 11:26	03/01/23 12:30	1
1,3,5-Trinitrobenzene	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 12:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*101*		*28 - 110*	*02/27/23 11:26*	*03/01/23 12:30*	*1*
2-Fluorophenol (Surr)	*59*		*13 - 110*	*02/27/23 11:26*	*03/01/23 12:30*	*1*
Nitrobenzene-d5 (Surr)	*85*		*27 - 115*	*02/27/23 11:26*	*03/01/23 12:30*	*1*
Phenol-d5 (Surr)	*61*		*12 - 110*	*02/27/23 11:26*	*03/01/23 12:30*	*1*
Terphenyl-d14 (Surr)	*92*		*10 - 125*	*02/27/23 11:26*	*03/01/23 12:30*	*1*
2,4,6-Tribromophenol (Surr)	*65*		*15 - 121*	*02/27/23 11:26*	*03/01/23 12:30*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0604		0.0604	0.0302	ug/L		02/27/23 11:32	03/07/23 15:21	1
alpha-BHC	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:21	1
beta-BHC	<0.0604		0.0604	0.0349	ug/L		02/27/23 11:32	03/07/23 15:21	1
Chlordane (technical)	<1.89		1.89	0.764	ug/L		02/27/23 11:32	03/07/23 15:21	1
4,4'-DDD	<0.0604		0.0604	0.0255	ug/L		02/27/23 11:32	03/07/23 15:21	1
4,4'-DDE	<0.0604		0.0604	0.0255	ug/L		02/27/23 11:32	03/07/23 15:21	1
4,4'-DDT	<0.0604		0.0604	0.0396	ug/L		02/27/23 11:32	03/07/23 15:21	1
delta-BHC	<0.0604		0.0604	0.0255	ug/L		02/27/23 11:32	03/07/23 15:21	1
Dieldrin	<0.0604		0.0604	0.0245	ug/L		02/27/23 11:32	03/07/23 15:21	1
Endosulfan I	<0.0604		0.0604	0.0311	ug/L		02/27/23 11:32	03/07/23 15:21	1
Endosulfan II	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:21	1

Client Sample ID: MW-58
Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8
Matrix: Ground Water

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan sulfate	<0.0604		0.0604	0.0283	ug/L		02/27/23 11:32	03/07/23 15:21	1
Endrin	<0.0604		0.0604	0.0245	ug/L		02/27/23 11:32	03/07/23 15:21	1
Endrin aldehyde	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:21	1
gamma-BHC (Lindane)	<0.0604		0.0604	0.0340	ug/L		02/27/23 11:32	03/07/23 15:21	1
Heptachlor	<0.0604		0.0604	0.0311	ug/L		02/27/23 11:32	03/07/23 15:21	1
Heptachlor epoxide	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:21	1
Methoxychlor	<0.0604		0.0604	0.0387	ug/L		02/27/23 11:32	03/07/23 15:21	1
Toxaphene	<1.89		1.89	0.651	ug/L		02/27/23 11:32	03/07/23 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*50*		*10 - 136*	*02/27/23 11:32*	*03/07/23 15:21*	*1*
Tetrachloro-m-xylene	*66*		*10 - 130*	*02/27/23 11:32*	*03/07/23 15:21*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:21	1
PCB-1221	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:21	1
PCB-1232	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:21	1
PCB-1242	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:21	1
PCB-1248	<0.755		0.755	0.104	ug/L		02/27/23 11:32	03/07/23 15:21	1
PCB-1254	<0.755		0.755	0.104	ug/L		02/27/23 11:32	03/07/23 15:21	1
PCB-1260	<0.755		0.755	0.104	ug/L		02/27/23 11:32	03/07/23 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*50*		*10 - 136*	*02/27/23 11:32*	*03/07/23 15:21*	*1*
Tetrachloro-m-xylene (Surr)	*66*		*10 - 130*	*02/27/23 11:32*	*03/07/23 15:21*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**762**		50.0	20.0	mg/L			03/01/23 18:07	50

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:51	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:51	1
Barium	**0.0154**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:51	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:51	1
Cadmium	**0.000216**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:51	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:51	1
Cobalt	**0.00192**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:51	1
Copper	**0.00203**	**J**	0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:51	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:51	1
Nickel	**0.0108**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:51	1
Selenium	**0.00104**	**J**	0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:51	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:51	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:51	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:51	1
Zinc	**0.0168**	**J**	0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:51	1
Tin	<0.00500		0.00500	0.00300	mg/L		03/03/23 09:55	03/06/23 16:51	1
Iron	**1.55**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:51	1
Aluminum	<0.0500		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 16:51	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-58
Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8
Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	**0.508**		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 16:51	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		03/03/23 12:12	03/06/23 13:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<0.0100		0.0100	0.00430	mg/L		02/28/23 09:52	02/28/23 19:56	1
Total Suspended Solids (USGS I-3765-85)	**4.60**		3.00	1.02	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**179**		5.00	2.30	mg/L			03/01/23 16:34	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**179**		5.00	2.30	mg/L			03/01/23 16:34	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 16:34	1

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 13:17	1
2,4,5-TP (Silvex)	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 13:17	1
2,4-D	<2.0		2.0		ug/L		02/27/23 16:59	03/13/23 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dichlorobenzoic Acid	*98.6*		*31 - 116*	*02/27/23 16:59*	*03/13/23 13:17*	*1*

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-59
Date Collected: 02/22/23 13:20
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-9
Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	953		20.0	8.00	mg/L			03/01/23 18:23	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00509		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:54	1
Barium	0.0291		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:54	1
Cadmium	0.000151		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:54	1
Cobalt	0.0186		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:54	1
Copper	0.00224	J	0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:54	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:54	1
Nickel	0.0291		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:54	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:54	1
Iron	17.5		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:54	1
Aluminum	0.0215	J	0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 16:54	1
Manganese	7.17		0.0400	0.0144	mg/L		03/03/23 09:55	03/07/23 13:21	4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.00		1.00	0.231	mg/L		03/01/23 18:18	03/01/23 23:37	1
Total Suspended Solids (USGS I-3765-85)	29.0		7.50	2.55	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	277		5.00	2.30	mg/L			03/01/23 16:43	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	277		5.00	2.30	mg/L			03/01/23 16:43	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 16:43	1

Client Sample ID: MW-61R
Date Collected: 02/23/23 11:37
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-10
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 17:16	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 17:16	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 17:16	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 17:16	1
1,1-Dichloroethane	**0.623**	**J**	1.00	0.220	ug/L			02/27/23 17:16	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 17:16	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 17:16	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 17:16	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 17:16	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 17:16	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 17:16	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 17:16	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 17:16	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 17:16	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 17:16	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 17:16	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 17:16	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 17:16	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 17:16	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 17:16	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 17:16	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 17:16	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 17:16	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 17:16	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 17:16	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 17:16	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 17:16	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 17:16	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 17:16	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 17:16	1
cis-1,2-Dichloroethene	**7.37**		1.00	0.210	ug/L			02/27/23 17:16	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 17:16	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 17:16	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 17:16	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 17:16	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 17:16	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 17:16	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 17:16	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 17:16	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 17:16	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 17:16	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 17:16	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 17:16	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 17:16	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 17:16	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 17:16	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*127*		*80 - 128*		*02/27/23 17:16*	*1*

Client Sample ID: MW-61R

Date Collected: 02/23/23 11:37
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-10

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/27/23 17:16*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/27/23 17:16*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.116**		0.100	0.0420	mg/L			02/25/23 01:21	1
Sulfate	**760**		10.0	4.00	mg/L			02/28/23 10:44	10

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 16:57	1
Arsenic	**0.00649**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 16:57	1
Barium	**0.0217**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 16:57	1
Beryllium	**0.000460**	**J**	0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 16:57	1
Cadmium	**0.00135**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 16:57	1
Chromium	**0.00218**	**J**	0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:57	1
Cobalt	**0.0117**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 16:57	1
Copper	**0.0120**		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 16:57	1
Lead	**0.00456**		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 16:57	1
Nickel	**0.0279**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 16:57	1
Selenium	**0.00199**	**J**	0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 16:57	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 16:57	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 16:57	1
Vanadium	**0.00567**		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 16:57	1
Zinc	**0.0480**		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 16:57	1
Iron	**6.48**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 16:57	1
Manganese	**3.54**		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 16:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates (SW846 9060A)	**3.41**		1.00	0.470	mg/L			03/07/23 15:35	1
Total Suspended Solids (USGS I-3765-85)	**378**		30.0	10.2	mg/L			02/27/23 15:44	1

Client Sample Results

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-62

Date Collected: 02/22/23 15:22
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-11

Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:00	1
Barium	**0.0305**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:00	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:00	1
Cobalt	**0.000604**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:00	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:00	1
Lead	**0.000411**	**J**	0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:00	1
Nickel	**0.00861**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:00	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**4.25**		1.88	0.638	mg/L			02/27/23 15:44	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-63R
Date Collected: 02/21/23 12:47
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-12
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 18:28	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 18:28	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 18:28	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 18:28	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 18:28	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 18:28	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 18:28	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 18:28	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 18:28	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 18:28	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 18:28	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 18:28	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 18:28	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 18:28	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 18:28	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 18:28	1
Acetone	**3.14**	**J**	10.0	3.10	ug/L			02/27/23 18:28	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 18:28	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 18:28	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 18:28	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 18:28	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 18:28	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 18:28	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 18:28	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 18:28	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 18:28	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 18:28	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 18:28	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 18:28	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 18:28	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 18:28	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 18:28	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 18:28	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 18:28	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 18:28	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 18:28	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 18:28	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 18:28	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 18:28	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 18:28	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 18:28	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 18:28	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 18:28	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 18:28	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 18:28	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 18:28	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*128*		*80 - 128*		*02/27/23 18:28*	*1*

Client Sample ID: MW-63R

Date Collected: 02/21/23 12:47
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-12

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/27/23 18:28*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/27/23 18:28*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1970**		100	40.0	mg/L			03/01/23 18:39	100

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 17:23	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:23	1
Barium	**0.0164**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:23	1
Beryllium	**0.000317**	**J**	0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 17:23	1
Cadmium	**0.00267**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:23	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:23	1
Cobalt	**0.00716**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:23	1
Copper	**0.00217**	**J**	0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:23	1
Lead	**0.000296**	**J**	0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:23	1
Nickel	**0.0480**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:23	1
Selenium	**0.00172**	**J**	0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 17:23	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 17:23	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 17:23	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:23	1
Zinc	**0.157**		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:23	1
Iron	**0.415**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 17:23	1
Aluminum	**0.688**		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 17:23	1
Manganese	**1.06**		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 17:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**11.3**		1.88	0.638	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**507**		5.00	2.30	mg/L			03/01/23 16:53	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**507**		5.00	2.30	mg/L			03/01/23 16:53	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 16:53	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-64

Date Collected: 02/22/23 12:28
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-13

Matrix: Ground Water

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**56.6**		10.0	4.00	mg/L			03/01/23 18:54	10

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.000904**	**J**	0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:28	1
Barium	**0.203**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:28	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:28	1
Cobalt	**0.000464**	**J**	0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:28	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:28	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:28	1
Nickel	**0.0312**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:28	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:28	1
Iron	**2.17**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 17:28	1
Aluminum	<0.0500		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 17:28	1
Manganese	**0.182**		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 17:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**5.40**		3.00	1.02	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**753**		5.00	2.30	mg/L			03/01/23 17:06	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**753**		5.00	2.30	mg/L			03/01/23 17:06	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 17:06	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-65
Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 17:40	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 17:40	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 17:40	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 17:40	1
1,1-Dichloroethane	**0.977**	**J**	1.00	0.220	ug/L			02/27/23 17:40	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 17:40	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			02/27/23 17:40	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 17:40	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			02/27/23 17:40	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 17:40	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 17:40	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 17:40	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 17:40	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 17:40	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			02/27/23 17:40	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			02/27/23 17:40	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 17:40	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			02/27/23 17:40	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 17:40	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 17:40	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 17:40	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 17:40	1
Acrolein	<10.0		10.0	3.60	ug/L			02/27/23 17:40	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 17:40	1
Allyl chloride	<2.00		2.00	0.700	ug/L			02/27/23 17:40	1
Benzene	**1.51**		0.500	0.220	ug/L			02/27/23 17:40	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 17:40	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 17:40	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 17:40	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 17:40	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 17:40	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 17:40	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 17:40	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 17:40	1
Chloroethane	**5.07**		4.00	0.790	ug/L			02/27/23 17:40	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 17:40	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 17:40	1
Chloroprene	<1.00		1.00	0.230	ug/L			02/27/23 17:40	1
cis-1,2-Dichloroethene	**0.766**	**J**	1.00	0.210	ug/L			02/27/23 17:40	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 17:40	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 17:40	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			02/27/23 17:40	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			02/27/23 17:40	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 17:40	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 17:40	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			02/27/23 17:40	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			02/27/23 17:40	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 17:40	1
Naphthalene	<5.00		5.00	3.00	ug/L			02/27/23 17:40	1

Client Sample ID: MW-65
Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propionitrile	<10.0		10.0	3.40	ug/L			02/27/23 17:40	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 17:40	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 17:40	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 17:40	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 17:40	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 17:40	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 17:40	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 17:40	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 17:40	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 17:40	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 17:40	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*118*		*80 - 128*		*02/27/23 17:40*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/27/23 17:40*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/27/23 17:40*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<9.43		9.43	0.604	ug/L		02/27/23 11:26	03/01/23 12:55	1
Acenaphthylene	<9.43		9.43	0.679	ug/L		02/27/23 11:26	03/01/23 12:55	1
Acetophenone	<9.43		9.43	0.651	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Acetylaminofluorene	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Aminobiphenyl	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 12:55	1
Anthracene	<9.43		9.43	0.821	ug/L		02/27/23 11:26	03/01/23 12:55	1
Benzo[a]anthracene	<9.43		9.43	0.802	ug/L		02/27/23 11:26	03/01/23 12:55	1
Benzo[a]pyrene	<9.43		9.43	7.64	ug/L		02/27/23 11:26	03/01/23 12:55	1
Benzo[b]fluoranthene	<9.43		9.43	4.62	ug/L		02/27/23 11:26	03/01/23 12:55	1
Benzo[g,h,i]perylene	<9.43		9.43	5.94	ug/L		02/27/23 11:26	03/01/23 12:55	1
Benzo[k]fluoranthene	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 12:55	1
Benzyl alcohol	<9.43		9.43	1.23	ug/L		02/27/23 11:26	03/01/23 12:55	1
Bis(2-chloroethoxy)methane	<9.43		9.43	0.717	ug/L		02/27/23 11:26	03/01/23 12:55	1
Bis(2-chloroethyl)ether	<9.43		9.43	0.774	ug/L		02/27/23 11:26	03/01/23 12:55	1
bis (2-chloroisopropyl) ether	<9.43		9.43	0.509	ug/L		02/27/23 11:26	03/01/23 12:55	1
Bis(2-ethylhexyl) phthalate	**8.42**	**J**	9.43	5.19	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Bromophenyl phenyl ether	<9.43		9.43	0.660	ug/L		02/27/23 11:26	03/01/23 12:55	1
Butyl benzyl phthalate	<9.43		9.43	5.09	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Chloroaniline	<9.43		9.43	0.585	ug/L		02/27/23 11:26	03/01/23 12:55	1
Chlorobenzilate	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Chloro-3-methylphenol	<9.43		9.43	0.792	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Chloronaphthalene	<9.43		9.43	0.604	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Chlorophenol	<9.43		9.43	0.509	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Chlorophenyl phenyl ether	<9.43		9.43	0.651	ug/L		02/27/23 11:26	03/01/23 12:55	1
Chrysene	<9.43		9.43	0.821	ug/L		02/27/23 11:26	03/01/23 12:55	1
Diallate	<9.43		9.43	3.77	ug/L		02/27/23 11:26	03/01/23 12:55	1
Dibenz(a,h)anthracene	<9.43		9.43	3.68	ug/L		02/27/23 11:26	03/01/23 12:55	1
Dibenzofuran	<9.43		9.43	0.698	ug/L		02/27/23 11:26	03/01/23 12:55	1
3,3'-Dichlorobenzidine	<9.43		9.43	1.32	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,4-Dichlorophenol	<9.43		9.43	0.802	ug/L		02/27/23 11:26	03/01/23 12:55	1

Client Sample ID: MW-65
Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	<9.43		9.43	0.651	ug/L		02/27/23 11:26	03/01/23 12:55	1
Diethyl phthalate	<9.43	*+	9.43	1.60	ug/L		02/27/23 11:26	03/01/23 12:55	1
Dimethoate	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 12:55	1
7,12-Dimethylbenz(a)anthracene	<9.43		9.43	1.79	ug/L		02/27/23 11:26	03/01/23 12:55	1
3,3'-Dimethylbenzidine	<9.43		9.43	1.42	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,4-Dimethylphenol	<9.43		9.43	0.547	ug/L		02/27/23 11:26	03/01/23 12:55	1
Dimethyl phthalate	<9.43		9.43	0.943	ug/L		02/27/23 11:26	03/01/23 12:55	1
Di-n-butyl phthalate	<9.43		9.43	5.28	ug/L		02/27/23 11:26	03/01/23 12:55	1
1,3-Dinitrobenzene	<9.43		9.43	3.02	ug/L		02/27/23 11:26	03/01/23 12:55	1
4,6-Dinitro-2-methylphenol	<9.43		9.43	6.51	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,4-Dinitrophenol	<18.9		18.9	12.3	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,4-Dinitrotoluene	<9.43	*+	9.43	6.04	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,6-Dinitrotoluene	<9.43		9.43	0.491	ug/L		02/27/23 11:26	03/01/23 12:55	1
Di-n-octyl phthalate	<18.9		18.9	6.60	ug/L		02/27/23 11:26	03/01/23 12:55	1
Dinoseb	<9.43		9.43	2.26	ug/L		02/27/23 11:26	03/01/23 12:55	1
Diphenylamine	<9.43		9.43	5.66	ug/L		02/27/23 11:26	03/01/23 12:55	1
Disulfoton	<9.43		9.43	2.26	ug/L		02/27/23 11:26	03/01/23 12:55	1
Ethyl methanesulfonate	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 12:55	1
Ethyl parathion	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 12:55	1
Famphur	<9.43		9.43	3.58	ug/L		02/27/23 11:26	03/01/23 12:55	1
Fluoranthene	<9.43		9.43	1.60	ug/L		02/27/23 11:26	03/01/23 12:55	1
Fluorene	<9.43	*+	9.43	0.745	ug/L		02/27/23 11:26	03/01/23 12:55	1
Hexachlorobenzene	<9.43		9.43	0.660	ug/L		02/27/23 11:26	03/01/23 12:55	1
Hexachlorobutadiene	<9.43		9.43	0.811	ug/L		02/27/23 11:26	03/01/23 12:55	1
Hexachlorocyclopentadiene	<9.43		9.43	4.81	ug/L		02/27/23 11:26	03/01/23 12:55	1
Hexachloroethane	<9.43		9.43	0.915	ug/L		02/27/23 11:26	03/01/23 12:55	1
Hexachloropropene	<9.43		9.43	2.45	ug/L		02/27/23 11:26	03/01/23 12:55	1
Indeno(1,2,3-cd)pyrene	<9.43		9.43	3.96	ug/L		02/27/23 11:26	03/01/23 12:55	1
Isodrin	<9.43		9.43	4.43	ug/L		02/27/23 11:26	03/01/23 12:55	1
Isophorone	<9.43		9.43	0.877	ug/L		02/27/23 11:26	03/01/23 12:55	1
Isosafrole	<9.43		9.43	2.17	ug/L		02/27/23 11:26	03/01/23 12:55	1
Kepone	<9.43		9.43	0.943	ug/L		02/27/23 11:26	03/01/23 12:55	1
Methapyrilene	<9.43		9.43	0.717	ug/L		02/27/23 11:26	03/01/23 12:55	1
3-Methylcholanthrene	<9.43		9.43	0.302	ug/L		02/27/23 11:26	03/01/23 12:55	1
Methyl methanesulfonate	<9.43		9.43	3.11	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Methylnaphthalene	**492**	**B *1 *+**	18.9	1.11	ug/L		02/27/23 11:26	03/01/23 17:51	2
Methyl parathion	<9.43		9.43	2.17	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Methylphenol	<9.43		9.43	0.613	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Methylphenol (and/or 3-Methylphenol)	<9.43		9.43	0.660	ug/L		02/27/23 11:26	03/01/23 12:55	1
1,4-Naphthoquinone	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 12:55	1
1-Naphthylamine	<9.43		9.43	2.36	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Naphthylamine	<9.43		9.43	1.98	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Nitroaniline	<9.43		9.43	5.57	ug/L		02/27/23 11:26	03/01/23 12:55	1
3-Nitroaniline	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Nitroaniline	<9.43		9.43	1.23	ug/L		02/27/23 11:26	03/01/23 12:55	1
Nitrobenzene	<9.43		9.43	0.755	ug/L		02/27/23 11:26	03/01/23 12:55	1
5-Nitro-o-toluidine	<9.43		9.43	2.64	ug/L		02/27/23 11:26	03/01/23 12:55	1
2-Nitrophenol	<9.43		9.43	6.42	ug/L		02/27/23 11:26	03/01/23 12:55	1
4-Nitrophenol	<9.43		9.43	7.17	ug/L		02/27/23 11:26	03/01/23 12:55	1

Client Sample ID: MW-65
Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodiethylamine	<9.43		9.43	3.21	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosodimethylamine	<9.43		9.43	0.679	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosodi-n-butylamine	<9.43		9.43	3.68	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosodi-n-propylamine	<9.43		9.43	0.868	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosodiphenylamine	<9.43		9.43	0.708	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosomethylethylamine	<9.43		9.43	4.62	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosopiperidine	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 12:55	1
N-Nitrosopyrrolidine	<9.43		9.43	3.40	ug/L		02/27/23 11:26	03/01/23 12:55	1
o,o',o''-Triethylphosphorothioate	<9.43		9.43	3.02	ug/L		02/27/23 11:26	03/01/23 12:55	1
o-Toluidine	<9.43		9.43	2.74	ug/L		02/27/23 11:26	03/01/23 12:55	1
p-Dimethylamino azobenzene	<9.43		9.43	2.08	ug/L		02/27/23 11:26	03/01/23 12:55	1
Pentachlorobenzene	<9.43		9.43	2.64	ug/L		02/27/23 11:26	03/01/23 12:55	1
Pentachloronitrobenzene	<9.43		9.43	5.47	ug/L		02/27/23 11:26	03/01/23 12:55	1
Pentachlorophenol	<9.43		9.43	9.06	ug/L		02/27/23 11:26	03/01/23 12:55	1
Phenacetin	<9.43		9.43	1.79	ug/L		02/27/23 11:26	03/01/23 12:55	1
Phenanthrene	<9.43		9.43	0.745	ug/L		02/27/23 11:26	03/01/23 12:55	1
Phenol	<9.43		9.43	1.04	ug/L		02/27/23 11:26	03/01/23 12:55	1
1,4-Phenylenediamine	<9.43		9.43	1.79	ug/L		02/27/23 11:26	03/01/23 12:55	1
Phorate	<9.43		9.43	3.02	ug/L		02/27/23 11:26	03/01/23 12:55	1
Pronamide	<9.43		9.43	2.55	ug/L		02/27/23 11:26	03/01/23 12:55	1
Pyrene	<9.43		9.43	0.745	ug/L		02/27/23 11:26	03/01/23 12:55	1
Safrole	<9.43		9.43	2.64	ug/L		02/27/23 11:26	03/01/23 12:55	1
1,2,4,5-Tetrachlorobenzene	<9.43		9.43	0.509	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,3,4,6-Tetrachlorophenol	<9.43		9.43	5.00	ug/L		02/27/23 11:26	03/01/23 12:55	1
Thionazin	<9.43		9.43	3.30	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,4,5-Trichlorophenol	<9.43		9.43	5.00	ug/L		02/27/23 11:26	03/01/23 12:55	1
2,4,6-Trichlorophenol	<9.43		9.43	4.72	ug/L		02/27/23 11:26	03/01/23 12:55	1
1,3,5-Trinitrobenzene	<9.43		9.43	2.17	ug/L		02/27/23 11:26	03/01/23 12:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*116*	*S1+*	*28 - 110*	*02/27/23 11:26*	*03/01/23 12:55*	*1*
2-Fluorophenol (Surr)	*76*		*13 - 110*	*02/27/23 11:26*	*03/01/23 12:55*	*1*
Nitrobenzene-d5 (Surr)	*91*		*27 - 115*	*02/27/23 11:26*	*03/01/23 12:55*	*1*
Phenol-d5 (Surr)	*64*		*12 - 110*	*02/27/23 11:26*	*03/01/23 12:55*	*1*
Terphenyl-d14 (Surr)	*84*		*10 - 125*	*02/27/23 11:26*	*03/01/23 12:55*	*1*
2,4,6-Tribromophenol (Surr)	*94*		*15 - 121*	*02/27/23 11:26*	*03/01/23 12:55*	*1*

Method: SW846 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<10.0		10.0	0.570	mg/L			02/28/23 15:38	1
Isobutanol	<10.0		10.0	0.550	mg/L			02/28/23 15:38	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0604		0.0604	0.0302	ug/L		02/27/23 11:32	03/07/23 15:34	1
alpha-BHC	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:34	1
beta-BHC	<0.0604		0.0604	0.0349	ug/L		02/27/23 11:32	03/07/23 15:34	1
Chlordane (technical)	<1.89		1.89	0.764	ug/L		02/27/23 11:32	03/07/23 15:34	1
4,4'-DDD	<0.0604		0.0604	0.0255	ug/L		02/27/23 11:32	03/07/23 15:34	1
4,4'-DDE	<0.0604		0.0604	0.0255	ug/L		02/27/23 11:32	03/07/23 15:34	1

Client Sample ID: MW-65
Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14
Matrix: Ground Water

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	<0.0604		0.0604	0.0396	ug/L		02/27/23 11:32	03/07/23 15:34	1
delta-BHC	<0.0604		0.0604	0.0255	ug/L		02/27/23 11:32	03/07/23 15:34	1
Dieldrin	<0.0604		0.0604	0.0245	ug/L		02/27/23 11:32	03/07/23 15:34	1
Endosulfan I	<0.0604		0.0604	0.0311	ug/L		02/27/23 11:32	03/07/23 15:34	1
Endosulfan II	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:34	1
Endosulfan sulfate	<0.0604		0.0604	0.0283	ug/L		02/27/23 11:32	03/07/23 15:34	1
Endrin	<0.0604		0.0604	0.0245	ug/L		02/27/23 11:32	03/07/23 15:34	1
Endrin aldehyde	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:34	1
gamma-BHC (Lindane)	<0.0604		0.0604	0.0340	ug/L		02/27/23 11:32	03/07/23 15:34	1
Heptachlor	<0.0604		0.0604	0.0311	ug/L		02/27/23 11:32	03/07/23 15:34	1
Heptachlor epoxide	<0.0604		0.0604	0.0274	ug/L		02/27/23 11:32	03/07/23 15:34	1
Methoxychlor	<0.0604		0.0604	0.0387	ug/L		02/27/23 11:32	03/07/23 15:34	1
Toxaphene	<1.89		1.89	0.651	ug/L		02/27/23 11:32	03/07/23 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*29*		*10 - 136*	*02/27/23 11:32*	*03/07/23 15:34*	*1*
Tetrachloro-m-xylene	*69*		*10 - 130*	*02/27/23 11:32*	*03/07/23 15:34*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:34	1
PCB-1221	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:34	1
PCB-1232	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:34	1
PCB-1242	<0.755		0.755	0.160	ug/L		02/27/23 11:32	03/07/23 15:34	1
PCB-1248	<0.755		0.755	0.104	ug/L		02/27/23 11:32	03/07/23 15:34	1
PCB-1254	<0.755		0.755	0.104	ug/L		02/27/23 11:32	03/07/23 15:34	1
PCB-1260	<0.755		0.755	0.104	ug/L		02/27/23 11:32	03/07/23 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*29*		*10 - 136*	*02/27/23 11:32*	*03/07/23 15:34*	*1*
Tetrachloro-m-xylene (Surr)	*69*		*10 - 130*	*02/27/23 11:32*	*03/07/23 15:34*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**280**		20.0	8.00	mg/L			03/01/23 19:10	20

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 17:31	1
Arsenic	**0.0247**		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:31	1
Barium	**0.289**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:31	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 17:31	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:31	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:31	1
Cobalt	**0.00407**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:31	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:31	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:31	1
Nickel	**0.00528**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:31	1
Selenium	**0.000983**	**J**	0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 17:31	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 17:31	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 17:31	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-65
Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14
Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:31	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:31	1
Tin	<0.00500		0.00500	0.00300	mg/L		03/03/23 09:55	03/06/23 17:31	1
Iron	**66.1**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 17:31	1
Aluminum	<0.0500		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 17:31	1
Manganese	**3.97**		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 17:31	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		03/03/23 12:12	03/06/23 13:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<0.0100		0.0100	0.00430	mg/L		02/28/23 09:52	02/28/23 19:57	1
Total Suspended Solids (USGS I-3765-85)	**133**		15.0	5.10	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**823**		5.00	2.30	mg/L			03/01/23 17:20	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**823**		5.00	2.30	mg/L			03/01/23 17:20	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 17:20	1

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 13:50	1
2,4,5-TP (Silvex)	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 13:50	1
2,4-D	<2.0		2.0		ug/L		02/27/23 16:59	03/13/23 13:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dichlorobenzoic Acid	*94.3*		*31 - 116*	*02/27/23 16:59*	*03/13/23 13:50*	*1*

Client Sample ID: MW-79
Date Collected: 02/23/23 16:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-16
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 18:53	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 18:53	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 18:53	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 18:53	1
1,1-Dichloroethane	**2.74**		1.00	0.220	ug/L			02/27/23 18:53	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 18:53	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 18:53	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 18:53	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 18:53	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 18:53	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 18:53	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 18:53	1
1,4-Dichlorobenzene	**0.612**	**J**	1.00	0.230	ug/L			02/27/23 18:53	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 18:53	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 18:53	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 18:53	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 18:53	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 18:53	1
Benzene	**0.526**		0.500	0.220	ug/L			02/27/23 18:53	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 18:53	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 18:53	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 18:53	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 18:53	1
Carbon disulfide	**5.98**		1.00	0.450	ug/L			02/27/23 18:53	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 18:53	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 18:53	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 18:53	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 18:53	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 18:53	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 18:53	1
cis-1,2-Dichloroethene	**38.8**		1.00	0.210	ug/L			02/27/23 18:53	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 18:53	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 18:53	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 18:53	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 18:53	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 18:53	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 18:53	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 18:53	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 18:53	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 18:53	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 18:53	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 18:53	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 18:53	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 18:53	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 18:53	1
Vinyl chloride	**4.54**		1.00	0.180	ug/L			02/27/23 18:53	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 18:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*120*		*80 - 128*		*02/27/23 18:53*	*1*

Client Sample ID: MW-79
Date Collected: 02/23/23 16:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-16
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/27/23 18:53*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/27/23 18:53*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.100		0.100	0.0420	mg/L			02/25/23 01:35	1
Sulfate	**55.4**		1.00	0.400	mg/L			02/25/23 01:35	1

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 17:34	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:34	1
Barium	**0.0951**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:34	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 17:34	1
Cadmium	**0.00170**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:34	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:34	1
Cobalt	**0.00245**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:34	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:34	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:34	1
Nickel	**0.0223**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:34	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 17:34	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 17:34	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 17:34	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:34	1
Zinc	**0.0105**	**J**	0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:34	1
Iron	**0.197**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 17:34	1
Manganese	**19.3**		0.0700	0.0252	mg/L		03/03/23 09:55	03/07/23 13:24	7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates (SW846 9060A)	**7.83**		1.00	0.470	mg/L			03/07/23 15:49	1
Total Suspended Solids (USGS I-3765-85)	**2.00**		1.88	0.638	mg/L			02/27/23 15:44	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-81
Date Collected: 02/22/23 16:17
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-17
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 19:17	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 19:17	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 19:17	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 19:17	1
1,1-Dichloroethane	**0.359**	**J**	1.00	0.220	ug/L			02/27/23 19:17	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 19:17	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 19:17	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 19:17	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 19:17	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 19:17	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 19:17	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 19:17	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 19:17	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 19:17	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 19:17	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 19:17	1
Acetone	**3.41**	**J**	10.0	3.10	ug/L			02/27/23 19:17	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 19:17	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 19:17	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 19:17	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 19:17	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 19:17	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 19:17	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 19:17	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 19:17	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 19:17	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 19:17	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 19:17	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 19:17	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 19:17	1
cis-1,2-Dichloroethene	**1.03**		1.00	0.210	ug/L			02/27/23 19:17	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 19:17	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 19:17	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 19:17	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 19:17	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 19:17	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 19:17	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 19:17	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 19:17	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 19:17	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 19:17	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 19:17	1
Trichloroethene	**0.730**	**J**	1.00	0.430	ug/L			02/27/23 19:17	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 19:17	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 19:17	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 19:17	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*120*		*80 - 128*		*02/27/23 19:17*	*1*

Client Sample ID: MW-81

Date Collected: 02/22/23 16:17
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-17

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*02/27/23 19:17*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/27/23 19:17*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 17:37	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:37	1
Barium	**0.0671**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:37	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 17:37	1
Cadmium	**0.0000620**	**J**	0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:37	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:37	1
Cobalt	**0.000193**	**J**	0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:37	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:37	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:37	1
Nickel	<0.00500		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:37	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 17:37	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 17:37	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 17:37	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:37	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	0.638	mg/L			02/27/23 15:44	1

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-D1
Date Collected: 02/21/23 12:47
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-18
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 19:41	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 19:41	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 19:41	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 19:41	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 19:41	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 19:41	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 19:41	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 19:41	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 19:41	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 19:41	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 19:41	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 19:41	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 19:41	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 19:41	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 19:41	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 19:41	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 19:41	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 19:41	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 19:41	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 19:41	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 19:41	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 19:41	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 19:41	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 19:41	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 19:41	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 19:41	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 19:41	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 19:41	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 19:41	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 19:41	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 19:41	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 19:41	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 19:41	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 19:41	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 19:41	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 19:41	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 19:41	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 19:41	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 19:41	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 19:41	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 19:41	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 19:41	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 19:41	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 19:41	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 19:41	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 19:41	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/27/23 19:41*	*1*

Client Sample ID: MW-D1

Date Collected: 02/21/23 12:47
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-18

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*02/27/23 19:41*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/27/23 19:41*	*1*

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1950**		50.0	20.0	mg/L			03/02/23 10:01	50

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 17:40	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:40	1
Barium	**0.0142**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:40	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 17:40	1
Cadmium	**0.000771**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:40	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:40	1
Cobalt	**0.00129**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:40	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:40	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:40	1
Nickel	**0.0199**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:40	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 17:40	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 17:40	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 17:40	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:40	1
Zinc	**0.0551**		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:40	1
Iron	**0.107**		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 17:40	1
Aluminum	**0.124**		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 17:40	1
Manganese	**0.510**		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 17:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**4.25**		1.88	0.638	mg/L			02/27/23 15:44	1
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	**513**		5.00	2.30	mg/L			03/01/23 17:35	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	**513**		5.00	2.30	mg/L			03/01/23 17:35	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<5.00		5.00	2.30	mg/L			03/01/23 17:35	1

Client Sample ID: MW-D2
Date Collected: 02/21/23 14:27
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-19
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 20:05	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 20:05	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 20:05	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 20:05	1
1,1-Dichloroethane	**0.556**	**J**	1.00	0.220	ug/L			02/27/23 20:05	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 20:05	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 20:05	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 20:05	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 20:05	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 20:05	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 20:05	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 20:05	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 20:05	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 20:05	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 20:05	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 20:05	1
Acetone	**4.12**	**J**	10.0	3.10	ug/L			02/27/23 20:05	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 20:05	1
Benzene	**0.505**		0.500	0.220	ug/L			02/27/23 20:05	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 20:05	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 20:05	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 20:05	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 20:05	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 20:05	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 20:05	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 20:05	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 20:05	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 20:05	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 20:05	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 20:05	1
cis-1,2-Dichloroethene	**3.32**		1.00	0.210	ug/L			02/27/23 20:05	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 20:05	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 20:05	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 20:05	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 20:05	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 20:05	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 20:05	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 20:05	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 20:05	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 20:05	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 20:05	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 20:05	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 20:05	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 20:05	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 20:05	1
Vinyl chloride	**0.287**	**J**	1.00	0.180	ug/L			02/27/23 20:05	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 20:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/27/23 20:05*	*1*

Client Sample ID: MW-D2

Date Collected: 02/21/23 14:27
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-19

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*02/27/23 20:05*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/27/23 20:05*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 17:43	1
Arsenic	**0.00164**	**J**	0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 17:43	1
Barium	**0.0136**		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 17:43	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 17:43	1
Cadmium	**0.000629**		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 17:43	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:43	1
Cobalt	**0.0731**		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 17:43	1
Copper	**0.00206**	**J**	0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 17:43	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 17:43	1
Nickel	**0.0600**		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 17:43	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 17:43	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 17:43	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 17:43	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 17:43	1
Zinc	**0.0320**		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 17:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**8.20**		3.00	1.02	mg/L			02/27/23 15:44	1

Client Sample ID: Trip Blank 1

Date Collected: 02/24/23 00:00
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-22

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 14:03	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 14:03	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 14:03	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 14:03	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 14:03	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 14:03	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 14:03	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 14:03	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 14:03	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 14:03	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 14:03	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 14:03	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 14:03	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 14:03	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 14:03	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 14:03	1
Acetone	**5.83**	**J**	10.0	3.10	ug/L			02/27/23 14:03	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 14:03	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 14:03	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 14:03	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 14:03	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 14:03	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 14:03	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 14:03	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 14:03	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 14:03	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 14:03	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 14:03	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 14:03	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 14:03	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 14:03	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 14:03	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 14:03	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 14:03	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 14:03	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 14:03	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 14:03	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 14:03	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 14:03	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 14:03	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 14:03	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 14:03	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 14:03	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 14:03	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 14:03	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 14:03	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*123*		*80 - 128*		*02/27/23 14:03*	*1*

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: Trip Blank 1
Date Collected: 02/24/23 00:00
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-22
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/27/23 14:03*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/27/23 14:03*	*1*

Client Sample ID: Trip Blank 2

Date Collected: 02/24/23 00:00
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-23

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 14:27	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 14:27	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 14:27	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 14:27	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 14:27	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 14:27	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 14:27	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 14:27	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 14:27	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 14:27	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 14:27	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 14:27	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 14:27	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 14:27	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 14:27	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 14:27	1
Acetone	**4.31**	**J**	10.0	3.10	ug/L			02/27/23 14:27	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 14:27	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 14:27	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 14:27	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 14:27	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 14:27	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 14:27	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 14:27	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 14:27	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 14:27	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 14:27	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 14:27	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 14:27	1
Chloromethane	<3.00		3.00	0.610	ug/L			02/27/23 14:27	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 14:27	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 14:27	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 14:27	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 14:27	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 14:27	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 14:27	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 14:27	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 14:27	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 14:27	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 14:27	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 14:27	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 14:27	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 14:27	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 14:27	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 14:27	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 14:27	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 14:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/27/23 14:27*	*1*

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: Trip Blank 2
Date Collected: 02/24/23 00:00
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-23
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*96*		*80 - 120*		*02/27/23 14:27*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/27/23 14:27*	*1*

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Metals

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Subcontract

Qualifier	Qualifier Description
QR-05	The reference standard was outside of established control limits. The batch was accepted based on acceptable LCS, MS/MSD and RPD results.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Surrogate Summary

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-250324-3	93-MW 31R	122	95	98
310-250324-3 MS	93-MW 31R	108	91	103
310-250324-3 MSD	93-MW 31R	106	96	102
310-250324-4	93-MW-32	119	95	97
310-250324-5	MW-39R	125	97	97
310-250324-6	MW-40	117	94	100
310-250324-7	04-MW-56	119	96	99
310-250324-8	MW-58	123	96	99
310-250324-10	MW-61R	127	98	98
310-250324-12	MW-63R	128	95	100
310-250324-14	MW-65	118	97	100
310-250324-16	MW-79	120	95	100
310-250324-17	MW-81	120	96	98
310-250324-18	MW-D1	119	96	100
310-250324-19	MW-D2	119	94	99

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-250324-22	Trip Blank 1	123	97	99
310-250324-23	Trip Blank 2	119	96	99
LCS 310-380041/6	Lab Control Sample	100	94	101
LCS 310-380041/7	Lab Control Sample	118	97	99
MB 310-380041/5	Method Blank	125	98	98

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPHL	TBP
Lab Sample ID	Client Sample ID	(28-110)	(13-110)	(27-115)	(12-110)	(10-125)	(15-121)
310-250324-4	93-MW-32	114 S1+	80	101	69	100	92
310-250324-5	MW-39R	101	73	88	63	93	86
310-250324-7	04-MW-56	73	52	63	45	67	63
310-250324-8	MW-58	101	59	85	61	92	65
310-250324-14	MW-65	116 S1+	76	91	64	84	94

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPHL = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPHL	TBP
Lab Sample ID	Client Sample ID	(28-110)	(13-110)	(27-115)	(12-110)	(10-125)	(15-121)
LCS 310-380056/2-A	Lab Control Sample	100	71	87	61	107	87
LCSD 310-380056/3-A	Lab Control Sample Dup	98	74	88	64	107	86
MB 310-380056/1-A	Method Blank	106	77	95	67	102	90

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPHL = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
310-250324-4	93-MW-32	32	60
310-250324-5	MW-39R	36	72
310-250324-7	04-MW-56	25	62
310-250324-8	MW-58	50	66
310-250324-14	MW-65	29	69

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
LCS 310-380057/4-A	Lab Control Sample	31	44
LCSD 310-380057/5-A	Lab Control Sample Dup	44	71
MB 310-380057/1-A	Method Blank	40	70

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: Evora Consulting
Job ID: 310-250324-1
Project/Site: OWSWC 1st 2023 HMSP

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
310-250324-4	93-MW-32	32	60
310-250324-5	MW-39R	36	72
310-250324-7	04-MW-56	25	62
310-250324-8	MW-58	50	66
310-250324-14	MW-65	29	69

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
LCS 310-380057/2-A	Lab Control Sample	50	74
LCSD 310-380057/3-A	Lab Control Sample Dup	41	68
MB 310-380057/1-A	Method Blank	40	70

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		ılorobenzı
Lab Sample ID	Client Sample ID	(31-116)
310-250324-4	93-MW-32	107
310-250324-5	MW-39R	100
310-250324-7	04-MW-56	102
310-250324-8	MW-58	98.6
310-250324-14	MW-65	94.3

Surrogate Legend

2,5-Dichlorobenzoic Acid = 2,5-Dichlorobenzoic Acid

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		ılorobenzı
Lab Sample ID	Client Sample ID	(31-116)
1GB1293-BLK1	Method Blank	92.7
1GB1293-BS1	Lab Control Sample	91.8
1GB1293-SRM1	Lab Control Sample	82.0

Surrogate Legend

2,5-Dichlorobenzoic Acid = 2,5-Dichlorobenzoic Acid

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-380041/5
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			02/27/23 12:26	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			02/27/23 12:26	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			02/27/23 12:26	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			02/27/23 12:26	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			02/27/23 12:26	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			02/27/23 12:26	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			02/27/23 12:26	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			02/27/23 12:26	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			02/27/23 12:26	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			02/27/23 12:26	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			02/27/23 12:26	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			02/27/23 12:26	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			02/27/23 12:26	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			02/27/23 12:26	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			02/27/23 12:26	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			02/27/23 12:26	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			02/27/23 12:26	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			02/27/23 12:26	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			02/27/23 12:26	1
2-Hexanone	<10.0		10.0	2.00	ug/L			02/27/23 12:26	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			02/27/23 12:26	1
Acetone	<10.0		10.0	3.10	ug/L			02/27/23 12:26	1
Acrolein	<10.0		10.0	3.60	ug/L			02/27/23 12:26	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			02/27/23 12:26	1
Allyl chloride	<2.00		2.00	0.700	ug/L			02/27/23 12:26	1
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 12:26	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			02/27/23 12:26	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			02/27/23 12:26	1
Bromoform	<5.00		5.00	0.780	ug/L			02/27/23 12:26	1
Bromomethane	<4.00		4.00	1.10	ug/L			02/27/23 12:26	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			02/27/23 12:26	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			02/27/23 12:26	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			02/27/23 12:26	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			02/27/23 12:26	1
Chloroethane	<4.00		4.00	0.790	ug/L			02/27/23 12:26	1
Chloroform	<3.00		3.00	1.30	ug/L			02/27/23 12:26	1
Chloromethane	1.396	J	3.00	0.610	ug/L			02/27/23 12:26	1
Chloroprene	<1.00		1.00	0.230	ug/L			02/27/23 12:26	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 12:26	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			02/27/23 12:26	1
Dibromomethane	<1.00		1.00	0.330	ug/L			02/27/23 12:26	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			02/27/23 12:26	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			02/27/23 12:26	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			02/27/23 12:26	1
Iodomethane	<10.0		10.0	7.00	ug/L			02/27/23 12:26	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			02/27/23 12:26	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			02/27/23 12:26	1
Methylene chloride	<5.00		5.00	1.70	ug/L			02/27/23 12:26	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-380041/5
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<5.00		5.00	3.00	ug/L			02/27/23 12:26	1
Propionitrile	<10.0		10.0	3.40	ug/L			02/27/23 12:26	1
Styrene	<1.00		1.00	0.370	ug/L			02/27/23 12:26	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 12:26	1
Toluene	<1.00		1.00	0.430	ug/L			02/27/23 12:26	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			02/27/23 12:26	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			02/27/23 12:26	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			02/27/23 12:26	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 12:26	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			02/27/23 12:26	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			02/27/23 12:26	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 12:26	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			02/27/23 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*125*		*80 - 128*		*02/27/23 12:26*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/27/23 12:26*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/27/23 12:26*	*1*

Lab Sample ID: LCS 310-380041/6
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	20.0	19.87		ug/L		99	68 - 123
1,1,1-Trichloroethane	20.0	23.63		ug/L		118	71 - 128
1,1,2,2-Tetrachloroethane	20.0	19.29		ug/L		96	64 - 124
1,1,2-Trichloroethane	20.0	21.06		ug/L		105	70 - 124
1,1-Dichloroethane	20.0	20.98		ug/L		105	71 - 123
1,1-Dichloroethene	20.0	22.90		ug/L		114	61 - 129
1,1-Dichloropropene	20.0	24.24		ug/L		121	70 - 131
1,2,3-Trichloropropane	20.0	19.03		ug/L		95	64 - 125
1,2,4-Trichlorobenzene	20.0	18.84		ug/L		94	61 - 124
1,2-Dibromo-3-chloropropane	20.0	19.89		ug/L		99	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.42		ug/L		107	73 - 125
1,2-Dichlorobenzene	20.0	18.35		ug/L		92	68 - 120
1,2-Dichloroethane	20.0	22.84		ug/L		114	70 - 124
1,2-Dichloropropane	20.0	22.90		ug/L		115	73 - 121
1,3-Dichlorobenzene	20.0	18.66		ug/L		93	67 - 123
1,3-Dichloropropane	20.0	23.30		ug/L		116	72 - 124
1,4-Dichlorobenzene	20.0	18.68		ug/L		93	67 - 120
2,2-Dichloropropane	20.0	24.59		ug/L		123	50 - 150
2-Butanone (MEK)	40.0	44.43		ug/L		111	50 - 150
2-Hexanone	40.0	39.94		ug/L		100	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	38.70		ug/L		97	62 - 130
Acetone	40.0	45.17		ug/L		113	50 - 150
Acrolein	94.8	104.6		ug/L		110	12 - 150
Acrylonitrile	200	208.8		ug/L		104	50 - 150

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-380041/6
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Allyl chloride	20.0	21.76		ug/L		109	50 - 150
Benzene	20.0	22.25		ug/L		111	73 - 122
Bromochloromethane	20.0	24.71		ug/L		124	68 - 132
Bromodichloromethane	20.0	21.33		ug/L		107	72 - 121
Bromoform	20.0	19.46		ug/L		97	55 - 129
Carbon disulfide	20.0	22.48		ug/L		112	58 - 131
Carbon tetrachloride	20.0	24.20		ug/L		121	67 - 132
Chlorobenzene	20.0	21.05		ug/L		105	69 - 121
Chlorodibromomethane	20.0	20.78		ug/L		104	69 - 122
Chloroform	20.0	23.20		ug/L		116	72 - 120
Chloroprene	20.0	23.30		ug/L		117	67 - 131
cis-1,2-Dichloroethene	20.0	21.59		ug/L		108	74 - 120
cis-1,3-Dichloropropene	20.0	21.68		ug/L		108	71 - 126
Dibromomethane	20.0	22.81		ug/L		114	72 - 123
Ethyl methacrylate	20.0	19.86		ug/L		99	64 - 131
Ethylbenzene	20.0	21.23		ug/L		106	69 - 122
Iodomethane	20.0	11.26		ug/L		56	10 - 150
Methacrylonitrile	200	215.5		ug/L		108	70 - 126
Methyl methacrylate	40.0	45.27		ug/L		113	68 - 127
Methylene chloride	20.0	21.98		ug/L		110	50 - 150
Naphthalene	20.0	18.66		ug/L		93	50 - 150
Propionitrile	200	214.0		ug/L		107	66 - 125
Styrene	20.0	20.19		ug/L		101	67 - 125
Tetrachloroethene	20.0	22.15		ug/L		111	69 - 131
Toluene	20.0	20.85		ug/L		104	72 - 121
trans-1,2-Dichloroethene	20.0	21.70		ug/L		109	68 - 125
trans-1,3-Dichloropropene	20.0	22.22		ug/L		111	68 - 124
trans-1,4-Dichloro-2-butene	20.0	16.11		ug/L		81	48 - 150
Trichloroethene	20.0	23.45		ug/L		117	73 - 126
Vinyl acetate	40.0	46.82		ug/L		117	50 - 150
Xylenes, Total	40.0	40.98		ug/L		102	68 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*80 - 128*
Toluene-d8 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-380041/7
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	12.60		ug/L		63	24 - 150
Chloroethane	20.0	18.22		ug/L		91	51 - 137
Chloromethane	20.0	15.66		ug/L		78	37 - 150
Dichlorodifluoromethane	20.0	24.49		ug/L		122	37 - 150
Trichlorofluoromethane	20.0	23.81		ug/L		119	56 - 144
Vinyl chloride	20.0	20.32		ug/L		102	57 - 136

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-380041/7
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	*118*		*80 - 128*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: 310-250324-3 MS
Matrix: Ground Water
Analysis Batch: 380041

Client Sample ID: 93-MW 31R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	<1.00		20.0	15.66		ug/L		78	52 - 130
1,1,1-Trichloroethane	<1.00		20.0	20.76		ug/L		104	49 - 130
1,1,2,2-Tetrachloroethane	<1.00		20.0	15.87		ug/L		79	51 - 130
1,1,2-Trichloroethane	<1.00		20.0	17.17		ug/L		86	56 - 130
1,1-Dichloroethane	0.590	J	20.0	20.36		ug/L		99	53 - 130
1,1-Dichloroethene	<2.00		20.0	20.34		ug/L		102	39 - 130
1,1-Dichloropropene	<1.00		20.0	21.00		ug/L		105	50 - 131
1,2,3-Trichloropropane	<1.00		20.0	17.48		ug/L		87	50 - 130
1,2,4-Trichlorobenzene	<5.00		20.0	16.24		ug/L		81	45 - 130
1,2-Dibromo-3-chloropropane	<5.00		20.0	17.74		ug/L		89	45 - 150
1,2-Dibromoethane (EDB)	<1.00		20.0	17.55		ug/L		88	59 - 130
1,2-Dichlorobenzene	<1.00		20.0	16.21		ug/L		81	53 - 130
1,2-Dichloroethane	<1.00		20.0	21.62		ug/L		108	57 - 130
1,2-Dichloropropane	<1.00		20.0	20.64		ug/L		103	60 - 130
1,3-Dichlorobenzene	<1.00		20.0	16.16		ug/L		81	54 - 130
1,3-Dichloropropane	<1.00		20.0	20.93		ug/L		105	57 - 130
1,4-Dichlorobenzene	<1.00		20.0	16.53		ug/L		83	53 - 130
2,2-Dichloropropane	<4.00		20.0	20.34		ug/L		102	28 - 150
2-Butanone (MEK)	<10.0		40.0	38.09		ug/L		95	47 - 150
2-Hexanone	<10.0		40.0	32.61		ug/L		82	45 - 132
4-Methyl-2-pentanone (MIBK)	<10.0		40.0	31.89		ug/L		80	46 - 132
Acetone	<10.0		40.0	47.18		ug/L		118	35 - 150
Acrolein	<10.0		94.8	89.48		ug/L		94	10 - 150
Acrylonitrile	<5.00		200	195.8		ug/L		98	50 - 150
Allyl chloride	<2.00		20.0	20.17		ug/L		101	35 - 150
Benzene	0.346	J	20.0	19.40		ug/L		95	47 - 130
Bromochloromethane	<5.00		20.0	23.68		ug/L		118	54 - 132
Bromodichloromethane	<1.00		20.0	18.23		ug/L		91	58 - 130
Bromoform	<5.00		20.0	15.50		ug/L		78	42 - 130
Carbon disulfide	<1.00		20.0	20.12		ug/L		101	39 - 131
Carbon tetrachloride	<2.00		20.0	20.39		ug/L		102	45 - 132
Chlorobenzene	<1.00		20.0	17.41		ug/L		87	54 - 130
Chlorodibromomethane	<5.00		20.0	17.12		ug/L		86	53 - 130
Chloroform	<3.00		20.0	21.88		ug/L		109	55 - 130
Chloroprene	<1.00		20.0	20.63		ug/L		103	47 - 131
cis-1,2-Dichloroethene	4.84		20.0	24.02		ug/L		96	52 - 130
cis-1,3-Dichloropropene	<5.00		20.0	17.98		ug/L		90	55 - 130
Dibromomethane	<1.00		20.0	21.47		ug/L		107	61 - 130
Ethyl methacrylate	<2.00		20.0	17.18		ug/L		86	50 - 131

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-250324-3 MS
Matrix: Ground Water
Analysis Batch: 380041

Client Sample ID: 93-MW 31R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<1.00		20.0	17.80		ug/L		89	48 - 130
Iodomethane	<10.0		20.0	15.21		ug/L		76	10 - 150
Methacrylonitrile	<10.0		200	205.1		ug/L		103	57 - 130
Methyl methacrylate	<2.00		40.0	38.13		ug/L		95	50 - 131
Methylene chloride	<5.00		20.0	21.63		ug/L		108	50 - 150
Naphthalene	<5.00		20.0	16.53		ug/L		83	33 - 150
Propionitrile	<10.0		200	194.5		ug/L		97	53 - 130
Styrene	<1.00		20.0	16.98		ug/L		85	46 - 130
Tetrachloroethene	<1.00		20.0	16.95		ug/L		85	42 - 131
Toluene	<1.00		20.0	17.15		ug/L		86	48 - 130
trans-1,2-Dichloroethene	<1.00		20.0	20.48		ug/L		102	54 - 130
trans-1,3-Dichloropropene	<5.00		20.0	19.51		ug/L		98	51 - 130
trans-1,4-Dichloro-2-butene	<10.0		20.0	13.70		ug/L		68	33 - 150
Trichloroethene	<1.00		20.0	20.83		ug/L		104	55 - 130
Vinyl acetate	<10.0		40.0	35.69		ug/L		89	34 - 150
Xylenes, Total	<3.00		40.0	35.39		ug/L		88	44 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*108*		*80 - 128*
Toluene-d8 (Surr)	*91*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: 310-250324-3 MSD
Matrix: Ground Water
Analysis Batch: 380041

Client Sample ID: 93-MW 31R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	<1.00		20.0	16.43		ug/L		82	52 - 130	5	20
1,1,1-Trichloroethane	<1.00		20.0	20.71		ug/L		104	49 - 130	0	20
1,1,2,2-Tetrachloroethane	<1.00		20.0	17.17		ug/L		86	51 - 130	8	20
1,1,2-Trichloroethane	<1.00		20.0	18.41		ug/L		92	56 - 130	7	20
1,1-Dichloroethane	0.590	J	20.0	19.91		ug/L		97	53 - 130	2	20
1,1-Dichloroethene	<2.00		20.0	20.10		ug/L		100	39 - 130	1	28
1,1-Dichloropropene	<1.00		20.0	20.97		ug/L		105	50 - 131	0	20
1,2,3-Trichloropropane	<1.00		20.0	17.23		ug/L		86	50 - 130	1	20
1,2,4-Trichlorobenzene	<5.00		20.0	18.16		ug/L		91	45 - 130	11	20
1,2-Dibromo-3-chloropropane	<5.00		20.0	18.28		ug/L		91	45 - 150	3	20
1,2-Dibromoethane (EDB)	<1.00		20.0	18.70		ug/L		94	59 - 130	6	20
1,2-Dichlorobenzene	<1.00		20.0	16.88		ug/L		84	53 - 130	4	20
1,2-Dichloroethane	<1.00		20.0	21.97		ug/L		110	57 - 130	2	21
1,2-Dichloropropane	<1.00		20.0	20.91		ug/L		105	60 - 130	1	31
1,3-Dichlorobenzene	<1.00		20.0	17.13		ug/L		86	54 - 130	6	20
1,3-Dichloropropane	<1.00		20.0	21.17		ug/L		106	57 - 130	1	20
1,4-Dichlorobenzene	<1.00		20.0	17.52		ug/L		88	53 - 130	6	20
2,2-Dichloropropane	<4.00		20.0	19.76		ug/L		99	28 - 150	3	20
2-Butanone (MEK)	<10.0		40.0	40.15		ug/L		100	47 - 150	5	20
2-Hexanone	<10.0		40.0	35.56		ug/L		89	45 - 132	9	20
4-Methyl-2-pentanone (MIBK)	<10.0		40.0	34.49		ug/L		86	46 - 132	8	20

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-250324-3 MSD
Matrix: Ground Water
Analysis Batch: 380041

Client Sample ID: 93-MW 31R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetone	<10.0		40.0	50.27		ug/L		126	35 - 150	6	26
Acrolein	<10.0		94.8	91.65		ug/L		97	10 - 150	2	27
Acrylonitrile	<5.00		200	203.8		ug/L		102	50 - 150	4	21
Allyl chloride	<2.00		20.0	20.21		ug/L		101	35 - 150	0	35
Benzene	0.346	J	20.0	19.55		ug/L		96	47 - 130	1	20
Bromochloromethane	<5.00		20.0	23.76		ug/L		119	54 - 132	0	20
Bromodichloromethane	<1.00		20.0	18.80		ug/L		94	58 - 130	3	20
Bromoform	<5.00		20.0	16.48		ug/L		82	42 - 130	6	20
Carbon disulfide	<1.00		20.0	19.71		ug/L		99	39 - 131	2	32
Carbon tetrachloride	<2.00		20.0	20.24		ug/L		101	45 - 132	1	20
Chlorobenzene	<1.00		20.0	18.28		ug/L		91	54 - 130	5	20
Chlorodibromomethane	<5.00		20.0	18.02		ug/L		90	53 - 130	5	20
Chloroform	<3.00		20.0	22.03		ug/L		110	55 - 130	1	20
Chloroprene	<1.00		20.0	20.51		ug/L		103	47 - 131	1	20
cis-1,2-Dichloroethene	4.84		20.0	24.48		ug/L		98	52 - 130	2	20
cis-1,3-Dichloropropene	<5.00		20.0	18.76		ug/L		94	55 - 130	4	20
Dibromomethane	<1.00		20.0	22.31		ug/L		112	61 - 130	4	20
Ethyl methacrylate	<2.00		20.0	18.06		ug/L		90	50 - 131	5	20
Ethylbenzene	<1.00		20.0	18.23		ug/L		91	48 - 130	2	20
Iodomethane	<10.0		20.0	18.91		ug/L		95	10 - 150	22	35
Methacrylonitrile	<10.0		200	214.2		ug/L		107	57 - 130	4	20
Methyl methacrylate	<2.00		40.0	40.47		ug/L		101	50 - 131	6	20
Methylene chloride	<5.00		20.0	21.47		ug/L		107	50 - 150	1	24
Naphthalene	<5.00		20.0	18.37		ug/L		92	33 - 150	11	30
Propionitrile	<10.0		200	204.7		ug/L		102	53 - 130	5	20
Styrene	<1.00		20.0	17.82		ug/L		89	46 - 130	5	20
Tetrachloroethene	<1.00		20.0	17.76		ug/L		89	42 - 131	5	20
Toluene	<1.00		20.0	18.34		ug/L		92	48 - 130	7	20
trans-1,2-Dichloroethene	<1.00		20.0	20.28		ug/L		101	54 - 130	1	24
trans-1,3-Dichloropropene	<5.00		20.0	19.87		ug/L		99	51 - 130	2	20
trans-1,4-Dichloro-2-butene	<10.0		20.0	14.35		ug/L		72	33 - 150	5	20
Trichloroethene	<1.00		20.0	21.10		ug/L		105	55 - 130	1	20
Vinyl acetate	<10.0		40.0	38.36		ug/L		96	34 - 150	7	27
Xylenes, Total	<3.00		40.0	36.00		ug/L		90	44 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*80 - 128*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 310-380056/1-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<10.0		10.0	0.640	ug/L		02/27/23 11:26	03/01/23 10:02	1
Acenaphthylene	<10.0		10.0	0.720	ug/L		02/27/23 11:26	03/01/23 10:02	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-380056/1-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetophenone	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Acetylaminofluorene	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Aminobiphenyl	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
Anthracene	<10.0		10.0	0.870	ug/L		02/27/23 11:26	03/01/23 10:02	1
Benzo[a]anthracene	<10.0		10.0	0.850	ug/L		02/27/23 11:26	03/01/23 10:02	1
Benzo[a]pyrene	<10.0		10.0	8.10	ug/L		02/27/23 11:26	03/01/23 10:02	1
Benzo[b]fluoranthene	<10.0		10.0	4.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
Benzo[g,h,i]perylene	<10.0		10.0	6.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
Benzo[k]fluoranthene	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
Benzyl alcohol	<10.0		10.0	1.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
Bis(2-chloroethoxy)methane	<10.0		10.0	0.760	ug/L		02/27/23 11:26	03/01/23 10:02	1
Bis(2-chloroethyl)ether	<10.0		10.0	0.820	ug/L		02/27/23 11:26	03/01/23 10:02	1
bis (2-chloroisopropyl) ether	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 10:02	1
Bis(2-ethylhexyl) phthalate	<10.0		10.0	5.50	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Bromophenyl phenyl ether	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 10:02	1
Butyl benzyl phthalate	<10.0		10.0	5.40	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Chloroaniline	<10.0		10.0	0.620	ug/L		02/27/23 11:26	03/01/23 10:02	1
Chlorobenzilate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Chloro-3-methylphenol	<10.0		10.0	0.840	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Chloronaphthalene	<10.0		10.0	0.640	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Chlorophenol	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Chlorophenyl phenyl ether	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 10:02	1
Chrysene	<10.0		10.0	0.870	ug/L		02/27/23 11:26	03/01/23 10:02	1
Diallate	<10.0		10.0	4.00	ug/L		02/27/23 11:26	03/01/23 10:02	1
Dibenz(a,h)anthracene	<10.0		10.0	3.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
Dibenzofuran	<10.0		10.0	0.740	ug/L		02/27/23 11:26	03/01/23 10:02	1
3,3'-Dichlorobenzidine	<10.0		10.0	1.40	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,4-Dichlorophenol	<10.0		10.0	0.850	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,6-Dichlorophenol	<10.0		10.0	0.690	ug/L		02/27/23 11:26	03/01/23 10:02	1
Diethyl phthalate	<10.0		10.0	1.70	ug/L		02/27/23 11:26	03/01/23 10:02	1
Dimethoate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
7,12-Dimethylbenz(a)anthracene	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
3,3'-Dimethylbenzidine	<10.0		10.0	1.50	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,4-Dimethylphenol	<10.0		10.0	0.580	ug/L		02/27/23 11:26	03/01/23 10:02	1
Dimethyl phthalate	<10.0		10.0	1.00	ug/L		02/27/23 11:26	03/01/23 10:02	1
Di-n-butyl phthalate	<10.0		10.0	5.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
1,3-Dinitrobenzene	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
4,6-Dinitro-2-methylphenol	<10.0		10.0	6.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,4-Dinitrophenol	<20.0		20.0	13.0	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,4-Dinitrotoluene	<10.0		10.0	6.40	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,6-Dinitrotoluene	<10.0		10.0	0.520	ug/L		02/27/23 11:26	03/01/23 10:02	1
Di-n-octyl phthalate	<20.0		20.0	7.00	ug/L		02/27/23 11:26	03/01/23 10:02	1
Dinoseb	<10.0		10.0	2.40	ug/L		02/27/23 11:26	03/01/23 10:02	1
Diphenylamine	<10.0		10.0	6.00	ug/L		02/27/23 11:26	03/01/23 10:02	1
Disulfoton	<10.0		10.0	2.40	ug/L		02/27/23 11:26	03/01/23 10:02	1
Ethyl methanesulfonate	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
Ethyl parathion	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
Famphur	<10.0		10.0	3.80	ug/L		02/27/23 11:26	03/01/23 10:02	1
Fluoranthene	<10.0		10.0	1.70	ug/L		02/27/23 11:26	03/01/23 10:02	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-380056/1-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 10:02	1
Hexachlorobenzene	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 10:02	1
Hexachlorobutadiene	<10.0		10.0	0.860	ug/L		02/27/23 11:26	03/01/23 10:02	1
Hexachlorocyclopentadiene	<10.0		10.0	5.10	ug/L		02/27/23 11:26	03/01/23 10:02	1
Hexachloroethane	<10.0		10.0	0.970	ug/L		02/27/23 11:26	03/01/23 10:02	1
Hexachloropropene	<10.0		10.0	2.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
Indeno(1,2,3-cd)pyrene	<10.0		10.0	4.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
Isodrin	<10.0		10.0	4.70	ug/L		02/27/23 11:26	03/01/23 10:02	1
Isophorone	<10.0		10.0	0.930	ug/L		02/27/23 11:26	03/01/23 10:02	1
Isosafrole	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
Kepone	<10.0		10.0	1.00	ug/L		02/27/23 11:26	03/01/23 10:02	1
Methapyrilene	<10.0		10.0	0.760	ug/L		02/27/23 11:26	03/01/23 10:02	1
3-Methylcholanthrene	<10.0		10.0	0.320	ug/L		02/27/23 11:26	03/01/23 10:02	1
Methyl methanesulfonate	<10.0		10.0	3.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Methylnaphthalene	29.98		10.0	0.590	ug/L		02/27/23 11:26	03/01/23 10:02	1
Methyl parathion	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Methylphenol	<10.0		10.0	0.650	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Methylphenol (and/or 3-Methylphenol)	<10.0		10.0	0.700	ug/L		02/27/23 11:26	03/01/23 10:02	1
1,4-Naphthoquinone	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
1-Naphthylamine	<10.0		10.0	2.50	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Naphthylamine	<10.0		10.0	2.10	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Nitroaniline	<10.0		10.0	5.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
3-Nitroaniline	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Nitroaniline	<10.0		10.0	1.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
Nitrobenzene	<10.0		10.0	0.800	ug/L		02/27/23 11:26	03/01/23 10:02	1
5-Nitro-o-toluidine	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 10:02	1
2-Nitrophenol	<10.0		10.0	6.80	ug/L		02/27/23 11:26	03/01/23 10:02	1
4-Nitrophenol	<10.0		10.0	7.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosodiethylamine	<10.0		10.0	3.40	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosodimethylamine	<10.0		10.0	0.720	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosodi-n-butylamine	<10.0		10.0	3.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosodi-n-propylamine	<10.0		10.0	0.920	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosodiphenylamine	<10.0		10.0	0.750	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosomethylethylamine	<10.0		10.0	4.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosopiperidine	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 10:02	1
N-Nitrosopyrrolidine	<10.0		10.0	3.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
o,o',o''-Triethylphosphorothioate	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
o-Toluidine	<10.0		10.0	2.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
p-Dimethylamino azobenzene	<10.0		10.0	2.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
Pentachlorobenzene	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 10:02	1
Pentachloronitrobenzene	<10.0		10.0	5.80	ug/L		02/27/23 11:26	03/01/23 10:02	1
Pentachlorophenol	<10.0		10.0	9.60	ug/L		02/27/23 11:26	03/01/23 10:02	1
Phenacetin	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
Phenanthrene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 10:02	1
Phenol	<10.0		10.0	1.10	ug/L		02/27/23 11:26	03/01/23 10:02	1
1,4-Phenylenediamine	<10.0		10.0	1.90	ug/L		02/27/23 11:26	03/01/23 10:02	1
Phorate	<10.0		10.0	3.20	ug/L		02/27/23 11:26	03/01/23 10:02	1
Pronamide	<10.0		10.0	2.70	ug/L		02/27/23 11:26	03/01/23 10:02	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-380056/1-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	<10.0		10.0	0.790	ug/L		02/27/23 11:26	03/01/23 10:02	1
Safrole	<10.0		10.0	2.80	ug/L		02/27/23 11:26	03/01/23 10:02	1
1,2,4,5-Tetrachlorobenzene	<10.0		10.0	0.540	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,3,4,6-Tetrachlorophenol	<10.0		10.0	5.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
Thionazin	<10.0		10.0	3.50	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,4,5-Trichlorophenol	<10.0		10.0	5.30	ug/L		02/27/23 11:26	03/01/23 10:02	1
2,4,6-Trichlorophenol	<10.0		10.0	5.00	ug/L		02/27/23 11:26	03/01/23 10:02	1
1,3,5-Trinitrobenzene	<10.0		10.0	2.30	ug/L		02/27/23 11:26	03/01/23 10:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*106*		*28 - 110*	*02/27/23 11:26*	*03/01/23 10:02*	*1*
2-Fluorophenol (Surr)	*77*		*13 - 110*	*02/27/23 11:26*	*03/01/23 10:02*	*1*
Nitrobenzene-d5 (Surr)	*95*		*27 - 115*	*02/27/23 11:26*	*03/01/23 10:02*	*1*
Phenol-d5 (Surr)	*67*		*12 - 110*	*02/27/23 11:26*	*03/01/23 10:02*	*1*
Terphenyl-d14 (Surr)	*102*		*10 - 125*	*02/27/23 11:26*	*03/01/23 10:02*	*1*
2,4,6-Tribromophenol (Surr)	*90*		*15 - 121*	*02/27/23 11:26*	*03/01/23 10:02*	*1*

Lab Sample ID: LCS 310-380056/2-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	100	91.76		ug/L		92	26 - 110
Acenaphthylene	100	90.25		ug/L		90	20 - 110
Acetophenone	100	92.00		ug/L		92	35 - 110
Anthracene	100	91.69		ug/L		92	30 - 113
Benzo[a]anthracene	100	100.9		ug/L		101	38 - 110
Benzo[a]pyrene	100	94.13		ug/L		94	15 - 126
Benzo[b]fluoranthene	100	90.60		ug/L		91	35 - 114
Benzo[g,h,i]perylene	100	100.8		ug/L		101	30 - 114
Benzo[k]fluoranthene	100	92.30		ug/L		92	39 - 111
Benzyl alcohol	100	85.91		ug/L		86	28 - 110
Bis(2-chloroethoxy)methane	100	90.00		ug/L		90	31 - 110
Bis(2-chloroethyl)ether	100	85.89		ug/L		86	30 - 110
bis (2-chloroisopropyl) ether	100	79.20		ug/L		79	27 - 110
Bis(2-ethylhexyl) phthalate	100	126.0		ug/L		126	29 - 126
4-Bromophenyl phenyl ether	100	84.04		ug/L		84	33 - 110
Butyl benzyl phthalate	100	109.7		ug/L		110	31 - 121
4-Chloroaniline	100	89.83		ug/L		90	10 - 121
4-Chloro-3-methylphenol	100	99.92		ug/L		100	34 - 115
2-Chloronaphthalene	100	71.39		ug/L		71	24 - 110
2-Chlorophenol	100	84.98		ug/L		85	32 - 110
4-Chlorophenyl phenyl ether	100	91.47		ug/L		91	31 - 110
Chrysene	100	99.48		ug/L		99	40 - 110
Dibenz(a,h)anthracene	100	90.49		ug/L		90	31 - 122
Dibenzofuran	100	90.19		ug/L		90	31 - 110
2,4-Dichlorophenol	100	90.26		ug/L		90	31 - 110
2,6-Dichlorophenol	100	90.07		ug/L		90	24 - 112

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-380056/2-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diethyl phthalate	100	112.9		ug/L		113	36 - 113
2,4-Dimethylphenol	100	90.99		ug/L		91	22 - 110
Dimethyl phthalate	100	97.61		ug/L		98	23 - 117
Di-n-butyl phthalate	100	102.1		ug/L		102	39 - 119
1,3-Dinitrobenzene	100	101.3		ug/L		101	29 - 119
4,6-Dinitro-2-methylphenol	200	204.3		ug/L		102	10 - 125
2,4-Dinitrophenol	200	196.0		ug/L		98	10 - 110
2,4-Dinitrotoluene	100	115.5	*+	ug/L		116	36 - 115
2,6-Dinitrotoluene	100	101.0		ug/L		101	35 - 117
Di-n-octyl phthalate	100	125.6		ug/L		126	25 - 139
Diphenylamine	85.0	84.31		ug/L		99	22 - 119
Fluoranthene	100	97.17		ug/L		97	39 - 111
Fluorene	100	113.5	*+	ug/L		114	32 - 110
Hexachlorobenzene	100	84.20		ug/L		84	35 - 110
Hexachlorobutadiene	100	65.31		ug/L		65	21 - 110
Hexachlorocyclopentadiene	100	60.13		ug/L		60	10 - 110
Hexachloroethane	100	65.65		ug/L		66	17 - 110
Indeno(1,2,3-cd)pyrene	100	100.7		ug/L		101	26 - 124
Isophorone	100	94.15		ug/L		94	33 - 111
2-Methylnaphthalene	100	149.3	*+	ug/L		149	26 - 110
2-Methylphenol	100	82.12		ug/L		82	29 - 110
4-Methylphenol (and/or 3-Methylphenol)	100	81.41		ug/L		81	24 - 110
2-Nitroaniline	100	102.2		ug/L		102	33 - 115
3-Nitroaniline	100	102.0		ug/L		102	20 - 119
4-Nitroaniline	100	94.63		ug/L		95	18 - 118
Nitrobenzene	100	89.21		ug/L		89	31 - 110
2-Nitrophenol	100	90.44		ug/L		90	28 - 112
4-Nitrophenol	200	144.7		ug/L		72	10 - 110
N-Nitrosodimethylamine	100	72.04		ug/L		72	24 - 110
N-Nitrosodi-n-propylamine	100	95.00		ug/L		95	32 - 114
N-Nitrosodiphenylamine	100	97.48		ug/L		97	22 - 119
Pentachlorophenol	200	187.6		ug/L		94	10 - 116
Phenanthrene	100	88.14		ug/L		88	37 - 110
Phenol	100	54.73		ug/L		55	20 - 110
Pyrene	100	95.62		ug/L		96	35 - 115
1,2,4,5-Tetrachlorobenzene	100	77.56		ug/L		78	25 - 110
2,3,4,6-Tetrachlorophenol	100	94.32		ug/L		94	15 - 116
2,4,5-Trichlorophenol	100	93.82		ug/L		94	25 - 113
2,4,6-Trichlorophenol	100	94.09		ug/L		94	21 - 117

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*100*		*28 - 110*
2-Fluorophenol (Surr)	*71*		*13 - 110*
Nitrobenzene-d5 (Surr)	*87*		*27 - 115*
Phenol-d5 (Surr)	*61*		*12 - 110*
Terphenyl-d14 (Surr)	*107*		*10 - 125*
2,4,6-Tribromophenol (Surr)	*87*		*15 - 121*

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 310-380056/3-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 380056

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene			100	85.21		ug/L		85	26 - 110	7	35
Acenaphthylene			100	85.15		ug/L		85	20 - 110	6	35
Acetophenone			100	87.49		ug/L		87	35 - 110	5	35
Anthracene			100	88.34		ug/L		88	30 - 113	4	35
Benzo[a]anthracene			100	95.52		ug/L		96	38 - 110	5	35
Benzo[a]pyrene			100	89.55		ug/L		90	15 - 126	5	35
Benzo[b]fluoranthene			100	87.22		ug/L		87	35 - 114	4	35
Benzo[g,h,i]perylene			100	97.09		ug/L		97	30 - 114	4	35
Benzo[k]fluoranthene			100	88.77		ug/L		89	39 - 111	4	35
Benzyl alcohol			100	84.48		ug/L		84	28 - 110	2	35
Bis(2-chloroethoxy)methane			100	87.80		ug/L		88	31 - 110	2	35
Bis(2-chloroethyl)ether			100	81.67		ug/L		82	30 - 110	5	35
bis (2-chloroisopropyl) ether			100	76.29		ug/L		76	27 - 110	4	35
Bis(2-ethylhexyl) phthalate			100	120.8		ug/L		121	29 - 126	4	35
4-Bromophenyl phenyl ether			100	81.63		ug/L		82	33 - 110	3	35
Butyl benzyl phthalate			100	103.9		ug/L		104	31 - 121	5	35
4-Chloroaniline			100	91.53		ug/L		92	10 - 121	2	35
4-Chloro-3-methylphenol			100	94.05		ug/L		94	34 - 115	6	35
2-Chloronaphthalene			100	69.73		ug/L		70	24 - 110	2	35
2-Chlorophenol			100	83.16		ug/L		83	32 - 110	2	35
4-Chlorophenyl phenyl ether			100	88.10		ug/L		88	31 - 110	4	35
Chrysene			100	95.23		ug/L		95	40 - 110	4	35
Dibenz(a,h)anthracene			100	88.06		ug/L		88	31 - 122	3	35
Dibenzofuran			100	87.14		ug/L		87	31 - 110	3	35
2,4-Dichlorophenol			100	88.89		ug/L		89	31 - 110	2	35
2,6-Dichlorophenol			100	86.98		ug/L		87	24 - 112	3	35
Diethyl phthalate			100	113.5	*+	ug/L		114	36 - 113	1	35
2,4-Dimethylphenol			100	89.61		ug/L		90	22 - 110	2	35
Dimethyl phthalate			100	97.03		ug/L		97	23 - 117	1	35
Di-n-butyl phthalate			100	98.58		ug/L		99	39 - 119	4	35
1,3-Dinitrobenzene			100	100.5		ug/L		101	29 - 119	1	35
4,6-Dinitro-2-methylphenol			200	210.1		ug/L		105	10 - 125	3	35
2,4-Dinitrophenol			200	189.4		ug/L		95	10 - 110	3	35
2,4-Dinitrotoluene			100	110.5		ug/L		110	36 - 115	4	35
2,6-Dinitrotoluene			100	98.25		ug/L		98	35 - 117	3	35
Di-n-octyl phthalate			100	120.9		ug/L		121	25 - 139	4	35
Diphenylamine			85.0	79.52		ug/L		94	22 - 119	6	35
Fluoranthene			100	94.85		ug/L		95	39 - 111	2	35
Fluorene			100	108.1		ug/L		108	32 - 110	5	35
Hexachlorobenzene			100	79.75		ug/L		80	35 - 110	5	35
Hexachlorobutadiene			100	67.16		ug/L		67	21 - 110	3	35
Hexachlorocyclopentadiene			100	65.18		ug/L		65	10 - 110	8	35
Hexachloroethane			100	66.56		ug/L		67	17 - 110	1	35
Indeno(1,2,3-cd)pyrene			100	102.8		ug/L		103	26 - 124	2	35
Isophorone			100	91.66		ug/L		92	33 - 111	3	35
2-Methylnaphthalene			100	82.64	*1	ug/L		83	26 - 110	57	35
2-Methylphenol			100	80.75		ug/L		81	29 - 110	2	35
4-Methylphenol (and/or 3-Methylphenol)			100	78.80		ug/L		79	24 - 110	3	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 310-380056/3-A
Matrix: Water
Analysis Batch: 380222

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 380056

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Nitroaniline			100	98.83		ug/L		99	33 - 115	3	35
3-Nitroaniline			100	100.3		ug/L		100	20 - 119	2	35
4-Nitroaniline			100	80.98		ug/L		81	18 - 118	16	35
Nitrobenzene			100	84.76		ug/L		85	31 - 110	5	35
2-Nitrophenol			100	87.53		ug/L		88	28 - 112	3	35
4-Nitrophenol			200	144.2		ug/L		72	10 - 110	0	35
N-Nitrosodimethylamine			100	70.02		ug/L		70	24 - 110	3	35
N-Nitrosodi-n-propylamine			100	93.06		ug/L		93	32 - 114	2	35
N-Nitrosodiphenylamine			100	94.19		ug/L		94	22 - 119	3	35
Pentachlorophenol			200	177.7		ug/L		89	10 - 116	5	35
Phenanthrene			100	85.18		ug/L		85	37 - 110	3	35
Phenol			100	55.19		ug/L		55	20 - 110	1	35
Pyrene			100	90.78		ug/L		91	35 - 115	5	35
1,2,4,5-Tetrachlorobenzene			100	75.28		ug/L		75	25 - 110	3	35
2,3,4,6-Tetrachlorophenol			100	94.01		ug/L		94	15 - 116	0	35
2,4,5-Trichlorophenol			100	91.32		ug/L		91	25 - 113	3	35
2,4,6-Trichlorophenol			100	89.89		ug/L		90	21 - 117	5	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*98*		*28 - 110*
2-Fluorophenol (Surr)	*74*		*13 - 110*
Nitrobenzene-d5 (Surr)	*88*		*27 - 115*
Phenol-d5 (Surr)	*64*		*12 - 110*
Terphenyl-d14 (Surr)	*107*		*10 - 125*
2,4,6-Tribromophenol (Surr)	*86*		*15 - 121*

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Lab Sample ID: MB 310-380128/5
Matrix: Water
Analysis Batch: 380128

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<10.0		10.0	0.570	mg/L			02/28/23 11:14	1
Isobutanol	<10.0		10.0	0.550	mg/L			02/28/23 11:14	1

Lab Sample ID: LCS 310-380128/6
Matrix: Water
Analysis Batch: 380128

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Acetonitrile			104	115.7		mg/L		111	66 - 122		

Lab Sample ID: 310-250324-4 MS
Matrix: Ground Water
Analysis Batch: 380128

Client Sample ID: 93-MW-32
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Acetonitrile	<10.0		104	121.3		mg/L		117	58 - 129		

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection) (Continued)

Lab Sample ID: 310-250324-4 MSD
Matrix: Ground Water
Analysis Batch: 380128

Client Sample ID: 93-MW-32
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetonitrile	<10.0		104	121.5		mg/L		117	58 - 129	0	35

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-380057/1-A
Matrix: Water
Analysis Batch: 380636

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0640		0.0640	0.0320	ug/L		02/27/23 11:32	03/07/23 13:38	1
alpha-BHC	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 13:38	1
beta-BHC	<0.0640		0.0640	0.0370	ug/L		02/27/23 11:32	03/07/23 13:38	1
Chlordane (technical)	<2.00		2.00	0.810	ug/L		02/27/23 11:32	03/07/23 13:38	1
4,4'-DDD	<0.0640		0.0640	0.0270	ug/L		02/27/23 11:32	03/07/23 13:38	1
4,4'-DDE	<0.0640		0.0640	0.0270	ug/L		02/27/23 11:32	03/07/23 13:38	1
4,4'-DDT	<0.0640		0.0640	0.0420	ug/L		02/27/23 11:32	03/07/23 13:38	1
delta-BHC	<0.0640		0.0640	0.0270	ug/L		02/27/23 11:32	03/07/23 13:38	1
Dieldrin	<0.0640		0.0640	0.0260	ug/L		02/27/23 11:32	03/07/23 13:38	1
Endosulfan I	<0.0640		0.0640	0.0330	ug/L		02/27/23 11:32	03/07/23 13:38	1
Endosulfan II	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 13:38	1
Endosulfan sulfate	<0.0640		0.0640	0.0300	ug/L		02/27/23 11:32	03/07/23 13:38	1
Endrin	<0.0640		0.0640	0.0260	ug/L		02/27/23 11:32	03/07/23 13:38	1
Endrin aldehyde	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 13:38	1
gamma-BHC (Lindane)	<0.0640		0.0640	0.0360	ug/L		02/27/23 11:32	03/07/23 13:38	1
Heptachlor	<0.0640		0.0640	0.0330	ug/L		02/27/23 11:32	03/07/23 13:38	1
Heptachlor epoxide	<0.0640		0.0640	0.0290	ug/L		02/27/23 11:32	03/07/23 13:38	1
Methoxychlor	<0.0640		0.0640	0.0410	ug/L		02/27/23 11:32	03/07/23 13:38	1
Toxaphene	<2.00		2.00	0.690	ug/L		02/27/23 11:32	03/07/23 13:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*40*		*10 - 136*	*02/27/23 11:32*	*03/07/23 13:38*	*1*
Tetrachloro-m-xylene	*70*		*10 - 130*	*02/27/23 11:32*	*03/07/23 13:38*	*1*

Lab Sample ID: LCS 310-380057/4-A
Matrix: Water
Analysis Batch: 380636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aldrin	1.00	0.6709		ug/L		67	13 - 120
alpha-BHC	1.00	0.9966		ug/L		100	36 - 127
beta-BHC	1.00	0.8352		ug/L		84	37 - 136
4,4'-DDD	1.00	0.8028		ug/L		80	36 - 149
4,4'-DDE	1.00	0.7631		ug/L		76	34 - 130
4,4'-DDT	1.00	0.8198		ug/L		82	23 - 150
delta-BHC	1.00	0.7410		ug/L		74	33 - 134
Dieldrin	1.00	0.7699		ug/L		77	39 - 130
Endosulfan I	1.00	0.4944		ug/L		49	10 - 120
Endosulfan II	1.00	0.5639		ug/L		56	14 - 120
Endosulfan sulfate	1.00	0.8557		ug/L		86	36 - 147

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 310-380057/4-A
Matrix: Water
Analysis Batch: 380636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Endrin	1.00	0.8258		ug/L		83	39 - 140
Endrin aldehyde	1.00	0.8032		ug/L		80	32 - 137
gamma-BHC (Lindane)	1.00	0.8393		ug/L		84	36 - 132
Heptachlor	1.00	0.7429		ug/L		74	27 - 120
Heptachlor epoxide	1.00	0.7798		ug/L		78	38 - 133
Methoxychlor	1.00	0.8007	p	ug/L		80	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*31*		*10 - 136*
Tetrachloro-m-xylene	*44*		*10 - 130*

Lab Sample ID: LCSD 310-380057/5-A
Matrix: Water
Analysis Batch: 380636

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 380057

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aldrin	1.00	0.6514		ug/L		65	13 - 120	3	35
alpha-BHC	1.00	0.9376		ug/L		94	36 - 127	6	35
beta-BHC	1.00	0.8053		ug/L		81	37 - 136	4	35
4,4'-DDD	1.00	0.7729		ug/L		77	36 - 149	4	35
4,4'-DDE	1.00	0.7190		ug/L		72	34 - 130	6	35
4,4'-DDT	1.00	0.7693		ug/L		77	23 - 150	6	35
delta-BHC	1.00	0.7439		ug/L		74	33 - 134	0	35
Dieldrin	1.00	0.7363		ug/L		74	39 - 130	4	35
Endosulfan I	1.00	0.4829		ug/L		48	10 - 120	2	35
Endosulfan II	1.00	0.5395		ug/L		54	14 - 120	4	35
Endosulfan sulfate	1.00	0.8076		ug/L		81	36 - 147	6	35
Endrin	1.00	0.7799		ug/L		78	39 - 140	6	35
Endrin aldehyde	1.00	0.7704		ug/L		77	32 - 137	4	35
gamma-BHC (Lindane)	1.00	0.8266		ug/L		83	36 - 132	2	35
Heptachlor	1.00	0.7203		ug/L		72	27 - 120	3	35
Heptachlor epoxide	1.00	0.7460		ug/L		75	38 - 133	4	35
Methoxychlor	1.00	0.7719	p	ug/L		77	10 - 150	4	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*44*		*10 - 136*
Tetrachloro-m-xylene	*71*		*10 - 130*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 310-380057/1-A
Matrix: Water
Analysis Batch: 380634

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 13:38	1
PCB-1221	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 13:38	1
PCB-1232	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 13:38	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 310-380057/1-A
Matrix: Water
Analysis Batch: 380634

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1242	<0.800		0.800	0.170	ug/L		02/27/23 11:32	03/07/23 13:38	1
PCB-1248	<0.800		0.800	0.110	ug/L		02/27/23 11:32	03/07/23 13:38	1
PCB-1254	<0.800		0.800	0.110	ug/L		02/27/23 11:32	03/07/23 13:38	1
PCB-1260	<0.800		0.800	0.110	ug/L		02/27/23 11:32	03/07/23 13:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*40*		*10 - 136*	*02/27/23 11:32*	*03/07/23 13:38*	*1*
Tetrachloro-m-xylene (Surr)	*70*		*10 - 130*	*02/27/23 11:32*	*03/07/23 13:38*	*1*

Lab Sample ID: LCS 310-380057/2-A
Matrix: Water
Analysis Batch: 380634

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	10.0	9.563		ug/L		96	30 - 133
PCB-1260	10.0	7.923		ug/L		79	31 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*50*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*74*		*10 - 130*

Lab Sample ID: LCSD 310-380057/3-A
Matrix: Water
Analysis Batch: 380634

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 380057

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016	10.0	7.819		ug/L		78	30 - 133	20	35
PCB-1260	10.0	6.646		ug/L		66	31 - 133	18	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*41*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*68*		*10 - 130*

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-380240/3
Matrix: Water
Analysis Batch: 380240

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.100		0.100	0.0420	mg/L			02/24/23 11:11	1
Sulfate	<1.00		1.00	0.400	mg/L			02/24/23 11:11	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 310-380240/4
Matrix: Water
Analysis Batch: 380240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.00	2.127		mg/L		106	90 - 110
Sulfate	10.0	10.16		mg/L		102	90 - 110

Lab Sample ID: MB 310-380375/3
Matrix: Water
Analysis Batch: 380375

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.00		1.00	0.400	mg/L			03/01/23 14:29	1

Lab Sample ID: LCS 310-380375/4
Matrix: Water
Analysis Batch: 380375

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	10.0	10.14		mg/L		101	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-380400/1-A
Matrix: Water
Analysis Batch: 380645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380400

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200	0.000690	mg/L		03/03/23 09:55	03/06/23 15:57	1
Arsenic	<0.00200		0.00200	0.000750	mg/L		03/03/23 09:55	03/06/23 15:57	1
Barium	<0.00200		0.00200	0.000880	mg/L		03/03/23 09:55	03/06/23 15:57	1
Beryllium	<0.00100		0.00100	0.000270	mg/L		03/03/23 09:55	03/06/23 15:57	1
Cadmium	<0.000100		0.000100	0.0000550	mg/L		03/03/23 09:55	03/06/23 15:57	1
Chromium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 15:57	1
Cobalt	<0.000500		0.000500	0.000190	mg/L		03/03/23 09:55	03/06/23 15:57	1
Copper	<0.00500		0.00500	0.00180	mg/L		03/03/23 09:55	03/06/23 15:57	1
Lead	<0.000500		0.000500	0.000240	mg/L		03/03/23 09:55	03/06/23 15:57	1
Nickel	<0.00500		0.00500	0.00190	mg/L		03/03/23 09:55	03/06/23 15:57	1
Selenium	<0.00500		0.00500	0.000960	mg/L		03/03/23 09:55	03/06/23 15:57	1
Silver	<0.00100		0.00100	0.000490	mg/L		03/03/23 09:55	03/06/23 15:57	1
Thallium	<0.00100		0.00100	0.000260	mg/L		03/03/23 09:55	03/06/23 15:57	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		03/03/23 09:55	03/06/23 15:57	1
Zinc	<0.0200		0.0200	0.0100	mg/L		03/03/23 09:55	03/06/23 15:57	1
Tin	<0.00500		0.00500	0.00300	mg/L		03/03/23 09:55	03/06/23 15:57	1
Iron	<0.100		0.100	0.0360	mg/L		03/03/23 09:55	03/06/23 15:57	1
Aluminum	<0.0500		0.0500	0.0170	mg/L		03/03/23 09:55	03/06/23 15:57	1
Manganese	<0.0100		0.0100	0.00360	mg/L		03/03/23 09:55	03/06/23 15:57	1

Lab Sample ID: LCS 310-380400/2-A
Matrix: Water
Analysis Batch: 380645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380400

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2345		mg/L		117	80 - 120

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-380400/2-A
Matrix: Water
Analysis Batch: 380645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380400

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2129		mg/L		106	80 - 120
Barium	0.100	0.1083		mg/L		108	80 - 120
Beryllium	0.100	0.1093		mg/L		109	80 - 120
Cadmium	0.100	0.1055		mg/L		106	80 - 120
Chromium	0.100	0.1026		mg/L		103	80 - 120
Cobalt	0.100	0.1127		mg/L		113	80 - 120
Copper	0.200	0.2344		mg/L		117	80 - 120
Lead	0.200	0.2201		mg/L		110	80 - 120
Nickel	0.200	0.2206		mg/L		110	80 - 120
Selenium	0.400	0.4186		mg/L		105	80 - 120
Silver	0.100	0.1112		mg/L		111	80 - 120
Thallium	0.200	0.1869		mg/L		93	80 - 120
Vanadium	0.100	0.1043		mg/L		104	80 - 120
Zinc	0.200	0.2076		mg/L		104	80 - 120
Tin	0.200	0.2041		mg/L		102	80 - 120
Iron	0.200	0.2361		mg/L		118	80 - 120
Aluminum	0.200	0.2273		mg/L		114	80 - 120
Manganese	0.100	0.1027		mg/L		103	80 - 120

Lab Sample ID: 310-250324-2 MS
Matrix: Ground Water
Analysis Batch: 380645

Client Sample ID: 91-MW-14
Prep Type: Total/NA
Prep Batch: 380400

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200	F1	0.200	0.2792	F1	mg/L		140	75 - 125
Arsenic	<0.00200		0.200	0.2507		mg/L		125	75 - 125
Barium	0.0188		0.100	0.1407		mg/L		122	75 - 125
Beryllium	<0.00100		0.100	0.1244		mg/L		124	75 - 125
Cadmium	0.000216		0.100	0.1228		mg/L		123	75 - 125
Chromium	<0.00500		0.100	0.1171		mg/L		117	75 - 125
Cobalt	0.000404	J F1	0.100	0.1277	F1	mg/L		127	75 - 125
Copper	<0.00500	F1	0.200	0.2557	F1	mg/L		128	75 - 125
Lead	0.000377	J	0.200	0.2484		mg/L		124	75 - 125
Nickel	<0.00500		0.200	0.2471		mg/L		124	75 - 125
Selenium	0.00169	J	0.400	0.4973	E	mg/L		124	75 - 125
Silver	<0.00100		0.100	0.1028		mg/L		103	75 - 125
Thallium	0.000878	J	0.200	0.2014		mg/L		100	75 - 125
Vanadium	<0.00500		0.100	0.1211		mg/L		121	75 - 125
Zinc	<0.0200		0.200	0.2433		mg/L		122	75 - 125
Tin	<0.00500		0.200	0.2129		mg/L		106	75 - 125
Iron	0.0471	J F1	0.200	0.3225	F1	mg/L		138	75 - 125
Aluminum	<0.0500	F1	0.200	0.2720	F1	mg/L		136	75 - 125
Manganese	0.0457		0.100	0.1677		mg/L		122	75 - 125

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-250324-2 MSD
Matrix: Ground Water
Analysis Batch: 380645

Client Sample ID: 91-MW-14
Prep Type: Total/NA
Prep Batch: 380400

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200	F1	0.200	0.2664	F1	mg/L		133	75 - 125	5	20
Arsenic	<0.00200		0.200	0.2431		mg/L		122	75 - 125	3	20
Barium	0.0188		0.100	0.1386		mg/L		120	75 - 125	1	20
Beryllium	<0.00100		0.100	0.1208		mg/L		121	75 - 125	3	20
Cadmium	0.000216		0.100	0.1175		mg/L		117	75 - 125	4	20
Chromium	<0.00500		0.100	0.1144		mg/L		114	75 - 125	2	20
Cobalt	0.000404	J F1	0.100	0.1265	F1	mg/L		126	75 - 125	1	20
Copper	<0.00500	F1	0.200	0.2509		mg/L		125	75 - 125	2	20
Lead	0.000377	J	0.200	0.2429		mg/L		121	75 - 125	2	20
Nickel	<0.00500		0.200	0.2421		mg/L		121	75 - 125	2	20
Selenium	0.00169	J	0.400	0.4827	E	mg/L		120	75 - 125	3	20
Silver	<0.00100		0.100	0.1015		mg/L		102	75 - 125	1	20
Thallium	0.000878	J	0.200	0.1974		mg/L		98	75 - 125	2	20
Vanadium	<0.00500		0.100	0.1188		mg/L		119	75 - 125	2	20
Zinc	<0.0200		0.200	0.2333		mg/L		117	75 - 125	4	20
Tin	<0.00500		0.200	0.2025		mg/L		101	75 - 125	5	20
Iron	0.0471	J F1	0.200	0.3135	F1	mg/L		133	75 - 125	3	20
Aluminum	<0.0500	F1	0.200	0.2647	F1	mg/L		132	75 - 125	3	20
Manganese	0.0457		0.100	0.1662		mg/L		120	75 - 125	1	20

Lab Sample ID: 310-250324-12 DU
Matrix: Ground Water
Analysis Batch: 380645

Client Sample ID: MW-63R
Prep Type: Total/NA
Prep Batch: 380400

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Antimony	<0.00200			<0.00200		mg/L				NC	20
Arsenic	<0.00200			<0.00200		mg/L				NC	20
Barium	0.0164			0.01672		mg/L				2	20
Beryllium	0.000317	J		0.0002970	J	mg/L				7	20
Cadmium	0.00267			0.002643		mg/L				1	20
Chromium	<0.00500			<0.00500		mg/L				NC	20
Cobalt	0.00716			0.008217		mg/L				14	20
Copper	0.00217	J		0.002182	J	mg/L				0.8	20
Lead	0.000296	J		0.0003090	J	mg/L				4	20
Nickel	0.0480			0.04850		mg/L				1	20
Selenium	0.00172	J		0.001790	J	mg/L				4	20
Silver	<0.00100			<0.00100		mg/L				NC	20
Thallium	<0.00100			<0.00100		mg/L				NC	20
Vanadium	<0.00500			<0.00500		mg/L				NC	20
Zinc	0.157			0.1570		mg/L				0.2	20
Tin	<0.00500			<0.00500		mg/L				NC	20
Iron	0.415			0.4332		mg/L				4	20
Aluminum	0.688			0.6882		mg/L				0.05	20
Manganese	1.06			1.159		mg/L				9	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-380437/1-A
Matrix: Water
Analysis Batch: 380598

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380437

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		03/03/23 12:12	03/06/23 12:30	1

Lab Sample ID: LCS 310-380437/2-A
Matrix: Water
Analysis Batch: 380598

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380437

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001752		mg/L		105	80 - 120

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 310-380127/1-A
Matrix: Water
Analysis Batch: 380185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380127

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0100		0.0100	0.00430	mg/L		02/28/23 09:52	02/28/23 19:43	1

Lab Sample ID: LCS 310-380127/2-A
Matrix: Water
Analysis Batch: 380185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.200	0.1983		mg/L		99	90 - 110

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 500-700798/1-A
Matrix: Water
Analysis Batch: 700799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 700798

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.00		1.00	0.231	mg/L		03/01/23 18:00	03/01/23 23:05	1

Lab Sample ID: LCS 500-700798/2-A
Matrix: Water
Analysis Batch: 700799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 700798

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	2.73	3.043		mg/L		111	80 - 120

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 500-701550/4
Matrix: Water
Analysis Batch: 701550

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	<1.00		1.00	0.470	mg/L			03/07/23 14:49	1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 500-701550/5
Matrix: Water
Analysis Batch: 701550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
TOC Result 1	50.0	48.23		mg/L		96	86 - 116
TOC Result 2	50.0	48.36		mg/L		97	86 - 116
Total Organic Carbon - Duplicates	50.0	48.30		mg/L		97	86 - 116

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-380083/1
Matrix: Water
Analysis Batch: 380083

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			02/27/23 15:44	1

Lab Sample ID: LCS 310-380083/2
Matrix: Water
Analysis Batch: 380083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	93.00		mg/L		93	75 - 116

Lab Sample ID: 310-250324-10 DU
Matrix: Ground Water
Analysis Batch: 380083

Client Sample ID: MW-61R
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	378		366.0		mg/L		3	35

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 310-380308/2
Matrix: Water
Analysis Batch: 380308

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.00		5.00	2.30	mg/L			03/01/23 13:36	1
Bicarbonate Alkalinity as CaCO3	<5.00		5.00	2.30	mg/L			03/01/23 13:36	1
Carbonate Alkalinity as CaCO3	<5.00		5.00	2.30	mg/L			03/01/23 13:36	1

Lab Sample ID: LCS 310-380308/3
Matrix: Water
Analysis Batch: 380308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	1000	1061		mg/L		106	90 - 110

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Method: 2,4-D / 2,4,5-TP / 2,4,5-T - SW846 8151 Herbicide

Lab Sample ID: 1GB1293-BLK1
Matrix: Water
Analysis Batch: 1GB1293

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1GB1293_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 08:55	1
2,4,5-TP (Silvex)	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 08:55	1
2,4-D	<2.0		2.0		ug/L		02/27/23 16:59	03/13/23 08:55	1
Dinoseb	<0.5		0.5		ug/L		02/27/23 16:59	03/13/23 08:55	1

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dichlorobenzoic Acid	*92.7*		*31 - 116*	*02/27/23 16:59*	*03/13/23 08:55*	*1*

Lab Sample ID: 1GB1293-BS1
Matrix: Water
Analysis Batch: 1GB1293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1GB1293_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,5-T			0.575000	0.58		ug/L		102	54 - 149		
2,4,5-TP (Silvex)			0.575000	0.58		ug/L		101	35 - 141		
2,4-D			1.15000	<2.0		ug/L		85.7	16 - 161		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dichlorobenzoic Acid	*91.8*		*31 - 116*

Lab Sample ID: 1GB1293-SRM1
Matrix: Water
Analysis Batch: 1GB1293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1GB1293_P

Analyte			Spike Added	Reference Result	Reference Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,5-T			0.575000	0.90	QR-05	ug/L		156	80 - 120		
2,4,5-TP (Silvex)			0.575000	<0.5		ug/L		84.3	80 - 120		
2,4-D			1.15000	<2.0		ug/L		89.1	80 - 120		

Surrogate	*Reference %Recovery*	*Reference Qualifier*	*Limits*
2,5-Dichlorobenzoic Acid	*82.0*		*31 - 116*

GC/MS VOA

Analysis Batch: 380041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-3	93-MW 31R	Total/NA	Ground Water	8260D	
310-250324-4	93-MW-32	Total/NA	Ground Water	8260D	
310-250324-5	MW-39R	Total/NA	Ground Water	8260D	
310-250324-6	MW-40	Total/NA	Ground Water	8260D	
310-250324-7	04-MW-56	Total/NA	Ground Water	8260D	
310-250324-8	MW-58	Total/NA	Ground Water	8260D	
310-250324-10	MW-61R	Total/NA	Ground Water	8260D	
310-250324-12	MW-63R	Total/NA	Ground Water	8260D	
310-250324-14	MW-65	Total/NA	Ground Water	8260D	
310-250324-16	MW-79	Total/NA	Ground Water	8260D	
310-250324-17	MW-81	Total/NA	Ground Water	8260D	
310-250324-18	MW-D1	Total/NA	Ground Water	8260D	
310-250324-19	MW-D2	Total/NA	Ground Water	8260D	
310-250324-22	Trip Blank 1	Total/NA	Water	8260D	
310-250324-23	Trip Blank 2	Total/NA	Water	8260D	
MB 310-380041/5	Method Blank	Total/NA	Water	8260D	
LCS 310-380041/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-380041/7	Lab Control Sample	Total/NA	Water	8260D	
310-250324-3 MS	93-MW 31R	Total/NA	Ground Water	8260D	
310-250324-3 MSD	93-MW 31R	Total/NA	Ground Water	8260D	

GC/MS Semi VOA

Prep Batch: 380056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	3510C	
310-250324-5	MW-39R	Total/NA	Ground Water	3510C	
310-250324-7	04-MW-56	Total/NA	Ground Water	3510C	
310-250324-8	MW-58	Total/NA	Ground Water	3510C	
310-250324-14	MW-65	Total/NA	Ground Water	3510C	
MB 310-380056/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-380056/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-380056/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 380222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	8270E	380056
310-250324-5	MW-39R	Total/NA	Ground Water	8270E	380056
310-250324-7	04-MW-56	Total/NA	Ground Water	8270E	380056
310-250324-8	MW-58	Total/NA	Ground Water	8270E	380056
310-250324-14	MW-65	Total/NA	Ground Water	8270E	380056
310-250324-14	MW-65	Total/NA	Ground Water	8270E	380056
MB 310-380056/1-A	Method Blank	Total/NA	Water	8270E	380056
LCS 310-380056/2-A	Lab Control Sample	Total/NA	Water	8270E	380056
LCSD 310-380056/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	380056

GC Semi VOA

Prep Batch: 380057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	3510C	
310-250324-5	MW-39R	Total/NA	Ground Water	3510C	

GC Semi VOA (Continued)

Prep Batch: 380057 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-7	04-MW-56	Total/NA	Ground Water	3510C	
310-250324-8	MW-58	Total/NA	Ground Water	3510C	
310-250324-14	MW-65	Total/NA	Ground Water	3510C	
MB 310-380057/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-380057/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 310-380057/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-380057/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 310-380057/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 380128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	8015C	
310-250324-5	MW-39R	Total/NA	Ground Water	8015C	
310-250324-7	04-MW-56	Total/NA	Ground Water	8015C	
310-250324-14	MW-65	Total/NA	Ground Water	8015C	
MB 310-380128/5	Method Blank	Total/NA	Water	8015C	
LCS 310-380128/6	Lab Control Sample	Total/NA	Water	8015C	
310-250324-4 MS	93-MW-32	Total/NA	Ground Water	8015C	
310-250324-4 MSD	93-MW-32	Total/NA	Ground Water	8015C	

Analysis Batch: 380634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	8082A	380057
310-250324-5	MW-39R	Total/NA	Ground Water	8082A	380057
310-250324-7	04-MW-56	Total/NA	Ground Water	8082A	380057
310-250324-8	MW-58	Total/NA	Ground Water	8082A	380057
310-250324-14	MW-65	Total/NA	Ground Water	8082A	380057
MB 310-380057/1-A	Method Blank	Total/NA	Water	8082A	380057
LCS 310-380057/2-A	Lab Control Sample	Total/NA	Water	8082A	380057
LCSD 310-380057/3-A	Lab Control Sample Dup	Total/NA	Water	8082A	380057

Analysis Batch: 380636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	8081B	380057
310-250324-5	MW-39R	Total/NA	Ground Water	8081B	380057
310-250324-7	04-MW-56	Total/NA	Ground Water	8081B	380057
310-250324-8	MW-58	Total/NA	Ground Water	8081B	380057
310-250324-14	MW-65	Total/NA	Ground Water	8081B	380057
MB 310-380057/1-A	Method Blank	Total/NA	Water	8081B	380057
LCS 310-380057/4-A	Lab Control Sample	Total/NA	Water	8081B	380057
LCSD 310-380057/5-A	Lab Control Sample Dup	Total/NA	Water	8081B	380057

HPLC/IC

Analysis Batch: 380240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-3	93-MW 31R	Total/NA	Ground Water	9056A	
310-250324-10	MW-61R	Total/NA	Ground Water	9056A	
310-250324-10	MW-61R	Total/NA	Ground Water	9056A	
310-250324-16	MW-79	Total/NA	Ground Water	9056A	
MB 310-380240/3	Method Blank	Total/NA	Water	9056A	

HPLC/IC (Continued)

Analysis Batch: 380240 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-380240/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 380375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-5	MW-39R	Total/NA	Ground Water	9056A	
310-250324-6	MW-40	Total/NA	Ground Water	9056A	
310-250324-7	04-MW-56	Total/NA	Ground Water	9056A	
310-250324-8	MW-58	Total/NA	Ground Water	9056A	
310-250324-9	MW-59	Total/NA	Ground Water	9056A	
310-250324-12	MW-63R	Total/NA	Ground Water	9056A	
310-250324-13	MW-64	Total/NA	Ground Water	9056A	
310-250324-14	MW-65	Total/NA	Ground Water	9056A	
310-250324-18	MW-D1	Total/NA	Ground Water	9056A	
MB 310-380375/3	Method Blank	Total/NA	Water	9056A	
LCS 310-380375/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 380400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-2	91-MW-14	Total/NA	Ground Water	3005A	
310-250324-3	93-MW 31R	Total/NA	Ground Water	3005A	
310-250324-4	93-MW-32	Total/NA	Ground Water	3005A	
310-250324-5	MW-39R	Total/NA	Ground Water	3005A	
310-250324-6	MW-40	Total/NA	Ground Water	3005A	
310-250324-7	04-MW-56	Total/NA	Ground Water	3005A	
310-250324-8	MW-58	Total/NA	Ground Water	3005A	
310-250324-9	MW-59	Total/NA	Ground Water	3005A	
310-250324-10	MW-61R	Total/NA	Ground Water	3005A	
310-250324-11	MW-62	Total/NA	Ground Water	3005A	
310-250324-12	MW-63R	Total/NA	Ground Water	3005A	
310-250324-13	MW-64	Total/NA	Ground Water	3005A	
310-250324-14	MW-65	Total/NA	Ground Water	3005A	
310-250324-16	MW-79	Total/NA	Ground Water	3005A	
310-250324-17	MW-81	Total/NA	Ground Water	3005A	
310-250324-18	MW-D1	Total/NA	Ground Water	3005A	
310-250324-19	MW-D2	Total/NA	Ground Water	3005A	
MB 310-380400/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-380400/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-250324-2 MS	91-MW-14	Total/NA	Ground Water	3005A	
310-250324-2 MSD	91-MW-14	Total/NA	Ground Water	3005A	
310-250324-12 DU	MW-63R	Total/NA	Ground Water	3005A	

Prep Batch: 380437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	7470A	
310-250324-5	MW-39R	Total/NA	Ground Water	7470A	
310-250324-7	04-MW-56	Total/NA	Ground Water	7470A	
310-250324-8	MW-58	Total/NA	Ground Water	7470A	
310-250324-14	MW-65	Total/NA	Ground Water	7470A	
MB 310-380437/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 380437 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-380437/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 380598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	7470A	380437
310-250324-5	MW-39R	Total/NA	Ground Water	7470A	380437
310-250324-7	04-MW-56	Total/NA	Ground Water	7470A	380437
310-250324-8	MW-58	Total/NA	Ground Water	7470A	380437
310-250324-14	MW-65	Total/NA	Ground Water	7470A	380437
MB 310-380437/1-A	Method Blank	Total/NA	Water	7470A	380437
LCS 310-380437/2-A	Lab Control Sample	Total/NA	Water	7470A	380437

Analysis Batch: 380645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-2	91-MW-14	Total/NA	Ground Water	6020B	380400
310-250324-3	93-MW 31R	Total/NA	Ground Water	6020B	380400
310-250324-4	93-MW-32	Total/NA	Ground Water	6020B	380400
310-250324-5	MW-39R	Total/NA	Ground Water	6020B	380400
310-250324-6	MW-40	Total/NA	Ground Water	6020B	380400
310-250324-7	04-MW-56	Total/NA	Ground Water	6020B	380400
310-250324-8	MW-58	Total/NA	Ground Water	6020B	380400
310-250324-9	MW-59	Total/NA	Ground Water	6020B	380400
310-250324-10	MW-61R	Total/NA	Ground Water	6020B	380400
310-250324-11	MW-62	Total/NA	Ground Water	6020B	380400
310-250324-12	MW-63R	Total/NA	Ground Water	6020B	380400
310-250324-13	MW-64	Total/NA	Ground Water	6020B	380400
310-250324-14	MW-65	Total/NA	Ground Water	6020B	380400
310-250324-16	MW-79	Total/NA	Ground Water	6020B	380400
310-250324-17	MW-81	Total/NA	Ground Water	6020B	380400
310-250324-18	MW-D1	Total/NA	Ground Water	6020B	380400
310-250324-19	MW-D2	Total/NA	Ground Water	6020B	380400
MB 310-380400/1-A	Method Blank	Total/NA	Water	6020B	380400
LCS 310-380400/2-A	Lab Control Sample	Total/NA	Water	6020B	380400
310-250324-2 MS	91-MW-14	Total/NA	Ground Water	6020B	380400
310-250324-2 MSD	91-MW-14	Total/NA	Ground Water	6020B	380400
310-250324-12 DU	MW-63R	Total/NA	Ground Water	6020B	380400

Analysis Batch: 380711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-3	93-MW 31R	Total/NA	Ground Water	6020B	380400
310-250324-5	MW-39R	Total/NA	Ground Water	6020B	380400
310-250324-6	MW-40	Total/NA	Ground Water	6020B	380400
310-250324-7	04-MW-56	Total/NA	Ground Water	6020B	380400
310-250324-9	MW-59	Total/NA	Ground Water	6020B	380400
310-250324-16	MW-79	Total/NA	Ground Water	6020B	380400

General Chemistry

Analysis Batch: 380083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-2	91-MW-14	Total/NA	Ground Water	I-3765-85	

General Chemistry (Continued)

Analysis Batch: 380083 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-3	93-MW 31R	Total/NA	Ground Water	I-3765-85	
310-250324-4	93-MW-32	Total/NA	Ground Water	I-3765-85	
310-250324-5	MW-39R	Total/NA	Ground Water	I-3765-85	
310-250324-6	MW-40	Total/NA	Ground Water	I-3765-85	
310-250324-7	04-MW-56	Total/NA	Ground Water	I-3765-85	
310-250324-8	MW-58	Total/NA	Ground Water	I-3765-85	
310-250324-9	MW-59	Total/NA	Ground Water	I-3765-85	
310-250324-10	MW-61R	Total/NA	Ground Water	I-3765-85	
310-250324-11	MW-62	Total/NA	Ground Water	I-3765-85	
310-250324-12	MW-63R	Total/NA	Ground Water	I-3765-85	
310-250324-13	MW-64	Total/NA	Ground Water	I-3765-85	
310-250324-14	MW-65	Total/NA	Ground Water	I-3765-85	
310-250324-16	MW-79	Total/NA	Ground Water	I-3765-85	
310-250324-17	MW-81	Total/NA	Ground Water	I-3765-85	
310-250324-18	MW-D1	Total/NA	Ground Water	I-3765-85	
310-250324-19	MW-D2	Total/NA	Ground Water	I-3765-85	
MB 310-380083/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-380083/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-250324-10 DU	MW-61R	Total/NA	Ground Water	I-3765-85	

Prep Batch: 380127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	9012B	
310-250324-5	MW-39R	Total/NA	Ground Water	9012B	
310-250324-7	04-MW-56	Total/NA	Ground Water	9012B	
310-250324-8	MW-58	Total/NA	Ground Water	9012B	
310-250324-14	MW-65	Total/NA	Ground Water	9012B	
MB 310-380127/1-A	Method Blank	Total/NA	Water	9012B	
LCS 310-380127/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 380185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	9012B	380127
310-250324-5	MW-39R	Total/NA	Ground Water	9012B	380127
310-250324-7	04-MW-56	Total/NA	Ground Water	9012B	380127
310-250324-8	MW-58	Total/NA	Ground Water	9012B	380127
310-250324-14	MW-65	Total/NA	Ground Water	9012B	380127
MB 310-380127/1-A	Method Blank	Total/NA	Water	9012B	380127
LCS 310-380127/2-A	Lab Control Sample	Total/NA	Water	9012B	380127

Analysis Batch: 380308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-5	MW-39R	Total/NA	Ground Water	SM 2320B	
310-250324-6	MW-40	Total/NA	Ground Water	SM 2320B	
310-250324-7	04-MW-56	Total/NA	Ground Water	SM 2320B	
310-250324-8	MW-58	Total/NA	Ground Water	SM 2320B	
310-250324-9	MW-59	Total/NA	Ground Water	SM 2320B	
310-250324-12	MW-63R	Total/NA	Ground Water	SM 2320B	
310-250324-13	MW-64	Total/NA	Ground Water	SM 2320B	
310-250324-14	MW-65	Total/NA	Ground Water	SM 2320B	
310-250324-18	MW-D1	Total/NA	Ground Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 380308 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-380308/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 310-380308/3	Lab Control Sample	Total/NA	Water	SM 2320B	

Prep Batch: 700798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	9030B	
310-250324-7	04-MW-56	Total/NA	Ground Water	9030B	
310-250324-9	MW-59	Total/NA	Ground Water	9030B	
MB 500-700798/1-A	Method Blank	Total/NA	Water	9030B	
LCS 500-700798/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 700799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	9034	700798
310-250324-7	04-MW-56	Total/NA	Ground Water	9034	700798
310-250324-9	MW-59	Total/NA	Ground Water	9034	700798
MB 500-700798/1-A	Method Blank	Total/NA	Water	9034	700798
LCS 500-700798/2-A	Lab Control Sample	Total/NA	Water	9034	700798

Analysis Batch: 701550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-3	93-MW 31R	Total/NA	Ground Water	9060A	
310-250324-10	MW-61R	Total/NA	Ground Water	9060A	
310-250324-16	MW-79	Total/NA	Ground Water	9060A	
MB 500-701550/4	Method Blank	Total/NA	Water	9060A	
LCS 500-701550/5	Lab Control Sample	Total/NA	Water	9060A	

Subcontract

Analysis Batch: 1GB1293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
310-250324-5	MW-39R	Total/NA	Ground Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
310-250324-7	04-MW-56	Total/NA	Ground Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
310-250324-8	MW-58	Total/NA	Ground Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
310-250324-14	MW-65	Total/NA	Ground Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
1GB1293-BLK1	Method Blank	Total/NA	Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
1GB1293-BS1	Lab Control Sample	Total/NA	Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P
1GB1293-SRM1	Lab Control Sample	Total/NA	Water	2,4-D / 2,4,5-TP / 2,4,5-T	1GB1293_P

Prep Batch: 1GB1293_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-4	93-MW-32	Total/NA	Ground Water	EPA 8151A	
310-250324-5	MW-39R	Total/NA	Ground Water	EPA 8151A	
310-250324-7	04-MW-56	Total/NA	Ground Water	EPA 8151A	

Subcontract (Continued)

Prep Batch: 1GB1293_P (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250324-8	MW-58	Total/NA	Ground Water	EPA 8151A	
310-250324-14	MW-65	Total/NA	Ground Water	EPA 8151A	
1GB1293-BLK1	Method Blank	Total/NA	Water	EPA 8151A	
1GB1293-BS1	Lab Control Sample	Total/NA	Water	EPA 8151A	
1GB1293-SRM1	Lab Control Sample	Total/NA	Water	EPA 8151A	

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 91-MW-14

Date Collected: 02/22/23 13:58
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:03
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Client Sample ID: 93-MW 31R

Date Collected: 02/22/23 10:49
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 15:39
Total/NA	Analysis	9056A		5	380240	QTZ5	EET CF	02/25/23 01:07
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		4	380711	A6US	EET CF	03/07/23 13:07
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:37
Total/NA	Analysis	9060A		1	701550	BC	EET CHI	03/07/23 15:17
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Client Sample ID: 93-MW-32

Date Collected: 02/24/23 10:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 16:03
Total/NA	Prep	3510C			380056	Y6AF	EET CF	02/27/23 11:26
Total/NA	Analysis	8270E		1	380222	L0FS	EET CF	03/01/23 11:16
Total/NA	Analysis	8015C		1	380128	V7YZ	EET CF	02/28/23 14:03
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8081B		1	380636	BW2O	EET CF	03/07/23 14:42
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8082A		1	380634	BW2O	EET CF	03/07/23 14:42
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:39
Total/NA	Prep	7470A			380437	XXW3	EET CF	03/03/23 12:12
Total/NA	Analysis	7470A		1	380598	DHM5	EET CF	03/06/23 13:19
Total/NA	Prep	9012B			380127	ENB7	EET CF	02/28/23 09:52
Total/NA	Analysis	9012B		1	380185	ZJX4	EET CF	02/28/23 20:07
Total/NA	Prep	9030B			700798	CLB	EET CHI	03/01/23 18:06 - 03/01/23 18:09 [1]
Total/NA	Analysis	9034		1	700799	CLB	EET CHI	03/01/23 23:15 - 03/01/23 23:21 [1]
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Prep	EPA 8151A		1	1GB1293_P		SC0005	02/27/23 16:59
Total/NA	Analysis	2,4-D / 2,4,5-TP / 2,4,5-T		1	1GB1293	EPP	SC0005	03/13/23 11:39

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-39R
Date Collected: 02/21/23 13:41
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 16:27
Total/NA	Prep	3510C			380056	Y6AF	EET CF	02/27/23 11:26
Total/NA	Analysis	8270E		1	380222	L0FS	EET CF	03/01/23 11:41
Total/NA	Analysis	8015C		1	380128	V7YZ	EET CF	02/28/23 14:41
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8081B		1	380636	BW2O	EET CF	03/07/23 14:55
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8082A		1	380634	BW2O	EET CF	03/07/23 14:55
Total/NA	Analysis	9056A		50	380375	QTZ5	EET CF	03/01/23 16:49
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		7	380711	A6US	EET CF	03/07/23 13:10
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:42
Total/NA	Prep	7470A			380437	XXW3	EET CF	03/03/23 12:12
Total/NA	Analysis	7470A		1	380598	DHM5	EET CF	03/06/23 13:21
Total/NA	Prep	9012B			380127	ENB7	EET CF	02/28/23 09:52
Total/NA	Analysis	9012B		1	380185	ZJX4	EET CF	02/28/23 19:54
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 15:54
Total/NA	Prep	EPA 8151A		1	1GB1293_P		SC0005	02/27/23 16:59
Total/NA	Analysis	2,4-D / 2,4,5-TP / 2,4,5-T		1	1GB1293	EPP	SC0005	03/13/23 12:12

Client Sample ID: MW-40
Date Collected: 02/21/23 14:27
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 18:04
Total/NA	Analysis	9056A		20	380375	QTZ5	EET CF	03/01/23 17:36
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		10	380711	A6US	EET CF	03/07/23 13:14
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:45
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 16:09

Client Sample ID: 04-MW-56
Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 16:51

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: 04-MW-56

Date Collected: 02/22/23 11:36
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			380056	Y6AF	EET CF	02/27/23 11:26
Total/NA	Analysis	8270E		1	380222	L0FS	EET CF	03/01/23 12:06
Total/NA	Analysis	8015C		1	380128	V7YZ	EET CF	02/28/23 15:00
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8081B		1	380636	BW2O	EET CF	03/07/23 15:08
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8082A		1	380634	BW2O	EET CF	03/07/23 15:08
Total/NA	Analysis	9056A		20	380375	QTZ5	EET CF	03/01/23 17:52
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		4	380711	A6US	EET CF	03/07/23 13:17
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:48
Total/NA	Prep	7470A			380437	XXW3	EET CF	03/03/23 12:12
Total/NA	Analysis	7470A		1	380598	DHM5	EET CF	03/06/23 13:23
Total/NA	Prep	9012B			380127	ENB7	EET CF	02/28/23 09:52
Total/NA	Analysis	9012B		1	380185	ZJX4	EET CF	02/28/23 19:55
Total/NA	Prep	9030B			700798	CLB	EET CHI	03/01/23 18:12 - 03/01/23 18:15 [1]
Total/NA	Analysis	9034		1	700799	CLB	EET CHI	03/01/23 23:26 - 03/01/23 23:32 [1]
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 16:20
Total/NA	Prep	EPA 8151A		1	1GB1293_P		SC0005	02/27/23 16:59
Total/NA	Analysis	2,4-D / 2,4,5-TP / 2,4,5-T		1	1GB1293	EPP	SC0005	03/13/23 12:45

Client Sample ID: MW-58

Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 15:15
Total/NA	Prep	3510C			380056	Y6AF	EET CF	02/27/23 11:26
Total/NA	Analysis	8270E		1	380222	L0FS	EET CF	03/01/23 12:30
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8081B		1	380636	BW2O	EET CF	03/07/23 15:21
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8082A		1	380634	BW2O	EET CF	03/07/23 15:21
Total/NA	Analysis	9056A		50	380375	QTZ5	EET CF	03/01/23 18:07
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:51
Total/NA	Prep	7470A			380437	XXW3	EET CF	03/03/23 12:12
Total/NA	Analysis	7470A		1	380598	DHM5	EET CF	03/06/23 13:25
Total/NA	Prep	9012B			380127	ENB7	EET CF	02/28/23 09:52
Total/NA	Analysis	9012B		1	380185	ZJX4	EET CF	02/28/23 19:56
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-58
Date Collected: 02/21/23 15:08
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 16:34
Total/NA	Prep	EPA 8151A		1	1GB1293_P		SC0005	02/27/23 16:59
Total/NA	Analysis	2,4-D / 2,4,5-TP / 2,4,5-T		1	1GB1293	EPP	SC0005	03/13/23 13:17

Client Sample ID: MW-59
Date Collected: 02/22/23 13:20
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		20	380375	QTZ5	EET CF	03/01/23 18:23
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		4	380711	A6US	EET CF	03/07/23 13:21
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:54
Total/NA	Prep	9030B			700798	CLB	EET CHI	03/01/23 18:18 - 03/01/23 18:21 [1]
Total/NA	Analysis	9034		1	700799	CLB	EET CHI	03/01/23 23:37 - 03/01/23 23:42 [1]
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 16:43

Client Sample ID: MW-61R
Date Collected: 02/23/23 11:37
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 17:16
Total/NA	Analysis	9056A		1	380240	QTZ5	EET CF	02/25/23 01:21
Total/NA	Analysis	9056A		10	380240	QTZ5	EET CF	02/28/23 10:44
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 16:57
Total/NA	Analysis	9060A		1	701550	BC	EET CHI	03/07/23 15:35
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Client Sample ID: MW-62
Date Collected: 02/22/23 15:22
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-11
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:00
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-63R

Date Collected: 02/21/23 12:47
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-12

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 18:28
Total/NA	Analysis	9056A		100	380375	QTZ5	EET CF	03/01/23 18:39
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:23
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 16:53

Client Sample ID: MW-64

Date Collected: 02/22/23 12:28
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-13

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		10	380375	QTZ5	EET CF	03/01/23 18:54
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:28
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 17:06

Client Sample ID: MW-65

Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 17:40
Total/NA	Prep	3510C			380056	Y6AF	EET CF	02/27/23 11:26
Total/NA	Analysis	8270E		1	380222	L0FS	EET CF	03/01/23 12:55
Total/NA	Prep	3510C			380056	Y6AF	EET CF	02/27/23 11:26
Total/NA	Analysis	8270E		2	380222	L0FS	EET CF	03/01/23 17:51
Total/NA	Analysis	8015C		1	380128	V7YZ	EET CF	02/28/23 15:38
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8081B		1	380636	BW2O	EET CF	03/07/23 15:34
Total/NA	Prep	3510C			380057	Y6AF	EET CF	02/27/23 11:32
Total/NA	Analysis	8082A		1	380634	BW2O	EET CF	03/07/23 15:34
Total/NA	Analysis	9056A		20	380375	QTZ5	EET CF	03/01/23 19:10
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:31
Total/NA	Prep	7470A			380437	XXW3	EET CF	03/03/23 12:12
Total/NA	Analysis	7470A		1	380598	DHM5	EET CF	03/06/23 13:27
Total/NA	Prep	9012B			380127	ENB7	EET CF	02/28/23 09:52
Total/NA	Analysis	9012B		1	380185	ZJX4	EET CF	02/28/23 19:57
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 17:20

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-65

Date Collected: 02/21/23 15:52
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-14

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	EPA 8151A		1	1GB1293_P		SC0005	02/27/23 16:59
Total/NA	Analysis	2,4-D / 2,4,5-TP / 2,4,5-T		1	1GB1293	EPP	SC0005	03/13/23 13:50

Client Sample ID: MW-79

Date Collected: 02/23/23 16:40
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-16

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 18:53
Total/NA	Analysis	9056A		1	380240	QTZ5	EET CF	02/25/23 01:35
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		7	380711	A6US	EET CF	03/07/23 13:24
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:34
Total/NA	Analysis	9060A		1	701550	BC	EET CHI	03/07/23 15:49
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Client Sample ID: MW-81

Date Collected: 02/22/23 16:17
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-17

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 19:17
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:37
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Client Sample ID: MW-D1

Date Collected: 02/21/23 12:47
Date Received: 02/24/23 16:30

Lab Sample ID: 310-250324-18

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 19:41
Total/NA	Analysis	9056A		50	380375	QTZ5	EET CF	03/02/23 10:01
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:40
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44
Total/NA	Analysis	SM 2320B		1	380308	MAQ3	EET CF	03/01/23 17:35

Lab Chronicle

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Client Sample ID: MW-D2

Lab Sample ID: 310-250324-19

Date Collected: 02/21/23 14:27

Matrix: Ground Water

Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 20:05
Total/NA	Prep	3005A			380400	KCK5	EET CF	03/03/23 09:55
Total/NA	Analysis	6020B		1	380645	A6US	EET CF	03/06/23 17:43
Total/NA	Analysis	I-3765-85		1	380083	D7CP	EET CF	02/27/23 15:44

Client Sample ID: Trip Blank 1

Lab Sample ID: 310-250324-22

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 14:03

Client Sample ID: Trip Blank 2

Lab Sample ID: 310-250324-23

Date Collected: 02/24/23 00:00

Matrix: Water

Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 14:27

[1] Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

SC0005 = Keystone Laboratories, Inc, 600 East 17th Street South, Newton, IA 50208

Accreditation/Certification Summary

Client: Evora Consulting
Job ID: 310-250324-1
Project/Site: OWSWC 1st 2023 HMSP

Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260D		Ground Water	1,2,4-Trichlorobenzene
8260D		Ground Water	Allyl chloride
8260D		Ground Water	Ethyl methacrylate

Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
9060A		Ground Water	Total Organic Carbon - Duplicates

Method Summary

Client: Evora Consulting
Project/Site: OWSWC 1st 2023 HMSP

Job ID: 310-250324-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CF
8015C	Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9012B	Cyanide, Total andor Amenable	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CHI
9060A	Organic Carbon, Total (TOC)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 2320B	Alkalinity	SM	EET CF
8151	SW846 8151 Herbicide	SW846	SC0005
3005A	Preparation, Total Metals	SW846	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	EET CF
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200
SC0005 = Keystone Laboratories, Inc, 600 East 17th Street South, Newton, IA 50208

ANALYTICAL REPORT

March 15, 2023

Work Order: 1GB2489

Report To	Work Order Information
Shirley Thompson	Date Received: 2/28/2023 10:30:00AM
Eurofins Test America, Cedar Falls	Collector:
3019 Venture Way	Phone: (319) 277-2401
Cedar Falls, IA 50613	PO Number: US1702520285

Project: Subcontract - ST

Project Number: 31002405

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
1GB2489-01 93-MW-32 (310-250324-4)				Matrix: Water		Collected: 02/24/23 10:40	
2,4-D	<2.0 ug/L	2.0	1GB1293	EPA 8151A	EPP	03/13/23 11:39	
2,4,5-TP (Silvex)	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 11:39	
2,4,5-T	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 11:39	
Surrogate: 2,5-Dichlorobenzoic Acid	*107 %*			*31-116*	EPP	03/13/23 11:39	
1GB2489-02 MW-39R (310-250324-5)				Matrix: Water		Collected: 02/21/23 13:41	
2,4-D	<2.0 ug/L	2.0	1GB1293	EPA 8151A	EPP	03/13/23 12:12	
2,4,5-TP (Silvex)	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 12:12	
2,4,5-T	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 12:12	
Surrogate: 2,5-Dichlorobenzoic Acid	*100 %*			*31-116*	EPP	03/13/23 12:12	
1GB2489-03 04-MW-56 (310-250324-7)				Matrix: Water		Collected: 02/22/23 11:36	
2,4-D	<2.0 ug/L	2.0	1GB1293	EPA 8151A	EPP	03/13/23 12:45	
2,4,5-TP (Silvex)	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 12:45	
2,4,5-T	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 12:45	
Surrogate: 2,5-Dichlorobenzoic Acid	*102 %*			*31-116*	EPP	03/13/23 12:45	
1GB2489-04 MW-58 (310-250324-8)				Matrix: Water		Collected: 02/21/23 15:06	
2,4-D	<2.0 ug/L	2.0	1GB1293	EPA 8151A	EPP	03/13/23 13:17	
2,4,5-TP (Silvex)	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 13:17	
2,4,5-T	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 13:17	
Surrogate: 2,5-Dichlorobenzoic Acid	*98.6 %*			*31-116*	EPP	03/13/23 13:17	
1GB2489-05 MW-65 (310-250324-14)				Matrix: Water		Collected: 02/21/23 15:52	
2,4-D	<2.0 ug/L	2.0	1GB1293	EPA 8151A	EPP	03/13/23 13:50	
2,4,5-TP (Silvex)	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 13:50	
2,4,5-T	<0.5 ug/L	0.5	1GB1293	EPA 8151A	EPP	03/13/23 13:50	
Surrogate: 2,5-Dichlorobenzoic Acid	*94.3 %*			*31-116*	EPP	03/13/23 13:50	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Eurofins Test America, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613

Work Order: 1GB2489

Determination of Chlorinated Phenoxy Herbicides - Quality Control

Keystone Laboratories - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1GB1293 - EPA 8151A										
Blank (1GB1293-BLK1)				Prepared: 02/27/23 Analyzed: 03/13/23						
Surrogate: 2,5-Dichlorobenzoic Acid	*2.36*		*ug/L*	*2.55000*		*92.7*	*31-116*			
2,4-D	ND	2.0	"							
2,4,5-TP (Silvex)	ND	0.5	"							
2,4,5-T	ND	0.5	"							
Dinoseb	ND	0.5	"							
LCS (1GB1293-BS1)				Prepared: 02/27/23 Analyzed: 03/13/23						
Surrogate: 2,5-Dichlorobenzoic Acid	*2.34*		*ug/L*	*2.55000*		*91.8*	*31-116*			
2,4-D	0.98	2.0	"	1.15000		85.7	16-161			
2,4,5-TP (Silvex)	0.58	0.5	"	0.575000		101	35-141			
2,4,5-T	0.58	0.5	"	0.575000		102	54-149			
Matrix Spike (1GB1293-MS1)		**Source: 1GB1226-02**		Prepared: 02/27/23 Analyzed: 03/13/23						
Surrogate: 2,5-Dichlorobenzoic Acid	*124*		*ug/L*	*127.500*		*97.6*	*31-116*			
2,4-D	52.75	100	"	57.5000	ND	91.7	50-131			
2,4,5-TP (Silvex)	28.00	25.0	"	28.7500	ND	97.4	50-129			
2,4,5-T	25.25	25.0	"	28.7500	ND	87.8	50-123			
Matrix Spike Dup (1GB1293-MSD1)		**Source: 1GB1226-02**		Prepared: 02/27/23 Analyzed: 03/13/23						
Surrogate: 2,5-Dichlorobenzoic Acid	*122*		*ug/L*	*127.500*		*95.5*	*31-116*			
2,4-D	51.75	100	"	57.5000	ND	90.0	50-131	1.91	30	
2,4,5-TP (Silvex)	30.00	25.0	"	28.7500	ND	104	50-129	6.90	30	
2,4,5-T	30.00	25.0	"	28.7500	ND	104	50-123	17.2	30	
Reference (1GB1293-SRM1)				Prepared: 02/27/23 Analyzed: 03/13/23						
Surrogate: 2,5-Dichlorobenzoic Acid	*2.09*		*ug/L*	*2.55000*		*82.0*	*31-116*			
2,4-D	1.02	2.0	"	1.15000		89.1	80-120			
2,4,5-TP (Silvex)	0.48	0.5	"	0.575000		84.3	80-120			
2,4,5-T	0.90	0.5	"	0.575000		156	80-120			QR-05

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Eurofins Test America, Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613

March 15, 2023

Work Order: 1GB2489

Certified Analyses Included In This Report

Method/Matrix	Analyte	Certifications
EPA 8151A in Water		
	2,4-D	KS-NT,SIA1X
	2,4,5-TP (Silvex)	KS-NT,SIA1X
	2,4,5-T	KS-NT
	Dinoseb	KS-NT

Code	Description	Number	Expires
KS-KC	Kansas Department of Health and Environment-KC	E-10110	04/30/2023
KS-NT	Kansas Department of Health and Environment (NELAP)	E-10287	10/31/2023
MO-KC	Missouri Department of Natural Resources	140	04/30/2023
SIA1X	Iowa Dept. of Natural Resources	95	02/01/2024

Notes and Definitions

QR-05 The reference standard was outside of established control limits. The batch was accepted based on acceptable LCS, MS/MSD and RPD results.

End of Report

Dara Hanson

Keystone Laboratories

Dara Hanson For Sue Thompson
Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

1 G B 2 4 8 9

Eurofins Test America, Cedar Falls
PM: Sue Thompson

3/15/2023

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Thompson, Shirley J
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shirley.Thompson@et.
Company: Keystone Laboratories, Inc		Accreditations Required (See note): State Program - Iowa
Address: 600 East 17th Street South.	Due Date Requested: 3/8/2023	Job #: 310-250324-1
City: Newton	TAT Requested (days):	
State, Zip: IA, 50208	PO #	
Phone:	WO #	
Email:	Project #: 31002405	
Project Name: OWSWC 1st 2023 HMSP	SSOW#	
Site:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

1GB2489

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Herbicides)/ 2,4-D / 2,4,5-TP / 2,4,5-T	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
93-MW-32 (310-250324-4)	2/24/23	10:40 Central		Water			X	4	See Attached Instructions 01
MW-39R (310-250324-5)	2/21/23	13:41 Central		Water			X	4	See Attached Instructions 02
04-MW-56 (310-250324-7)	2/22/23	11:36 Central		Water			X	4	See Attached Instructions 03
MW-58 (310-250324-8)	2/21/23	15:08 Central		Water			X	4	See Attached Instructions 04
MW-65 (310-250324-14)	2/21/23	15:52 Central		Water			X	4	See Attached Instructions 05

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by:	Date/Time: 2-27-23 1500	Company	Received by: Echo McMurry	Date/Time: 2/28/23 10:30	Company	
Relinquished by:	Date/Time	Company	Received by	Date/Time	Company	
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company	

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.2

Ver: 06/08/2021

ICOC No:
310-58864

1 G B 2 4 8 9

Eurofins Test America, Cedar Falls
PM: Sue Thompson

Containers

Count	Container Type	Preservative
20	Amber Glass 250ml - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
4, 5, 7, 8, 14	SUBCONTRACT	SUB (Herbicides)/ 2,4-D / 2,4,5-TP / 2,4,5-T	2,4-D / 2,4,5-TP / 2,4,5-T Only

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310-250324 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: EVDRA

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 2/24/23 TIME 1630 | Received By: AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 1 of 5

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? HCl ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

MW61R, MW68, MW74, MW78, MW71, MW79, MW80, MW75

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: U | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.0 | Corrected Temp (°C): 0.0

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Evora

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 2/24/23 | TIME 1630 | Received By: AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☒ Yes ☐ No *If yes:* Cooler # 2 of 5

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 4 | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.2 | Corrected Temp (°C): 0.2

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW 63R MW D2
MW 40 MW D2 - 1 vial broken
MW D1 MW 40 - 1 vial broken

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Evora

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 2/24/23 | TIME 1630 | Received By:

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 3 of 5
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 4 | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): -0.1 | Corrected Temp (°C): -0.1

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

93 MW 31R 04-MW56
91 MW 14
93 MW 32

eurofins | Environment Testing America

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Evora

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 2/24/23 | TIME 1630 | Received By: AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 4 of 5
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: U | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.2 | Corrected Temp (°C): 0.2

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW59 MW81
MW64 MW66
MW62

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Cvorn

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 2/24/23 | TIME 1630 | Received By: AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 5 of 5
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: U | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): -0.8 | Corrected Temp (°C): -0.8

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW65
MW58 - 5 vials broken - 3 HCl + 2 NT
MW39R

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
704 Enterprise Drive
Cedar Falls, Iowa 50613
319.277.2401 (phone)

SAMPLER: Evora
SITE NAME: Ottumwa-Wapello County Landfill
ADDRESS:
CITY/STATE/ZIP:
TELEPHONE NUMBER: Fax:
SAMPLED BY: (PRINT NAME) Scott Stoller
SIGNATURE: None

REPORT TO:
NAME: Nathan Ohrt
COMPANY NAME: Evora Consulting
PROJECT NAME: OWSWC 1st 2023 HMSP
PROJECT NUMBER: OWSWC 23001
ADDRESS: 1690 All State Court, Suite 100
CITY/STATE/ZIP: West Des Moines, IA 50265

####
ASAP

Sample ID	# of Containers Ordered	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	Preservative: HNO3 (Red & White Label)	Preservative: NaOH (Blue & White Label)	Preservative: NaOH (Orange & White Label)	Preservative: H2SO4 Filtered (Yellow & White Label)	Preservative: H2SO4 Glass (Yellow & White Label)	Preservative: Trizma (Black & White Label)	Preservative: Trip Blank	Matrix: Groundwater	Matrix: Wastewater	Matrix: Drinking Water	Matrix: Sludge	Matrix: Soil	Matrix: Trip Blank	Analyze For: Appendix I	Appendix I metals list (see note)	Appendix II	Total Suspended Solids	AMD	Sulfide	Natural Attenuation		Trip Blank								Tat Results
MW-53								x								x						x			x												
91-MW-14		2-22-23	13:58		X			x								x							x		x												
93-MW-31R		2-24-23	10:47		X			x								x						x			x			x									
93-MW-32		2-24-23	10:40		X			x								x								x	x												
MW-39R		2-21-23	13:41		X			x								x								x	x	x											
MW-40		2-21-23	14:27		X			x								x						x			x	x											
04-MW-56		2-22-23	11:36		X			x								x								x	x	x											
MW-58		2-21-23	15:05		X			x								x								x	x	x											
MW-59		2-22-23	13:20		X			x								x							x		x	x	x										
MW-61R		2-23-23	11:37		X			x								x						x			x			x									
MW-62		2-22-23	15:22		X			x								x							x		x												
MW-63R		2-21-23	12:47		X			x								x						x			x	x	x										
MW-64		2-22-23	12:19		X			x								x							x		x	x											
MW-65		2-21-23	15:52		X			x								x								x	x	x											
MW-73								x								x						x			x			x									
MW-79		2-23-23	16:40		X			x								x						x			x			x									
MW-81		2-22-23	16:37		X			x								x						x			x												
MW-D1		2-24-23	12:47		X			x								x						x			x	x	x										
MW-D2		2-21-23	14:27		X			x								x						x			x												
GU-6								x								x						x			x												
GU-7								x								x						x			x												
Trip Blank								x													x								x								

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Relinquished by:	Time:
Scott Stoller	2-24-23	13:00					

Comments:
Shipped Via:

Relinquished by:	Date:	Time:	Temperature Upon Receipt:
Shipped Via:			
Received for lab by: PK	2-24-23	1630	

Laboratory Comments: (1) For Appendix and analysis, report to the reporting limits, not the detection limits. Make sure that the reporting limits are below the EPA' MCLs.
(2) For analysis other than Appendix and report to the detection limits. Please make sure that the detection limits are below the EPA' MCLs.
(3) In the "Result" column for all EDD files, when non-detect, please report "<" the reporting limits or the detection limits instead of indicating with "ND"

"Appendix I metals list" includes arsenic, barium, cadmium, copper, cobalt, lead, nickel, and zinc.
Natural Attenuation' includes total organic carbon, nitrate, iron, manganese, and sulfate.
AMD' includes alkalinity ($CaCO_3$) aluminum, iron, manganese, and sulfate.

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613
Phone 319 277-2401 Fax 319-277 2425

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler	Lab PM: Thompson Shirley J	Carrier Tracking No(s)	COC No: 310-58866 1
Client Contact: Shipping/Receiving	Phone	E-Mail: Shirley.Thompson@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 2
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State Program - Iowa		Job #: 310-250324-1
Address: 2417 Bond Street	Due Date Requested: 3/9/2023			
City: University Park	TAT Requested (days):			
State Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: OWSWC 1st 2023 HMSP	Project #: 31002405			
Site: 310-250324 COC	SSOW#:			

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5310C/ TOC	9034_Calc/9030B Sulfide	9034_Calc/9030B	Total Number of containers	Special Instructions/Note
			Preservation Code								
93-MW 31R (310-250324-3)	2/22/23	10 49 Central		Water			X			3	
93-MW-32 (310-250324-4)	2/24/23	10 40 Central		Water				X		1	
MW-39R (310-250324-5)	2/21/23	13 41 Central		Water				X		1	
04-MW-56 (310-250324-7)	2/22/23	11 36 Central		Water				X		1	
MW-58 (310-250324-8)	2/21/23	15 08 Central		Water				X		1	
MW-59 (310-250324-9)	2/22/23	13 20 Central		Water					X	1	
MW-61R (310-250324-10)	2/23/23	11 37 Central		Water			X			3	
MW-63R (310-250324-12)	2/21/23	12 47 Central		Water					X	1	
MW-65 (310-250324-14)	2/21/23	15 52 Central		Water				X		1	

Note Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	2/27/23 1540		[signature]	2/28/23 1005	EETA
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 3.0 -> 2.0

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613
Phone 319-277-2401 Fax 319-277-2425

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler	Lab PM	Carrier Tracking No(s)	COC No
		Thompson Shirley J		310-58866 2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Shirley Thompson@et eurofinsus com	State of Origin: Iowa	Page: Page 2 of 2
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State Program - Iowa		Job #: 310-250324-1
Address: 2417 Bond Street,	Due Date Requested: 3/9/2023			
City: University Park	TAT Requested (days):			
State Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: OWSWC 1st 2023 HMSP	Project #: 31002405			
Site:	SSOW#:			

Analysis Requested

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5310C/ TOC	9034_Calc/9030B Sulfide	9034_Calc/9030B	Total Number of containers	Special Instructions/Note
			Preservation Code								
MW 79 (310-250324-16)	2/23/23	16 40 Central		Water			X			3	
MW-D1 (310-250324-18)	2/21/23	12 47 Central		Water					X	1	

Note Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	2/27/23 1540			2/28/23 1005	EETA
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No		

Login Sample Receipt Checklist

Client: Evora Consulting

Job Number: 310-250324-1

Login Number: 250324
List Number: 1
Creator: Tucker, Sarah L

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Evora Consulting

Job Number: 310-250324-1

Login Number: 250324
List Number: 2
Creator: Scott, Sherri L

List Source: Eurofins Chicago
List Creation: 02/28/23 01:12 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

eurofins | Environment Testing

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

PREPARED FOR

Attn: Nathan Ohrt
Evora Consulting
1690 All State Court
Suite 100
West Des Moines, Iowa 50265

Generated 3/2/2023 2:48:21 PM

JOB DESCRIPTION

Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

JOB NUMBER

310-250330-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Tayler Sanderson, Project Manager I
Tayler.Sanderson@et.eurofinsus.com
Designee for
Shirley Thompson, Client Service Manager
Shirley.Thompson@et.eurofinsus.com
(319)277-2401

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Case Narrative

Client: Evora Consulting
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Br

Job ID: 310-250330-1

Job ID: 310-250330-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-250330-1

Comments
No additional comments.

Receipt
The samples were received on 2/24/2023 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.0º C and 0.2º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-250330-1	MW-66	Ground Water	02/22/23 15:51	02/24/23 16:30
310-250330-2	MW-68	Ground Water	02/23/23 13:20	02/24/23 16:30
310-250330-3	MW-71	Ground Water	02/23/23 13:53	02/24/23 16:30
310-250330-4	MW-74	Ground Water	02/23/23 12:15	02/24/23 16:30
310-250330-5	MW-75	Ground Water	02/23/23 10:55	02/24/23 16:30
310-250330-6	MW-78	Ground Water	02/23/23 15:34	02/24/23 16:30
310-250330-7	MW-80	Ground Water	02/23/23 16:10	02/24/23 16:30
310-250330-8	Trip Blank	Water	02/23/23 00:00	02/24/23 16:30

Detection Summary

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-66 — Lab Sample ID: 310-250330-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.00168		0.000500	0.000190	mg/L	1		6020B	Total/NA
Total Suspended Solids	29.7		5.00	1.70	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-68 — Lab Sample ID: 310-250330-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.000255	J	0.000500	0.000190	mg/L	1		6020B	Total/NA
Total Suspended Solids	1.75	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-71 — Lab Sample ID: 310-250330-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00762		0.00200	0.000750	mg/L	1		6020B	Total/NA
Cobalt	0.00200		0.000500	0.000190	mg/L	1		6020B	Total/NA
Total Suspended Solids	216		30.0	10.2	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-74 — Lab Sample ID: 310-250330-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.499	J	0.500	0.220	ug/L	1		8260D	Total/NA
Trichloroethene	1.07		1.00	0.430	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	25.9		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	0.926	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	0.0288		0.00200	0.000750	mg/L	1		6020B	Total/NA
Cobalt	0.00587		0.000500	0.000190	mg/L	1		6020B	Total/NA
Total Suspended Solids	16.0		5.00	1.70	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-75 — Lab Sample ID: 310-250330-5

No Detections.

Client Sample ID: MW-78 — Lab Sample ID: 310-250330-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.788	J	1.00	0.480	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.634	J	1.00	0.210	ug/L	1		8260D	Total/NA
Cobalt	0.00342		0.000500	0.000190	mg/L	1		6020B	Total/NA
Total Suspended Solids	10.4		1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-80 — Lab Sample ID: 310-250330-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	9.28		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	2.26		1.00	0.180	ug/L	1		8260D	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-250330-8

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st
2023 Bracket

Client Sample ID: MW-66
Lab Sample ID: 310-250330-1
Date Collected: 02/22/23 15:51
Matrix: Ground Water
Date Received: 02/24/23 16:30

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/28/23 09:20	02/28/23 22:22	1
Cobalt	**0.00168**		0.000500	0.000190	mg/L		02/28/23 09:20	02/28/23 22:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**29.7**		5.00	1.70	mg/L			02/27/23 13:00	1

Client Sample Results

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-68
Lab Sample ID: 310-250330-2
Date Collected: 02/23/23 13:20
Matrix: Ground Water
Date Received: 02/24/23 16:30

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/28/23 09:20	02/28/23 22:25	1
Cobalt	**0.000255**	**J**	0.000500	0.000190	mg/L		02/28/23 09:20	02/28/23 22:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**1.75**	**J**	1.88	0.638	mg/L			02/27/23 13:00	1

Client Sample Results

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-71
Lab Sample ID: 310-250330-3

Date Collected: 02/23/23 13:53
Matrix: Ground Water

Date Received: 02/24/23 16:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<1.00		1.00	0.430	ug/L			02/28/23 02:32	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/28/23 02:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*124*		*80 - 128*		*02/28/23 02:32*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/28/23 02:32*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/28/23 02:32*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00762**		0.00200	0.000750	mg/L		02/28/23 09:20	02/28/23 22:29	1
Cobalt	**0.00200**		0.000500	0.000190	mg/L		02/28/23 09:20	02/28/23 22:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**216**		30.0	10.2	mg/L			02/27/23 13:00	1

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-74
Lab Sample ID: 310-250330-4

Date Collected: 02/23/23 12:15
Matrix: Ground Water

Date Received: 02/24/23 16:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.499**	**J**	0.500	0.220	ug/L			02/28/23 02:57	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/28/23 02:57	1
Trichloroethene	**1.07**		1.00	0.430	ug/L			02/28/23 02:57	1
cis-1,2-Dichloroethene	**25.9**		1.00	0.210	ug/L			02/28/23 02:57	1
Vinyl chloride	**0.926**	**J**	1.00	0.180	ug/L			02/28/23 02:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*120*		*80 - 128*		*02/28/23 02:57*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/28/23 02:57*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/28/23 02:57*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0288**		0.00200	0.000750	mg/L		02/28/23 09:20	02/28/23 22:32	1
Cobalt	**0.00587**		0.000500	0.000190	mg/L		02/28/23 09:20	02/28/23 22:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**16.0**		5.00	1.70	mg/L			02/27/23 13:00	1

Client Sample Results

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-75
Lab Sample ID: 310-250330-5
Date Collected: 02/23/23 10:55
Matrix: Ground Water
Date Received: 02/24/23 16:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.500		0.500	0.220	ug/L			02/28/23 03:22	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/28/23 03:22	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/28/23 03:22	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/28/23 03:22	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/28/23 03:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*118*		*80 - 128*		*02/28/23 03:22*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*02/28/23 03:22*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*02/28/23 03:22*	*1*

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-78
Lab Sample ID: 310-250330-6
Date Collected: 02/23/23 15:34
Matrix: Ground Water
Date Received: 02/24/23 16:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	0.788	J	1.00	0.480	ug/L			02/28/23 03:46	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/28/23 03:46	1
cis-1,2-Dichloroethene	0.634	J	1.00	0.210	ug/L			02/28/23 03:46	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/28/23 03:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/28/23 03:46*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*02/28/23 03:46*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*02/28/23 03:46*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00342		0.000500	0.000190	mg/L		02/28/23 09:20	02/28/23 22:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	10.4		1.88	0.638	mg/L			02/27/23 13:00	1

Client Sample Results

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st
2023 Bracket

Client Sample ID: MW-80
Lab Sample ID: 310-250330-7
Date Collected: 02/23/23 16:10
Matrix: Ground Water
Date Received: 02/24/23 16:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	9.28		1.00	0.210	ug/L			02/28/23 04:10	1
Vinyl chloride	2.26		1.00	0.180	ug/L			02/28/23 04:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*119*		*80 - 128*		*02/28/23 04:10*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*02/28/23 04:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/28/23 04:10*	*1*

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: Trip Blank
Lab Sample ID: 310-250330-8
Date Collected: 02/23/23 00:00
Matrix: Water
Date Received: 02/24/23 16:30

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 14:51	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 14:51	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 14:51	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 14:51	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 14:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*124*		*80 - 128*		*02/27/23 14:51*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/27/23 14:51*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/27/23 14:51*	*1*

Definitions/Glossary

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st
2023 Bracket

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Surrogate Summary

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st
2023 Bracket

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-250330-3	MW-71	124	95	100
310-250330-3 MS	MW-71	99	96	101
310-250330-3 MSD	MW-71	104	95	102
310-250330-4	MW-74	120	97	99
310-250330-5	MW-75	118	92	97
310-250330-6	MW-78	119	92	100
310-250330-7	MW-80	119	92	99

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-250330-8	Trip Blank	124	98	98
LCS 310-380041/6	Lab Control Sample	100	94	101
LCS 310-380041/7	Lab Control Sample	118	97	99
LCS 310-380070/6	Lab Control Sample	105	92	100
LCS 310-380070/7	Lab Control Sample	120	96	99
MB 310-380041/5	Method Blank	125	98	98
MB 310-380070/5	Method Blank	122	93	99

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-380041/5
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.500		0.500	0.220	ug/L			02/27/23 12:26	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/27/23 12:26	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/27/23 12:26	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/27/23 12:26	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/27/23 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*125*		*80 - 128*		*02/27/23 12:26*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/27/23 12:26*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*02/27/23 12:26*	*1*

Lab Sample ID: LCS 310-380041/6
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	22.25		ug/L		111	73 - 122
Tetrachloroethene	20.0	22.15		ug/L		111	69 - 131
Trichloroethene	20.0	23.45		ug/L		117	73 - 126
cis-1,2-Dichloroethene	20.0	21.59		ug/L		108	74 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*80 - 128*
Toluene-d8 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-380041/7
Matrix: Water
Analysis Batch: 380041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	20.0	20.32		ug/L		102	57 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*118*		*80 - 128*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 310-380070/5
Matrix: Water
Analysis Batch: 380070

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.500		0.500	0.220	ug/L			02/28/23 00:30	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			02/28/23 00:30	1
Trichloroethene	<1.00		1.00	0.430	ug/L			02/28/23 00:30	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			02/28/23 00:30	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-380070/5
Matrix: Water
Analysis Batch: 380070

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	<1.00		1.00	0.180	ug/L			02/28/23 00:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*122*		*80 - 128*		*02/28/23 00:30*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/28/23 00:30*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*02/28/23 00:30*	*1*

Lab Sample ID: LCS 310-380070/6
Matrix: Water
Analysis Batch: 380070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	20.0	21.78		ug/L		109	73 - 122
Tetrachloroethene	20.0	21.39		ug/L		107	69 - 131
Trichloroethene	20.0	23.87		ug/L		119	73 - 126
cis-1,2-Dichloroethene	20.0	22.71		ug/L		114	74 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*105*		*80 - 128*
Toluene-d8 (Surr)	*92*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-380070/7
Matrix: Water
Analysis Batch: 380070

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	20.0	21.04		ug/L		105	57 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*120*		*80 - 128*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: 310-250330-3 MS
Matrix: Ground Water
Analysis Batch: 380070

Client Sample ID: MW-71
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.500		20.0	19.97		ug/L		100	47 - 130
Tetrachloroethene	<1.00		20.0	18.44		ug/L		92	42 - 131
Trichloroethene	<1.00		20.0	20.94		ug/L		105	55 - 130
cis-1,2-Dichloroethene	<1.00		20.0	20.54		ug/L		103	52 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*80 - 128*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-250330-3 MS
Matrix: Ground Water
Analysis Batch: 380070

Client Sample ID: MW-71
Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: 310-250330-3 MSD
Matrix: Ground Water
Analysis Batch: 380070

Client Sample ID: MW-71
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.500		20.0	20.75		ug/L		104	47 - 130	4	20
Tetrachloroethene	<1.00		20.0	18.23		ug/L		91	42 - 131	1	20
Trichloroethene	<1.00		20.0	21.16		ug/L		106	55 - 130	1	20
cis-1,2-Dichloroethene	<1.00		20.0	20.28		ug/L		101	52 - 130	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Dibromofluoromethane (Surr)	*104*		*80 - 128*
Toluene-d8 (Surr)	*95*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-380085/1-A
Matrix: Water
Analysis Batch: 380271

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380085

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000750	mg/L		02/28/23 09:20	03/01/23 12:05	1
Cobalt	<0.000500		0.000500	0.000190	mg/L		02/28/23 09:20	03/01/23 12:05	1

Lab Sample ID: LCS 310-380085/2-A ^10
Matrix: Water
Analysis Batch: 380283

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380085

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	1.994		mg/L		100	80 - 120
Cobalt	1.00	0.9840		mg/L		98	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-380067/1
Matrix: Water
Analysis Batch: 380067

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			02/27/23 13:00	1

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st
2023 Bracket

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: LCS 310-380067/2
Matrix: Water
Analysis Batch: 380067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	89.00		mg/L		89	75 - 116

GC/MS VOA

Analysis Batch: 380041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250330-8	Trip Blank	Total/NA	Water	8260D	
MB 310-380041/5	Method Blank	Total/NA	Water	8260D	
LCS 310-380041/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-380041/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 380070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250330-3	MW-71	Total/NA	Ground Water	8260D	
310-250330-4	MW-74	Total/NA	Ground Water	8260D	
310-250330-5	MW-75	Total/NA	Ground Water	8260D	
310-250330-6	MW-78	Total/NA	Ground Water	8260D	
310-250330-7	MW-80	Total/NA	Ground Water	8260D	
MB 310-380070/5	Method Blank	Total/NA	Water	8260D	
LCS 310-380070/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-380070/7	Lab Control Sample	Total/NA	Water	8260D	
310-250330-3 MS	MW-71	Total/NA	Ground Water	8260D	
310-250330-3 MSD	MW-71	Total/NA	Ground Water	8260D	

Metals

Prep Batch: 380085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250330-1	MW-66	Total/NA	Ground Water	3005A	
310-250330-2	MW-68	Total/NA	Ground Water	3005A	
310-250330-3	MW-71	Total/NA	Ground Water	3005A	
310-250330-4	MW-74	Total/NA	Ground Water	3005A	
310-250330-6	MW-78	Total/NA	Ground Water	3005A	
MB 310-380085/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-380085/2-A ^10	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 380235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250330-1	MW-66	Total/NA	Ground Water	6020B	380085
310-250330-2	MW-68	Total/NA	Ground Water	6020B	380085
310-250330-3	MW-71	Total/NA	Ground Water	6020B	380085
310-250330-4	MW-74	Total/NA	Ground Water	6020B	380085
310-250330-6	MW-78	Total/NA	Ground Water	6020B	380085

Analysis Batch: 380271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-380085/1-A	Method Blank	Total/NA	Water	6020B	380085

Analysis Batch: 380283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-380085/2-A ^10	Lab Control Sample	Total/NA	Water	6020B	380085

General Chemistry

Analysis Batch: 380067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250330-1	MW-66	Total/NA	Ground Water	I-3765-85	

General Chemistry (Continued)

Analysis Batch: 380067 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250330-2	MW-68	Total/NA	Ground Water	I-3765-85	
310-250330-3	MW-71	Total/NA	Ground Water	I-3765-85	
310-250330-4	MW-74	Total/NA	Ground Water	I-3765-85	
310-250330-6	MW-78	Total/NA	Ground Water	I-3765-85	
MB 310-380067/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-380067/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Lab Chronicle

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-66
Lab Sample ID: 310-250330-1
Date Collected: 02/22/23 15:51
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			380085	KCK5	EET CF	02/28/23 09:20
Total/NA	Analysis	6020B		1	380235	A6US	EET CF	02/28/23 22:22
Total/NA	Analysis	I-3765-85		1	380067	D7CP	EET CF	02/27/23 13:00

Client Sample ID: MW-68
Lab Sample ID: 310-250330-2
Date Collected: 02/23/23 13:20
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			380085	KCK5	EET CF	02/28/23 09:20
Total/NA	Analysis	6020B		1	380235	A6US	EET CF	02/28/23 22:25
Total/NA	Analysis	I-3765-85		1	380067	D7CP	EET CF	02/27/23 13:00

Client Sample ID: MW-71
Lab Sample ID: 310-250330-3
Date Collected: 02/23/23 13:53
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380070	FE5V	EET CF	02/28/23 02:32
Total/NA	Prep	3005A			380085	KCK5	EET CF	02/28/23 09:20
Total/NA	Analysis	6020B		1	380235	A6US	EET CF	02/28/23 22:29
Total/NA	Analysis	I-3765-85		1	380067	D7CP	EET CF	02/27/23 13:00

Client Sample ID: MW-74
Lab Sample ID: 310-250330-4
Date Collected: 02/23/23 12:15
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380070	FE5V	EET CF	02/28/23 02:57
Total/NA	Prep	3005A			380085	KCK5	EET CF	02/28/23 09:20
Total/NA	Analysis	6020B		1	380235	A6US	EET CF	02/28/23 22:32
Total/NA	Analysis	I-3765-85		1	380067	D7CP	EET CF	02/27/23 13:00

Client Sample ID: MW-75
Lab Sample ID: 310-250330-5
Date Collected: 02/23/23 10:55
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380070	FE5V	EET CF	02/28/23 03:22

Lab Chronicle

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Client Sample ID: MW-78
Lab Sample ID: 310-250330-6
Date Collected: 02/23/23 15:34
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380070	FE5V	EET CF	02/28/23 03:46
Total/NA	Prep	3005A			380085	KCK5	EET CF	02/28/23 09:20
Total/NA	Analysis	6020B		1	380235	A6US	EET CF	02/28/23 22:36
Total/NA	Analysis	I-3765-85		1	380067	D7CP	EET CF	02/27/23 13:00

Client Sample ID: MW-80
Lab Sample ID: 310-250330-7
Date Collected: 02/23/23 16:10
Matrix: Ground Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380070	FE5V	EET CF	02/28/23 04:10

Client Sample ID: Trip Blank
Lab Sample ID: 310-250330-8
Date Collected: 02/23/23 00:00
Matrix: Water
Date Received: 02/24/23 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	380041	FE5V	EET CF	02/27/23 14:51

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st 2023 Bracket

Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
I-3765-85		Ground Water	Total Suspended Solids

Method Summary

Client: Evora Consulting
Job ID: 310-250330-1
Project/Site: Ottumwa-Wapello County OWSWC West 1st
2023 Bracket

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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310-250330 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information				
Client:	Evova			
City/State:	CITY	STATE	Project:	
Receipt Information				
Date/Time Received:	DATE 2/24/23	TIME 1630	Received By: AM	
Delivery Type:	☐ UPS	☐ FedEx	☐ FedEx Ground	☐ US Mail ☐ Spee-Dee
	☒ Lab Courier	☐ Lab Field Services	☐ Client Drop-off	☐ Other:_____
Condition of Cooler/Containers				
Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:	
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 1 of 2	
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☒ Yes	☐ No	*If yes:* Which VOA samples are in cooler? ↓	
Temperature Record				
Coolant:	☒ Wet ice	☐ Blue ice	☐ Dry ice	☐ Other:_____ ☐ NONE
Thermometer ID:	U		Correction Factor (°C):	0
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature				
Uncorrected Temp (°C):	0.0		Corrected Temp (°C):	0.0
• **Sample Container Temperature**				
Container(s) used:	CONTAINER 1		CONTAINER 2	
Uncorrected Temp (°C):				
Corrected Temp (°C):				
Exceptions Noted				
1) If temperature exceeds criteria, was sample(s) received same day of sampling?			☐ Yes	☐ No
a) *If yes:* Is there evidence that the chilling process began?			☐ Yes	☐ No
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?)			☐ Yes	☐ No
NOTE If yes, contact PM before proceeding. If no, proceed with login				
Additional Comments				

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Evora

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 2/24/23 TIME 1630 | Received By: AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☒ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☒ Yes	☐ No	*If yes:* Cooler # 2 of 2
Cooler Custody Seals Present?	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: U | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.2 | Corrected Temp (°C): 0.2

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive
Cedar Falls, Iowa 50613
319.277.2401 (phone)

SAMPLER: EVORA
SITE NAME: Ottumwa-Wapello County Landfill
ADDRESS:
CITY/STATE/ZIP:
TELEPHONE NUMBER: Fax:
SAMPLED BY: (PRINT NAME) Scott Stoller
SIGNATURE: [signature] None
####
ASAP

REPORT TO:
NAME: Nathan Ohrt
COMPANY NAME: Evora Consulting
PROJECT NAME: OWSWC West 1st 2023 Bracketing
PROJECT NUMBER: OWSWC 23001
ADDRESS: 1690 All State Court, Suite 100
CITY/STATE/ZIP: West Des Moines, IA 50265

								Preservative								Matrix						Analyze For															
Sample ID	# of Containers Ordered	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	HNO_3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H_2SO_4 Plastic (Yellow & White Label)	H_2SO_4 Glass (Yellow & White Label)	None (Black & White Label)	Trip Blank	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Trip Blank	Arsenic	Cobalt	Total Suspended Solids	Benzene	cis-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl Chloride		Trip Blank						Fax Results
MW-66		2-22-23	15.51		X			x								x						x	x	x													
MW-67								x								x						x	x	x			x										
MW-68		2-23-23	17:20		X			x								x						x	x	x													
MW-71		2-23-23	13 53		X			x								x						x	x	x		x		x									
MW-74		2-23-23	12 15		X			x								x						x	x	x	x	x	x	x	x								
MW-75		2-23 23	10.55		X			x								x									x	x	x	x	x								
MW-78		2-23-23	15.34		X			x								x							x	x		x	x	x	x								
MW-80		2-23-23	16:10		X			x								x										x			x								
Trip Blank																					x										x						

Relinquished by: [signature] 2-24-23 13 00 | Date: | Time: | Relinquished by: | Date: | Time:

Shipped Via: | Shipped Via:

Received for lab by: Angie Muehling | Date: 2/24/23 | Time: 1630 | Temperature Upon Receipt:

Laboratory Comments: (1) For Appendix and analysis, report to the reporting limits, not the detection limits. Make sure that the reporting limits are below the EPA MCLs.
(2) For analysis other than Appendix and report to the detection limits. Please make sure that the detection limits are below the EPA MCLs.
(3) In the "Result" column for all EDD files, when non-detect, please report "<" the reporting limits or the detection limits instead of indicating with "ND"

R:\Engineering\Annual Services\Groundwater Sampling\2023\OWSWC\OWSWC 1st 2023 Semi-annual

Login Sample Receipt Checklist

Client: Evora Consulting

Job Number: 310-250330-1

Login Number: 250330

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Tucker, Sarah L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

PREPARED FOR

Attn: Nathan Ohrt
SCS Engineers
1690 All State Court
Suite 100
West Des Moines, Iowa 50265

Generated 8/13/2023 4:21:22 PM

JOB DESCRIPTION

OWSWC West 2nd 2023 Bracketing

JOB NUMBER

310-261424-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

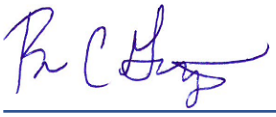
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
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Job ID: 310-261424-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-261424-1

Receipt
The samples were received on 7/28/2023 4:15 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°C

GC/MS VOA
Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container: Trip Blank (310-261424-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: OWSWC West 2nd 2023 Bracketing

Job ID: 310-261424-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-261424-1	MW-78	Ground Water	07/26/23 12:40	07/28/23 16:15
310-261424-2	Trip Blank	Water	07/26/23 00:00	07/28/23 16:15

Detection Summary

Client: SCS Engineers
Job ID: 310-261424-1
Project/Site: OWSWC West 2nd 2023 Bracketing

Client Sample ID: MW-78
Lab Sample ID: 310-261424-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	1.24		1.00	0.480	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.610	J	1.00	0.210	ug/L	1		8260D	Total/NA
Cobalt	0.00559		0.000500	0.000170	mg/L	1		6020B	Total/NA
Total Suspended Solids	16.5		7.50	2.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: Trip Blank
Lab Sample ID: 310-261424-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: SCS Engineers
Project/Site: OWSWC West 2nd 2023 Bracketing

Job ID: 310-261424-1

Client Sample ID: MW-78

Date Collected: 07/26/23 12:40
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261424-1

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	**1.24**		1.00	0.480	ug/L			07/31/23 14:13	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 14:13	1
cis-1,2-Dichloroethene	**0.610**	**J**	1.00	0.210	ug/L			07/31/23 14:13	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 14:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*80 - 128*		*07/31/23 14:13*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*07/31/23 14:13*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*07/31/23 14:13*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	**0.00559**		0.000500	0.000170	mg/L		08/01/23 08:55	08/11/23 20:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**16.5**		7.50	2.55	mg/L			07/31/23 08:46	1

Client Sample Results

Client: SCS Engineers
Job ID: 310-261424-1
Project/Site: OWSWC West 2nd 2023 Bracketing

Client Sample ID: Trip Blank
Lab Sample ID: 310-261424-2
Date Collected: 07/26/23 00:00
Matrix: Water
Date Received: 07/28/23 16:15

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 13:30	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 13:30	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 13:30	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 13:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*107*		*80 - 128*		*07/31/23 13:30*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*07/31/23 13:30*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*07/31/23 13:30*	*1*

Definitions/Glossary

Client: SCS Engineers
Job ID: 310-261424-1
Project/Site: OWSWC West 2nd 2023 Bracketing

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Surrogate Summary

Client: SCS Engineers
Project/Site: OWSWC West 2nd 2023 Bracketing

Job ID: 310-261424-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-261424-1	MW-78	110	95	102
310-261424-1 MS	MW-78	105	97	103
310-261424-1 MSD	MW-78	106	97	102

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-261424-2	Trip Blank	107	94	104
LCS 310-395146/6	Lab Control Sample	103	98	101
LCS 310-395146/7	Lab Control Sample	106	96	101
MB 310-395146/5	Method Blank	105	95	103

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-395146/5
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 12:02	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 12:02	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 12:02	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 12:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*80 - 128*		*07/31/23 12:02*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*07/31/23 12:02*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*07/31/23 12:02*	*1*

Lab Sample ID: LCS 310-395146/6
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tetrachloroethene	20.0	21.86		ug/L		109	69 - 131
Trichloroethene	20.0	20.44		ug/L		102	73 - 126
cis-1,2-Dichloroethene	20.0	19.84		ug/L		99	74 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*80 - 128*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-395146/7
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	20.0	18.95		ug/L		95	57 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*80 - 128*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: 310-261424-1 MS
Matrix: Ground Water
Analysis Batch: 395146

Client Sample ID: MW-78
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Tetrachloroethene	1.24		25.0	21.79		ug/L		82	42 - 131
Trichloroethene	<1.00		25.0	21.36		ug/L		85	55 - 130
cis-1,2-Dichloroethene	0.610	J	25.0	22.11		ug/L		86	52 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*105*		*80 - 128*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 310-261424-1 MS
Matrix: Ground Water
Analysis Batch: 395146

Client Sample ID: MW-78
Prep Type: Total/NA

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: 310-261424-1 MSD
Matrix: Ground Water
Analysis Batch: 395146

Client Sample ID: MW-78
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Tetrachloroethene	1.24		25.0	20.32		ug/L		76	42 - 131	7	20
Trichloroethene	<1.00		25.0	19.95		ug/L		80	55 - 130	7	20
cis-1,2-Dichloroethene	0.610	J	25.0	20.41		ug/L		79	52 - 130	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*80 - 128*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-395208/1-A
Matrix: Water
Analysis Batch: 396451

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395208

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.000500		0.000500	0.000170	mg/L		08/01/23 08:55	08/11/23 19:01	1

Lab Sample ID: LCS 310-395208/2-A
Matrix: Water
Analysis Batch: 396451

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395208

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.100	0.1088		mg/L		109	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-395116/1
Matrix: Water
Analysis Batch: 395116

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			07/31/23 08:46	1

Lab Sample ID: LCS 310-395116/2
Matrix: Water
Analysis Batch: 395116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	75 - 116

QC Association Summary

Client: SCS Engineers
Project/Site: OWSWC West 2nd 2023 Bracketing

Job ID: 310-261424-1

GC/MS VOA

Analysis Batch: 395146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261424-1	MW-78	Total/NA	Ground Water	8260D	
310-261424-2	Trip Blank	Total/NA	Water	8260D	
MB 310-395146/5	Method Blank	Total/NA	Water	8260D	
LCS 310-395146/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-395146/7	Lab Control Sample	Total/NA	Water	8260D	
310-261424-1 MS	MW-78	Total/NA	Ground Water	8260D	
310-261424-1 MSD	MW-78	Total/NA	Ground Water	8260D	

Metals

Prep Batch: 395208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261424-1	MW-78	Total/NA	Ground Water	3005A	
MB 310-395208/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-395208/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 396451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261424-1	MW-78	Total/NA	Ground Water	6020B	395208
MB 310-395208/1-A	Method Blank	Total/NA	Water	6020B	395208
LCS 310-395208/2-A	Lab Control Sample	Total/NA	Water	6020B	395208

General Chemistry

Analysis Batch: 395116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261424-1	MW-78	Total/NA	Ground Water	I-3765-85	
MB 310-395116/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-395116/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Lab Chronicle

Client: SCS Engineers
Job ID: 310-261424-1
Project/Site: OWSWC West 2nd 2023 Bracketing

Client Sample ID: MW-78
Lab Sample ID: 310-261424-1
Date Collected: 07/26/23 12:40
Matrix: Ground Water
Date Received: 07/28/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 14:13
Total/NA	Prep	3005A			395208	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396451	DHM5	EET CF	08/11/23 20:30
Total/NA	Analysis	I-3765-85		1	395116	T8GC	EET CF	07/31/23 08:46

Client Sample ID: Trip Blank
Lab Sample ID: 310-261424-2
Date Collected: 07/26/23 00:00
Matrix: Water
Date Received: 07/28/23 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 13:30

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-261424-1
Project/Site: OWSWC West 2nd 2023 Bracketing

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: SCS Engineers
Job ID: 310-261424-1
Project/Site: OWSWC West 2nd 2023 Bracketing

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

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310-261424 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State. CITY: | STATE: IA | Project:

Receipt Information

Date/Time Received: DATE 7/26/23 | TIME 1615 | Received By: ST/AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # _____ of _____

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 2 | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.6 | Corrected Temp (°C): 1.6

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

TestAmerica

704 Enterprise Drive
Cedar Falls, Iowa 50613

319 277 2401 (phone)

SAMPLER: SCS Engineers
SITE NAME: Ottumwa-Wapello County Landfill
ADDRESS:
CITY/STATE/ZIP:
TELEPHONE NUMBER: Fax:
SAMPLED BY: (PRINT NAME) Scott Stoller
SIGNATURE: [signature] None

REPORT TO
NAME: Nathan Ohrt
COMPANY NAME: SCS Engineers
PROJECT NAME: OWSWC West 2nd 2023 Bracketing
PROJECT NUMBER: 27223157.24
ADDRESS: 1690 All State Court, Suite 100
CITY/STATE/ZIP: West Des Moines, IA 50265

####
ASAP

								Preservative								Matrix						Analyze For:															
Sample ID	# of Containers Ordered	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Ice	HNO_3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H_2SO_4 Plastic (Yellow & White Label)	H_2SO_4 Glass (Yellow & White Label)	None (Black & White Label)	Trip Blank	Groundwater	Wastewater	Drinking Water	Sludge	Soil	Trip Blank	Arsenic	Cobalt	Total Suspended Solids	Benzene	cis-1,2 Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl Chloride		Trip Blank						Fax Results
MW-67								x								x						x	x	x			x										
MW-71								x								x						x	x	x		x		x									
MW 74								x								x						x	x	x	x	x	x	x	x								
MW-78		7/26	12:40		x			x								x							x	x		x	x	x	x								
MW-80								x								x										x			x								
Trip Blank																					x										x						

Relinquished by: [signature] 7-28-23 12:00
Date: Time:
Relinquished by: Date: Time:
Shipped Via:
Shipped Via:
Received for lab by: ST Date: 7/28/23 Time: 1615
Temperature Upon Receipt

Laboratory Comments: (1) For Appendix and analysis, report to the reporting limits, not the detection limits. Make sure that the reporting limits are below the EPA MCLs.
(2) For analysis other than Appendix and report to the detection limit. Please make sure that the detection limits are below the EPA MCL
(3) In the "Result" column for all EDD files, when non-detect, please report "<" the reporting limit or the detection limits instead of indicating with "ND"

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-261424-1

Login Number: 261424
List Number: 1
Creator: Tucker, Sarah L

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

PREPARED FOR

Attn: Nathan Ohrt
SCS Engineers
1690 All State Court
Suite 100
West Des Moines, Iowa 50265

Generated 9/13/2023 3:49:00 PM Revision 2

JOB DESCRIPTION

OWSWC 2nd 2023 HMSP

JOB NUMBER

310-261425-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
9/13/2023 3:49:00 PM
Revision 2

Authorized for release by
Meredith Liechti, Service Center Manager
meredith.liechti@et.eurofinsus.com
(319)277-2401

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Job ID: 310-261425-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-261425-1

REVISION

The report being provided is a revision of the original report sent on 8/18/2023. The report (revision 2) is being revised due to missing 6020-Copper, added to report,.

Report revision history
Revision 1 - 9/13/2023 - Reason - 2-Methylnaphthalene requested for 04-MW-56..

Receipt
The samples were received on 7/28/2023 4:15 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.6°C, 2.0°C and 2.1°C

GC/MS VOA
Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container: Trip Blank (310-261425-14).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-395107.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8270E: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-395220 and 310-395220.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 310-395107 and analytical batch 310-395753 recovered outside control limits for the following analytes: Famphur and Kepone. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 310-395107 and analytical batch 310-395753 recovered outside control limits for the following analytes: Methapyrilene, p-Phenylene diamine and 3,3'-Dimethylbenzidine.

Method 8270E: The surrogate recovery for the laboratory control samples associated with preparation batch 310-395107 and analytical batch 310-395753 was outside the upper control limits.

Method 8270E: Surrogate recovery for the following sample was outside the upper control limit: MW-81 (310-261425-11). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Job ID: 310-261425-1 (Continued)

Laboratory: Eurofins Cedar Falls (Continued)

PCBs
Method 8082A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-395222.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides
Method 8081B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-395222.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8081B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-395571.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8081B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 310-395222 and analytical batch 310-395646 recovered outside control limits for the following analytes: Aldrin

Method 8081B: The following sample was prepared outside of preparation holding time due to sample loss during initial concentration: MW-61R (310-261425-7).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6020B: The low level check standard recovery associated with batch 310-396729 recovered above the upper control limit for the following analyte(s): Antimony. The samples associated with this standard were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MW-53 (310-261425-1), 93-MW-31R (310-261425-2), MW-39R (310-261425-3), MW-40 (310-261425-4), 04-MW-56 (310-261425-5), MW-58 (310-261425-6), MW-61R (310-261425-7), MW-63R (310-261425-8), MW-65 (310-261425-9), MW-79 (310-261425-10), MW-81 (310-261425-11), MW-D1 (310-261425-12) and MW-D2 (310-261425-13).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Narrative

Job Narrative
310-261425-2

REVISION

The report being provided is a revision of the original report sent on 9/13/2023. The report (revision 1) is being revised due to Added Copper to the 1st report. Missing in inital repor..

Receipt
The samples were received on 7/28/2023 4:15 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.6°C, 2.0°C and 2.1°C

GC/MS Semi VOA

Job ID: 310-261425-1 (Continued)

Laboratory: Eurofins Cedar Falls (Continued)

Method 8270E: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-398657.The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8270E: The following sample(s) was prepared outside of preparation holding time due to test being added on past hold.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-261425-1	MW-53	Ground Water	07/26/23 14:31	07/28/23 16:15
310-261425-2	93-MW-31R	Ground Water	07/26/23 10:31	07/28/23 16:15
310-261425-3	MW-39R	Ground Water	07/25/23 16:47	07/28/23 16:15
310-261425-4	MW-40	Ground Water	07/25/23 10:07	07/28/23 16:15
310-261425-5	04-MW-56	Ground Water	07/26/23 13:01	07/28/23 16:15
310-261425-6	MW-58	Ground Water	07/26/23 10:41	07/28/23 16:15
310-261425-7	MW-61R	Ground Water	07/26/23 16:41	07/28/23 16:15
310-261425-8	MW-63R	Ground Water	07/25/23 15:49	07/28/23 16:15
310-261425-9	MW-65	Ground Water	07/26/23 11:21	07/28/23 16:15
310-261425-10	MW-79	Ground Water	07/26/23 11:55	07/28/23 16:15
310-261425-11	MW-81	Ground Water	07/26/23 15:00	07/28/23 16:15
310-261425-12	MW-D1	Ground Water	07/26/23 10:51	07/28/23 16:15
310-261425-13	MW-D2	Ground Water	07/26/23 13:01	07/28/23 16:15
310-261425-14	Trip Blank	Water	07/26/23 00:00	07/28/23 16:15

Detection Summary

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-53 — Lab Sample ID: 310-261425-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0240		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.000262	J	0.000500	0.000170	mg/L	1		6020B	Total/NA

Client Sample ID: 93-MW-31R — Lab Sample ID: 310-261425-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.88		1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	0.00122	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0426		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000887		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.00702		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0132		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00238	J	0.00500	0.00140	mg/L	1		6020B	Total/NA
Total Suspended Solids	3.50	J	7.50	2.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-39R — Lab Sample ID: 310-261425-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0223		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.00939		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.0219		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0142		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	70.0		10.0	3.40	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-40 — Lab Sample ID: 310-261425-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.09		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	7.99		1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	0.00466		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0148		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000616		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.106		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0656		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0443		0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	31.0		7.50	2.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: 04-MW-56 — Lab Sample ID: 310-261425-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00475		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0279		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.0150		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0651		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0163	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	116		30.0	10.2	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-58 — Lab Sample ID: 310-261425-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0107		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.0315		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0305		0.00500	0.00190	mg/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-58 (Continued) — Lab Sample ID: 310-261425-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Zinc	0.0183	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	29.0		15.0	5.10	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-61R — Lab Sample ID: 310-261425-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	17.3		1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	0.00456		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0150		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000242		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.00986		0.000500	0.000170	mg/L	1		6020B	Total/NA
Copper	0.0101		0.00500	0.00180	mg/L	1		6020B	Total/NA
Lead	0.000785		0.000500	0.000240	mg/L	1		6020B	Total/NA
Nickel	0.0321		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0234		0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	86.0		15.0	5.10	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-63R — Lab Sample ID: 310-261425-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0141		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000637		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.000686		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0135		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0618		0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	1.00	J	1.88	0.638	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-65 — Lab Sample ID: 310-261425-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.06		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	2.92	J	4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	0.0187		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.217		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.00327		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.00680		0.00500	0.00190	mg/L	1		6020B	Total/NA
Total Suspended Solids	120		30.0	10.2	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-79 — Lab Sample ID: 310-261425-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	2.26		1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.753	J	1.00	0.230	ug/L	1		8260D	Total/NA
Benzene	0.358	J	0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	38.2		1.00	0.210	ug/L	1		8260D	Total/NA
Vinyl chloride	4.98		1.00	0.180	ug/L	1		8260D	Total/NA
Barium	0.105		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.00143		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.00280		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0223		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0117	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	5.75		1.88	0.638	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-81 — Lab Sample ID: 310-261425-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.675	J	1.00	0.210	ug/L	1		8260D	Total/NA
Tetrachloroethene	0.797	J	1.00	0.480	ug/L	1		8260D	Total/NA
Trichloroethene	0.658	J	1.00	0.430	ug/L	1		8260D	Total/NA
Barium	0.0668		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.000220	J	0.000500	0.000170	mg/L	1		6020B	Total/NA
Copper	0.00420	J	0.00500	0.00180	mg/L	1		6020B	Total/NA

Client Sample ID: MW-D1 — Lab Sample ID: 310-261425-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	5.72		1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	0.00123	J	0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0438		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cadmium	0.000940		0.000200	0.000100	mg/L	1		6020B	Total/NA
Cobalt	0.00738		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0137		0.00500	0.00190	mg/L	1		6020B	Total/NA
Selenium	0.00253	J	0.00500	0.00140	mg/L	1		6020B	Total/NA
Zinc	0.00777	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	3.50	J	3.75	1.28	mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW-D2 — Lab Sample ID: 310-261425-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00466		0.00200	0.000530	mg/L	1		6020B	Total/NA
Barium	0.0280		0.00200	0.000640	mg/L	1		6020B	Total/NA
Cobalt	0.0149		0.000500	0.000170	mg/L	1		6020B	Total/NA
Nickel	0.0634		0.00500	0.00190	mg/L	1		6020B	Total/NA
Zinc	0.0156	J	0.0200	0.00640	mg/L	1		6020B	Total/NA
Total Suspended Solids	46.7		5.00	1.70	mg/L	1		I-3765-85	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-261425-14

No Detections.

This Detection Summary does not include radiochemical test results.

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-53
Date Collected: 07/26/23 14:31
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-1
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 14:35	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 14:35	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 14:35	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 14:35	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 14:35	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 14:35	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 14:35	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 14:35	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 14:35	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 14:35	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 14:35	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 14:35	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 14:35	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 14:35	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 14:35	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 14:35	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 14:35	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 14:35	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 14:35	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 14:35	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 14:35	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 14:35	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 14:35	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 14:35	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 14:35	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 14:35	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 14:35	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 14:35	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 14:35	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 14:35	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 14:35	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 14:35	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 14:35	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 14:35	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 14:35	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 14:35	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 14:35	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 14:35	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 14:35	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 14:35	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 14:35	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 14:35	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 14:35	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 14:35	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 14:35	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 14:35	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 14:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*80 - 128*		*07/31/23 14:35*	*1*

Client Sample ID: MW-53
Date Collected: 07/26/23 14:31
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-1
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*07/31/23 14:35*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*07/31/23 14:35*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 16:55	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:29	1
Barium	**0.0240**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:29	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:29	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:29	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:29	1
Cobalt	**0.000262**	**J**	0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:29	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:29	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:29	1
Nickel	<0.00500		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:29	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:29	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:29	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:29	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:29	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 16:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<5.00		5.00	1.70	mg/L			07/31/23 10:59	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: 93-MW-31R
Date Collected: 07/26/23 10:31
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-2
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 14:57	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 14:57	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 14:57	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 14:57	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 14:57	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 14:57	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 14:57	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 14:57	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 14:57	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 14:57	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 14:57	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 14:57	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 14:57	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 14:57	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 14:57	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 14:57	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 14:57	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 14:57	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 14:57	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 14:57	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 14:57	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 14:57	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 14:57	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 14:57	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 14:57	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 14:57	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 14:57	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 14:57	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 14:57	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 14:57	1
cis-1,2-Dichloroethene	**5.88**		1.00	0.210	ug/L			07/31/23 14:57	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 14:57	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 14:57	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 14:57	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 14:57	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 14:57	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 14:57	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 14:57	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 14:57	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 14:57	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 14:57	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 14:57	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 14:57	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 14:57	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 14:57	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 14:57	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 14:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 128*		*07/31/23 14:57*	*1*

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: 93-MW-31R
Date Collected: 07/26/23 10:31
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-2
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/31/23 14:57*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*07/31/23 14:57*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 16:57	1
Arsenic	**0.00122**	**J**	0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:31	1
Barium	**0.0426**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:31	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:31	1
Cadmium	**0.000887**		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:31	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:31	1
Cobalt	**0.00702**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:31	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:31	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:31	1
Nickel	**0.0132**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:31	1
Selenium	**0.00238**	**J**	0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:31	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:31	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:31	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:31	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 16:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3.50**	**J**	7.50	2.55	mg/L			07/31/23 10:59	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-39R
Date Collected: 07/25/23 16:47
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-3
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 15:19	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 15:19	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 15:19	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 15:19	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 15:19	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 15:19	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 15:19	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 15:19	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 15:19	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 15:19	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 15:19	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 15:19	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 15:19	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 15:19	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 15:19	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 15:19	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 15:19	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 15:19	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 15:19	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 15:19	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 15:19	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 15:19	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 15:19	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 15:19	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 15:19	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 15:19	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 15:19	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 15:19	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 15:19	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 15:19	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 15:19	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 15:19	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 15:19	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 15:19	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 15:19	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 15:19	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 15:19	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 15:19	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 15:19	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 15:19	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 15:19	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 15:19	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 15:19	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 15:19	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 15:19	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 15:19	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 15:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*80 - 128*		*07/31/23 15:19*	*1*

Client Sample ID: MW-39R

Date Collected: 07/25/23 16:47
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-3

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*80 - 120*		*07/31/23 15:19*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*07/31/23 15:19*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<10.0		10.0	0.590	ug/L		08/01/23 09:04	08/07/23 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*91*		*45 - 129*	*08/01/23 09:04*	*08/07/23 15:38*	*1*
2-Fluorobiphenyl (Surr)	*78*		*39 - 118*	*08/01/23 09:04*	*08/07/23 15:38*	*1*
Terphenyl-d14 (Surr)	*36*		*12 - 144*	*08/01/23 09:04*	*08/07/23 15:38*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 16:59	1
Arsenic	**0.0223**		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:34	1
Barium	**0.00939**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:34	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:34	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:34	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:34	1
Cobalt	**0.0219**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:34	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:34	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:34	1
Nickel	**0.0142**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:34	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:34	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:34	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:34	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:34	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 16:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.00		1.00	0.231	mg/L		08/01/23 19:30	08/01/23 19:59	1
Total Suspended Solids (USGS I-3765-85)	**70.0**		10.0	3.40	mg/L			07/29/23 10:47	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-40
Date Collected: 07/25/23 10:07
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-4
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 15:40	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 15:40	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 15:40	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 15:40	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 15:40	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 15:40	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 15:40	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 15:40	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 15:40	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 15:40	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 15:40	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 15:40	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 15:40	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 15:40	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 15:40	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 15:40	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 15:40	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 15:40	1
Benzene	**1.09**		0.500	0.220	ug/L			07/31/23 15:40	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 15:40	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 15:40	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 15:40	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 15:40	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 15:40	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 15:40	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 15:40	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 15:40	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 15:40	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 15:40	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 15:40	1
cis-1,2-Dichloroethene	**7.99**		1.00	0.210	ug/L			07/31/23 15:40	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 15:40	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 15:40	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 15:40	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 15:40	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 15:40	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 15:40	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 15:40	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 15:40	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 15:40	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 15:40	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 15:40	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 15:40	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 15:40	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 15:40	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 15:40	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*80 - 128*		*07/31/23 15:40*	*1*

Client Sample ID: MW-40

Date Collected: 07/25/23 10:07
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-4

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*80 - 120*		*07/31/23 15:40*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*07/31/23 15:40*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:08	1
Arsenic	**0.00466**		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:36	1
Barium	**0.0148**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:36	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:36	1
Cadmium	**0.000616**		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:36	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:36	1
Cobalt	**0.106**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:36	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:36	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:36	1
Nickel	**0.0656**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:36	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:36	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:36	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:36	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:36	1
Zinc	**0.0443**		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**31.0**		7.50	2.55	mg/L			07/29/23 10:47	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: 04-MW-56
Date Collected: 07/26/23 13:01
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-5
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 16:02	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 16:02	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 16:02	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 16:02	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 16:02	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 16:02	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 16:02	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 16:02	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 16:02	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 16:02	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 16:02	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 16:02	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 16:02	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 16:02	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 16:02	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 16:02	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 16:02	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 16:02	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 16:02	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 16:02	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 16:02	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 16:02	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 16:02	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 16:02	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 16:02	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 16:02	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 16:02	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 16:02	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 16:02	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 16:02	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 16:02	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 16:02	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 16:02	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 16:02	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 16:02	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 16:02	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 16:02	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 16:02	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 16:02	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 16:02	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 16:02	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 16:02	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 16:02	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 16:02	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 16:02	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 16:02	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*108*		*80 - 128*		*07/31/23 16:02*	*1*

Client Sample ID: 04-MW-56

Date Collected: 07/26/23 13:01
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-5

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*07/31/23 16:02*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*07/31/23 16:02*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<10.0	H	10.0	0.590	ug/L		09/06/23 06:05	09/12/23 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*73*		*45 - 129*	*09/06/23 06:05*	*09/12/23 18:51*	*1*
2-Fluorobiphenyl (Surr)	*69*		*39 - 118*	*09/06/23 06:05*	*09/12/23 18:51*	*1*
Terphenyl-d14 (Surr)	*49*		*12 - 144*	*09/06/23 06:05*	*09/12/23 18:51*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:13	1
Arsenic	**0.00475**		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:40	1
Barium	**0.0279**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:40	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:40	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:40	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:40	1
Cobalt	**0.0150**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:40	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:40	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:40	1
Nickel	**0.0651**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:40	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:40	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:40	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:40	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:40	1
Zinc	**0.0163**	**J**	0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**116**		30.0	10.2	mg/L			07/31/23 08:46	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-58
Date Collected: 07/26/23 10:41
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-6
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 16:24	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 16:24	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 16:24	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 16:24	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 16:24	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 16:24	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 16:24	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 16:24	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 16:24	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 16:24	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 16:24	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 16:24	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 16:24	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 16:24	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 16:24	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 16:24	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 16:24	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 16:24	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 16:24	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 16:24	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 16:24	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 16:24	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 16:24	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 16:24	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 16:24	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 16:24	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 16:24	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 16:24	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 16:24	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 16:24	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 16:24	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 16:24	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 16:24	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 16:24	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 16:24	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 16:24	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 16:24	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 16:24	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 16:24	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 16:24	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 16:24	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 16:24	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 16:24	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 16:24	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 16:24	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 16:24	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 16:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*107*		*80 - 128*		*07/31/23 16:24*	*1*

Client Sample ID: MW-58
Date Collected: 07/26/23 10:41
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-6
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*07/31/23 16:24*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*07/31/23 16:24*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<10.0		10.0	0.590	ug/L		08/01/23 09:04	08/07/23 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*105*		*45 - 129*	*08/01/23 09:04*	*08/07/23 16:05*	*1*
2-Fluorobiphenyl (Surr)	*91*		*39 - 118*	*08/01/23 09:04*	*08/07/23 16:05*	*1*
Terphenyl-d14 (Surr)	*45*		*12 - 144*	*08/01/23 09:04*	*08/07/23 16:05*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:15	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:43	1
Barium	**0.0107**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:43	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:43	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:43	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:43	1
Cobalt	**0.0315**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:43	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:43	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:43	1
Nickel	**0.0305**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:43	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:43	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:43	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:43	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:43	1
Zinc	**0.0183**	**J**	0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**29.0**		15.0	5.10	mg/L			07/31/23 08:46	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-61R

Date Collected: 07/26/23 16:41
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-7

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 18:57	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 18:57	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 18:57	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 18:57	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 18:57	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 18:57	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 18:57	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 18:57	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 18:57	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 18:57	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 18:57	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 18:57	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 18:57	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 18:57	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 18:57	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 18:57	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 18:57	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 18:57	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 18:57	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 18:57	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 18:57	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 18:57	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 18:57	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 18:57	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 18:57	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 18:57	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 18:57	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 18:57	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 18:57	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 18:57	1
cis-1,2-Dichloroethene	**17.3**		1.00	0.210	ug/L			07/31/23 18:57	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 18:57	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 18:57	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 18:57	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 18:57	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 18:57	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 18:57	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 18:57	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 18:57	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 18:57	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 18:57	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 18:57	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 18:57	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 18:57	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 18:57	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 18:57	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*116*		*80 - 128*		*07/31/23 18:57*	*1*

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-61R
Date Collected: 07/26/23 16:41
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-7
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*07/31/23 18:57*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*07/31/23 18:57*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	<0.0604	H	0.0604	0.0311	ug/L		08/04/23 08:17	08/04/23 20:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*62*		*10 - 136*	*08/04/23 08:17*	*08/04/23 20:14*	*1*
Tetrachloro-m-xylene (Surr)	*60*		*10 - 130*	*08/04/23 08:17*	*08/04/23 20:14*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:18	1
Arsenic	**0.00456**		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:56	1
Barium	**0.0150**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:56	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:56	1
Cadmium	**0.000242**		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:56	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:56	1
Cobalt	**0.00986**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:56	1
Copper	**0.0101**		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:56	1
Lead	**0.000785**		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:56	1
Nickel	**0.0321**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:56	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:56	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:56	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:56	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:56	1
Zinc	**0.0234**		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**86.0**		15.0	5.10	mg/L			07/31/23 08:46	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-63R
Date Collected: 07/25/23 15:49
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-8
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 16:46	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 16:46	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 16:46	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 16:46	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 16:46	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 16:46	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 16:46	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 16:46	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 16:46	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 16:46	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 16:46	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 16:46	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 16:46	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 16:46	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 16:46	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 16:46	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 16:46	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 16:46	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 16:46	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 16:46	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 16:46	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 16:46	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 16:46	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 16:46	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 16:46	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 16:46	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 16:46	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 16:46	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 16:46	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 16:46	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 16:46	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 16:46	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 16:46	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 16:46	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 16:46	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 16:46	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 16:46	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 16:46	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 16:46	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 16:46	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 16:46	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 16:46	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 16:46	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 16:46	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 16:46	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 16:46	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 16:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*80 - 128*		*07/31/23 16:46*	*1*

Client Sample ID: MW-63R

Date Collected: 07/25/23 15:49
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-8

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*80 - 120*		*07/31/23 16:46*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*07/31/23 16:46*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:27	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 03:58	1
Barium	**0.0141**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 03:58	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 03:58	1
Cadmium	**0.000637**		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 03:58	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:58	1
Cobalt	**0.000686**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 03:58	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 03:58	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 03:58	1
Nickel	**0.0135**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 03:58	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 03:58	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 03:58	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 03:58	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 03:58	1
Zinc	**0.0618**		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.00		1.00	0.231	mg/L		08/01/23 19:30	08/01/23 19:59	1
Total Suspended Solids (USGS I-3765-85)	**1.00**	**J**	1.88	0.638	mg/L			07/29/23 10:47	1

Client Sample ID: MW-65
Date Collected: 07/26/23 11:21
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-9
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 18:35	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 18:35	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 18:35	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 18:35	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 18:35	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 18:35	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 18:35	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 18:35	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 18:35	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 18:35	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 18:35	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 18:35	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 18:35	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 18:35	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 18:35	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 18:35	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 18:35	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 18:35	1
Benzene	**1.06**		0.500	0.220	ug/L			07/31/23 18:35	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 18:35	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 18:35	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 18:35	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 18:35	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 18:35	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 18:35	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 18:35	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 18:35	1
Chloroethane	**2.92**	**J**	4.00	0.790	ug/L			07/31/23 18:35	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 18:35	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 18:35	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 18:35	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 18:35	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 18:35	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 18:35	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 18:35	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 18:35	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 18:35	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 18:35	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 18:35	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 18:35	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 18:35	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 18:35	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 18:35	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 18:35	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 18:35	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 18:35	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 128*		*07/31/23 18:35*	*1*

Client Sample ID: MW-65

Date Collected: 07/26/23 11:21
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-9

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*80 - 120*		*07/31/23 18:35*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*07/31/23 18:35*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<10.0		10.0	0.590	ug/L		08/01/23 09:04	08/07/23 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*125*		*45 - 129*	*08/01/23 09:04*	*08/07/23 16:32*	*1*
2-Fluorobiphenyl (Surr)	*108*		*39 - 118*	*08/01/23 09:04*	*08/07/23 16:32*	*1*
Terphenyl-d14 (Surr)	*73*		*12 - 144*	*08/01/23 09:04*	*08/07/23 16:32*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0187**		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 04:01	1
Barium	**0.217**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 04:01	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 04:01	1
Cobalt	**0.00327**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 04:01	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 04:01	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 04:01	1
Nickel	**0.00680**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 04:01	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**120**		30.0	10.2	mg/L			07/31/23 08:46	1

Client Sample ID: MW-79
Date Collected: 07/26/23 11:55
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-10
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 17:08	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 17:08	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 17:08	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 17:08	1
1,1-Dichloroethane	**2.26**		1.00	0.220	ug/L			07/31/23 17:08	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 17:08	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 17:08	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 17:08	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 17:08	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 17:08	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 17:08	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 17:08	1
1,4-Dichlorobenzene	**0.753**	**J**	1.00	0.230	ug/L			07/31/23 17:08	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 17:08	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 17:08	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 17:08	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 17:08	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 17:08	1
Benzene	**0.358**	**J**	0.500	0.220	ug/L			07/31/23 17:08	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 17:08	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 17:08	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 17:08	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 17:08	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 17:08	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 17:08	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 17:08	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 17:08	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 17:08	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 17:08	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 17:08	1
cis-1,2-Dichloroethene	**38.2**		1.00	0.210	ug/L			07/31/23 17:08	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 17:08	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 17:08	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 17:08	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 17:08	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 17:08	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 17:08	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 17:08	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 17:08	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 17:08	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 17:08	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 17:08	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 17:08	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 17:08	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 17:08	1
Vinyl chloride	**4.98**		1.00	0.180	ug/L			07/31/23 17:08	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*114*		*80 - 128*		*07/31/23 17:08*	*1*

Client Sample ID: MW-79

Date Collected: 07/26/23 11:55
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-10

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/31/23 17:08*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*07/31/23 17:08*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:31	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 04:03	1
Barium	**0.105**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 04:03	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 04:03	1
Cadmium	**0.00143**		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 04:03	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:03	1
Cobalt	**0.00280**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 04:03	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 04:03	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 04:03	1
Nickel	**0.0223**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 04:03	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 04:03	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 04:03	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 04:03	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:03	1
Zinc	**0.0117**	**J**	0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**5.75**		1.88	0.638	mg/L			07/29/23 10:47	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 17:30	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 17:30	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 17:30	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 17:30	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 17:30	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 17:30	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			07/31/23 17:30	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 17:30	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			07/31/23 17:30	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 17:30	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 17:30	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 17:30	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 17:30	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 17:30	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			07/31/23 17:30	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			07/31/23 17:30	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 17:30	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			07/31/23 17:30	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 17:30	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 17:30	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 17:30	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 17:30	1
Acrolein	<10.0		10.0	3.60	ug/L			07/31/23 17:30	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 17:30	1
Allyl chloride	<2.00		2.00	0.700	ug/L			07/31/23 17:30	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 17:30	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 17:30	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 17:30	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 17:30	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 17:30	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 17:30	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 17:30	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 17:30	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 17:30	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 17:30	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 17:30	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 17:30	1
Chloroprene	<1.00		1.00	0.230	ug/L			07/31/23 17:30	1
cis-1,2-Dichloroethene	**0.675**	**J**	1.00	0.210	ug/L			07/31/23 17:30	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 17:30	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 17:30	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			07/31/23 17:30	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			07/31/23 17:30	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 17:30	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 17:30	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			07/31/23 17:30	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			07/31/23 17:30	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 17:30	1
Naphthalene	<5.00		5.00	3.00	ug/L			07/31/23 17:30	1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propionitrile	<10.0		10.0	3.40	ug/L			07/31/23 17:30	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 17:30	1
Tetrachloroethene	**0.797**	**J**	1.00	0.480	ug/L			07/31/23 17:30	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 17:30	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 17:30	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 17:30	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 17:30	1
Trichloroethene	**0.658**	**J**	1.00	0.430	ug/L			07/31/23 17:30	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 17:30	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 17:30	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 17:30	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*80 - 128*		*07/31/23 17:30*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/31/23 17:30*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*07/31/23 17:30*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<9.62		9.62	0.615	ug/L		07/31/23 08:12	08/07/23 16:04	1
Acenaphthylene	<9.62		9.62	0.692	ug/L		07/31/23 08:12	08/07/23 16:04	1
Acetophenone	<9.62		9.62	0.663	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Acetylaminofluorene	<9.62		9.62	2.60	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Aminobiphenyl	<9.62	*1	9.62	2.12	ug/L		07/31/23 08:12	08/07/23 16:04	1
Anthracene	<9.62		9.62	0.837	ug/L		07/31/23 08:12	08/07/23 16:04	1
Benzo[a]anthracene	<9.62		9.62	0.817	ug/L		07/31/23 08:12	08/07/23 16:04	1
Benzo[a]pyrene	<9.62		9.62	7.79	ug/L		07/31/23 08:12	08/07/23 16:04	1
Benzo[b]fluoranthene	<9.62		9.62	4.71	ug/L		07/31/23 08:12	08/07/23 16:04	1
Benzo[g,h,i]perylene	<9.62		9.62	6.06	ug/L		07/31/23 08:12	08/07/23 16:04	1
Benzo[k]fluoranthene	<9.62		9.62	2.12	ug/L		07/31/23 08:12	08/07/23 16:04	1
Benzyl alcohol	<9.62		9.62	1.25	ug/L		07/31/23 08:12	08/07/23 16:04	1
Bis(2-chloroethoxy)methane	<9.62		9.62	0.731	ug/L		07/31/23 08:12	08/07/23 16:04	1
Bis(2-chloroethyl)ether	<9.62		9.62	0.788	ug/L		07/31/23 08:12	08/07/23 16:04	1
bis (2-chloroisopropyl) ether	<9.62		9.62	0.519	ug/L		07/31/23 08:12	08/07/23 16:04	1
Bis(2-ethylhexyl) phthalate	<9.62		9.62	5.29	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Bromophenyl phenyl ether	<9.62		9.62	0.673	ug/L		07/31/23 08:12	08/07/23 16:04	1
Butyl benzyl phthalate	<9.62		9.62	5.19	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Chloroaniline	<9.62	*1	9.62	0.596	ug/L		07/31/23 08:12	08/07/23 16:04	1
Chlorobenzilate	<9.62		9.62	3.46	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Chloro-3-methylphenol	<9.62		9.62	0.808	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Chloronaphthalene	<9.62		9.62	0.615	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Chlorophenol	<9.62		9.62	0.519	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Chlorophenyl phenyl ether	<9.62		9.62	0.663	ug/L		07/31/23 08:12	08/07/23 16:04	1
Chrysene	<9.62		9.62	0.837	ug/L		07/31/23 08:12	08/07/23 16:04	1
Diallate	<9.62		9.62	3.85	ug/L		07/31/23 08:12	08/07/23 16:04	1
Dibenz(a,h)anthracene	<9.62		9.62	3.75	ug/L		07/31/23 08:12	08/07/23 16:04	1
Dibenzofuran	<9.62		9.62	0.712	ug/L		07/31/23 08:12	08/07/23 16:04	1
3,3'-Dichlorobenzidine	<9.62		9.62	1.35	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,4-Dichlorophenol	<9.62		9.62	0.817	ug/L		07/31/23 08:12	08/07/23 16:04	1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dichlorophenol	<9.62		9.62	0.663	ug/L		07/31/23 08:12	08/07/23 16:04	1
Diethyl phthalate	<9.62		9.62	1.63	ug/L		07/31/23 08:12	08/07/23 16:04	1
Dimethoate	<9.62		9.62	3.46	ug/L		07/31/23 08:12	08/07/23 16:04	1
7,12-Dimethylbenz(a)anthracene	<9.62		9.62	1.83	ug/L		07/31/23 08:12	08/07/23 16:04	1
3,3'-Dimethylbenzidine	<9.62	*-	9.62	1.44	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,4-Dimethylphenol	<9.62		9.62	0.558	ug/L		07/31/23 08:12	08/07/23 16:04	1
Dimethyl phthalate	<9.62		9.62	0.962	ug/L		07/31/23 08:12	08/07/23 16:04	1
Di-n-butyl phthalate	<9.62		9.62	5.38	ug/L		07/31/23 08:12	08/07/23 16:04	1
1,3-Dinitrobenzene	<9.62		9.62	3.08	ug/L		07/31/23 08:12	08/07/23 16:04	1
4,6-Dinitro-2-methylphenol	<9.62		9.62	6.63	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,4-Dinitrophenol	<19.2		19.2	12.5	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,4-Dinitrotoluene	<9.62		9.62	6.15	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,6-Dinitrotoluene	<9.62		9.62	0.500	ug/L		07/31/23 08:12	08/07/23 16:04	1
Di-n-octyl phthalate	<19.2		19.2	6.73	ug/L		07/31/23 08:12	08/07/23 16:04	1
Dinoseb	<9.62		9.62	2.31	ug/L		07/31/23 08:12	08/07/23 16:04	1
Diphenylamine	<9.62		9.62	5.77	ug/L		07/31/23 08:12	08/07/23 16:04	1
Disulfoton	<9.62		9.62	2.31	ug/L		07/31/23 08:12	08/07/23 16:04	1
Ethyl methanesulfonate	<9.62		9.62	3.46	ug/L		07/31/23 08:12	08/07/23 16:04	1
Ethyl parathion	<9.62		9.62	2.12	ug/L		07/31/23 08:12	08/07/23 16:04	1
Famphur	<9.62	*+	9.62	3.65	ug/L		07/31/23 08:12	08/07/23 16:04	1
Fluoranthene	<9.62		9.62	1.63	ug/L		07/31/23 08:12	08/07/23 16:04	1
Fluorene	<9.62		9.62	0.760	ug/L		07/31/23 08:12	08/07/23 16:04	1
Hexachlorobenzene	<9.62		9.62	0.673	ug/L		07/31/23 08:12	08/07/23 16:04	1
Hexachlorobutadiene	<9.62		9.62	0.827	ug/L		07/31/23 08:12	08/07/23 16:04	1
Hexachlorocyclopentadiene	<9.62		9.62	4.90	ug/L		07/31/23 08:12	08/07/23 16:04	1
Hexachloroethane	<9.62		9.62	0.933	ug/L		07/31/23 08:12	08/07/23 16:04	1
Hexachloropropene	<9.62		9.62	2.50	ug/L		07/31/23 08:12	08/07/23 16:04	1
Indeno(1,2,3-cd)pyrene	<9.62		9.62	4.04	ug/L		07/31/23 08:12	08/07/23 16:04	1
Isodrin	<9.62		9.62	4.52	ug/L		07/31/23 08:12	08/07/23 16:04	1
Isophorone	<9.62		9.62	0.894	ug/L		07/31/23 08:12	08/07/23 16:04	1
Isosafrole	<9.62		9.62	2.21	ug/L		07/31/23 08:12	08/07/23 16:04	1
Kepone	<9.62	*+	9.62	0.962	ug/L		07/31/23 08:12	08/07/23 16:04	1
Methapyrilene	<9.62	*- *1	9.62	0.731	ug/L		07/31/23 08:12	08/07/23 16:04	1
3-Methylcholanthrene	<9.62		9.62	0.308	ug/L		07/31/23 08:12	08/07/23 16:04	1
Methyl methanesulfonate	<9.62		9.62	3.17	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Methylnaphthalene	<9.62		9.62	0.567	ug/L		07/31/23 08:12	08/07/23 16:04	1
Methyl parathion	<9.62		9.62	2.21	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Methylphenol	<9.62		9.62	0.625	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Methylphenol (and/or 3-Methylphenol)	<9.62		9.62	0.673	ug/L		07/31/23 08:12	08/07/23 16:04	1
1,4-Naphthoquinone	<9.62		9.62	3.46	ug/L		07/31/23 08:12	08/07/23 16:04	1
1-Naphthylamine	<9.62		9.62	2.40	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Naphthylamine	<9.62	*1	9.62	2.02	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Nitroaniline	<9.62		9.62	5.67	ug/L		07/31/23 08:12	08/07/23 16:04	1
3-Nitroaniline	<9.62		9.62	2.60	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Nitroaniline	<9.62		9.62	1.25	ug/L		07/31/23 08:12	08/07/23 16:04	1
Nitrobenzene	<9.62		9.62	0.769	ug/L		07/31/23 08:12	08/07/23 16:04	1
5-Nitro-o-toluidine	<9.62		9.62	2.69	ug/L		07/31/23 08:12	08/07/23 16:04	1
2-Nitrophenol	<9.62		9.62	6.54	ug/L		07/31/23 08:12	08/07/23 16:04	1
4-Nitrophenol	<9.62		9.62	7.31	ug/L		07/31/23 08:12	08/07/23 16:04	1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodiethylamine	<9.62		9.62	3.27	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosodimethylamine	<9.62		9.62	0.692	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosodi-n-butylamine	<9.62		9.62	3.75	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosodi-n-propylamine	<9.62		9.62	0.885	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosodiphenylamine	<9.62		9.62	0.721	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosomethylethylamine	<9.62		9.62	4.71	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosopiperidine	<9.62		9.62	2.60	ug/L		07/31/23 08:12	08/07/23 16:04	1
N-Nitrosopyrrolidine	<9.62		9.62	3.46	ug/L		07/31/23 08:12	08/07/23 16:04	1
o,o',o''-Triethylphosphorothioate	<9.62		9.62	3.08	ug/L		07/31/23 08:12	08/07/23 16:04	1
o-Toluidine	<9.62	*1	9.62	2.79	ug/L		07/31/23 08:12	08/07/23 16:04	1
p-Dimethylamino azobenzene	<9.62		9.62	2.12	ug/L		07/31/23 08:12	08/07/23 16:04	1
Pentachlorobenzene	<9.62		9.62	2.69	ug/L		07/31/23 08:12	08/07/23 16:04	1
Pentachloronitrobenzene	<9.62		9.62	5.58	ug/L		07/31/23 08:12	08/07/23 16:04	1
Pentachlorophenol	<9.62		9.62	9.23	ug/L		07/31/23 08:12	08/07/23 16:04	1
Phenacetin	<9.62		9.62	1.83	ug/L		07/31/23 08:12	08/07/23 16:04	1
Phenanthrene	<9.62		9.62	0.760	ug/L		07/31/23 08:12	08/07/23 16:04	1
Phenol	<9.62		9.62	1.06	ug/L		07/31/23 08:12	08/07/23 16:04	1
1,4-Phenylenediamine	<9.62	*-	9.62	1.83	ug/L		07/31/23 08:12	08/07/23 16:04	1
Phorate	<9.62		9.62	3.08	ug/L		07/31/23 08:12	08/07/23 16:04	1
Pronamide	<9.62		9.62	2.60	ug/L		07/31/23 08:12	08/07/23 16:04	1
Pyrene	<9.62		9.62	0.760	ug/L		07/31/23 08:12	08/07/23 16:04	1
Safrole	<9.62		9.62	2.69	ug/L		07/31/23 08:12	08/07/23 16:04	1
1,2,4,5-Tetrachlorobenzene	<9.62		9.62	0.519	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,3,4,6-Tetrachlorophenol	<9.62		9.62	5.10	ug/L		07/31/23 08:12	08/07/23 16:04	1
Thionazin	<9.62		9.62	3.37	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,4,5-Trichlorophenol	<9.62		9.62	5.10	ug/L		07/31/23 08:12	08/07/23 16:04	1
2,4,6-Trichlorophenol	<9.62		9.62	4.81	ug/L		07/31/23 08:12	08/07/23 16:04	1
1,3,5-Trinitrobenzene	<9.62		9.62	2.21	ug/L		07/31/23 08:12	08/07/23 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*85*		*39 - 118*	*07/31/23 08:12*	*08/07/23 16:04*	*1*
2-Fluorophenol (Surr)	*76*		*25 - 110*	*07/31/23 08:12*	*08/07/23 16:04*	*1*
Nitrobenzene-d5 (Surr)	*99*		*45 - 129*	*07/31/23 08:12*	*08/07/23 16:04*	*1*
Phenol-d5 (Surr)	*64*		*21 - 110*	*07/31/23 08:12*	*08/07/23 16:04*	*1*
Terphenyl-d14 (Surr)	*243*	*S1+*	*12 - 144*	*07/31/23 08:12*	*08/07/23 16:04*	*1*
2,4,6-Tribromophenol (Surr)	*94*		*27 - 136*	*07/31/23 08:12*	*08/07/23 16:04*	*1*

Method: SW846 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<10.0		10.0	0.570	mg/L			08/02/23 14:30	1
Isobutanol	<10.0		10.0	0.550	mg/L			08/02/23 14:30	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0604	*1	0.0604	0.0302	ug/L		08/02/23 06:00	08/04/23 18:52	1
alpha-BHC	<0.0604		0.0604	0.0274	ug/L		08/02/23 06:00	08/04/23 18:52	1
beta-BHC	<0.0604		0.0604	0.0349	ug/L		08/02/23 06:00	08/04/23 18:52	1
Chlordane (technical)	<1.89		1.89	0.764	ug/L		08/02/23 06:00	08/04/23 18:52	1
4,4'-DDD	<0.0604		0.0604	0.0255	ug/L		08/02/23 06:00	08/04/23 18:52	1
4,4'-DDE	<0.0604		0.0604	0.0255	ug/L		08/02/23 06:00	08/04/23 18:52	1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	<0.0604		0.0604	0.0396	ug/L		08/02/23 06:00	08/04/23 18:52	1
delta-BHC	<0.0604		0.0604	0.0255	ug/L		08/02/23 06:00	08/04/23 18:52	1
Dieldrin	<0.0604		0.0604	0.0245	ug/L		08/02/23 06:00	08/04/23 18:52	1
Endosulfan I	<0.0604		0.0604	0.0311	ug/L		08/02/23 06:00	08/04/23 18:52	1
Endosulfan II	<0.0604		0.0604	0.0274	ug/L		08/02/23 06:00	08/04/23 18:52	1
Endosulfan sulfate	<0.0604		0.0604	0.0283	ug/L		08/02/23 06:00	08/04/23 18:52	1
Endrin	<0.0604		0.0604	0.0245	ug/L		08/02/23 06:00	08/04/23 18:52	1
Endrin aldehyde	<0.0604		0.0604	0.0274	ug/L		08/02/23 06:00	08/04/23 18:52	1
gamma-BHC (Lindane)	<0.0604		0.0604	0.0340	ug/L		08/02/23 06:00	08/04/23 18:52	1
Heptachlor	<0.0604		0.0604	0.0311	ug/L		08/02/23 06:00	08/04/23 18:52	1
Heptachlor epoxide	<0.0604		0.0604	0.0274	ug/L		08/02/23 06:00	08/04/23 18:52	1
Methoxychlor	<0.0604		0.0604	0.0387	ug/L		08/02/23 06:00	08/04/23 18:52	1
Toxaphene	<1.89		1.89	0.651	ug/L		08/02/23 06:00	08/04/23 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*75*		*10 - 136*	*08/02/23 06:00*	*08/04/23 18:52*	*1*
Tetrachloro-m-xylene	*63*		*10 - 130*	*08/02/23 06:00*	*08/04/23 18:52*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.755		0.755	0.160	ug/L		08/02/23 06:00	08/04/23 12:20	1
PCB-1221	<0.755		0.755	0.160	ug/L		08/02/23 06:00	08/04/23 12:20	1
PCB-1232	<0.755		0.755	0.160	ug/L		08/02/23 06:00	08/04/23 12:20	1
PCB-1242	<0.755		0.755	0.160	ug/L		08/02/23 06:00	08/04/23 12:20	1
PCB-1248	<0.755		0.755	0.104	ug/L		08/02/23 06:00	08/04/23 12:20	1
PCB-1254	<0.755		0.755	0.104	ug/L		08/02/23 06:00	08/04/23 12:20	1
PCB-1260	<0.755		0.755	0.104	ug/L		08/02/23 06:00	08/04/23 12:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*77*		*10 - 136*	*08/02/23 06:00*	*08/04/23 12:20*	*1*
Tetrachloro-m-xylene (Surr)	*73*		*10 - 130*	*08/02/23 06:00*	*08/04/23 12:20*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<1.91		1.91	0.585	ug/L		08/02/23 07:24	08/04/23 11:01	1
Silvex (2,4,5-TP)	<1.91		1.91	0.159	ug/L		08/02/23 07:24	08/04/23 11:01	1
2,4,5-T	<1.91		1.91	0.274	ug/L		08/02/23 07:24	08/04/23 11:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*74*		*25 - 130*	*08/02/23 07:24*	*08/04/23 11:01*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:33	1
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 04:05	1
Barium	**0.0668**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 04:05	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 04:05	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 04:05	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:05	1
Cobalt	**0.000220**	**J**	0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 04:05	1
Copper	**0.00420**	**J**	0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 04:05	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Method: SW846 6020B - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 04:05	1
Nickel	<0.00500		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 04:05	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 04:05	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 04:05	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 04:05	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:05	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:33	1
Tin	<0.00500	^+	0.00500	0.00230	mg/L		08/01/23 08:55	08/15/23 04:05	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		08/03/23 08:53	08/04/23 10:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<0.0100		0.0100	0.00430	mg/L		08/02/23 10:07	08/02/23 20:48	1
Sulfide (SW846 9034)	<1.00		1.00	0.231	mg/L		08/01/23 19:30	08/01/23 19:59	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88	0.638	mg/L			07/29/23 10:47	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-D1
Date Collected: 07/26/23 10:51
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-12
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 17:52	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 17:52	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 17:52	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 17:52	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 17:52	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 17:52	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 17:52	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 17:52	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 17:52	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 17:52	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 17:52	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 17:52	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 17:52	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 17:52	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 17:52	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 17:52	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 17:52	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 17:52	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 17:52	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 17:52	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 17:52	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 17:52	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 17:52	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 17:52	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 17:52	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 17:52	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 17:52	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 17:52	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 17:52	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 17:52	1
cis-1,2-Dichloroethene	**5.72**		1.00	0.210	ug/L			07/31/23 17:52	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 17:52	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 17:52	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 17:52	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 17:52	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 17:52	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 17:52	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 17:52	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 17:52	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 17:52	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 17:52	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 17:52	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 17:52	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 17:52	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 17:52	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 17:52	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 128*		*07/31/23 17:52*	*1*

Client Sample ID: MW-D1

Date Collected: 07/26/23 10:51
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-12

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/31/23 17:52*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*07/31/23 17:52*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:36	1
Arsenic	**0.00123**	**J**	0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 04:07	1
Barium	**0.0438**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 04:07	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 04:07	1
Cadmium	**0.000940**		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 04:07	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:07	1
Cobalt	**0.00738**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 04:07	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 04:07	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 04:07	1
Nickel	**0.0137**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 04:07	1
Selenium	**0.00253**	**J**	0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 04:07	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 04:07	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 04:07	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:07	1
Zinc	**0.00777**	**J**	0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3.50**	**J**	3.75	1.28	mg/L			07/29/23 10:47	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-D2
Date Collected: 07/26/23 13:01
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-13
Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 18:14	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 18:14	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 18:14	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 18:14	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 18:14	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 18:14	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 18:14	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 18:14	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 18:14	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 18:14	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 18:14	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 18:14	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 18:14	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 18:14	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 18:14	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 18:14	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 18:14	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 18:14	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 18:14	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 18:14	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 18:14	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 18:14	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 18:14	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 18:14	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 18:14	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 18:14	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 18:14	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 18:14	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 18:14	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 18:14	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 18:14	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 18:14	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 18:14	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 18:14	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 18:14	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 18:14	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 18:14	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 18:14	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 18:14	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 18:14	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 18:14	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 18:14	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 18:14	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 18:14	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 18:14	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 18:14	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*80 - 128*		*07/31/23 18:14*	*1*

Client Sample ID: MW-D2

Date Collected: 07/26/23 13:01
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-13

Matrix: Ground Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*		*07/31/23 18:14*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*07/31/23 18:14*	*1*

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 17:38	1
Arsenic	**0.00466**		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 04:10	1
Barium	**0.0280**		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 04:10	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 04:10	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 04:10	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:10	1
Cobalt	**0.0149**		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 04:10	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 04:10	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 04:10	1
Nickel	**0.0634**		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 04:10	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 04:10	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 04:10	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 04:10	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 04:10	1
Zinc	**0.0156**	**J**	0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 17:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**46.7**		5.00	1.70	mg/L			07/29/23 10:47	1

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: Trip Blank

Date Collected: 07/26/23 00:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-14

Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 13:52	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 13:52	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 13:52	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 13:52	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 13:52	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 13:52	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 13:52	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 13:52	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 13:52	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 13:52	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 13:52	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 13:52	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 13:52	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 13:52	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 13:52	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 13:52	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 13:52	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 13:52	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 13:52	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 13:52	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 13:52	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 13:52	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 13:52	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 13:52	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 13:52	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 13:52	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 13:52	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 13:52	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 13:52	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 13:52	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 13:52	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 13:52	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 13:52	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 13:52	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 13:52	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 13:52	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 13:52	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 13:52	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 13:52	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 13:52	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 13:52	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 13:52	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 13:52	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 13:52	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 13:52	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 13:52	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 13:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*80 - 128*		*07/31/23 13:52*	*1*

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: Trip Blank
Date Collected: 07/26/23 00:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-14
Matrix: Water

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		80 - 120		07/31/23 13:52	1
4-Bromofluorobenzene (Surr)	103		80 - 120		07/31/23 13:52	1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
E	Result exceeded calibration range.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Surrogate Summary

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-261425-1	MW-53	109	94	100
310-261425-2	93-MW-31R	111	96	101
310-261425-3	MW-39R	110	93	102
310-261425-4	MW-40	109	95	102
310-261425-5	04-MW-56	108	94	102
310-261425-6	MW-58	107	94	102
310-261425-7	MW-61R	116	94	101
310-261425-8	MW-63R	110	93	98
310-261425-9	MW-65	111	92	101
310-261425-10	MW-79	114	96	101
310-261425-11	MW-81	110	96	105
310-261425-12	MW-D1	111	96	100
310-261425-13	MW-D2	111	96	99

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(80-128)	(80-120)	(80-120)
310-261425-14	Trip Blank	109	94	103
LCS 310-395146/6	Lab Control Sample	103	98	101
LCS 310-395146/7	Lab Control Sample	106	96	101
MB 310-395146/5	Method Blank	105	95	103

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPHL	TBP
Lab Sample ID	Client Sample ID	(39-118)	(25-110)	(45-129)	(21-110)	(12-144)	(27-136)
310-261425-3	MW-39R	78		91		36	
310-261425-5	04-MW-56	69		73		49	
310-261425-6	MW-58	91		105		45	
310-261425-9	MW-65	108		125		73	
310-261425-11	MW-81	85	76	99	64	243 S1+	94

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)

TPHL = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPHL	TBP
Lab Sample ID	Client Sample ID	(39-118)	(25-110)	(45-129)	(21-110)	(12-144)	(27-136)
LCS 310-395107/2-A	Lab Control Sample	102	102	119	86	288 S1+	136
LCS 310-395220/2-A	Lab Control Sample	76		91		99	
LCS 310-398657/2-A	Lab Control Sample	72		79		77	
LCSD 310-395107/3-A	Lab Control Sample Dup	110	111 S1+	128	93	209 S1+	153 S1+
LCSD 310-395220/3-A	Lab Control Sample Dup	77		91		94	
LCSD 310-398657/3-A	Lab Control Sample Dup	84		89		87	
MB 310-395107/1-A	Method Blank	106	102	127	90	125	129
MB 310-395220/1-A	Method Blank	74		112		123	
MB 310-398657/1-A	Method Blank	69		79		77	

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPHL = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
310-261425-7	MW-61R	62	60
310-261425-11	MW-81	75	63

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
LCS 310-395222/4-A	Lab Control Sample	69	71
LCS 310-395571/4-A	Lab Control Sample	71	70
LCSD 310-395222/5-A	Lab Control Sample Dup	68	58
LCSD 310-395571/5-A	Lab Control Sample Dup	69	67
MB 310-395222/1-A	Method Blank	61	47
MB 310-395571/1-A	Method Blank	69	56

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: SCS Engineers
Job ID: 310-261425-1
Project/Site: OWSWC 2nd 2023 HMSP

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	DCB2 (10-136)	TCX2 (10-130)
310-261425-11	MW-81	77	73

Surrogate Legend
DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	DCB2 (10-136)	TCX2 (10-130)
LCS 310-395222/2-A	Lab Control Sample	59	66
LCSD 310-395222/3-A	Lab Control Sample Dup	56	69
MB 310-395222/1-A	Method Blank	59	59

Surrogate Legend
DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Ground Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DCPAA1 (25-130)
310-261425-11	MW-81	74

Surrogate Legend
DCPAA = DCAA

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DCPAA1 (25-130)
LCS 500-725934/2-A	Lab Control Sample	92
LCSD 500-725934/3-A	Lab Control Sample Dup	96
MB 500-725934/1-A	Method Blank	88

Surrogate Legend
DCPAA = DCAA

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-395146/5
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00	0.380	ug/L			07/31/23 12:02	1
1,1,1-Trichloroethane	<1.00		1.00	0.190	ug/L			07/31/23 12:02	1
1,1,2,2-Tetrachloroethane	<1.00		1.00	0.470	ug/L			07/31/23 12:02	1
1,1,2-Trichloroethane	<1.00		1.00	0.450	ug/L			07/31/23 12:02	1
1,1-Dichloroethane	<1.00		1.00	0.220	ug/L			07/31/23 12:02	1
1,1-Dichloroethene	<2.00		2.00	0.560	ug/L			07/31/23 12:02	1
1,1-Dichloropropene	<1.00		1.00	0.430	ug/L			07/31/23 12:02	1
1,2,3-Trichloropropane	<1.00		1.00	0.590	ug/L			07/31/23 12:02	1
1,2,4-Trichlorobenzene	<5.00		5.00	0.750	ug/L			07/31/23 12:02	1
1,2-Dibromo-3-chloropropane	<5.00		5.00	1.20	ug/L			07/31/23 12:02	1
1,2-Dibromoethane (EDB)	<1.00		1.00	0.340	ug/L			07/31/23 12:02	1
1,2-Dichlorobenzene	<1.00		1.00	0.370	ug/L			07/31/23 12:02	1
1,2-Dichloroethane	<1.00		1.00	0.390	ug/L			07/31/23 12:02	1
1,2-Dichloropropane	<1.00		1.00	0.270	ug/L			07/31/23 12:02	1
1,3-Dichlorobenzene	<1.00		1.00	0.300	ug/L			07/31/23 12:02	1
1,3-Dichloropropane	<1.00		1.00	0.400	ug/L			07/31/23 12:02	1
1,4-Dichlorobenzene	<1.00		1.00	0.230	ug/L			07/31/23 12:02	1
2,2-Dichloropropane	<4.00		4.00	0.690	ug/L			07/31/23 12:02	1
2-Butanone (MEK)	<10.0		10.0	2.10	ug/L			07/31/23 12:02	1
2-Hexanone	<10.0		10.0	2.00	ug/L			07/31/23 12:02	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0	2.10	ug/L			07/31/23 12:02	1
Acetone	<10.0		10.0	3.10	ug/L			07/31/23 12:02	1
Acrolein	<10.0		10.0	3.60	ug/L			07/31/23 12:02	1
Acrylonitrile	<5.00		5.00	2.20	ug/L			07/31/23 12:02	1
Allyl chloride	<2.00		2.00	0.700	ug/L			07/31/23 12:02	1
Benzene	<0.500		0.500	0.220	ug/L			07/31/23 12:02	1
Bromochloromethane	<5.00		5.00	0.540	ug/L			07/31/23 12:02	1
Bromodichloromethane	<1.00		1.00	0.390	ug/L			07/31/23 12:02	1
Bromoform	<5.00		5.00	0.780	ug/L			07/31/23 12:02	1
Bromomethane	<4.00		4.00	1.10	ug/L			07/31/23 12:02	1
Carbon disulfide	<1.00		1.00	0.450	ug/L			07/31/23 12:02	1
Carbon tetrachloride	<2.00		2.00	0.650	ug/L			07/31/23 12:02	1
Chlorobenzene	<1.00		1.00	0.400	ug/L			07/31/23 12:02	1
Chlorodibromomethane	<5.00		5.00	0.750	ug/L			07/31/23 12:02	1
Chloroethane	<4.00		4.00	0.790	ug/L			07/31/23 12:02	1
Chloroform	<3.00		3.00	1.30	ug/L			07/31/23 12:02	1
Chloromethane	<3.00		3.00	0.610	ug/L			07/31/23 12:02	1
Chloroprene	<1.00		1.00	0.230	ug/L			07/31/23 12:02	1
cis-1,2-Dichloroethene	<1.00		1.00	0.210	ug/L			07/31/23 12:02	1
cis-1,3-Dichloropropene	<5.00		5.00	0.250	ug/L			07/31/23 12:02	1
Dibromomethane	<1.00		1.00	0.330	ug/L			07/31/23 12:02	1
Dichlorodifluoromethane	<3.00		3.00	0.250	ug/L			07/31/23 12:02	1
Ethyl methacrylate	<2.00		2.00	0.680	ug/L			07/31/23 12:02	1
Ethylbenzene	<1.00		1.00	0.310	ug/L			07/31/23 12:02	1
Iodomethane	<10.0		10.0	7.00	ug/L			07/31/23 12:02	1
Methacrylonitrile	<10.0		10.0	3.30	ug/L			07/31/23 12:02	1
Methyl methacrylate	<2.00		2.00	0.760	ug/L			07/31/23 12:02	1
Methylene chloride	<5.00		5.00	1.70	ug/L			07/31/23 12:02	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-395146/5
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<5.00		5.00	3.00	ug/L			07/31/23 12:02	1
Propionitrile	<10.0		10.0	3.40	ug/L			07/31/23 12:02	1
Styrene	<1.00		1.00	0.370	ug/L			07/31/23 12:02	1
Tetrachloroethene	<1.00		1.00	0.480	ug/L			07/31/23 12:02	1
Toluene	<1.00		1.00	0.430	ug/L			07/31/23 12:02	1
trans-1,2-Dichloroethene	<1.00		1.00	0.270	ug/L			07/31/23 12:02	1
trans-1,3-Dichloropropene	<5.00		5.00	0.560	ug/L			07/31/23 12:02	1
trans-1,4-Dichloro-2-butene	<10.0		10.0	1.10	ug/L			07/31/23 12:02	1
Trichloroethene	<1.00		1.00	0.430	ug/L			07/31/23 12:02	1
Trichlorofluoromethane	<4.00		4.00	0.380	ug/L			07/31/23 12:02	1
Vinyl acetate	<10.0		10.0	2.50	ug/L			07/31/23 12:02	1
Vinyl chloride	<1.00		1.00	0.180	ug/L			07/31/23 12:02	1
Xylenes, Total	<3.00		3.00	0.400	ug/L			07/31/23 12:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*80 - 128*		*07/31/23 12:02*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*07/31/23 12:02*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*07/31/23 12:02*	*1*

Lab Sample ID: LCS 310-395146/6
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	20.0	22.18		ug/L		111	68 - 123
1,1,1-Trichloroethane	20.0	22.27		ug/L		111	71 - 128
1,1,2,2-Tetrachloroethane	20.0	21.80		ug/L		109	64 - 124
1,1,2-Trichloroethane	20.0	22.07		ug/L		110	70 - 124
1,1-Dichloroethane	20.0	18.99		ug/L		95	71 - 123
1,1-Dichloroethene	20.0	19.21		ug/L		96	61 - 129
1,1-Dichloropropene	20.0	21.06		ug/L		105	70 - 131
1,2,3-Trichloropropane	20.0	22.84		ug/L		114	64 - 125
1,2,4-Trichlorobenzene	20.0	21.36		ug/L		107	61 - 124
1,2-Dibromo-3-chloropropane	20.0	22.74		ug/L		114	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.49		ug/L		112	73 - 125
1,2-Dichlorobenzene	20.0	20.40		ug/L		102	68 - 120
1,2-Dichloroethane	20.0	20.56		ug/L		103	70 - 124
1,2-Dichloropropane	20.0	20.17		ug/L		101	73 - 121
1,3-Dichlorobenzene	20.0	21.25		ug/L		106	67 - 123
1,3-Dichloropropane	20.0	20.41		ug/L		102	72 - 124
1,4-Dichlorobenzene	20.0	20.44		ug/L		102	67 - 120
2,2-Dichloropropane	20.0	25.03		ug/L		125	50 - 150
2-Butanone (MEK)	40.0	42.05		ug/L		105	50 - 150
2-Hexanone	40.0	49.15		ug/L		123	60 - 132
4-Methyl-2-pentanone (MIBK)	40.0	44.20		ug/L		111	62 - 130
Acetone	40.0	41.18		ug/L		103	50 - 150
Acrolein	95.6	91.70		ug/L		96	12 - 150
Acrylonitrile	200	200.9		ug/L		100	50 - 150

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-395146/6
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Allyl chloride	20.0	20.07		ug/L		100	50 - 150
Benzene	20.0	18.94		ug/L		95	73 - 122
Bromochloromethane	20.0	22.21		ug/L		111	68 - 132
Bromodichloromethane	20.0	20.46		ug/L		102	72 - 121
Bromoform	20.0	22.33		ug/L		112	55 - 129
Carbon disulfide	20.0	17.76		ug/L		89	58 - 131
Carbon tetrachloride	20.0	21.73		ug/L		109	67 - 132
Chlorobenzene	20.0	20.46		ug/L		102	69 - 121
Chlorodibromomethane	20.0	23.06		ug/L		115	69 - 122
Chloroform	20.0	20.22		ug/L		101	72 - 120
Chloroprene	20.0	21.38		ug/L		107	67 - 131
cis-1,2-Dichloroethene	20.0	19.84		ug/L		99	74 - 120
cis-1,3-Dichloropropene	20.0	21.14		ug/L		106	71 - 126
Dibromomethane	20.0	20.92		ug/L		105	72 - 123
Ethyl methacrylate	20.0	21.77		ug/L		109	64 - 131
Ethylbenzene	20.0	19.40		ug/L		97	69 - 122
Iodomethane	20.0	12.63		ug/L		63	10 - 150
Methacrylonitrile	200	217.0		ug/L		109	70 - 126
Methyl methacrylate	40.0	44.38		ug/L		111	68 - 127
Methylene chloride	20.0	19.32		ug/L		97	50 - 150
Naphthalene	20.0	22.56		ug/L		113	50 - 150
Propionitrile	200	211.9		ug/L		106	66 - 125
Styrene	20.0	20.43		ug/L		102	67 - 125
Tetrachloroethene	20.0	21.86		ug/L		109	69 - 131
Toluene	20.0	20.08		ug/L		100	72 - 121
trans-1,2-Dichloroethene	20.0	20.08		ug/L		100	68 - 125
trans-1,3-Dichloropropene	20.0	22.61		ug/L		113	68 - 124
trans-1,4-Dichloro-2-butene	20.0	23.24		ug/L		116	48 - 150
Trichloroethene	20.0	20.44		ug/L		102	73 - 126
Vinyl acetate	40.0	43.27		ug/L		108	50 - 150
Xylenes, Total	40.0	40.29		ug/L		101	68 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*80 - 128*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-395146/7
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromomethane	20.0	15.66		ug/L		78	24 - 150
Chloroethane	20.0	17.80		ug/L		89	51 - 137
Chloromethane	20.0	17.84		ug/L		89	37 - 150
Dichlorodifluoromethane	20.0	26.35		ug/L		132	37 - 150
Trichlorofluoromethane	20.0	21.59		ug/L		108	56 - 144
Vinyl chloride	20.0	18.95		ug/L		95	57 - 136

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-395146/7
Matrix: Water
Analysis Batch: 395146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	*106*		*80 - 128*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 310-395107/1-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395107

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<10.0		10.0	0.640	ug/L		07/31/23 08:12	08/07/23 11:23	1
Acenaphthylene	<10.0		10.0	0.720	ug/L		07/31/23 08:12	08/07/23 11:23	1
Acetophenone	<10.0		10.0	0.690	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Acetylaminofluorene	<10.0		10.0	2.70	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Aminobiphenyl	<10.0		10.0	2.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
Anthracene	<10.0		10.0	0.870	ug/L		07/31/23 08:12	08/07/23 11:23	1
Benzo[a]anthracene	<10.0		10.0	0.850	ug/L		07/31/23 08:12	08/07/23 11:23	1
Benzo[a]pyrene	<10.0		10.0	8.10	ug/L		07/31/23 08:12	08/07/23 11:23	1
Benzo[b]fluoranthene	<10.0		10.0	4.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
Benzo[g,h,i]perylene	<10.0		10.0	6.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
Benzo[k]fluoranthene	<10.0		10.0	2.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
Benzyl alcohol	<10.0		10.0	1.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
Bis(2-chloroethoxy)methane	<10.0		10.0	0.760	ug/L		07/31/23 08:12	08/07/23 11:23	1
Bis(2-chloroethyl)ether	<10.0		10.0	0.820	ug/L		07/31/23 08:12	08/07/23 11:23	1
bis (2-chloroisopropyl) ether	<10.0		10.0	0.540	ug/L		07/31/23 08:12	08/07/23 11:23	1
Bis(2-ethylhexyl) phthalate	<10.0		10.0	5.50	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Bromophenyl phenyl ether	<10.0		10.0	0.700	ug/L		07/31/23 08:12	08/07/23 11:23	1
Butyl benzyl phthalate	<10.0		10.0	5.40	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Chloroaniline	<10.0		10.0	0.620	ug/L		07/31/23 08:12	08/07/23 11:23	1
Chlorobenzilate	<10.0		10.0	3.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Chloro-3-methylphenol	<10.0		10.0	0.840	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Chloronaphthalene	<10.0		10.0	0.640	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Chlorophenol	<10.0		10.0	0.540	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Chlorophenyl phenyl ether	<10.0		10.0	0.690	ug/L		07/31/23 08:12	08/07/23 11:23	1
Chrysene	<10.0		10.0	0.870	ug/L		07/31/23 08:12	08/07/23 11:23	1
Diallate	<10.0		10.0	4.00	ug/L		07/31/23 08:12	08/07/23 11:23	1
Dibenz(a,h)anthracene	<10.0		10.0	3.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
Dibenzofuran	<10.0		10.0	0.740	ug/L		07/31/23 08:12	08/07/23 11:23	1
3,3'-Dichlorobenzidine	<10.0		10.0	1.40	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,4-Dichlorophenol	<10.0		10.0	0.850	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,6-Dichlorophenol	<10.0		10.0	0.690	ug/L		07/31/23 08:12	08/07/23 11:23	1
Diethyl phthalate	<10.0		10.0	1.70	ug/L		07/31/23 08:12	08/07/23 11:23	1
Dimethoate	<10.0		10.0	3.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
7,12-Dimethylbenz(a)anthracene	<10.0		10.0	1.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
3,3'-Dimethylbenzidine	<10.0		10.0	1.50	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,4-Dimethylphenol	<10.0		10.0	0.580	ug/L		07/31/23 08:12	08/07/23 11:23	1
Dimethyl phthalate	<10.0		10.0	1.00	ug/L		07/31/23 08:12	08/07/23 11:23	1
Di-n-butyl phthalate	<10.0		10.0	5.60	ug/L		07/31/23 08:12	08/07/23 11:23	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-395107/1-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395107

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dinitrobenzene	<10.0		10.0	3.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
4,6-Dinitro-2-methylphenol	<10.0		10.0	6.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,4-Dinitrophenol	<20.0		20.0	13.0	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,4-Dinitrotoluene	<10.0		10.0	6.40	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,6-Dinitrotoluene	<10.0		10.0	0.520	ug/L		07/31/23 08:12	08/07/23 11:23	1
Di-n-octyl phthalate	<20.0		20.0	7.00	ug/L		07/31/23 08:12	08/07/23 11:23	1
Dinoseb	<10.0		10.0	2.40	ug/L		07/31/23 08:12	08/07/23 11:23	1
Diphenylamine	<10.0		10.0	6.00	ug/L		07/31/23 08:12	08/07/23 11:23	1
Disulfoton	<10.0		10.0	2.40	ug/L		07/31/23 08:12	08/07/23 11:23	1
Ethyl methanesulfonate	<10.0		10.0	3.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
Ethyl parathion	<10.0		10.0	2.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
Famphur	<10.0		10.0	3.80	ug/L		07/31/23 08:12	08/07/23 11:23	1
Fluoranthene	<10.0		10.0	1.70	ug/L		07/31/23 08:12	08/07/23 11:23	1
Fluorene	<10.0		10.0	0.790	ug/L		07/31/23 08:12	08/07/23 11:23	1
Hexachlorobenzene	<10.0		10.0	0.700	ug/L		07/31/23 08:12	08/07/23 11:23	1
Hexachlorobutadiene	<10.0		10.0	0.860	ug/L		07/31/23 08:12	08/07/23 11:23	1
Hexachlorocyclopentadiene	<10.0		10.0	5.10	ug/L		07/31/23 08:12	08/07/23 11:23	1
Hexachloroethane	<10.0		10.0	0.970	ug/L		07/31/23 08:12	08/07/23 11:23	1
Hexachloropropene	<10.0		10.0	2.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
Indeno(1,2,3-cd)pyrene	<10.0		10.0	4.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
Isodrin	<10.0		10.0	4.70	ug/L		07/31/23 08:12	08/07/23 11:23	1
Isophorone	<10.0		10.0	0.930	ug/L		07/31/23 08:12	08/07/23 11:23	1
Isosafrole	<10.0		10.0	2.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
Kepone	<10.0		10.0	1.00	ug/L		07/31/23 08:12	08/07/23 11:23	1
Methapyrilene	<10.0		10.0	0.760	ug/L		07/31/23 08:12	08/07/23 11:23	1
3-Methylcholanthrene	<10.0		10.0	0.320	ug/L		07/31/23 08:12	08/07/23 11:23	1
Methyl methanesulfonate	<10.0		10.0	3.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Methylnaphthalene	<10.0		10.0	0.590	ug/L		07/31/23 08:12	08/07/23 11:23	1
Methyl parathion	<10.0		10.0	2.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Methylphenol	<10.0		10.0	0.650	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Methylphenol (and/or 3-Methylphenol)	<10.0		10.0	0.700	ug/L		07/31/23 08:12	08/07/23 11:23	1
1,4-Naphthoquinone	<10.0		10.0	3.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
1-Naphthylamine	<10.0		10.0	2.50	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Naphthylamine	<10.0		10.0	2.10	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Nitroaniline	<10.0		10.0	5.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
3-Nitroaniline	<10.0		10.0	2.70	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Nitroaniline	<10.0		10.0	1.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
Nitrobenzene	<10.0		10.0	0.800	ug/L		07/31/23 08:12	08/07/23 11:23	1
5-Nitro-o-toluidine	<10.0		10.0	2.80	ug/L		07/31/23 08:12	08/07/23 11:23	1
2-Nitrophenol	<10.0		10.0	6.80	ug/L		07/31/23 08:12	08/07/23 11:23	1
4-Nitrophenol	<10.0		10.0	7.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosodiethylamine	<10.0		10.0	3.40	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosodimethylamine	<10.0		10.0	0.720	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosodi-n-butylamine	<10.0		10.0	3.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosodi-n-propylamine	<10.0		10.0	0.920	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosodiphenylamine	<10.0		10.0	0.750	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosomethylethylamine	<10.0		10.0	4.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
N-Nitrosopiperidine	<10.0		10.0	2.70	ug/L		07/31/23 08:12	08/07/23 11:23	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 310-395107/1-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395107

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosopyrrolidine	<10.0		10.0	3.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
o,o',o''-Triethylphosphorothioate	<10.0		10.0	3.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
o-Toluidine	<10.0		10.0	2.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
p-Dimethylamino azobenzene	<10.0		10.0	2.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
Pentachlorobenzene	<10.0		10.0	2.80	ug/L		07/31/23 08:12	08/07/23 11:23	1
Pentachloronitrobenzene	<10.0		10.0	5.80	ug/L		07/31/23 08:12	08/07/23 11:23	1
Pentachlorophenol	<10.0		10.0	9.60	ug/L		07/31/23 08:12	08/07/23 11:23	1
Phenacetin	<10.0		10.0	1.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
Phenanthrene	<10.0		10.0	0.790	ug/L		07/31/23 08:12	08/07/23 11:23	1
Phenol	<10.0		10.0	1.10	ug/L		07/31/23 08:12	08/07/23 11:23	1
1,4-Phenylenediamine	<10.0		10.0	1.90	ug/L		07/31/23 08:12	08/07/23 11:23	1
Phorate	<10.0		10.0	3.20	ug/L		07/31/23 08:12	08/07/23 11:23	1
Pronamide	<10.0		10.0	2.70	ug/L		07/31/23 08:12	08/07/23 11:23	1
Pyrene	<10.0		10.0	0.790	ug/L		07/31/23 08:12	08/07/23 11:23	1
Safrole	<10.0		10.0	2.80	ug/L		07/31/23 08:12	08/07/23 11:23	1
1,2,4,5-Tetrachlorobenzene	<10.0		10.0	0.540	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,3,4,6-Tetrachlorophenol	<10.0		10.0	5.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
Thionazin	<10.0		10.0	3.50	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,4,5-Trichlorophenol	<10.0		10.0	5.30	ug/L		07/31/23 08:12	08/07/23 11:23	1
2,4,6-Trichlorophenol	<10.0		10.0	5.00	ug/L		07/31/23 08:12	08/07/23 11:23	1
1,3,5-Trinitrobenzene	<10.0		10.0	2.30	ug/L		07/31/23 08:12	08/07/23 11:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*106*		*39 - 118*	*07/31/23 08:12*	*08/07/23 11:23*	*1*
2-Fluorophenol (Surr)	*102*		*25 - 110*	*07/31/23 08:12*	*08/07/23 11:23*	*1*
Nitrobenzene-d5 (Surr)	*127*		*45 - 129*	*07/31/23 08:12*	*08/07/23 11:23*	*1*
Phenol-d5 (Surr)	*90*		*21 - 110*	*07/31/23 08:12*	*08/07/23 11:23*	*1*
Terphenyl-d14 (Surr)	*125*		*12 - 144*	*07/31/23 08:12*	*08/07/23 11:23*	*1*
2,4,6-Tribromophenol (Surr)	*129*		*27 - 136*	*07/31/23 08:12*	*08/07/23 11:23*	*1*

Lab Sample ID: LCS 310-395107/2-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395107

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	100	90.20		ug/L		90	43 - 110
Acenaphthylene	100	87.37		ug/L		87	40 - 110
Acetophenone	100	88.39		ug/L		88	48 - 119
2-Acetylaminofluorene	64.0	59.67		ug/L		93	35 - 150
4-Aminobiphenyl	64.0	19.86		ug/L		31	24 - 138
Anthracene	100	102.9		ug/L		103	51 - 120
Benzo[a]anthracene	100	97.99		ug/L		98	51 - 123
Benzo[a]pyrene	100	93.88		ug/L		94	48 - 125
Benzo[b]fluoranthene	100	97.02		ug/L		97	49 - 129
Benzo[g,h,i]perylene	100	76.63		ug/L		77	43 - 139
Benzo[k]fluoranthene	100	103.3		ug/L		103	47 - 130
Benzyl alcohol	100	88.38		ug/L		88	39 - 128
Bis(2-chloroethoxy)methane	100	93.66		ug/L		94	48 - 121

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-395107/2-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395107

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bis(2-chloroethyl)ether	100	87.55		ug/L		88	43 - 123
bis (2-chloroisopropyl) ether	100	83.28		ug/L		83	34 - 123
Bis(2-ethylhexyl) phthalate	100	115.1		ug/L		115	43 - 143
4-Bromophenyl phenyl ether	100	95.93		ug/L		96	45 - 119
Butyl benzyl phthalate	100	109.5		ug/L		109	46 - 135
4-Chloroaniline	100	50.82		ug/L		51	21 - 139
Chlorobenzilate	64.0	73.36		ug/L		115	52 - 138
4-Chloro-3-methylphenol	100	99.22		ug/L		99	49 - 130
2-Chloronaphthalene	100	85.35		ug/L		85	37 - 110
2-Chlorophenol	100	89.28		ug/L		89	44 - 117
4-Chlorophenyl phenyl ether	100	86.77		ug/L		87	44 - 116
Chrysene	100	97.76		ug/L		98	51 - 125
Diallate	64.0	72.20		ug/L		113	42 - 141
Dibenz(a,h)anthracene	100	91.37		ug/L		91	38 - 149
Dibenzofuran	100	86.77		ug/L		87	45 - 112
2,4-Dichlorophenol	100	97.74		ug/L		98	41 - 124
2,6-Dichlorophenol	100	93.03		ug/L		93	30 - 130
Diethyl phthalate	100	85.01		ug/L		85	43 - 135
Dimethoate	64.0	61.58		ug/L		96	51 - 150
7,12-Dimethylbenz(a)anthracene	64.0	60.69		ug/L		95	51 - 129
3,3'-Dimethylbenzidine	64.0	1.606	J *-	ug/L		3	10 - 150
2,4-Dimethylphenol	100	87.37		ug/L		87	31 - 142
Dimethyl phthalate	100	91.20		ug/L		91	43 - 129
Di-n-butyl phthalate	100	91.82		ug/L		92	50 - 133
1,3-Dinitrobenzene	100	68.53		ug/L		69	45 - 138
4,6-Dinitro-2-methylphenol	200	176.4		ug/L		88	22 - 143
2,4-Dinitrophenol	200	168.1		ug/L		84	10 - 138
2,4-Dinitrotoluene	100	93.84		ug/L		94	47 - 137
2,6-Dinitrotoluene	100	100.7		ug/L		101	51 - 130
Di-n-octyl phthalate	100	90.83		ug/L		91	34 - 150
Dinoseb	64.0	59.91		ug/L		94	25 - 146
Diphenylamine	85.0	76.22		ug/L		90	48 - 122
Disulfoton	64.0	61.72		ug/L		96	54 - 131
Ethyl methanesulfonate	64.0	57.11		ug/L		89	48 - 120
Ethyl parathion	64.0	61.07		ug/L		95	52 - 149
Famphur	64.0	102.0	E *+	ug/L		159	44 - 150
Fluoranthene	100	85.70		ug/L		86	47 - 128
Fluorene	100	87.41		ug/L		87	45 - 119
Hexachlorobenzene	100	110.9		ug/L		111	48 - 119
Hexachlorobutadiene	100	67.48		ug/L		67	32 - 110
Hexachlorocyclopentadiene	100	63.38		ug/L		63	10 - 110
Hexachloroethane	100	57.91		ug/L		58	31 - 110
Hexachloropropene	64.0	27.77		ug/L		43	10 - 110
Indeno(1,2,3-cd)pyrene	100	71.18		ug/L		71	37 - 150
Isodrin	64.0	55.71		ug/L		87	52 - 125
Isophorone	100	93.89		ug/L		94	50 - 125
Isosafrole	64.0	53.98		ug/L		84	31 - 123
Kepone	64.0	110.8	*+	ug/L		173	10 - 150
Methapyrilene	64.0	<10.0	*-	ug/L		0.2	10 - 110

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-395107/2-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395107

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Methylcholanthrene	64.0	57.79		ug/L		90	43 - 150
Methyl methanesulfonate	64.0	54.27		ug/L		85	36 - 110
2-Methylnaphthalene	100	81.70		ug/L		82	33 - 110
Methyl parathion	64.0	61.67		ug/L		96	50 - 150
2-Methylphenol	100	87.74		ug/L		88	47 - 118
4-Methylphenol (and/or 3-Methylphenol)	100	85.42		ug/L		85	46 - 117
1,4-Naphthoquinone	64.0	66.67		ug/L		104	37 - 149
1-Naphthylamine	64.0	39.90		ug/L		62	19 - 110
2-Naphthylamine	64.0	15.49		ug/L		24	18 - 127
2-Nitroaniline	100	101.9		ug/L		102	50 - 135
3-Nitroaniline	100	82.54		ug/L		83	42 - 139
4-Nitroaniline	100	64.18		ug/L		64	31 - 145
Nitrobenzene	100	90.97		ug/L		91	47 - 116
5-Nitro-o-toluidine	64.0	55.83		ug/L		87	47 - 145
2-Nitrophenol	100	95.43		ug/L		95	41 - 129
4-Nitrophenol	200	117.8		ug/L		59	18 - 110
N-Nitrosodiethylamine	64.0	57.77		ug/L		90	47 - 138
N-Nitrosodimethylamine	100	84.45		ug/L		84	37 - 110
N-Nitrosodi-n-butylamine	64.0	66.44		ug/L		104	52 - 142
N-Nitrosodi-n-propylamine	100	90.36		ug/L		90	45 - 130
N-Nitrosodiphenylamine	100	89.08		ug/L		89	49 - 121
N-Nitrosomethylethylamine	64.0	60.27		ug/L		94	54 - 123
N-Nitrosopiperidine	64.0	65.49		ug/L		102	60 - 127
N-Nitrosopyrrolidine	64.0	59.97		ug/L		94	56 - 143
o,o',o''-Triethylphosphorothioate	64.0	55.19		ug/L		86	45 - 113
o-Toluidine	64.0	43.00		ug/L		67	24 - 142
p-Dimethylamino azobenzene	64.0	63.30		ug/L		99	42 - 138
Pentachlorobenzene	64.0	51.60		ug/L		81	33 - 110
Pentachloronitrobenzene	64.0	75.94		ug/L		119	65 - 127
Pentachlorophenol	200	194.6		ug/L		97	26 - 133
Phenacetin	64.0	64.82		ug/L		101	56 - 146
Phenanthrene	100	105.4		ug/L		105	51 - 117
Phenol	100	62.84		ug/L		63	29 - 110
1,4-Phenylenediamine	64.0	<10.0	*-	ug/L		0.1	20 - 120
Phorate	64.0	62.57		ug/L		98	57 - 135
Pronamide	64.0	62.42		ug/L		98	61 - 144
Pyrene	100	107.5		ug/L		107	48 - 127
Safrole	64.0	47.50		ug/L		74	34 - 110
1,2,4,5-Tetrachlorobenzene	100	82.45		ug/L		82	36 - 110
2,3,4,6-Tetrachlorophenol	100	91.60		ug/L		92	33 - 134
Thionazin	64.0	60.99		ug/L		95	52 - 147
2,4,5-Trichlorophenol	100	97.87		ug/L		98	35 - 133
2,4,6-Trichlorophenol	100	100.0		ug/L		100	28 - 139
1,3,5-Trinitrobenzene	64.0	54.33		ug/L		85	39 - 144

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*102*		*39 - 118*

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-395107/2-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395107

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	102		25 - 110
Nitrobenzene-d5 (Surr)	119		45 - 129
Phenol-d5 (Surr)	86		21 - 110
Terphenyl-d14 (Surr)	288	S1+	12 - 144
2,4,6-Tribromophenol (Surr)	136		27 - 136

Lab Sample ID: LCSD 310-395107/3-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395107

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene			100	97.47		ug/L		97	43 - 110	8	35
Acenaphthylene			100	92.51		ug/L		93	40 - 110	6	35
Acetophenone			100	89.37		ug/L		89	48 - 119	1	35
2-Acetylaminofluorene			64.0	64.34		ug/L		101	35 - 150	8	28
4-Aminobiphenyl			64.0	54.43	*1	ug/L		85	24 - 138	93	35
Anthracene			100	109.2		ug/L		109	51 - 120	6	35
Benzo[a]anthracene			100	99.43		ug/L		99	51 - 123	1	35
Benzo[a]pyrene			100	103.5		ug/L		103	48 - 125	10	35
Benzo[b]fluoranthene			100	101.8		ug/L		102	49 - 129	5	35
Benzo[g,h,i]perylene			100	87.82		ug/L		88	43 - 139	14	35
Benzo[k]fluoranthene			100	113.9		ug/L		114	47 - 130	10	35
Benzyl alcohol			100	93.64		ug/L		94	39 - 128	6	35
Bis(2-chloroethoxy)methane			100	97.75		ug/L		98	48 - 121	4	35
Bis(2-chloroethyl)ether			100	87.78		ug/L		88	43 - 123	0	35
bis (2-chloroisopropyl) ether			100	83.02		ug/L		83	34 - 123	0	35
Bis(2-ethylhexyl) phthalate			100	119.3		ug/L		119	43 - 143	4	35
4-Bromophenyl phenyl ether			100	99.06		ug/L		99	45 - 119	3	35
Butyl benzyl phthalate			100	113.7		ug/L		114	46 - 135	4	35
4-Chloroaniline			100	102.9	*1	ug/L		103	21 - 139	68	35
Chlorobenzilate			64.0	76.20		ug/L		119	52 - 138	4	28
4-Chloro-3-methylphenol			100	105.4		ug/L		105	49 - 130	6	35
2-Chloronaphthalene			100	90.82		ug/L		91	37 - 110	6	35
2-Chlorophenol			100	89.19		ug/L		89	44 - 117	0	35
4-Chlorophenyl phenyl ether			100	92.53		ug/L		93	44 - 116	6	35
Chrysene			100	98.39		ug/L		98	51 - 125	1	35
Diallate			64.0	77.67		ug/L		121	42 - 141	7	35
Dibenz(a,h)anthracene			100	89.32		ug/L		89	38 - 149	2	35
Dibenzofuran			100	91.70		ug/L		92	45 - 112	6	35
2,4-Dichlorophenol			100	102.8		ug/L		103	41 - 124	5	35
2,6-Dichlorophenol			100	97.52		ug/L		98	30 - 130	5	35
Diethyl phthalate			100	84.69		ug/L		85	43 - 135	0	35
Dimethoate			64.0	67.40		ug/L		105	51 - 150	9	26
7,12-Dimethylbenz(a)anthracene			64.0	69.06		ug/L		108	51 - 129	13	28
3,3'-Dimethylbenzidine			64.0	<10.0	*-	ug/L		2	10 - 150	18	35
2,4-Dimethylphenol			100	90.25		ug/L		90	31 - 142	3	35
Dimethyl phthalate			100	94.95		ug/L		95	43 - 129	4	35
Di-n-butyl phthalate			100	96.21		ug/L		96	50 - 133	5	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 310-395107/3-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395107

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3-Dinitrobenzene			100	74.87		ug/L		75	45 - 138	9	35
4,6-Dinitro-2-methylphenol			200	183.1		ug/L		92	22 - 143	4	35
2,4-Dinitrophenol			200	179.1		ug/L		90	10 - 138	6	35
2,4-Dinitrotoluene			100	96.50		ug/L		97	47 - 137	3	35
2,6-Dinitrotoluene			100	102.9		ug/L		103	51 - 130	2	35
Di-n-octyl phthalate			100	94.98		ug/L		95	34 - 150	4	35
Dinoseb			64.0	64.38		ug/L		101	25 - 146	7	35
Diphenylamine			85.0	78.12		ug/L		92	48 - 122	2	35
Disulfoton			64.0	66.65		ug/L		104	54 - 131	8	24
Ethyl methanesulfonate			64.0	61.31		ug/L		96	48 - 120	7	27
Ethyl parathion			64.0	63.90		ug/L		100	52 - 149	5	26
Famphur			64.0	107.3	E *+	ug/L		168	44 - 150	5	35
Fluoranthene			100	86.55		ug/L		87	47 - 128	1	35
Fluorene			100	90.37		ug/L		90	45 - 119	3	35
Hexachlorobenzene			100	117.6		ug/L		118	48 - 119	6	35
Hexachlorobutadiene			100	77.14		ug/L		77	32 - 110	13	35
Hexachlorocyclopentadiene			100	73.50		ug/L		74	10 - 110	15	35
Hexachloroethane			100	65.17		ug/L		65	31 - 110	12	35
Hexachloropropene			64.0	33.18		ug/L		52	10 - 110	18	35
Indeno(1,2,3-cd)pyrene			100	82.31		ug/L		82	37 - 150	15	35
Isodrin			64.0	62.64		ug/L		98	52 - 125	12	26
Isophorone			100	98.12		ug/L		98	50 - 125	4	35
Isosafrole			64.0	58.80		ug/L		92	31 - 123	9	35
Kepone			64.0	113.4	*+	ug/L		177	10 - 150	2	35
Methapyrilene			64.0	0.9864	J *- *1	ug/L		2	10 - 110	163	35
3-Methylcholanthrene			64.0	66.97		ug/L		105	43 - 150	15	32
Methyl methanesulfonate			64.0	56.08		ug/L		88	36 - 110	3	26
2-Methylnaphthalene			100	87.09		ug/L		87	33 - 110	6	35
Methyl parathion			64.0	67.52		ug/L		106	50 - 150	9	25
2-Methylphenol			100	91.66		ug/L		92	47 - 118	4	35
4-Methylphenol (and/or 3-Methylphenol)			100	86.89		ug/L		87	46 - 117	2	35
1,4-Naphthoquinone			64.0	74.16		ug/L		116	37 - 149	11	29
1-Naphthylamine			64.0	56.18		ug/L		88	19 - 110	34	35
2-Naphthylamine			64.0	45.87	*1	ug/L		72	18 - 127	99	35
2-Nitroaniline			100	107.7		ug/L		108	50 - 135	5	35
3-Nitroaniline			100	96.74		ug/L		97	42 - 139	16	35
4-Nitroaniline			100	74.80		ug/L		75	31 - 145	15	35
Nitrobenzene			100	92.15		ug/L		92	47 - 116	1	35
5-Nitro-o-toluidine			64.0	59.10		ug/L		92	47 - 145	6	31
2-Nitrophenol			100	96.38		ug/L		96	41 - 129	1	35
4-Nitrophenol			200	120.9		ug/L		60	18 - 110	3	35
N-Nitrosodiethylamine			64.0	63.05		ug/L		99	47 - 138	9	26
N-Nitrosodimethylamine			100	84.00		ug/L		84	37 - 110	1	35
N-Nitrosodi-n-butylamine			64.0	68.22		ug/L		107	52 - 142	3	27
N-Nitrosodi-n-propylamine			100	92.40		ug/L		92	45 - 130	2	35
N-Nitrosodiphenylamine			100	90.39		ug/L		90	49 - 121	1	35
N-Nitrosomethylethylamine			64.0	65.13		ug/L		102	54 - 123	8	26
N-Nitrosopiperidine			64.0	70.65		ug/L		110	60 - 127	8	26

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 310-395107/3-A
Matrix: Water
Analysis Batch: 395753

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395107

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-Nitrosopyrrolidine	64.0	64.02		ug/L		100	56 - 143	7	25
o,o',o''-Triethylphosphorothioate	64.0	57.00		ug/L		89	45 - 113	3	33
o-Toluidine	64.0	63.45	*1	ug/L		99	24 - 142	38	35
p-Dimethylamino azobenzene	64.0	70.89		ug/L		111	42 - 138	11	29
Pentachlorobenzene	64.0	53.20		ug/L		83	33 - 110	3	35
Pentachloronitrobenzene	64.0	80.64		ug/L		126	65 - 127	6	29
Pentachlorophenol	200	197.4		ug/L		99	26 - 133	1	35
Phenacetin	64.0	67.39		ug/L		105	56 - 146	4	25
Phenanthrene	100	112.4		ug/L		112	51 - 117	6	35
Phenol	100	65.32		ug/L		65	29 - 110	4	35
1,4-Phenylenediamine	64.0	<10.0	*-	ug/L		0.1	20 - 120	5	35
Phorate	64.0	68.54		ug/L		107	57 - 135	9	26
Pronamide	64.0	70.13		ug/L		110	61 - 144	12	27
Pyrene	100	113.7		ug/L		114	48 - 127	6	35
Safrole	64.0	51.46		ug/L		80	34 - 110	8	35
1,2,4,5-Tetrachlorobenzene	100	86.55		ug/L		87	36 - 110	5	35
2,3,4,6-Tetrachlorophenol	100	96.22		ug/L		96	33 - 134	5	35
Thionazin	64.0	64.02		ug/L		100	52 - 147	5	28
2,4,5-Trichlorophenol	100	103.1		ug/L		103	35 - 133	5	35
2,4,6-Trichlorophenol	100	105.9		ug/L		106	28 - 139	6	35
1,3,5-Trinitrobenzene	64.0	60.58		ug/L		95	39 - 144	11	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*110*		*39 - 118*
2-Fluorophenol (Surr)	*111*	*S1+*	*25 - 110*
Nitrobenzene-d5 (Surr)	*128*		*45 - 129*
Phenol-d5 (Surr)	*93*		*21 - 110*
Terphenyl-d14 (Surr)	*209*	*S1+*	*12 - 144*
2,4,6-Tribromophenol (Surr)	*153*	*S1+*	*27 - 136*

Lab Sample ID: MB 310-395220/1-A
Matrix: Water
Analysis Batch: 395759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395220

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<10.0		10.0	0.590	ug/L		08/01/23 05:57	08/07/23 12:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*39 - 118*	*08/01/23 05:57*	*08/07/23 12:01*	*1*
Nitrobenzene-d5 (Surr)	*112*		*45 - 129*	*08/01/23 05:57*	*08/07/23 12:01*	*1*
Terphenyl-d14 (Surr)	*123*		*12 - 144*	*08/01/23 05:57*	*08/07/23 12:01*	*1*

Lab Sample ID: LCS 310-395220/2-A
Matrix: Water
Analysis Batch: 395759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395220

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Methylnaphthalene	100	48.68		ug/L		49	33 - 110

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 310-395220/2-A
Matrix: Water
Analysis Batch: 395759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395220

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	76		39 - 118
Nitrobenzene-d5 (Surr)	91		45 - 129
Terphenyl-d14 (Surr)	99		12 - 144

Lab Sample ID: LCSD 310-395220/3-A
Matrix: Water
Analysis Batch: 395759

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395220

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Methylnaphthalene			100	45.82		ug/L		46	33 - 110	6	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	77		39 - 118
Nitrobenzene-d5 (Surr)	91		45 - 129
Terphenyl-d14 (Surr)	94		12 - 144

Lab Sample ID: MB 310-398657/1-A
Matrix: Water
Analysis Batch: 399296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<10.0		10.0	0.590	ug/L		09/06/23 06:05	09/12/23 15:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	79		45 - 129	09/06/23 06:05	09/12/23 15:25	1
2-Fluorobiphenyl (Surr)	69		39 - 118	09/06/23 06:05	09/12/23 15:25	1
Terphenyl-d14 (Surr)	77		12 - 144	09/06/23 06:05	09/12/23 15:25	1

Lab Sample ID: LCS 310-398657/2-A
Matrix: Water
Analysis Batch: 399296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398657

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2-Methylnaphthalene			100	59.71		ug/L		60	33 - 110		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5 (Surr)	79		45 - 129
2-Fluorobiphenyl (Surr)	72		39 - 118
Terphenyl-d14 (Surr)	77		12 - 144

Lab Sample ID: LCSD 310-398657/3-A
Matrix: Water
Analysis Batch: 399296

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398657

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Methylnaphthalene			100	62.61		ug/L		63	33 - 110	5	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 310-398657/3-A
Matrix: Water
Analysis Batch: 399296

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398657

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*89*		*45 - 129*
2-Fluorobiphenyl (Surr)	*84*		*39 - 118*
Terphenyl-d14 (Surr)	*87*		*12 - 144*

Method: 8015C - Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)

Lab Sample ID: MB 310-395358/5
Matrix: Water
Analysis Batch: 395358

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<10.0		10.0	0.570	mg/L			08/02/23 11:55	1
Isobutanol	<10.0		10.0	0.550	mg/L			08/02/23 11:55	1

Lab Sample ID: LCS 310-395358/6
Matrix: Water
Analysis Batch: 395358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetonitrile	102	96.36		mg/L		94	66 - 122

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-395222/1-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395222

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0640		0.0640	0.0320	ug/L		08/01/23 06:02	08/04/23 18:04	1
alpha-BHC	<0.0640		0.0640	0.0290	ug/L		08/01/23 06:02	08/04/23 18:04	1
beta-BHC	<0.0640		0.0640	0.0370	ug/L		08/01/23 06:02	08/04/23 18:04	1
Chlordane (technical)	<2.00		2.00	0.810	ug/L		08/01/23 06:02	08/04/23 18:04	1
4,4'-DDD	<0.0640		0.0640	0.0270	ug/L		08/01/23 06:02	08/04/23 18:04	1
4,4'-DDE	<0.0640		0.0640	0.0270	ug/L		08/01/23 06:02	08/04/23 18:04	1
4,4'-DDT	<0.0640		0.0640	0.0420	ug/L		08/01/23 06:02	08/04/23 18:04	1
delta-BHC	<0.0640		0.0640	0.0270	ug/L		08/01/23 06:02	08/04/23 18:04	1
Dieldrin	<0.0640		0.0640	0.0260	ug/L		08/01/23 06:02	08/04/23 18:04	1
Endosulfan I	<0.0640		0.0640	0.0330	ug/L		08/01/23 06:02	08/04/23 18:04	1
Endosulfan II	<0.0640		0.0640	0.0290	ug/L		08/01/23 06:02	08/04/23 18:04	1
Endosulfan sulfate	<0.0640		0.0640	0.0300	ug/L		08/01/23 06:02	08/04/23 18:04	1
Endrin	<0.0640		0.0640	0.0260	ug/L		08/01/23 06:02	08/04/23 18:04	1
Endrin aldehyde	<0.0640		0.0640	0.0290	ug/L		08/01/23 06:02	08/04/23 18:04	1
gamma-BHC (Lindane)	<0.0640		0.0640	0.0360	ug/L		08/01/23 06:02	08/04/23 18:04	1
Heptachlor	<0.0640		0.0640	0.0330	ug/L		08/01/23 06:02	08/04/23 18:04	1
Heptachlor epoxide	<0.0640		0.0640	0.0290	ug/L		08/01/23 06:02	08/04/23 18:04	1
Methoxychlor	<0.0640		0.0640	0.0410	ug/L		08/01/23 06:02	08/04/23 18:04	1
Toxaphene	<2.00		2.00	0.690	ug/L		08/01/23 06:02	08/04/23 18:04	1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 310-395222/1-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395222

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	61		10 - 136	08/01/23 06:02	08/04/23 18:04	1
Tetrachloro-m-xylene	47		10 - 130	08/01/23 06:02	08/04/23 18:04	1

Lab Sample ID: LCS 310-395222/4-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395222

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aldrin	1.00	0.6785		ug/L		68	13 - 120
alpha-BHC	1.00	0.7579		ug/L		76	36 - 127
beta-BHC	1.00	0.7895		ug/L		79	37 - 136
4,4'-DDD	1.00	0.8120		ug/L		81	36 - 149
4,4'-DDE	1.00	0.8209		ug/L		82	34 - 130
4,4'-DDT	1.00	0.8349		ug/L		83	23 - 150
delta-BHC	1.00	0.8370		ug/L		84	33 - 134
Dieldrin	1.00	0.7964		ug/L		80	39 - 130
Endosulfan I	1.00	0.5019		ug/L		50	10 - 120
Endosulfan II	1.00	0.5701		ug/L		57	14 - 120
Endosulfan sulfate	1.00	0.8570		ug/L		86	36 - 147
Endrin	1.00	0.8405		ug/L		84	39 - 140
Endrin aldehyde	1.00	0.7826		ug/L		78	32 - 137
gamma-BHC (Lindane)	1.00	0.7721		ug/L		77	36 - 132
Heptachlor	1.00	0.7561		ug/L		76	27 - 120
Heptachlor epoxide	1.00	0.7968		ug/L		80	38 - 133
Methoxychlor	1.00	0.8333		ug/L		83	10 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	69		10 - 136
Tetrachloro-m-xylene	71		10 - 130

Lab Sample ID: LCSD 310-395222/5-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395222

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aldrin	1.00	0.4736	*1	ug/L		47	13 - 120	36	35
alpha-BHC	1.00	0.7155		ug/L		72	36 - 127	6	35
beta-BHC	1.00	0.7421		ug/L		74	37 - 136	6	35
4,4'-DDD	1.00	0.7666		ug/L		77	36 - 149	6	35
4,4'-DDE	1.00	0.7347		ug/L		73	34 - 130	11	35
4,4'-DDT	1.00	0.7889		ug/L		79	23 - 150	6	35
delta-BHC	1.00	0.7758		ug/L		78	33 - 134	8	35
Dieldrin	1.00	0.7425		ug/L		74	39 - 130	7	35
Endosulfan I	1.00	0.4742		ug/L		47	10 - 120	6	35
Endosulfan II	1.00	0.5381		ug/L		54	14 - 120	6	35
Endosulfan sulfate	1.00	0.8129		ug/L		81	36 - 147	5	35
Endrin	1.00	0.8066		ug/L		81	39 - 140	4	35
Endrin aldehyde	1.00	0.7351		ug/L		74	32 - 137	8	35

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 310-395222/5-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395222

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
gamma-BHC (Lindane)			1.00	0.7224		ug/L		72	36 - 132	7	35
Heptachlor			1.00	0.5830		ug/L		58	27 - 120	26	35
Heptachlor epoxide			1.00	0.7398		ug/L		74	38 - 133	7	35
Methoxychlor			1.00	0.7762		ug/L		78	10 - 150	7	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*68*		*10 - 136*
Tetrachloro-m-xylene	*58*		*10 - 130*

Lab Sample ID: MB 310-395571/1-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395571

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan I	<0.0640		0.0640	0.0330	ug/L		08/04/23 06:00	08/04/23 19:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*69*		*10 - 136*	*08/04/23 06:00*	*08/04/23 19:09*	*1*
Tetrachloro-m-xylene (Surr)	*56*		*10 - 130*	*08/04/23 06:00*	*08/04/23 19:09*	*1*

Lab Sample ID: LCS 310-395571/4-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395571

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Endosulfan I			1.00	0.4925		ug/L		49	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*71*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*70*		*10 - 130*

Lab Sample ID: LCSD 310-395571/5-A
Matrix: Water
Analysis Batch: 395646

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395571

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Endosulfan I			1.00	0.4529		ug/L		45	10 - 120	8	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*69*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*67*		*10 - 130*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 310-395222/1-A
Matrix: Water
Analysis Batch: 395603

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395222

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.800		0.800	0.170	ug/L		08/01/23 06:02	08/04/23 11:15	1
PCB-1221	<0.800		0.800	0.170	ug/L		08/01/23 06:02	08/04/23 11:15	1
PCB-1232	<0.800		0.800	0.170	ug/L		08/01/23 06:02	08/04/23 11:15	1
PCB-1242	<0.800		0.800	0.170	ug/L		08/01/23 06:02	08/04/23 11:15	1
PCB-1248	<0.800		0.800	0.110	ug/L		08/01/23 06:02	08/04/23 11:15	1
PCB-1254	<0.800		0.800	0.110	ug/L		08/01/23 06:02	08/04/23 11:15	1
PCB-1260	<0.800		0.800	0.110	ug/L		08/01/23 06:02	08/04/23 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*59*		*10 - 136*	*08/01/23 06:02*	*08/04/23 11:15*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*10 - 130*	*08/01/23 06:02*	*08/04/23 11:15*	*1*

Lab Sample ID: LCS 310-395222/2-A
Matrix: Water
Analysis Batch: 395603

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395222

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016			10.0	8.408		ug/L		84	30 - 133		
PCB-1260			10.0	8.056		ug/L		81	31 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*59*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*66*		*10 - 130*

Lab Sample ID: LCSD 310-395222/3-A
Matrix: Water
Analysis Batch: 395603

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395222

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			10.0	7.617		ug/L		76	30 - 133	10	35
PCB-1260			10.0	7.090		ug/L		71	31 - 133	13	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*56*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*69*		*10 - 130*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-725934/1-A
Matrix: Water
Analysis Batch: 726396

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 725934

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<1.00		1.00	0.307	ug/L		08/02/23 07:24	08/04/23 10:06	1
Silvex (2,4,5-TP)	<1.00		1.00	0.0834	ug/L		08/02/23 07:24	08/04/23 10:06	1
2,4,5-T	<1.00		1.00	0.144	ug/L		08/02/23 07:24	08/04/23 10:06	1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: MB 500-725934/1-A
Matrix: Water
Analysis Batch: 726396

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 725934

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	88		25 - 130	08/02/23 07:24	08/04/23 10:06	1

Lab Sample ID: LCS 500-725934/2-A
Matrix: Water
Analysis Batch: 726396

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 725934

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D			10.1	7.598		ug/L		76	30 - 115		
Silvex (2,4,5-TP)			2.50	1.991		ug/L		80	32 - 115		
2,4,5-T			2.53	2.002		ug/L		79	30 - 115		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCAA	92		25 - 130

Lab Sample ID: LCSD 500-725934/3-A
Matrix: Water
Analysis Batch: 726396

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 725934

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D			10.1	7.947		ug/L		79	30 - 115	4	20
Silvex (2,4,5-TP)			2.50	1.904		ug/L		76	32 - 115	4	20
2,4,5-T			2.53	2.101		ug/L		83	30 - 115	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCAA	96		25 - 130

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-395210/1-A
Matrix: Water
Analysis Batch: 396627

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395210

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200	0.000530	mg/L		08/01/23 08:55	08/15/23 02:50	1
Barium	<0.00200		0.00200	0.000640	mg/L		08/01/23 08:55	08/15/23 02:50	1
Beryllium	<0.00100		0.00100	0.000330	mg/L		08/01/23 08:55	08/15/23 02:50	1
Cadmium	<0.000200		0.000200	0.000100	mg/L		08/01/23 08:55	08/15/23 02:50	1
Chromium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 02:50	1
Cobalt	<0.000500		0.000500	0.000170	mg/L		08/01/23 08:55	08/15/23 02:50	1
Copper	<0.00500		0.00500	0.00180	mg/L		08/01/23 08:55	08/15/23 02:50	1
Lead	<0.000500		0.000500	0.000240	mg/L		08/01/23 08:55	08/15/23 02:50	1
Nickel	<0.00500		0.00500	0.00190	mg/L		08/01/23 08:55	08/15/23 02:50	1
Selenium	<0.00500		0.00500	0.00140	mg/L		08/01/23 08:55	08/15/23 02:50	1
Silver	<0.00100		0.00100	0.000500	mg/L		08/01/23 08:55	08/15/23 02:50	1
Vanadium	<0.00500		0.00500	0.00110	mg/L		08/01/23 08:55	08/15/23 02:50	1
Tin	<0.00500	^+	0.00500	0.00230	mg/L		08/01/23 08:55	08/15/23 02:50	1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 310-395210/1-A
Matrix: Water
Analysis Batch: 396729

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395210

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	^3+	0.00200	0.00100	mg/L		08/01/23 08:55	08/15/23 16:44	1
Thallium	<0.00100		0.00100	0.000260	mg/L		08/01/23 08:55	08/15/23 16:44	1
Zinc	<0.0200		0.0200	0.00640	mg/L		08/01/23 08:55	08/15/23 16:44	1

Lab Sample ID: LCS 310-395210/2-A
Matrix: Water
Analysis Batch: 397073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395210

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.400	0.4488		mg/L		112	80 - 120
Arsenic	0.400	0.4261		mg/L		107	80 - 120
Barium	0.200	0.2233		mg/L		112	80 - 120
Beryllium	0.200	0.2204		mg/L		110	80 - 120
Cadmium	0.200	0.2200		mg/L		110	80 - 120
Chromium	0.200	0.2186		mg/L		109	80 - 120
Cobalt	0.200	0.2109		mg/L		105	80 - 120
Copper	0.400	0.4493		mg/L		112	80 - 120
Lead	0.400	0.4474		mg/L		112	80 - 120
Nickel	0.400	0.4494		mg/L		112	80 - 120
Selenium	0.800	0.8606		mg/L		108	80 - 120
Silver	0.200	0.2162		mg/L		108	80 - 120
Thallium	0.400	0.3861		mg/L		97	80 - 120
Vanadium	0.200	0.2206		mg/L		110	80 - 120
Zinc	0.400	0.4303		mg/L		108	80 - 120
Tin	0.400	0.4199		mg/L		105	80 - 120

Lab Sample ID: 310-261425-4 DU
Matrix: Ground Water
Analysis Batch: 396627

Client Sample ID: MW-40
Prep Type: Total/NA
Prep Batch: 395210

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.00466		0.004543		mg/L		3	20
Barium	0.0148		0.01472		mg/L		0.9	20
Beryllium	<0.00100		<0.00100		mg/L		NC	20
Cadmium	0.000616		0.0005900		mg/L		4	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Cobalt	0.106		0.1047		mg/L		0.9	20
Copper	<0.00500		<0.00500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Nickel	0.0656		0.06417		mg/L		2	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Silver	<0.00100		<0.00100		mg/L		NC	20
Vanadium	<0.00500		<0.00500		mg/L		NC	20

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 310-261425-4 DU
Matrix: Ground Water
Analysis Batch: 396729

Client Sample ID: MW-40
Prep Type: Total/NA
Prep Batch: 395210

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00200	^3+	<0.00200	^3+	mg/L		NC	20
Zinc	0.0443		0.04439		mg/L		0.09	20

Lab Sample ID: 310-261425-4 DU
Matrix: Ground Water
Analysis Batch: 396911

Client Sample ID: MW-40
Prep Type: Total/NA
Prep Batch: 395210

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Tin	<0.00500		<0.00500		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-395482/1-A
Matrix: Water
Analysis Batch: 395671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395482

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200	0.000140	mg/L		08/03/23 08:53	08/04/23 09:56	1

Lab Sample ID: LCS 310-395482/2-A
Matrix: Water
Analysis Batch: 395671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395482

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001601		mg/L		96	80 - 120

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 310-395351/1-A
Matrix: Water
Analysis Batch: 395432

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395351

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0100		0.0100	0.00430	mg/L		08/02/23 10:07	08/02/23 20:29	1

Lab Sample ID: LCS 310-395351/2-A
Matrix: Water
Analysis Batch: 395432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395351

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.200	0.1821		mg/L		91	90 - 110

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 500-726240/1-A
Matrix: Water
Analysis Batch: 725905

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 726240

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.00		1.00	0.231	mg/L		08/01/23 19:30	08/01/23 19:59	1

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric) (Continued)

Lab Sample ID: LCS 500-726240/2-A
Matrix: Water
Analysis Batch: 725905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 726240

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	3.96	3.520		mg/L		89	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-395071/1
Matrix: Water
Analysis Batch: 395071

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			07/29/23 10:47	1

Lab Sample ID: LCS 310-395071/2
Matrix: Water
Analysis Batch: 395071

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	88.00		mg/L		88	75 - 116

Lab Sample ID: MB 310-395116/1
Matrix: Water
Analysis Batch: 395116

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			07/31/23 08:46	1

Lab Sample ID: LCS 310-395116/2
Matrix: Water
Analysis Batch: 395116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	75 - 116

Lab Sample ID: MB 310-395156/1
Matrix: Water
Analysis Batch: 395156

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00	1.70	mg/L			07/31/23 10:59	1

Lab Sample ID: LCS 310-395156/2
Matrix: Water
Analysis Batch: 395156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	75 - 116

GC/MS VOA

Analysis Batch: 395146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-1	MW-53	Total/NA	Ground Water	8260D	
310-261425-2	93-MW-31R	Total/NA	Ground Water	8260D	
310-261425-3	MW-39R	Total/NA	Ground Water	8260D	
310-261425-4	MW-40	Total/NA	Ground Water	8260D	
310-261425-5	04-MW-56	Total/NA	Ground Water	8260D	
310-261425-6	MW-58	Total/NA	Ground Water	8260D	
310-261425-7	MW-61R	Total/NA	Ground Water	8260D	
310-261425-8	MW-63R	Total/NA	Ground Water	8260D	
310-261425-9	MW-65	Total/NA	Ground Water	8260D	
310-261425-10	MW-79	Total/NA	Ground Water	8260D	
310-261425-11	MW-81	Total/NA	Ground Water	8260D	
310-261425-12	MW-D1	Total/NA	Ground Water	8260D	
310-261425-13	MW-D2	Total/NA	Ground Water	8260D	
310-261425-14	Trip Blank	Total/NA	Water	8260D	
MB 310-395146/5	Method Blank	Total/NA	Water	8260D	
LCS 310-395146/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-395146/7	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 395107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	3510C	
MB 310-395107/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-395107/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-395107/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 395220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-3	MW-39R	Total/NA	Ground Water	3510C	
310-261425-6	MW-58	Total/NA	Ground Water	3510C	
310-261425-9	MW-65	Total/NA	Ground Water	3510C	
MB 310-395220/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-395220/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-395220/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 395753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	8270E	395107
MB 310-395107/1-A	Method Blank	Total/NA	Water	8270E	395107
LCS 310-395107/2-A	Lab Control Sample	Total/NA	Water	8270E	395107
LCSD 310-395107/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	395107

Analysis Batch: 395759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-3	MW-39R	Total/NA	Ground Water	8270E	395220
310-261425-6	MW-58	Total/NA	Ground Water	8270E	395220
310-261425-9	MW-65	Total/NA	Ground Water	8270E	395220
MB 310-395220/1-A	Method Blank	Total/NA	Water	8270E	395220
LCS 310-395220/2-A	Lab Control Sample	Total/NA	Water	8270E	395220
LCSD 310-395220/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	395220

GC/MS Semi VOA

Prep Batch: 398657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-5	04-MW-56	Total/NA	Ground Water	3510C	
MB 310-398657/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-398657/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-398657/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 399296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-5	04-MW-56	Total/NA	Ground Water	8270E	398657
MB 310-398657/1-A	Method Blank	Total/NA	Water	8270E	398657
LCS 310-398657/2-A	Lab Control Sample	Total/NA	Water	8270E	398657
LCSD 310-398657/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	398657

GC Semi VOA

Prep Batch: 395222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	3510C	
MB 310-395222/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-395222/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 310-395222/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-395222/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 310-395222/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 395358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	8015C	
MB 310-395358/5	Method Blank	Total/NA	Water	8015C	
LCS 310-395358/6	Lab Control Sample	Total/NA	Water	8015C	

Prep Batch: 395571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-7	MW-61R	Total/NA	Ground Water	3510C	
MB 310-395571/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-395571/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-395571/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 395603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	8082A	395222
MB 310-395222/1-A	Method Blank	Total/NA	Water	8082A	395222
LCS 310-395222/2-A	Lab Control Sample	Total/NA	Water	8082A	395222
LCSD 310-395222/3-A	Lab Control Sample Dup	Total/NA	Water	8082A	395222

Analysis Batch: 395646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-7	MW-61R	Total/NA	Ground Water	8081B	395571
310-261425-11	MW-81	Total/NA	Ground Water	8081B	395222
MB 310-395222/1-A	Method Blank	Total/NA	Water	8081B	395222
MB 310-395571/1-A	Method Blank	Total/NA	Water	8081B	395571
LCS 310-395222/4-A	Lab Control Sample	Total/NA	Water	8081B	395222
LCS 310-395571/4-A	Lab Control Sample	Total/NA	Water	8081B	395571

GC Semi VOA (Continued)

Analysis Batch: 395646 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 310-395222/5-A	Lab Control Sample Dup	Total/NA	Water	8081B	395222
LCSD 310-395571/5-A	Lab Control Sample Dup	Total/NA	Water	8081B	395571

Prep Batch: 725934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	8151A	
MB 500-725934/1-A	Method Blank	Total/NA	Water	8151A	
LCS 500-725934/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 500-725934/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 726396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	8151A	725934
MB 500-725934/1-A	Method Blank	Total/NA	Water	8151A	725934
LCS 500-725934/2-A	Lab Control Sample	Total/NA	Water	8151A	725934
LCSD 500-725934/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	725934

Metals

Prep Batch: 395210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-1	MW-53	Total/NA	Ground Water	3005A	
310-261425-2	93-MW-31R	Total/NA	Ground Water	3005A	
310-261425-3	MW-39R	Total/NA	Ground Water	3005A	
310-261425-4	MW-40	Total/NA	Ground Water	3005A	
310-261425-5	04-MW-56	Total/NA	Ground Water	3005A	
310-261425-6	MW-58	Total/NA	Ground Water	3005A	
310-261425-7	MW-61R	Total/NA	Ground Water	3005A	
310-261425-8	MW-63R	Total/NA	Ground Water	3005A	
310-261425-9	MW-65	Total/NA	Ground Water	3005A	
310-261425-10	MW-79	Total/NA	Ground Water	3005A	
310-261425-11	MW-81	Total/NA	Ground Water	3005A	
310-261425-12	MW-D1	Total/NA	Ground Water	3005A	
310-261425-13	MW-D2	Total/NA	Ground Water	3005A	
MB 310-395210/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-395210/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-261425-4 DU	MW-40	Total/NA	Ground Water	3005A	

Prep Batch: 395482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	7470A	
MB 310-395482/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-395482/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 395671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	7470A	395482
MB 310-395482/1-A	Method Blank	Total/NA	Water	7470A	395482
LCS 310-395482/2-A	Lab Control Sample	Total/NA	Water	7470A	395482

Metals

Analysis Batch: 396627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-1	MW-53	Total/NA	Ground Water	6020B	395210
310-261425-2	93-MW-31R	Total/NA	Ground Water	6020B	395210
310-261425-3	MW-39R	Total/NA	Ground Water	6020B	395210
310-261425-4	MW-40	Total/NA	Ground Water	6020B	395210
310-261425-5	04-MW-56	Total/NA	Ground Water	6020B	395210
310-261425-6	MW-58	Total/NA	Ground Water	6020B	395210
310-261425-7	MW-61R	Total/NA	Ground Water	6020B	395210
310-261425-8	MW-63R	Total/NA	Ground Water	6020B	395210
310-261425-9	MW-65	Total/NA	Ground Water	6020B	395210
310-261425-10	MW-79	Total/NA	Ground Water	6020B	395210
310-261425-11	MW-81	Total/NA	Ground Water	6020B	395210
310-261425-12	MW-D1	Total/NA	Ground Water	6020B	395210
310-261425-13	MW-D2	Total/NA	Ground Water	6020B	395210
MB 310-395210/1-A	Method Blank	Total/NA	Water	6020B	395210
310-261425-4 DU	MW-40	Total/NA	Ground Water	6020B	395210

Analysis Batch: 396729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-1	MW-53	Total/NA	Ground Water	6020B	395210
310-261425-2	93-MW-31R	Total/NA	Ground Water	6020B	395210
310-261425-3	MW-39R	Total/NA	Ground Water	6020B	395210
310-261425-4	MW-40	Total/NA	Ground Water	6020B	395210
310-261425-5	04-MW-56	Total/NA	Ground Water	6020B	395210
310-261425-6	MW-58	Total/NA	Ground Water	6020B	395210
310-261425-7	MW-61R	Total/NA	Ground Water	6020B	395210
310-261425-8	MW-63R	Total/NA	Ground Water	6020B	395210
310-261425-9	MW-65	Total/NA	Ground Water	6020B	395210
310-261425-10	MW-79	Total/NA	Ground Water	6020B	395210
310-261425-11	MW-81	Total/NA	Ground Water	6020B	395210
310-261425-12	MW-D1	Total/NA	Ground Water	6020B	395210
310-261425-13	MW-D2	Total/NA	Ground Water	6020B	395210
MB 310-395210/1-A	Method Blank	Total/NA	Water	6020B	395210
310-261425-4 DU	MW-40	Total/NA	Ground Water	6020B	395210

Analysis Batch: 396911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-4 DU	MW-40	Total/NA	Ground Water	6020B	395210

Analysis Batch: 397073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-395210/2-A	Lab Control Sample	Total/NA	Water	6020B	395210

General Chemistry

Analysis Batch: 395071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-3	MW-39R	Total/NA	Ground Water	I-3765-85	
310-261425-4	MW-40	Total/NA	Ground Water	I-3765-85	
310-261425-8	MW-63R	Total/NA	Ground Water	I-3765-85	
310-261425-10	MW-79	Total/NA	Ground Water	I-3765-85	
310-261425-11	MW-81	Total/NA	Ground Water	I-3765-85	

General Chemistry (Continued)

Analysis Batch: 395071 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-12	MW-D1	Total/NA	Ground Water	I-3765-85	
310-261425-13	MW-D2	Total/NA	Ground Water	I-3765-85	
MB 310-395071/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-395071/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 395116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-5	04-MW-56	Total/NA	Ground Water	I-3765-85	
310-261425-6	MW-58	Total/NA	Ground Water	I-3765-85	
310-261425-7	MW-61R	Total/NA	Ground Water	I-3765-85	
310-261425-9	MW-65	Total/NA	Ground Water	I-3765-85	
MB 310-395116/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-395116/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 395156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-1	MW-53	Total/NA	Ground Water	I-3765-85	
310-261425-2	93-MW-31R	Total/NA	Ground Water	I-3765-85	
MB 310-395156/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-395156/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 395351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	9012B	
MB 310-395351/1-A	Method Blank	Total/NA	Water	9012B	
LCS 310-395351/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 395432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-11	MW-81	Total/NA	Ground Water	9012B	395351
MB 310-395351/1-A	Method Blank	Total/NA	Water	9012B	395351
LCS 310-395351/2-A	Lab Control Sample	Total/NA	Water	9012B	395351

Analysis Batch: 725905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-3	MW-39R	Total/NA	Ground Water	9034	726240
310-261425-8	MW-63R	Total/NA	Ground Water	9034	726240
310-261425-11	MW-81	Total/NA	Ground Water	9034	726240
MB 500-726240/1-A	Method Blank	Total/NA	Water	9034	726240
LCS 500-726240/2-A	Lab Control Sample	Total/NA	Water	9034	726240

Prep Batch: 726240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-261425-3	MW-39R	Total/NA	Ground Water	9030B	
310-261425-8	MW-63R	Total/NA	Ground Water	9030B	
310-261425-11	MW-81	Total/NA	Ground Water	9030B	
MB 500-726240/1-A	Method Blank	Total/NA	Water	9030B	
LCS 500-726240/2-A	Lab Control Sample	Total/NA	Water	9030B	

Lab Chronicle

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-53
Date Collected: 07/26/23 14:31
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 14:35
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:29
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 16:55
Total/NA	Analysis	I-3765-85		1	395156	T8GC	EET CF	07/31/23 10:59

Client Sample ID: 93-MW-31R
Date Collected: 07/26/23 10:31
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 14:57
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:31
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 16:57
Total/NA	Analysis	I-3765-85		1	395156	T8GC	EET CF	07/31/23 10:59

Client Sample ID: MW-39R
Date Collected: 07/25/23 16:47
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 15:19
Total/NA	Prep	3510C			395220	Y6AF	EET CF	08/01/23 09:04
Total/NA	Analysis	8270E		1	395759	L0FS	EET CF	08/07/23 15:38
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:34
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 16:59
Total/NA	Prep	9030B			726240	PFK	EET CHI	08/01/23 19:30 - 08/01/23 19:45 [1]
Total/NA	Analysis	9034		1	725905	PFK	EET CHI	08/01/23 19:59
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Client Sample ID: MW-40
Date Collected: 07/25/23 10:07
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 15:40
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:36
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:08

Lab Chronicle

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-40
Date Collected: 07/25/23 10:07
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Client Sample ID: 04-MW-56
Date Collected: 07/26/23 13:01
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 16:02
Total/NA	Prep	3510C			398657	Y6AF	EET CF	09/06/23 06:05
Total/NA	Analysis	8270E		1	399296	L0FS	EET CF	09/12/23 18:51
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:40
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:13
Total/NA	Analysis	I-3765-85		1	395116	T8GC	EET CF	07/31/23 08:46

Client Sample ID: MW-58
Date Collected: 07/26/23 10:41
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 16:24
Total/NA	Prep	3510C			395220	Y6AF	EET CF	08/01/23 09:04
Total/NA	Analysis	8270E		1	395759	L0FS	EET CF	08/07/23 16:05
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:43
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:15
Total/NA	Analysis	I-3765-85		1	395116	T8GC	EET CF	07/31/23 08:46

Client Sample ID: MW-61R
Date Collected: 07/26/23 16:41
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-7
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 18:57
Total/NA	Prep	3510C			395571	Y6AF	EET CF	08/04/23 08:17
Total/NA	Analysis	8081B		1	395646	BW2O	EET CF	08/04/23 20:14
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:56
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:18
Total/NA	Analysis	I-3765-85		1	395116	T8GC	EET CF	07/31/23 08:46

Lab Chronicle

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-63R
Date Collected: 07/25/23 15:49
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-8
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 16:46
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 03:58
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:27
Total/NA	Prep	9030B			726240	PFK	EET CHI	08/01/23 19:30 - 08/01/23 19:45 [1]
Total/NA	Analysis	9034		1	725905	PFK	EET CHI	08/01/23 19:59
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Client Sample ID: MW-65
Date Collected: 07/26/23 11:21
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 18:35
Total/NA	Prep	3510C			395220	Y6AF	EET CF	08/01/23 09:04
Total/NA	Analysis	8270E		1	395759	L0FS	EET CF	08/07/23 16:32
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 04:01
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:29
Total/NA	Analysis	I-3765-85		1	395116	T8GC	EET CF	07/31/23 08:46

Client Sample ID: MW-79
Date Collected: 07/26/23 11:55
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 17:08
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 04:03
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:31
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 17:30
Total/NA	Prep	3510C			395107	Y6AF	EET CF	07/31/23 08:12
Total/NA	Analysis	8270E		1	395753	L0FS	EET CF	08/07/23 16:04
Total/NA	Analysis	8015C		1	395358	V7YZ	EET CF	08/02/23 14:30

Lab Chronicle

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: MW-81
Date Collected: 07/26/23 15:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-11
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			395222	Y6AF	EET CF	08/02/23 06:00
Total/NA	Analysis	8081B		1	395646	BW2O	EET CF	08/04/23 18:52
Total/NA	Prep	3510C			395222	Y6AF	EET CF	08/02/23 06:00
Total/NA	Analysis	8082A		1	395603	BW2O	EET CF	08/04/23 12:20
Total/NA	Prep	8151A			725934	DAK	EET CHI	08/02/23 07:24
Total/NA	Analysis	8151A		1	726396	SS	EET CHI	08/04/23 11:01
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 04:05
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:33
Total/NA	Prep	7470A			395482	NFT2	EET CF	08/03/23 08:53
Total/NA	Analysis	7470A		1	395671	NFT2	EET CF	08/04/23 10:28
Total/NA	Prep	9012B			395351	ENB7	EET CF	08/02/23 10:07
Total/NA	Analysis	9012B		1	395432	ZJX4	EET CF	08/02/23 20:48
Total/NA	Prep	9030B			726240	PFK	EET CHI	08/01/23 19:30 - 08/01/23 19:45 [1]
Total/NA	Analysis	9034		1	725905	PFK	EET CHI	08/01/23 19:59
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Client Sample ID: MW-D1
Date Collected: 07/26/23 10:51
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-12
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 17:52
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 04:07
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:36
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Client Sample ID: MW-D2
Date Collected: 07/26/23 13:01
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-13
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 18:14
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396627	A6US	EET CF	08/15/23 04:10
Total/NA	Prep	3005A			395210	DHM5	EET CF	08/01/23 08:55
Total/NA	Analysis	6020B		1	396729	A6US	EET CF	08/15/23 17:38
Total/NA	Analysis	I-3765-85		1	395071	WZC8	EET CF	07/29/23 10:47

Lab Chronicle

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Client Sample ID: Trip Blank

Date Collected: 07/26/23 00:00
Date Received: 07/28/23 16:15

Lab Sample ID: 310-261425-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	395146	WSE8	EET CF	07/31/23 13:52

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: SCS Engineers
Job ID: 310-261425-1
Project/Site: OWSWC 2nd 2023 HMSP

Laboratory: Eurofins Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260D		Ground Water	1,2,4-Trichlorobenzene
8260D		Ground Water	Allyl chloride
8260D		Ground Water	Ethyl methacrylate

Laboratory: Eurofins Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Iowa	State	082	05-01-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8151A	8151A	Ground Water	2,4,5-T

Method Summary

Client: SCS Engineers
Project/Site: OWSWC 2nd 2023 HMSP

Job ID: 310-261425-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CF
8015C	Nonhalogenated Organic using GC/FID (Direct Aqueous Injection)	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CF
8151A	Herbicides (GC)	SW846	EET CHI
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9012B	Cyanide, Total andor Amenable	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CHI
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	EET CHI
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	EET CF
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

eurofins | Environment Testing America

310-261425 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY | STATE: IA | Project:

Receipt Information

Date/Time Received: DATE 7/28/23 | TIME 1615 | Received By: ST /AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 1 of 3

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

MW-81

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: R | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.0 | Corrected Temp (°C): 2.0

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY | STATE: IA | Project:

Receipt Information

Date/Time Received: DATE 7/28/23 | TIME 1615 | Received By: ST/AM

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other _____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 3

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☒ Yes ☐ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: R | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.6 | Corrected Temp (°C): 1.6

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

MW79 MW53
MW78 MW61R
MW31R MWD1

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: SCS

City/State: CITY | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 7/28/23 | TIME 1615 | Received By ST

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 3 of 3

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 2 | Correction Factor (°C): 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.1 | Corrected Temp (°C): 2.1

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

TestAmerica
704 Enterprise Drive
Cedar Falls, Iowa 50613
319.277 2401 (phone)

SAMPLER: SCS Engineers
SITE NAME: Ottumwa-Wapello County Landfill
ADDRESS:
CITY/STATE/ZIP:
TELEPHONE NUMBER: Fax:
SAMPLED BY: (PRINT NAME) Scott Stoltz
SIGNATURE: None

REPORT TO:
NAME: Nathan Ohrt
COMPANY NAME: SCS Engineers
PROJECT NAME: OWSWC 2nd 2023 HMSP
PROJECT NUMBER: 27223157 24
ADDRESS: 1690 All State Court, Suite 100
CITY/STATE/ZIP: West Des Moines, IA 50265

ASAP

Sample ID	# of Containers Ordered	Date Sampled	Time Sampled	# of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	HNO_3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H_2SO_4 Plastic (Yellow & White Label)	H_2SO_4 Glass (Yellow & White Label)	None (Black & White Label)	Trip Blank	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Trip Blank	Analyze For: Appendix I	Appendix I metals list (see note)	Appendix II	Total Suspended Solids	Endosulfan I	Sulfide	2-Methylphthalene	Appendix I VOCs	Trip Blank	Fax Results
MW-53		7/26	14:31		X			x								x						x			x						
93-MW-31R		7/26	10:51		X			x								x						x			x						
MW-39R		7/25	16 48		X			x								x						x			x		x	x			
MW-40		7/25	16:07		X			x								x						x			x						
04-MW-56		7/26	13:01		X			x								x						x			x			x			
MW-58		7/26	10 41		X			x								x						x			x			x			
MW-61R		7/26	16 41		X			x								x						x			x	x					
MW-63R		7/25	15 49		X			x								x						x			x		x				
MW-65		7/26	11:21		X			x								x							x		x			x	x		
MW-73								x								x						x			x						
MW-79		7/26	11:55		X			x								x						x			x						
MW-81		7/26	15:00		X			x								x								x	x						
MW-D1		7/26	10 51		X			x								x						x			x						
MW-D2		7/26	13:01		X			x								x						x			x						
GU-6								x								x						x			x						
GU-7								x								x						x			x						
Trip Blank								x													x								x		

Relinquished by	Date	Time	Received by	Date	Time	Relinquished by	Time
Scott Stoltz	7-28-23	12:00					

Comments:
Shipped Via:

Relinquished by	Date	Time	Temperature Upon Receipt
Shipped Via:			
Received for lab by			
SS	7/28/23	1615	

Laboratory Comments: (1) For Appendix I and analysis report to the reporting limits, not the detection limits. Make sure that the reporting limits are below the EPA's MCLs.
(2) For analyses other than Appendix I and report to the detection limits. Please make sure that the detection limits are below the EPA's MCLs.
(3) In the "Result" column for all EDD files, when non-detect, please report "<" the reporting limits or the detection limits instead of indicating with "ND"

Appendix I metals list' includes arsenic, barium, cadmium, copper, cobalt, lead, nickel, and zinc.
Natural Attenuation includes total organic carbon, nitrate, iron, manganese, and sulfate.
AMD includes alkalinity ($CaCO_3$), aluminum, iron, manganese, and sulfate

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613
Phone 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler	Lab PM: Liechti Meredith L	Carrier Tracking No(s)	COC No: 310-63876 1
Client Contact: Shipping/Receiving	Phone	E-Mail: meredith.liechti@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State Program - Iowa		Job #: 310-261425-1
Address: 2417 Bond Street	Due Date Requested: 8/10/2023			
City: University Park	TAT Requested (days):			
State, Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: OWSWC 2nd 2023 HMSP	Project #: 31002405			
Site:	SSOW#:			

310-261425 COC

Analysis Requested

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9034_Calc/9030B	9034_Calc/9030B Sulfide	SUB (Herbicides)/ 2,4-D / 2,4,5-TP / 2,4,5-T	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-39R (310-261425-3)	7/25/23	16 47 Central		Water			X			1	
MW-63R (310-261425-8)	7/25/23	15 49 Central		Water			X			1	
MW-81 (310-261425-11)	7/26/23	15 00 Central		Water				X	X	1	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I II III IV Other (specify) — Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		7/31/23 11:50			8/1/23 0955	EBTH
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 0.5→0.5

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613
Phone 319-277-2401 Fax 319-277-2425

Chain of Custody Record

eurofins

Env o t g

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Liechti Meredith L	Carrier Tracking No(s):	COC No: 310-63901 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: meredith liechti@et eurofinsus com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State Program - Iowa		Job #: 310-261425-1
Address: 2417 Bond Street,	Due Date Requested: 8/10/2023			
City: University Park	TAT Requested (days):			
State Zip: IL, 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email	WO #:			
Project Name: OWSWC 2nd 2023 HMSP	Project #: 31002405			
Site:	SSOW#:			

Analysis Requested

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9034_Calc/9030B Sulfide	Total Number of containers	Special Instructions/Note
			Preservation Code:						
MW-81 (310-261425-11)	7/26/23	15 00 Central		Water			X	2	

Note: Since laboratory accreditations are subject to change Eurofins Environment Testing North Central LLC places the ownership of method analyte & accreditation compliance upon our subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing North Central LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing North Central LLC attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	7/31/23/1640		[signature]	8/1/23 0955	EPT
2	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
		13-710

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-261425-1

Login Number: 261425
List Number: 1
Creator: Tucker, Sarah L

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 310-261425-1

Login Number: 261425
List Number: 2
Creator: Scott, Sherri L

List Source: Eurofins Chicago
List Creation: 08/01/23 11:31 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5,1.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Appendix B-2

Data Validation Documentation

Completed by: Nathan Ohrt
Date of Sampling: 2/21-23/2023
Lab Report Date: 3/15/2023
Site Name: Ottumwa-Wapello County Landfill - West MSWLF unit
Project Type: 1st 2023 HMSP
Lab Report Number: 310-250324

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			Samples 93-MW-32, MW-39R, 04-MW-56, and MW-65 were collected in unpreserved vials so the pH was outside the required criteria when verified by the laboratory; the samples were analyzed within the 7-day holding time specified for unpreserved samples.
Condition	X			
Case Narrative	X			
Holding Times		X		Samples MW-39R, MW-58, MW-63R, MW-65, and MW-D1 were received at the Chicago lab with insufficient time remaining to perform the analysis within holding time; the client was contacted and the lab was instructed to cancel the analysis.
Analytical Sensitivity and Blanks				
Method Blank Detections		X		Chloromethane was detected; the analyte concentration was less than the reporting limit so re-analysis was not performed. 2-Methylnaphthalene was detected above the reporting limit; there was insufficient holding time to perform a re-analysis so the data was reported.
Trip Blank Detections		X		Acetone was detected at J flag concentrations in both of the trip blanks.
Accuracy				
ICV/CCV		X		The CCV was above the upper control limit for multiple analytes; the associated samples were non-detect so the data was reported.
LCS/LCSD		X		The LCS for 2-Methylnaphthalene recovered outside control limits; there was insufficient holding time to perform a re-analysis so the data was reported. The LCS for multiple analytes recovered outside control limits; the analytes were biased high in the LCSs and were not detected in the associated samples so the data was reported.
MS/MSD		X		Insufficient sample volume was available to perform a MS/MSD for two preparation batches; duplicates were performed on the LCSs for precision for these batches.
Surrogates (organics only)		X		Surrogate recovery for samples 93-MW-32 and MW-65 was outside of control limits; evidence of matrix interference was present so re-analysis was not performed.
Precision				
QA/QC Sample RPDs	X			
Field Duplicates	X			Sample MW-63R and duplicate sample MW-D1 had >50% RPD for multiple metals; however, elevates TSS may have contributed to the inorganic concentration differences and measured concentrations were within the historical ranges so the data was accepted. Sample MW-40 and duplicate sample MW-D2 had <50% RPD for the analyzed parameters.

Completed by: Nathan Ohrt
Date of Sampling: 2/22-23/2023
Lab Report Date: 3/2/2023
Site Name: Ottumwa-Wapello County Landfill - West MSWLF unit
Project Type: 1st 2023 Bracketing
Lab Report Number: 310-250330

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Case Narrative	X			
Holding Times	X			
Analytical Sensitivity and Blanks				
Method Blank Detections	X			None.
Trip Blank Detections	X			None.
Accuracy				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD	X			
Surrogates (organics only)	X			
Precision				
QA/QC Sample RPDs	X			
Field Duplicates			X	

Completed by: Nathan Ohrt
Date of Sampling: 7/26/2023
Lab Report Date: 8/13/2023
Site Name: Ottumwa-Wapello County Landfill - West MSWLF unit
Project Type: 2nd 2023 Bracketing
Lab Report Number: 310-261424

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Case Narrative	X			The Trip Blank was analyzed with headspace in the sample container.
Holding Times	X			
Analytical Sensitivity and Blanks				
Method Blank Detections	X			None.
Trip Blank Detections	X			None.
Accuracy				
ICV/CCV	X			
LCS/LCSD	X			
MS/MSD	X			
Surrogates (organics only)	X			
Precision				
QA/QC Sample RPDs	X			
Field Duplicates			X	

Completed by: Nathan Ohrt
Date of Sampling: 7/25-26/2023
Lab Report Date: 9/13/2023
Site Name: Ottumwa-Wapello County Landfill - West MSWLF unit
Project Type: 2nd 2023 HMSP
Lab Report Number: 310-261425

	OK	NO	N/A	NOTES
Sample Collection and Sample Handling				
Chain of Custody	X			
Temperature	X			
Preservation	X			
Condition	X			
Case Narrative		X		The Trip Blank was analyzed with headspace in the sample container. The low level check standard recovery associated with a batch recovered above the upper control limit for antimony for multiple samples: the associated samples were non-detect for the affected analyte so the data was reported.
Holding Times		X		MW-61R was prepared outside of preparation holding time due to sample loss during initial concentration.
Analytical Sensitivity and Blanks				
Method Blank Detections	X			None.
Trip Blank Detections	X			None.
Accuracy				
ICV/CCV	X			
LCS/LCSD		X		The LCS and/or LCSD recovered outside control limits for multiple analytes; the analytes were biased high in the LCS and not detected in the associated samples so the data was reported.
MS/MSD		X		Insufficient sample volume was available to perform a MS/MSD for multiple preparation batches; duplicates were performed on the LCSs for precision for these batches.
Surrogates (organics only)		X		Surrogate recovery for two preparation batches was outside the upper control limits. The RPD of the LCS and LCSD for two preparation batches recovered outside control limits for Aldrin. Surrogate recovery for MW-81 was outside the upper control limit: the target analytes was non-detect so re-analysis was not performed.
Precision				
QA/QC Sample RPDs	X			
Field Duplicates	X			Sample 93-MW-31R and duplicate sample MW-D1 had <50% RPD for the analyzed parameters. Sample 04-MW-56 and duplicate sample MW-D2 had <50% RPD for the analyzed parameters.

Appendix C-1

Summary of Groundwater Chemistry – HMSP Wells

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Antimony, mg/L (CAS NO - 7440-36-0)	4/14/2008	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.012	< 0.006	< 0.012	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A	< 0.012	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.012	< 0.03	< 0.048	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A	< 0.012	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.018	< 0.006	< 0.024	< 0.006	< 0.018	N/A	N/A	N/A	< 0.024	N/A	< 0.006	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	< 0.006	N/A	< 0.006	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	< 0.006	< 0.006	0.00604	< 0.006	< 0.006	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	< 0.006	< 0.006	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.012	< 0.012	< 0.006	N/A	< 0.012	< 0.006	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	N/A	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	< 0.006	< 0.006	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.012	< 0.006	N/A	N/A	< 0.012	N/A	N/A	N/A	N/A	< 0.012	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.024	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A
	10/24/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.00679	0.0207	0.00787	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A
	6/24/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.000778	0.00226	0.00135	< 0.006	0.00225	< 0.006	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.00435	< 0.006	< 0.006	< 0.006	< 0.006	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.006	N/A	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	N/A	< 0.006	< 0.006	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/18/2015	0.000267	0.000259	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000192	< 0.001	0.000172	0.000262	0.000223	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	0.000184*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	4/4/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.00027*	< 0.001	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000233*	< 0.001	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000788*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	0.000285*	< 0.001	< 0.001	< 0.001	0.000476*	0.000232*	< 0.001	0.000328*	0.00042*	0.00033*	< 0.001	0.00038*	< 0.001	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000546*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.003	< 0.003	< 0.003	N/A	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.003	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.002
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	< 0.001	N/A
	6/16/2020	N/A	N/A	< 0.001	0.0011	< 0.001	< 0.001	< 0.001	< 0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00245	0.00211
	11/3/2020	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	N/A	N/A	< 0.002	N/A	N/A	N/A	0.00148	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A
	4/5/2021	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	N/A	< 0.002	< 0.002	N/A	< 0.002	< 0.002	N/A	< 0.002	< 0.002	< 0.002

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Antimony, mg/L (CAS NO - 7440-36-0)	8/25/2021	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	< 0.002	N/A	N/A	< 0.002	N/A	N/A	< 0.002	< 0.002	< 0.002
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	**0.00256**	N/A	N/A	N/A	< 0.002	< 0.002	N/A	< 0.002	N/A	N/A	< 0.002	N/A	N/A	< 0.002	< 0.002	< 0.008
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	< 0.002	N/A	N/A	< 0.002	N/A	N/A	< 0.002	< 0.002	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	< 0.002	N/A	< 0.002	< 0.002	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.002	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	< 0.002	N/A	N/A	< 0.002	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic, mg/L (CAS NO - 7440-38-2)	4/14/2008	N/A	N/A	0.00198	0.00473	0.045	0.00633	0.00705	N/A	N/A	N/A	N/A	N/A	0.00158	N/A	N/A	N/A
	6/13/2008	N/A	N/A	0.0034	0.00281	0.0148	0.00243	0.014	N/A	N/A	N/A	N/A	N/A	0.00438	N/A	N/A	N/A
	8/20/2008	N/A	N/A	0.00155	0.00233	0.0324	0.00255	0.011	N/A	N/A	N/A	N/A	N/A	0.00104	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.003	0.003	0.0143	0.00199	0.00723	N/A	N/A	N/A	0.00527	N/A	0.00113	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.0105	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	0.00151	0.00652	0.0358	0.00109	0.00884	N/A	N/A	N/A	< 0.001	N/A	0.00252	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.00771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	0.00152	0.00258	0.046	0.00185	0.0126	0.00326	0.00846	< 0.001	0.00121	0.0466	0.00252	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00313	0.00162	0.0098	< 0.001	0.041	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	0.00554	N/A	0.00571	0.0115	0.0134	0.00306	0.0493	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	0.00202	0.0038	0.0578	0.00127	0.0077	0.00378	0.0141	0.00188	N/A	0.0642	0.00474	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	0.00312	N/A	0.00293	0.0131	0.00344	N/A	0.0418	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00966	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.001	0.00519	0.0103	0.00266	0.00289	< 0.003	0.0109	< 0.003	N/A	0.0669	< 0.01	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.0018	0.00123	0.0152	0.00289	0.0104	< 0.002	0.018	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	0.00238	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.00391	0.00561	0.0223	0.00474	0.011	< 0.008	0.0764	< 0.002	< 0.008	N/A	N/A	N/A	N/A	N/A
	3/4/2011	< 0.015	< 0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	< 0.006	< 0.003	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	< 0.001	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	< 0.006	< 0.008	< 0.002	< 0.001	0.0357	0.00277	N/A	< 0.004	0.0202	< 0.004	< 0.002	N/A	N/A	N/A	N/A	N/A
	10/13/2011	< 0.003	< 0.003	N/A	N/A	N/A	N/A	0.0197	N/A	N/A	N/A	N/A	< 0.001	0.0102	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0122	0.0874	0.0245	0.0076	0.0094	< 0.004	0.0973	< 0.004	< 0.004	0.01	0.087	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0083	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	0.0131	0.00369	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	0.00158	0.03	0.0153	0.00502	0.0177	< 0.004	0.0835	0.00305	0.00618	0.0122	0.019	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00259	N/A	N/A	N/A	N/A	N/A	N/A
	10/24/2012	N/A	N/A	N/A	N/A	N/A	N/A	0.0122	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	0.0107	0.00156	0.0965	0.00576	0.0123	0.00487	0.0213	0.0052	0.00526	0.00843	0.0229	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00799	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.0043	0.0024	0.0134	0.00598	0.00875	0.00612	0.00826	0.00115	0.00236	0.0106	0.0529	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.00954	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.001	0.00167	0.0302	0.00395	0.00227	< 0.001	< 0.002	0.0009	< 0.001	0.00525	0.0245	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.00217	N/A	0.00221	0.000689	0.0238	0.0011	0.00596	< 0.002	0.0152	< 0.001	N/A	0.00316	0.0208	N/A	N/A	N/A
	5/18/2015	0.00358	0.00158	< 0.002	0.00119	0.0102	0.00137	0.00233	< 0.002	0.0191	0.00121	< 0.002	0.00222	0.00525	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.00147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.002	< 0.002	< 0.002	< 0.002	**0.00529**	0.00126*	0.0019*	< 0.002	**0.0103**	< 0.002	0.00119*	0.00162*	**0.00997**	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00241**	N/A	N/A	N/A	N/A
	4/4/2016	< 0.002	< 0.002	< 0.002	< 0.002	**0.00521**	**0.00215**	0.00174*	< 0.002	**0.00568**	< 0.002	< 0.002	**0.00651**	**0.0128**	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	0.000843*	< 0.002	< 0.002	< 0.002	**0.00759**	**0.00252**	**0.00424**	< 0.002	**0.00646**	< 0.002	< 0.002	**0.00849**	**0.0254**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.002	< 0.002	< 0.002	< 0.002	**0.0949**	**0.0044**	**0.00291**	< 0.002	**0.00583**	< 0.002	< 0.002	**0.00636**	**0.0159**	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.00288**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.002	< 0.002	< 0.002	< 0.002	**0.00521**	**0.00458**	0.00165*	< 0.002	**0.0129**	< 0.002	< 0.002	**0.0075**	**0.0086**	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.00353**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.002	< 0.002	< 0.002	< 0.002	**0.0599**	**0.00482**	0.00177*	0.000566*	**0.00277**	0.000531*	< 0.002	**0.0159**	**0.0292**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00271**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	0.000455*	0.000592*	0.000497*	N/A	**0.0222**	**0.00158**	**0.00418**	**0.00157**	**0.00886**	0.000586*	0.000923*	**0.0108**	**0.0139**	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000668*	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Arsenic, mg/L (CAS NO - 7440-38-2)	4/1/2019	< 0.002	< 0.002	< 0.002	< 0.002	0.00348	0.00239	0.00512	< 0.002	0.00538	< 0.002	< 0.002	0.00425	0.0167	N/A	N/A	0.00324
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.002	< 0.002	< 0.002	< 0.002	0.00523	0.00479	0.00353	< 0.002	0.00719	< 0.002	< 0.002	0.0107	0.0239	N/A	N/A	0.000854*
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0123	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	0.00311	N/A
	6/16/2020	N/A	N/A	< 0.002	0.00863	0.00282	0.00448	0.00619	< 0.008	0.00718	< 0.002	< 0.002	0.00349	0.0193	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0169	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0067	0.00424
	11/3/2020	< 0.002	N/A	N/A	N/A	0.0384	0.00751	0.00393	< 0.002	N/A	N/A	0.00141*	N/A	0.0259	N/A	0.00147*	N/A
	11/3/2020	N/A	N/A	N/A	N/A	0.0395	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00211
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00233	N/A
	4/5/2021	< 0.002	N/A	< 0.002	0.00824	0.00247	0.00273	0.00579	< 0.002	0.00446	< 0.002	< 0.002	0.00117*	0.0198	< 0.002	< 0.002	0.000942*
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	0.00576*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.0042	0.00346	0.00466	< 0.002	N/A	N/A	< 0.002	N/A	0.0228	< 0.002	< 0.002	0.0011*
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.00208	N/A	0.00193*	N/A	0.0419	0.00428	0.0037	< 0.002	0.00565	< 0.002	< 0.002	0.0012*	0.0406	< 0.002	< 0.002	< 0.008
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	0.00566	0.00407	0.0045	< 0.002	N/A	N/A	< 0.002	N/A	0.0235	< 0.002	< 0.002	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	0.00582	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A
	2/21/2023	N/A	N/A	< 0.002	0.00886	0.00563	0.00164*	0.00591	< 0.002	0.00509	< 0.002	< 0.002	0.000904*	0.0247	< 0.002	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.00222	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.002	N/A	N/A	N/A	0.0223	0.00466	0.00475	< 0.002	N/A	N/A	< 0.002	N/A	0.0187	< 0.002	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.00466	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Barium, mg/L (CAS NO - 7440-39-3)	4/14/2008	N/A	N/A	0.0401	0.642	0.0246	0.0118	0.0284	N/A	N/A	N/A	N/A	N/A	0.0355	N/A	N/A	N/A
	6/13/2008	N/A	N/A	0.078	0.262	0.0215	0.0174	0.0327	N/A	N/A	N/A	N/A	N/A	0.0555	N/A	N/A	N/A
	8/20/2008	N/A	N/A	0.182	2.64	0.411	0.0288	0.154	N/A	N/A	N/A	N/A	N/A	0.152	N/A	N/A	N/A
	9/30/2008	N/A	N/A	0.0257	0.278	0.0182	0.0127	0.0459	N/A	N/A	N/A	0.069	N/A	0.0362	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.0307	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	0.0401	0.734	0.0178	0.0147	0.0792	N/A	N/A	N/A	0.0216	N/A	0.0575	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.0487	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	0.0298	0.464	< 0.01	0.0126	0.0311	0.018	0.0347	0.057	0.0171	0.508	0.0447	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0247	0.0277	0.458	0.0203	0.499	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	0.0117	N/A	0.0253	0.0559	0.417	0.0275	0.547	N/A	N/A	N/A	N/A
	10/22/2009	N/A	N/A	0.0256	1.39	0.0102	0.015	0.0313	0.0185	0.0951	0.0735	N/A	0.547	0.0693	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	0.0304	N/A	0.0213	0.135	0.0918	N/A	0.584	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	0.0389	0.865	< 0.01	0.0151	0.0221	0.0187	0.148	0.0547	N/A	0.396	0.0444	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.137	0.124	0.0134	0.0201	0.0598	0.0171	0.148	0.0562	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	0.337	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.0773	0.585	< 0.01	0.0156	0.0289	0.0189	0.108	0.0896	0.0176	N/A	N/A	N/A	N/A	N/A
	3/4/2011	0.0342	0.0207	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	0.0161	0.0319	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	0.0312	0.015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	0.0245	< 0.01	0.0145	0.0803	< 0.01	< 0.01	N/A	0.0153	0.098	0.0509	0.0146	N/A	N/A	N/A	N/A	N/A
	10/13/2011	0.0301	0.013	N/A	N/A	N/A	N/A	0.0565	N/A	N/A	N/A	N/A	0.145	0.12	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.127	1.53	0.0928	0.125	0.0464	0.0675	1.23	0.0571	0.0253	0.215	0.629	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	0.0117	0.409	N/A	N/A	0.0169	N/A	N/A	N/A	N/A	0.123	N/A	N/A	N/A
	8/8/2012	N/A	N/A	0.0568	1.69	0.0147	0.0208	0.043	0.0263	0.272	0.116	0.0431	0.187	0.122	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.105	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	0.0574	0.175	0.0229	0.0218	0.0248	0.0146	0.0484	0.0782	0.041	0.208	0.13	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0375	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.0657	0.19	0.00645	0.0418	0.0192	0.0133	0.0463	0.0684	0.0382	0.148	0.127	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0168	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.043	0.401	0.0217	0.0386	0.0177	0.00567	0.075	0.0882	0.0225	0.145	0.145	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.0349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.048	N/A	0.0516	0.187	0.0032	0.0291	0.0187	0.0102	0.0545	0.076	N/A	0.234	0.129	N/A	N/A	N/A
	5/18/2015	0.0369	0.0185	0.0323	0.0904	0.0084	0.0102	0.0198	0.0125	0.0452	0.0581	0.0187	0.131	0.138	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.0102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Barium, mg/L (CAS NO - 7440-39-3)	8/12/2015	0.0288	0.0149	0.0296	0.0666	0.00934	0.0108	0.0224	0.017	0.0479	0.0387	0.0221	0.0675	0.137	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0645	N/A	N/A	N/A	N/A
	4/4/2016	0.0224	0.0113	0.0173	0.0787	0.00613	0.00929	0.0166	0.00847	0.025	0.0333	0.0161	0.178	0.153	N/A	N/A	N/A
	4/4/2016	N/A	N/A	0.0207	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	0.0292	0.0142	0.0208	0.0695	0.00853	0.0122	0.027	0.0117	0.0525	0.0367	0.0184	0.196	0.277	N/A	N/A	N/A
	9/13/2016	N/A	N/A	0.0206	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	0.0261	0.0129	0.0266	0.0612	0.00785	0.0104	0.0243	0.00962	0.128	0.0334	0.0162	0.171	0.239	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.0248	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	0.026	0.0114	0.0215	0.0679	0.00817	0.0102	0.0196	0.0101	0.0619	0.0334	0.0166	0.232	0.209	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0101	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.0229	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	0.0284	0.0112	0.0202	0.0649	0.00793	0.0103	0.0233	0.0112	0.0281	0.045	0.018	0.316	0.271	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0287	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	0.0233	0.0113	0.0179	N/A	0.00914	0.015	0.0199	0.0251	0.0695	0.0343	0.0154	0.355	0.133	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0339	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	0.0693	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	0.0242	0.0116	0.019	0.0476	0.00866	0.0158	0.02	0.0119	0.0348	0.0288	0.0144	0.315	0.201	N/A	N/A	0.0138
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0151	N/A	N/A	N/A	N/A	N/A
	8/26/2019	0.0245	0.012	0.0194	0.0699	0.00906	0.017	0.0211	0.0129	0.0458	0.0355	0.0156	0.423	0.197	N/A	N/A	0.0135
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.439	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0159	N/A	N/A	N/A	0.116	N/A
	6/16/2020	N/A	N/A	0.0611	0.167	0.00729	0.0155	0.0212	0.00376	0.0402	0.0384	0.0134	0.321	0.194	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.148	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.148	0.026
	9/22/2020	N/A	N/A	0.0165	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/3/2020	0.023	N/A	N/A	N/A	0.00836	0.0145	0.0226	0.0111	N/A	N/A	0.0144	N/A	0.266	N/A	0.0361	N/A
	11/3/2020	N/A	N/A	N/A	N/A	0.00845	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0334
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.051	N/A
	4/5/2021	0.0268	N/A	0.0225	0.182	0.0084	0.0176	0.0191	0.0137	0.0429	0.0429	0.0157	0.281	0.216	0.0769	0.0349	0.0233
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	0.0195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.00868	0.0174	0.0198	0.0115	N/A	N/A	0.0137	N/A	0.243	0.0579	0.0378	0.0205
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0117	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.0249	N/A	0.0219	N/A	0.0109	0.0157	0.0283	0.00997	0.051	0.0323	0.0149	0.228	0.361	0.0626	0.0381	0.0169
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0106	N/A	0.0323	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	0.00836	0.0163	0.0234	0.0116	N/A	N/A	0.013	N/A	0.195	0.0579	0.0362	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0133	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	0.158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0695	N/A	N/A
	2/21/2023	N/A	N/A	0.0188	0.136	0.00835	0.0136	0.0239	0.0154	0.0291	0.0305	0.0164	0.203	0.289	0.0671	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.0133	N/A	N/A	N/A	N/A	0.0142	N/A	N/A	N/A	N/A	N/A
	7/25/2023	0.024	N/A	N/A	N/A	0.00939	0.0148	0.0279	0.0107	N/A	N/A	0.0141	N/A	0.217	0.0668	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.028	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium, mg/L (CAS NO - 7440-41-7)	4/14/2008	N/A	N/A	< 0.001	0.00953	0.00886	< 0.001	0.00107	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.001	0.00212	0.00266	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.001	0.00656	0.00978	< 0.001	0.00124	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.001	0.00306	0.00338	< 0.001	0.00147	N/A	N/A	N/A	0.00528	N/A	< 0.001	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.001	0.0104	0.00154	0.00114	0.00394	N/A	N/A	N/A	< 0.001	N/A	< 0.001	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.00254	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.001	0.00752	0.00138	0.00105	0.00156	0.00112	0.00254	0.00274	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	< 0.001	0.035	0.00116	< 0.001	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	0.0027	0.00142	< 0.1	0.00119	< 0.001	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.001	0.021	< 0.001	0.00112	0.00117	0.00318	< 0.001	0.0022	N/A	0.0017	< 0.004	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00278	0.00107	0.00368	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.001	0.00588	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.001	0.00218	< 0.001	0.0014	0.00204	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.001	0.0128	< 0.001	0.00167	< 0.001	< 0.001	< 0.001	0.00377	< 0.001	N/A	N/A	N/A	N/A	N/A
	3/4/2011	0.00126	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	< 0.001	0.00107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	0.00133	0.00118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	< 0.001	< 0.001	0.00435	< 0.001	< 0.001	< 0.001	N/A	0.00177	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A	N/A	N/A
	10/13/2011	< 0.001	< 0.001	N/A	N/A	N/A	N/A	0.00184	N/A	N/A	N/A	N/A	< 0.001	0.00623	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Beryllium, mg/L (CAS NO - 7440-41-7)	2/20/2012	N/A	N/A	< 0.004	0.0063	< 0.004	< 0.004	< 0.004	< 0.004	0.0041	< 0.004	< 0.004	< 0.004	0.0078	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.001	0.0056	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	0.00524	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.001	0.0325	0.00142	< 0.001	0.00101	0.00992	0.0138	0.00299	0.00189	0.00164	0.00332	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00397	N/A	N/A	N/A	N/A	N/A	N/A
	10/24/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.001	0.00251	0.00709	0.00156	< 0.001	0.00162	< 0.001	0.00315	0.0012	0.00134	0.00321	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00183	N/A	N/A	N/A	N/A	N/A
	6/24/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00269	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.000582	0.00192	0.000783	0.00285	0.000429	0.00218	0.000592	0.00113	0.000559	0.00151	0.00588	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.000661	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.001	0.00443	0.00892	0.00182	< 0.001	0.000804	0.00233	0.00553	0.000534	0.00196	0.00266	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.00933	N/A	0.000711	0.00114	0.000386	0.00188	0.000385	0.000402	0.000295	0.00247	N/A	0.00449	0.00125	N/A	N/A	N/A
	5/18/2015	0.00195	0.00155	< 0.001	0.000353	0.000086	0.000057	0.000042	0.000332	0.000206	0.000491	< 0.001	< 0.001	0.000143	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.000097	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	0.000167*	< 0.001	0.000113*	0.000116*	< 0.001	0.000144*	0.000411*	0.000298*	< 0.001	0.000069*	0.000128*	0.000169*	0.000465*	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000068*	N/A	N/A	N/A	N/A
	4/4/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000272*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000427*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000295*	< 0.001	0.000403*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000475*	< 0.001	< 0.001	< 0.001	< 0.001	0.000249*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000413*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	0.00021*	< 0.001	< 0.001	< 0.001	0.000336*	0.000216*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.001	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0014	N/A	N/A	N/A	0.000362*	N/A
	6/16/2020	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0054	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00156	0.00108
	11/3/2020	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	0.000322*	N/A	N/A	0.00188	N/A	N/A	N/A	< 0.001	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	4/5/2021	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	0.000308*	< 0.001	N/A	< 0.001	< 0.001	< 0.001
	8/25/2021	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	0.000878*	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	< 0.001
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.000864*	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.004	N/A	N/A	< 0.004	N/A	N/A	< 0.001	< 0.001	< 0.004
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	0.000317*	N/A	< 0.001	< 0.001	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium, mg/L (CAS NO - 7440-43-9)	4/14/2008	N/A	N/A	< 0.0005	0.00496	0.000533	0.00136	< 0.0005	N/A	N/A	N/A	N/A	N/A	0.00391	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.0005	0.00152	0.000557	0.00326	< 0.0005	N/A	N/A	N/A	N/A	N/A	0.00304	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.0005	0.00428	0.000689	0.00171	0.000952	N/A	N/A	N/A	N/A	N/A	0.00266	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.0005	0.00184	0.000542	0.00186	0.000873	N/A	N/A	N/A	0.000557	N/A	0.00228	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.000853	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	0.000581	0.00752	0.000602	0.002	0.00168	N/A	N/A	N/A	< 0.0005	N/A	0.00125	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	0.0012	0.00648	0.00104	0.00532	0.00504	0.00452	0.0064	0.00294	0.000699	0.00122	0.00308	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00548	0.00155	0.0182	0.000659	0.00122	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Cadmium, mg/L (CAS NO - 7440-43-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	0.00165	N/A	0.0124	0.000786	0.000694	< 0.0005	0.00122	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	0.000649	0.00588	0.00214	0.00408	0.00548	0.00938	0.00095	0.00149	N/A	0.00544	0.00988	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	0.0252	N/A	0.00492	0.00073	0.00192	N/A	0.0066	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00159	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	0.00248	0.00388	0.000981	0.0029	0.00179	0.00619	< 0.0005	0.000803	N/A	0.00392	0.0019	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.00176	0.00204	< 0.0005	0.00381	0.00437	0.00316	0.000881	0.00382	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	0.00191	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.00112	0.00713	0.00128	0.00348	0.00131	0.00275	0.0007	0.00114	0.00752	N/A	N/A	N/A	N/A	N/A
	3/4/2011	0.00616	0.00254	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	0.00187	0.00422	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	0.00264	0.00224	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	0.000934	0.00272	0.0074	0.00165	< 0.0005	0.00279	N/A	0.00495	0.00404	0.00106	0.00906	N/A	N/A	N/A	N/A	N/A
	10/13/2011	0.00883	0.002	N/A	N/A	N/A	N/A	0.00524	N/A	N/A	N/A	N/A	0.00127	0.00212	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0014	0.0108	0.0036	0.0083	0.0022	0.0049	0.02	0.0009	0.0022	< 0.0008	0.0133	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	0.000809	0.00351	N/A	N/A	0.00343	N/A	N/A	N/A	N/A	0.0011	N/A	N/A	N/A
	8/8/2012	N/A	N/A	0.00183	0.031	0.00416	0.00704	0.0116	0.00565	0.0388	0.00129	0.000656	0.000962	0.00124	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00156	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	0.00272	0.0107	0.00234	0.00262	0.00253	0.00399	0.0108	0.00228	0.00263	0.00104	< 0.0005	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000889	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.0133	0.00173	0.00109	0.0144	0.00163	0.00164	0.00392	0.00089	0.00028	0.00108	0.00157	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.00261	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/21/2013	N/A	N/A	0.00343	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.00182	0.00347	0.000147	0.0157	0.00758	0.00128	0.000897	0.00148	0.00187	0.00491	0.00684	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.00253	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.00133	N/A	0.000796	0.00113	0.000232	0.0127	0.000675	0.00189	0.00128	0.00119	N/A	0.000879	0.000662	N/A	N/A	N/A
	5/18/2015	0.000612	0.00132	0.000868	0.000395	0.000142	0.00303	0.000994	0.00212	0.0022	0.000639	0.000407	0.00062	0.0009	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.00292	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	0.000157*	0.000484*	0.000258*	**0.000504**	< 0.0005	**0.00214**	0.000495*	**0.0017**	< 0.0005	0.000169*	0.000156*	< 0.0005	< 0.0005	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A
	4/4/2016	0.000069*	< 0.0005	0.000078*	0.000487*	< 0.0005	0.000496*	0.000092*	**0.000699**	0.000295*	0.00012*	0.000089*	< 0.0005	< 0.0005	N/A	N/A	N/A
	4/4/2016	N/A	N/A	0.000065*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	0.000052*	< 0.0005	0.000089*	0.000483*	0.000055*	**0.00221**	0.000172*	0.000095*	< 0.0005	0.000133*	0.000149*	< 0.0005	0.000062*	N/A	N/A	N/A
	9/13/2016	N/A	N/A	0.000102*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	0.000042*	0.000071*	0.000199*	0.00049*	0.00009*	**0.00097**	0.000066*	0.00009*	0.000079*	0.000198*	0.000058*	< 0.0005	0.000061*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000089*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	0.000113*	< 0.0005	0.000176*	0.00038*	0.000089*	0.000221*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000077*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	**0.00054**	< 0.0005	0.000139*	**0.00063**	0.000319*	**0.000761**	0.000217*	**0.0025**	0.000098*	0.000439*	0.000184*	0.000086*	**0.000735**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000076*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	0.000217*	< 0.0005	**0.000777**	N/A	0.000221*	**0.000921**	< 0.0005	**0.000704**	< 0.0005	0.000266*	**0.000711**	< 0.0005	< 0.0005	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	0.000327*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/14/2019	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000806**	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.0005	< 0.0005	< 0.0005	0.000189*	< 0.0005	0.000235*	< 0.0005	0.000451*	< 0.0005	< 0.0005	0.000223*	< 0.0005	< 0.0005	N/A	N/A	< 0.001
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00023*	N/A	N/A	N/A	N/A	N/A
	8/26/2019	**0.000622**	**0.00013**	**0.000102**	**0.000488**	< 0.0001	**0.000488**	0.000047*	**0.000141**	< 0.0001	0.00005*	**0.00105**	< 0.0001	< 0.0001	N/A	N/A	< 0.0001
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001	N/A	N/A	N/A	N/A
	11/19/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00776**	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00554**	N/A	N/A	N/A	**0.000147**	N/A
	6/16/2020	N/A	N/A	0.000094*	**0.00149**	< 0.0001	0.000081*	< 0.0001	**0.00919**	< 0.0001	< 0.0001	**0.00152**	< 0.0001	0.00007*	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000077*	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000805**	< 0.0001
	11/3/2020	0.000066*	N/A	N/A	N/A	< 0.0001	**0.00148**	**0.000131**	**0.000109**	N/A	N/A	**0.0033**	N/A	< 0.0001	N/A	**0.000443**	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.0001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000066**
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000511**	N/A
	4/5/2021	< 0.0001	N/A	0.000091*	**0.000263**	< 0.0001	**0.000332**	< 0.0001	**0.000791**	< 0.0001	0.000056*	**0.00168**	< 0.0001	< 0.0001	**0.000264**	**0.000182**	**0.000746**
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.000092*	**0.000595**	< 0.0001	0.000092*	N/A	N/A	**0.00211**	N/A	< 0.0001	**0.000121**	**0.000198**	< 0.0001
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000082*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	**0.001**	N/A	**0.000873**	N/A	< 0.0001	**0.000164**	< 0.0001	< 0.0004	< 0.0001	< 0.0001	**0.0007**	< 0.0001	< 0.0001	0.000066*	**0.000206**	< 0.0004
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0001	N/A	< 0.0001	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.0001	**0.00027**	**0.000376**	**0.00018**	N/A	N/A	**0.000527**	N/A	< 0.0001	**0.000126**	**0.000133**	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000614**	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Cadmium, mg/L (CAS NO - 7440-43-9)	8/1/2022	N/A	N/A	N/A	**0.00101**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000076*	N/A	N/A
	2/21/2023	N/A	N/A	**0.000216**	**0.000463**	< 0.0001	**0.000629**	< 0.0001	**0.000216**	**0.000151**	< 0.0001	**0.00267**	< 0.0001	< 0.0001	0.000062*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	**0.000617**	N/A	N/A	N/A	N/A	**0.000771**	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.0002	N/A	N/A	N/A	< 0.0002	**0.000616**	< 0.0002	< 0.0002	N/A	N/A	**0.000637**	N/A	< 0.0002	< 0.0002	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium, mg/L (CAS NO - 7440-47-3)	4/14/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/20/2008	N/A	N/A	0.0361	0.431	0.447	< 0.02	0.039	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	0.0214	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	< 0.02	N/A	< 0.02	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A
	3/4/2011	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A
	10/13/2011	< 0.02	< 0.02	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	< 0.02	0.0206	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.02	0.174	0.0364	0.0311	< 0.02	< 0.02	0.0987	< 0.02	< 0.02	< 0.02	0.197	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.02	< 0.02	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.02	< 0.02	0.00237	0.00335	< 0.02	< 0.02	0.00206	< 0.02	< 0.02	0.00914	0.0128	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.02	0.00267	0.0137	0.00173	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.00435	< 0.02	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.00462	N/A	0.00521	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	0.0172	< 0.02	N/A	N/A	N/A
	5/18/2015	< 0.025	< 0.025	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00193	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	4/4/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000771*	< 0.005	< 0.005	0.0007*	< 0.005	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000619*	< 0.005	< 0.005	0.000536*	0.000541*	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000431*	0.000418*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000826*	< 0.005	< 0.005	0.000925*	< 0.005	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.005	< 0.005	< 0.005	< 0.005	0.000869*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00126*	0.000911*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	0.00134*	0.00132*	0.00147*	< 0.005	0.00133*	0.00209*	0.00138*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00116*	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00116*	< 0.005	N/A	N/A	< 0.005
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.005	0.00339*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	**0.0283**	< 0.005	N/A	N/A	< 0.005
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0014*	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	**0.00887**	N/A
	6/16/2020	N/A	N/A	< 0.005	0.00143*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.014**	0.00135*

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chromium, mg/L (CAS NO - 7440-47-3)	11/3/2020	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	N/A	< 0.005	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A
	4/5/2021	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	< 0.02
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cobalt, mg/L (CAS NO - 7440-48-4)	4/14/2008	N/A	N/A	< 0.02	0.0826	0.0552	0.0365	0.0367	N/A	N/A	N/A	N/A	N/A	0.0387	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.02	0.0328	0.0387	0.0419	0.0574	N/A	N/A	N/A	N/A	N/A	0.0483	N/A	N/A	N/A
	8/20/2008	N/A	N/A	0.0201	0.218	0.299	0.0443	0.0738	N/A	N/A	N/A	N/A	N/A	0.0531	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.02	0.0455	0.0636	0.0406	0.0335	N/A	N/A	N/A	0.0567	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.02	0.131	0.0681	0.0423	0.052	N/A	N/A	N/A	< 0.02	N/A	0.0332	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.02	0.0695	0.049	0.0422	0.0366	0.105	0.0317	< 0.02	< 0.02	0.055	0.0664	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0747	< 0.02	0.0403	< 0.02	0.0538	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	0.0489	N/A	0.101	< 0.02	0.0721	< 0.02	0.0633	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.02	0.0767	0.0456	0.049	< 0.02	0.0793	< 0.02	< 0.02	N/A	0.0704	0.0448	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	0.061	N/A	0.111	0.0381	< 0.02	N/A	0.0832	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.029	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	0.0169	0.0644	0.0387	0.059	0.0137	0.0942	0.0216	0.00208	N/A	0.0931	0.013	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.0131	0.0161	0.0345	0.0596	0.0391	0.0723	0.0396	< 0.00155	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	0.0076	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.0292	0.095	0.048	0.0471	0.0252	0.093	0.0562	0.00351	0.00483	N/A	N/A	N/A	N/A	N/A
	3/4/2011	0.0465	0.00669	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	0.0042	0.0178	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	0.0143	0.0101	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	0.0112	0.00194	0.0704	0.00761	0.0381	0.0472	N/A	0.0662	0.0206	< 0.00155	0.0119	N/A	N/A	N/A	N/A	N/A
	10/13/2011	0.014	0.00337	N/A	N/A	N/A	N/A	0.0547	N/A	N/A	N/A	N/A	0.00818	0.0454	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0185	0.0827	0.0624	0.0768	0.0222	0.0841	0.114	0.0015	0.0058	0.0049	0.128	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	0.0512	0.0577	N/A	N/A	0.0622	N/A	N/A	N/A	N/A	0.00815	N/A	N/A	N/A
	8/8/2012	N/A	N/A	0.00783	0.34	0.0644	0.0994	0.029	0.0445	0.188	0.00639	0.0311	0.0121	0.00636	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00748	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	0.0381	0.0312	0.122	0.131	0.0217	0.109	0.0317	0.00801	0.0309	0.00482	0.00757	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0239	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.0112	0.015	0.0716	0.155	0.0247	0.0308	0.0225	< 0.00132	0.00952	0.0124	0.0166	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.024	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.0343	0.0753	0.0835	0.102	0.0136	0.0669	0.0399	0.00355	0.00505	0.00596	0.0331	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.035	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0283	N/A	0.0314	0.014	0.0838	0.133	0.0266	0.0668	0.0201	0.00827	N/A	0.0221	0.00504	N/A	N/A	N/A
	5/18/2015	0.0198	0.0159	0.0102	0.0017	0.0877	0.136	0.0256	0.0401	0.0478	0.00153	0.00356	0.00227	0.0346	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.137	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	**0.00323**	**0.00108**	**0.0124**	**0.00138**	**0.102**	**0.0979**	**0.0121**	**0.0447**	**0.0267**	**0.000558**	**0.00473**	0.000261*	**0.0143**	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000419*	N/A	N/A	N/A	N/A
	4/4/2016	0.000046*	0.00011*	0.000186*	**0.000955**	**0.0898**	**0.128**	**0.0147**	**0.0238**	**0.0274**	0.00023*	**0.000811**	**0.000898**	**0.0173**	N/A	N/A	N/A
	4/4/2016	N/A	N/A	0.000122*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	**0.00935**	**0.012**	**0.00285**	**0.00231**	**0.0722**	**0.0998**	**0.0193**	**0.0271**	**0.0103**	0.000264*	**0.00291**	0.000441*	**0.0163**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	**0.00278**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	**0.00833**	**0.00558**	**0.00478**	**0.00391**	**0.0848**	**0.119**	**0.0196**	**0.0249**	**0.00399**	0.000172*	**0.00108**	0.000242*	**0.00282**	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0202**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	**0.00104**	**0.000722**	**0.00269**	**0.00173**	**0.0833**	**0.116**	**0.0203**	**0.0267**	**0.00911**	0.000337*	**0.00256**	**0.00102**	**0.00818**	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0265**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/19/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0263**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0194**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	**0.00279**	0.000121*	0.000177*	**0.00517**	**0.0662**	**0.118**	**0.0175**	**0.016**	**0.0168**	0.000129*	0.000213*	**0.00196**	**0.00761**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0161**	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Cobalt, mg/L (CAS NO - 7440-48-4)	10/2/2018	0.0009*	0.000695*	0.000922*	N/A	0.0281	0.0567	0.0211	0.0213	0.00554	< 0.001	0.00249	0.00119	0.0149	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000431*	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	0.000446*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.0005	0.000119*	0.000126*	0.000231*	0.108	0.107	0.0284	0.00314	0.0146	0.000293*	0.000195*	0.00155	0.00865	N/A	N/A	0.247
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00023*	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.0005	0.0038	0.00388	0.000951	0.103	0.115	0.0384	0.033	0.00678	0.000474*	0.0195	0.00209	0.00804	N/A	N/A	0.0596
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00228	N/A	N/A	N/A	N/A
	11/19/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.118	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0038	N/A	N/A	N/A	0.002	N/A
	6/16/2020	N/A	N/A	< 0.0005	0.124	0.0905	0.103	0.0309	0.129	0.00962	0.00081	0.00131	0.000884	0.00424	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0055	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0105	0.0441
	11/3/2020	0.000567	N/A	N/A	N/A	0.0363	0.105	0.0243	0.0337	N/A	N/A	0.05	N/A	0.00378	N/A	0.00331	N/A
	11/3/2020	N/A	N/A	N/A	N/A	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0536
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0127	N/A
	4/5/2021	0.000094*	N/A	0.00017*	0.0682	0.0795	0.122	0.0232	0.0381	0.0106	0.000582	0.000349*	0.000611	0.00758	0.000439*	0.0113	0.0234
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	0.0248	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.0407	0.119	0.0201	0.0344	N/A	N/A	0.00219	N/A	0.00321	0.000224*	0.0132	0.0272
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.00099	N/A	0.00118	N/A	0.0448	0.119	0.0174	0.0191	0.017	0.000462*	0.0013*	0.000452*	0.00496	< 0.0005	0.0132	0.00846
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0185	N/A	0.000474*	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	0.0871	0.132	0.0191	0.0306	N/A	N/A	0.000534	N/A	0.0044	< 0.0005	0.00999	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000606	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	0.0186	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/6/2022	N/A	N/A	N/A	N/A	N/A	0.128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000312*	N/A	N/A
	2/21/2023	N/A	N/A	0.000404*	0.0402	0.0417	0.0714	0.0153	0.00192	0.0186	0.000604	0.00129	0.000464*	0.00407	0.000193*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.0731	N/A	N/A	N/A	N/A	0.00716	N/A	N/A	N/A	N/A	N/A
	7/25/2023	0.000262*	N/A	N/A	N/A	0.0219	0.106	0.015	0.0315	N/A	N/A	0.000686	N/A	0.00327	0.00022*	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.0149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper, mg/L (CAS NO - 7440-50-8)	4/14/2008	N/A	N/A	0.0209	0.127	0.0427	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.02	0.0505	0.0254	0.0228	< 0.02	N/A	N/A	N/A	N/A	N/A	0.0202	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.02	0.388	0.291	0.0267	0.0497	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.02	0.0532	0.0243	< 0.02	< 0.02	N/A	N/A	N/A	0.0353	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.02	0.15	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	< 0.02	N/A	0.0205	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.02	0.104	< 0.02	0.0258	< 0.02	< 0.02	0.0666	0.0236	< 0.02	< 0.02	0.03	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	0.0279	0.0974	< 0.02	< 0.02	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	< 0.02	< 0.02	0.04	< 0.02	< 0.02	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.02	0.0763	< 0.02	0.0215	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	0.0433	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	< 0.02	0.035	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.02	0.0788	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	0.0322	< 0.02	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.02	< 0.02	0.0219	0.0368	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	0.0329	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.02	0.199	< 0.02	< 0.02	< 0.02	< 0.02	0.0235	0.0292	< 0.02	N/A	N/A	N/A	N/A	N/A
	3/4/2011	0.0309	0.0865	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	0.0571	0.0569	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	0.0267	0.0314	0.0249	< 0.02	0.0432	< 0.02	N/A	0.0261	0.0225	0.0289	0.0458	N/A	N/A	N/A	N/A	N/A
	10/13/2011	0.0311	0.0206	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	< 0.02	0.0345	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.02	0.253	0.0394	0.0736	< 0.02	< 0.02	0.276	< 0.02	< 0.02	< 0.02	0.25	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.02	0.0703	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.02	0.21	0.0341	0.0234	< 0.02	0.0246	0.254	0.0342	< 0.02	0.0294	< 0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0343	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.02	0.0355	0.037	0.0269	< 0.02	< 0.02	0.0733	0.0223	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.02	0.0393	0.0134	0.0721	0.00492	0.00806	0.0137	0.0119	< 0.02	0.0197	0.00418	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.00627	0.0841	< 0.02	0.101	< 0.02	< 0.02	0.00999	0.0377	0.00409	0.0178	0.0264	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.00853	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0258	N/A	0.00707	0.0261	0.00502	0.0668	0.00852	< 0.02	< 0.02	0.0225	N/A	0.0222	0.00555	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Copper, mg/L (CAS NO - 7440-50-8)	5/18/2015	0.0274	0.0783	0.00324	0.0119	0.00552	0.00442	0.00322	0.00132	0.00451	0.0102	0.00372	0.00443	0.0126	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.00442	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	0.00191*	**0.00837**	0.000958*	**0.00263**	< 0.002	**0.00219**	0.00174*	0.000968*	< 0.002	0.000537*	**0.00275**	< 0.002	0.000901*	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000835*	N/A	N/A	N/A	N/A
	4/4/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00179*	< 0.005	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.005	0.00239*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00173*	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.005	0.00226*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.005	< 0.005	< 0.005	< 0.005	**0.0136**	< 0.005	< 0.005	0.00356*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	0.000562*	0.00163*	**0.00313**	N/A	0.000601*	**0.00326**	0.000536*	0.00165*	0.00123*	**0.00266**	0.00095*	0.00083*	0.000663*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00173*	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00265*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	**0.00561**	N/A
	6/16/2020	N/A	N/A	0.0024*	**0.00847**	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0114**	0.00219*
	11/3/2020	< 0.005	N/A	N/A	N/A	0.00152*	< 0.005	< 0.005	< 0.005	N/A	N/A	**0.00601**	N/A	< 0.005	N/A	< 0.005	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00428**	N/A
	4/5/2021	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.002*	N/A	0.00194*	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.02
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	< 0.005	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00203*	0.00224*	< 0.005	0.00217*	< 0.005	< 0.005	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.00206*	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	< 0.005	0.0042*	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead, mg/L (CAS NO - 7439-92-1)	4/14/2008	N/A	N/A	< 0.004	0.0149	0.00406	< 0.004	< 0.004	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.004	0.00877	< 0.004	< 0.004	0.00481	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.004	0.0119	0.00425	< 0.004	0.00496	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.004	0.0119	< 0.004	< 0.004	0.00544	N/A	N/A	N/A	< 0.004	N/A	< 0.004	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.004	0.017	< 0.004	< 0.004	0.00537	N/A	N/A	N/A	< 0.004	N/A	0.00715	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	0.00515	0.0156	< 0.004	< 0.004	0.0064	< 0.004	0.0121	0.0142	< 0.004	< 0.004	< 0.004	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00706	0.00561	0.0923	< 0.004	0.00513	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	0.00717	0.0114	0.0367	< 0.004	0.00495	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.004	0.013	< 0.004	0.00554	0.00716	0.00769	0.0059	0.0114	N/A	0.00455	0.00936	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00663	0.00489	0.02	N/A	0.0132	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.004	0.0124	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	0.00708	N/A	0.0145	< 0.004	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.00473	0.00901	< 0.004	0.00791	0.0161	< 0.004	0.00554	0.00432	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.00765	0.0204	< 0.004	0.00998	0.00963	< 0.004	< 0.004	0.0185	< 0.004	N/A	N/A	N/A	N/A	N/A
	3/4/2011	0.00711	0.00444	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	< 0.004	0.00815	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	0.00643	0.00463	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	< 0.004	< 0.004	0.0042	< 0.004	< 0.004	< 0.004	N/A	< 0.004	< 0.004	0.00518	< 0.004	N/A	N/A	N/A	N/A	N/A
	10/13/2011	< 0.004	< 0.004	N/A	N/A	N/A	N/A	0.0119	N/A	N/A	N/A	N/A	< 0.004	0.0167	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Lead, mg/L (CAS NO - 7439-92-1)	2/20/2012	N/A	N/A	0.0218	0.121	0.0475	0.0384	0.0093	0.0132	0.128	0.0106	0.0048	0.0069	0.203	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0136	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	0.00652	< 0.004	0.0123	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	0.00966	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.004	0.0204	0.022	0.00815	0.0141	0.0159	0.0241	0.0154	0.011	0.0183	0.0106	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0159	N/A	N/A	N/A	N/A	N/A	N/A
	10/24/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00526	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	0.00963	0.00799	0.0165	0.00758	< 0.004	0.00429	0.0132	0.0152	0.00675	0.00685	< 0.004	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00918	N/A	N/A	N/A	N/A	N/A
	6/24/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00865	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.0099	0.0113	0.0151	0.0199	0.00783	0.0107	0.00792	0.0102	0.00536	0.011	0.0118	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.00475	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.004	0.00897	< 0.008	0.00722	< 0.004	< 0.004	< 0.004	0.0124	< 0.004	0.0108	0.00588	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0307	N/A	0.00968	0.0069	0.00242	0.0104	0.00309	< 0.004	0.00115	0.0125	N/A	0.0269	0.00127	N/A	N/A	N/A
	5/18/2015	0.0208	0.0104	0.000427	0.00327	0.00255	0.000426	0.000967	0.000324	0.00688	0.00539	0.000468	0.000459	0.00204	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.000383	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	**0.00232**	0.000218*	**0.00097**	**0.00126**	0.000112*	0.00021*	**0.0007**	0.000263*	0.000161*	**0.000552**	**0.000585**	0.000422*	0.000293*	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00112**	N/A	N/A	N/A	N/A
	4/4/2016	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.00047*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000313*	0.000282*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	**0.000694**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.0005	0.000287*	0.000348*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000211*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000218*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	**0.000553**	< 0.0005	< 0.0005	0.000459*	0.000431*	< 0.0005	< 0.0005	< 0.0005	0.000491*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	**0.00179**	< 0.0005	< 0.0005	0.000483*	**0.00362**	**0.0021**	0.000434*	**0.00335**	< 0.0005	**0.000505**	**0.00528**	**0.000589**	**0.00211**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/22/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000879**	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.0005	< 0.0005	0.000341*	N/A	< 0.0005	0.000353*	0.000243*	**0.000559**	0.000401*	0.000332*	**0.00052**	< 0.0005	**0.000574**	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	< 0.0005
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	< 0.0005
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000399*	N/A	N/A	N/A	**0.00347**	N/A
	6/16/2020	N/A	N/A	< 0.0005	**0.00381**	< 0.0005	< 0.0005	< 0.0005	0.000222*	0.000112*	< 0.0005	< 0.0005	< 0.0005	0.000154*	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000291*	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00498**	< 0.0005
	11/3/2020	< 0.0005	N/A	N/A	N/A	0.000159*	**0.000503**	0.000331*	0.000136*	N/A	N/A	**0.00278**	N/A	< 0.0005	N/A	0.000152*	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.000177**
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00164**	N/A
	4/5/2021	< 0.0005	N/A	< 0.0005	0.000382*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000397*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	**0.00191**	N/A	**0.00163**	N/A	< 0.0005	0.000279*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000251	< 0.0005	< 0.0005	< 0.0005
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.0005	< 0.0005	**0.00078**	< 0.0005	N/A	N/A	< 0.0005	N/A	0.000387*	< 0.0005	< 0.0005	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	**0.000848**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A
	2/21/2023	N/A	N/A	0.000377*	**0.000979**	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.000411*	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	0.000296*	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.0005	N/A	N/A	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	< 0.0005	N/A	< 0.0005	< 0.0005	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, mg/L (CAS NO - 7439-97-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.0002	< 0.0002	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	0.000256	0.0000319	N/A	N/A	0.0000566	N/A	0.0000682	N/A	N/A	0.0000686	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Mercury, mg/L (CAS NO - 7439-97-6)	10/21/2013	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/4/2016	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	< 0.0002	N/A	< 0.0002	N/A	N/A	< 0.0002	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.0002	< 0.0002	N/A	N/A	0.000127*	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	< 0.0002	N/A	< 0.0002	< 0.0002	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0002	< 0.0002	N/A	< 0.0002	< 0.0002	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0002	N/A	N/A
Nickel, mg/L (CAS NO - 7440-02-0)	4/14/2008	N/A	N/A	< 0.05	0.185	0.0668	0.0778	0.053	N/A	N/A	N/A	N/A	N/A	0.0809	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.05	0.0678	0.0715	0.0765	0.108	N/A	N/A	N/A	N/A	N/A	0.101	N/A	N/A	N/A
	8/20/2008	N/A	N/A	0.0586	0.676	0.73	0.0812	0.154	N/A	N/A	N/A	N/A	N/A	0.103	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.05	0.0768	0.0611	0.0711	0.0663	N/A	N/A	N/A	0.157	N/A	0.0702	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.05	0.275	0.0599	0.0773	0.0804	N/A	N/A	N/A	< 0.05	N/A	0.0771	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.05	0.159	< 0.05	0.0776	0.0652	0.139	0.0542	< 0.05	< 0.05	0.0882	0.0917	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.117	< 0.05	0.39	< 0.05	0.0917	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	0.084	N/A	0.134	< 0.05	0.799	< 0.05	0.114	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.05	0.217	< 0.05	0.0757	< 0.05	0.12	< 0.05	< 0.05	N/A	0.106	0.0786	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	0.0873	N/A	0.15	< 0.05	0.0518	N/A	0.112	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	0.079	0.186	< 0.05	0.0965	0.0582	0.134	< 0.05	< 0.05	N/A	0.117	< 0.05	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.0728	0.0716	< 0.05	0.102	0.11	0.16	0.114	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.0668	0.329	< 0.05	0.0793	0.0938	0.117	0.108	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A
	3/4/2011	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	< 0.05	< 0.05	0.171	< 0.05	< 0.05	0.136	N/A	0.143	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A
	10/13/2011	< 0.05	< 0.05	N/A	N/A	N/A	N/A	0.185	N/A	N/A	N/A	N/A	< 0.05	0.0809	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.055	0.256	0.0888	0.113	0.0607	0.168	0.236	< 0.05	< 0.05	< 0.05	0.268	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.053	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.05	0.146	N/A	N/A	0.136	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.05	0.921	< 0.05	0.118	0.0553	0.0572	0.495	< 0.05	0.203	< 0.05	< 0.05	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.05	0.0656	0.0859	0.128	< 0.05	0.161	0.0698	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.0375	0.0561	0.0423	0.141	0.0678	0.0463	0.0614	0.0178	0.0229	0.0385	0.0263	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.0591	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.109	0.145	0.065	0.116	0.0344	0.117	0.158	0.0482	0.0159	0.0466	0.0636	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.0912	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0691	N/A	0.0919	0.0671	0.0502	0.139	0.0687	0.119	0.0429	0.0493	N/A	0.111	0.023	N/A	N/A	N/A
	5/18/2015	0.0279	0.0301	0.0607	0.0218	0.038	0.101	0.0633	0.0985	0.0713	0.02	0.0184	0.0462	0.0379	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.0977	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	**0.0117**	**0.0251**	**0.0214**	**0.0273**	**0.0588**	**0.132**	**0.0452**	**0.108**	**0.0278**	**0.0132**	**0.0196**	0.00348*	**0.0144**	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00302*	N/A	N/A	N/A	N/A
	4/4/2016	**0.00622**	0.00357*	0.00345*	**0.034**	**0.0454**	**0.0848**	**0.0333**	**0.0605**	**0.0377**	**0.0102**	**0.0089**	**0.0461**	**0.0159**	N/A	N/A	N/A
	4/4/2016	N/A	N/A	0.00482*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	**0.00742**	**0.00727**	**0.0139**	**0.0332**	**0.0303**	**0.107**	**0.0632**	**0.0299**	**0.0162**	**0.0104**	**0.0169**	**0.0402**	**0.0184**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	**0.0142**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	**0.011**	**0.00647**	**0.00788**	**0.0323**	**0.0468**	**0.0933**	**0.0435**	**0.0267**	**0.00716**	**0.00994**	**0.00592**	**0.031**	**0.00607**	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0467**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	**0.0122**	0.0042*	**0.0181**	**0.0281**	**0.0327**	**0.0872**	**0.0498**	**0.0283**	**0.0158**	**0.0106**	**0.00893**	**0.0647**	**0.01**	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0281**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/19/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0531**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0625**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Nickel, mg/L (CAS NO - 7440-02-0)	3/5/2018	0.032	0.00247*	0.00164*	0.0337	0.0477	0.0744	0.0651	0.0453	0.0272	0.00552	0.00376*	0.0906	0.00599	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0269	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	0.0106	0.00428	0.0163	N/A	0.0112	0.0701	0.051	0.0447	0.0103	0.00998	0.0165	0.0735	0.0122	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00945	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	0.025	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	0.00211*	0.00175*	< 0.005	0.0163	0.0441	0.0712	0.0521	0.0312	0.021	0.00906	0.00771	0.0768	0.0116	N/A	N/A	0.483
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00759	N/A	N/A	N/A	N/A	N/A
	8/26/2019	0.00336*	0.00611	0.0191	0.0344	0.0426	0.0955	0.0646	0.0344	0.0112	0.0106	0.106	0.0938	0.0111	N/A	N/A	0.131
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0967	N/A	N/A	N/A	N/A
	11/19/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.231	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.112	N/A	N/A	N/A	0.0296	N/A
	6/16/2020	N/A	N/A	0.00647	0.177	0.0384	0.0758	0.0837	0.271	0.0157	0.0116	0.0308	0.0616	0.00777	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0108	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0809	0.0877
	11/3/2020	0.0038*	N/A	N/A	N/A	0.0211	0.0773	0.0925	0.0381	N/A	N/A	0.234	N/A	0.00808	N/A	0.0355	N/A
	11/3/2020	N/A	N/A	N/A	N/A	0.0218	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0924
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0679	N/A
	4/5/2021	< 0.005	N/A	< 0.005	0.0547	0.0318	0.076	0.0748	0.0679	0.0129	0.0111	0.0431	0.0494	0.0145	0.00452*	0.0509	0.0672
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	0.0782	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.0178	0.0888	0.0677	0.0372	N/A	N/A	0.0486	N/A	0.00968	< 0.005	0.0246	0.0521
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0375	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.00277*	N/A	0.00487*	N/A	0.0225	0.0985	0.0734	0.0227	0.0191	0.00936	0.0198*	0.0353	0.00965	< 0.005	0.0287	0.0335
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0178	N/A	0.00951	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	0.0423	0.0802	0.0654	0.0272	N/A	N/A	0.0137	N/A	0.0164	< 0.005	0.0259	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0157	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	0.0391	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	< 0.005	0.0451	0.026	0.06	0.0652	0.0108	0.0291	0.00861	0.0199	0.0312	0.00528	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.0596	N/A	N/A	N/A	N/A	0.048	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.005	N/A	N/A	N/A	0.0142	0.0656	0.0651	0.0305	N/A	N/A	0.0135	N/A	0.0068	< 0.005	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.0634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, mg/L (CAS NO - 7782-49-2)	4/14/2008	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	< 0.005	N/A	< 0.005	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	< 0.005	N/A	< 0.005	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.015	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.005	0.0197	< 0.005	< 0.005	< 0.005	< 0.005	0.0278	< 0.005	< 0.005	0.0109	0.0111	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.005	0.00562	0.00704	< 0.005	< 0.005	0.0123	0.05	< 0.005	0.00919	< 0.005	0.0114	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	10/24/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.003	0.00302	0.00241	0.00265	0.00289	0.003	0.00361	0.00325	0.0031	0.00333	0.00312	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.00323	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A
	5/18/2015	< 0.025	< 0.025	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Selenium, mg/L (CAS NO - 7782-49-2)	8/12/2015	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	4/4/2016	< 0.005	< 0.005	< 0.005	0.000913*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000847*	0.00127*	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000796*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00156*	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000753*	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00108*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	0.000985*	< 0.005	< 0.005	< 0.005	0.00102*	< 0.005	< 0.005	0.00155*	< 0.005	**0.0131**	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00106*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.0025	< 0.0025	< 0.0025	N/A	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	< 0.0025	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0025	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	0.004*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.005	< 0.005	< 0.005	0.00291*	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.01
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00124*	N/A	N/A	< 0.005
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	0.00312*	N/A
	6/16/2020	N/A	N/A	0.00277*	0.00143*	< 0.005	< 0.005	< 0.005	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00754**	**0.00671**
	11/3/2020	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	0.00493*	N/A	N/A	N/A	0.00462*	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00308**	N/A
	4/5/2021	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	0.00137*	< 0.005	N/A	< 0.005	0.00386*	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	0.00121*	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	0.00399*	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.0044*	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	0.00115*	< 0.02
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	0.00121*	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	0.00316*	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	0.0012*	0.00104*	N/A	N/A	< 0.005	N/A	0.000983*	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	0.00172*	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver, mg/L (CAS NO - 7440-22-4)	4/14/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.02	< 0.02	< 0.06	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	< 0.02	N/A	< 0.02	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	< 0.02	N/A	< 0.02	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	< 0.02	< 0.02	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.02	< 0.02	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.0856	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Silver, mg/L (CAS NO - 7440-22-4)	8/19/2013	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.02	N/A	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	< 0.02	< 0.02	N/A	N/A	N/A
	5/18/2015	0.000066	0.000061	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000081	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.001	< 0.001	0.000105*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000108*	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000124*	N/A	N/A	N/A	N/A
	4/4/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000185*	< 0.001	0.000158*	0.000175*	0.000198*	< 0.001	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000176*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	0.00025*	0.000207*	< 0.001	< 0.001	0.000289*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000304*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.0005	< 0.0005	< 0.0005	N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0005	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.002
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	< 0.001	N/A
	6/16/2020	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00101	0.00111
	11/3/2020	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	N/A	< 0.001	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	4/5/2021	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001
	8/25/2021	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	< 0.001
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	0.000958*	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.004	N/A	N/A	< 0.004	N/A	N/A	< 0.001	< 0.001	< 0.004
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001	N/A	< 0.001	< 0.001	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium, mg/L (CAS NO - 7440-28-0)	4/14/2008	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	< 0.002	N/A	< 0.002	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	< 0.002	N/A	< 0.002	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.004	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	< 0.002	< 0.002	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Thallium, mg/L (CAS NO - 7440-28-0)	2/20/2012	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.002	< 0.002	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.004	< 0.002	< 0.004	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.002	N/A	< 0.002	< 0.002	< 0.002	0.000604	< 0.002	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002	N/A	N/A	N/A
	5/18/2015	0.000037	0.000065	< 0.001	< 0.001	0.000148	0.00033	0.000083	0.000064	0.000077	< 0.001	< 0.001	0.000046	0.000075	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.000345	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.001	< 0.001	0.000061*	< 0.001	0.000054*	0.000183*	0.000064*	0.000099*	< 0.001	0.00004*	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	4/4/2016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000243*	0.000027*	0.000047*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.001	< 0.001	< 0.001	< 0.001	0.000034*	0.000194*	0.000046*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.001	< 0.001	< 0.001	< 0.001	0.000171*	0.000448*	0.000037*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000032*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000188*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000067*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.001	< 0.001	< 0.001	< 0.001	0.00009*	0.000344*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.002	< 0.002	< 0.002	N/A	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.002	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	< 0.001	N/A
	6/16/2020	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.000846*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00306**	**0.00302**
	11/3/2020	< 0.001	N/A	N/A	N/A	< 0.001	0.000425*	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	N/A	< 0.001	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A
	4/5/2021	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	N/A	< 0.001	< 0.001	< 0.001
	8/25/2021	N/A	N/A	N/A	N/A	**0.00103**	0.00033*	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	< 0.001
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	**0.00278**	N/A	N/A	N/A	< 0.001	0.000453*	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	< 0.001
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.001	< 0.001	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	< 0.001	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001	N/A	< 0.001	< 0.001	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.001	N/A	N/A	N/A	< 0.001	< 0.001	< 0.001	< 0.001	N/A	N/A	< 0.001	N/A	N/A	< 0.001	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tin, mg/L (CAS NO - 7440-31-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	N/A	< 0.1	N/A	N/A	< 0.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0761	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	< 0.1	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.005	0.002*	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Tin, mg/L (CAS NO - 7440-31-5)	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
Vanadium, mg/L (CAS NO - 7440-62-2)	4/14/2008	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.05	0.558	0.393	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	< 0.05	N/A	< 0.05	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.05	0.0614	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	< 0.05	N/A	< 0.05	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	< 0.05	< 0.05	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.05	0.0551	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	< 0.05	< 0.05	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.05	0.113	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	N/A	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	< 0.05	0.0509	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.05	0.262	< 0.05	< 0.05	< 0.05	< 0.05	0.212	< 0.05	< 0.05	< 0.05	0.167	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.05	< 0.05	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.05	0.36	< 0.05	< 0.05	< 0.05	< 0.05	0.222	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.05	< 0.05	0.0552	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.00768	0.0165	< 0.05	0.0141	< 0.05	< 0.05	0.0211	< 0.05	< 0.05	0.00699	0.0315	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.00317	0.0256	0.0382	0.0228	< 0.05	< 0.05	0.0398	0.0142	< 0.05	0.0105	0.0124	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0169	N/A	0.0129	0.0119	0.00404	0.00842	0.00397	< 0.05	0.00777	0.0128	N/A	0.0292	0.007	N/A	N/A	N/A
	5/18/2015	0.00657	0.00476	0.000605	0.0036	0.00113	< 0.005	< 0.005	< 0.005	0.0109	0.00221	< 0.005	0.00081	0.00145	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	0.000637*	< 0.005	0.000586*	0.00141*	< 0.005	< 0.005	< 0.005	< 0.005	0.00197*	< 0.005	0.000924*	< 0.005	0.000475*	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	4/4/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000691*	< 0.005	< 0.005	< 0.005	0.000446*	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.000381*	< 0.005	0.00131*	< 0.005	< 0.005	< 0.005	0.000684*	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.005	< 0.005	0.000545*	< 0.005	< 0.005	0.000469*	0.000311*	< 0.005	0.00137*	< 0.005	< 0.005	< 0.005	0.000483*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.000284*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00304*	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.005	< 0.005	< 0.005	< 0.005	0.000941*	0.00143*	< 0.005	< 0.005	< 0.005	0.000903*	< 0.005	< 0.005	0.00103*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.005	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005	< 0.005	0.00397*	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00112*	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.01
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00154*	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.05	N/A	N/A	N/A	**0.0132**	N/A
	6/16/2020	N/A	N/A	< 0.005	0.000964*	< 0.005	< 0.005	< 0.005	< 0.005	0.00193*	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0223**	0.0015*
	11/3/2020	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	N/A	< 0.005	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Vanadium, mg/L (CAS NO - 7440-62-2)	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.00327**	N/A
	4/5/2021	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	N/A	< 0.005	< 0.005	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	< 0.005
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	< 0.02
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.005	< 0.005	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	< 0.005	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	< 0.005	< 0.005	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.005	N/A	N/A	N/A	< 0.005	< 0.005	< 0.005	< 0.005	N/A	N/A	< 0.005	N/A	N/A	< 0.005	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc, mg/L (CAS NO - 7440-66-6)	4/14/2008	N/A	N/A	0.0513	0.344	0.28	0.114	0.0459	N/A	N/A	N/A	N/A	N/A	0.0957	N/A	N/A	N/A
	6/13/2008	N/A	N/A	0.167	0.128	0.332	0.146	0.164	N/A	N/A	N/A	N/A	N/A	0.243	N/A	N/A	N/A
	8/20/2008	N/A	N/A	0.218	1.41	0.814	0.165	0.229	N/A	N/A	N/A	N/A	N/A	0.259	N/A	N/A	N/A
	9/30/2008	N/A	N/A	0.0446	0.113	0.228	0.12	0.0672	N/A	N/A	N/A	0.0366	N/A	0.0768	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.0663	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	0.0532	0.335	0.285	0.131	0.0597	N/A	N/A	N/A	0.0508	N/A	0.0632	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	0.0854	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	0.0726	0.222	0.342	0.139	0.147	0.203	0.229	0.0699	0.0743	< 0.06	0.188	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.315	0.164	0.261	0.0982	< 0.06	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	0.125	N/A	0.414	0.0984	0.447	0.116	0.0664	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	0.09	0.339	0.334	0.123	0.102	0.302	0.0818	0.0558	N/A	0.0667	0.187	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	0.19	N/A	0.348	0.192	0.0678	N/A	0.0745	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	0.0353	0.263	< 0.02	0.101	0.0409	0.109	< 0.02	< 0.02	N/A	< 0.1	< 0.02	N/A	N/A	N/A
	10/14/2010	N/A	N/A	0.0512	0.127	0.215	0.186	0.171	0.239	0.0809	0.0781	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	0.0229	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	0.0475	0.53	0.294	0.145	0.193	0.14	0.0326	0.0908	0.801	N/A	N/A	N/A	N/A	N/A
	3/4/2011	< 0.06	0.0803	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2011	0.0695	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/14/2011	< 0.06	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	< 0.06	< 0.06	0.404	0.0268	0.066	0.143	N/A	0.111	< 0.02	< 0.02	0.039	N/A	N/A	N/A	N/A	N/A
	10/13/2011	< 0.06	< 0.02	N/A	N/A	N/A	N/A	0.429	N/A	N/A	N/A	N/A	< 0.02	0.156	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0293	0.908	0.148	0.227	0.131	0.224	0.881	< 0.02	0.033	< 0.02	1.39	N/A	N/A	N/A
	2/20/2012	N/A	N/A	0.0423	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	0.0415	0.23	N/A	N/A	0.0879	N/A	N/A	N/A	N/A	0.0652	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.02	1.43	0.108	0.154	0.155	0.107	1.74	0.0279	< 0.02	0.0471	0.0343	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0279	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	0.0846	0.121	0.617	0.188	0.201	0.308	0.267	0.0591	0.0826	0.0495	0.0778	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0826	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.123	0.104	0.321	0.389	0.171	0.186	0.213	0.0775	0.108	0.0941	0.193	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.202	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.02	0.178	0.579	0.293	0.0687	0.0664	0.533	< 0.02	< 0.02	0.00703	0.039	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0396	N/A	< 0.02	0.0594	0.087	0.19	0.0704	0.0446	< 0.02	0.0727	N/A	0.0492	< 0.02	N/A	N/A	N/A
	5/18/2015	0.0298	0.0309	0.0199	0.0387	0.0509	0.113	0.0521	0.0655	0.0844	< 0.01	0.013	< 0.01	0.0148	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	0.111	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.01	< 0.01	< 0.01	**0.0255**	**0.0128**	**0.101**	**0.0501**	**0.0795**	< 0.01	< 0.01	0.00737*	< 0.01	< 0.01	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A
	4/4/2016	< 0.01	< 0.01	< 0.01	**0.0266**	< 0.01	**0.0763**	**0.0259**	**0.0835**	0.0063*	< 0.01	< 0.01	< 0.01	< 0.01	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.01	< 0.01	< 0.01	**0.0267**	< 0.01	**0.0884**	**0.0233**	**0.0208**	< 0.01	< 0.01	**0.021**	< 0.01	**0.0327**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	0.00687*	< 0.01	0.00584*	**0.0232**	**0.0397**	**0.122**	**0.0187**	**0.0139**	0.00591*	< 0.01	0.00641*	< 0.01	**0.0121**	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	**0.0232**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.02	< 0.02	< 0.02	**0.0244**	< 0.02	**0.0526**	**0.0232**	0.0131*	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/19/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.0123*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.015*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	**0.0377**	< 0.02	< 0.02	**0.0238**	**0.0644**	**0.0706**	< 0.02	**0.0884**	**0.14**	< 0.02	< 0.02	< 0.02	< 0.02	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0254**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	0.014*	< 0.02	0.0158*	N/A	< 0.02	**0.0396**	**0.0251**	**0.0805**	< 0.02	0.0111*	**0.034**	< 0.02	< 0.02	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	**0.0221**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Zinc, mg/L (CAS NO - 7440-66-6)	4/1/2019	< 0.02	< 0.02	< 0.02	0.0164*	< 0.02	**0.0457**	**0.0217**	**0.0482**	**0.02**	< 0.02	0.0178*	< 0.02	< 0.02	N/A	N/A	**0.257**
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0167*	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.02	< 0.02	< 0.02	**0.0284**	< 0.02	**0.0709**	**0.0322**	**0.0222**	< 0.02	< 0.02	**0.193**	< 0.02	< 0.02	N/A	N/A	< 0.02
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A
	11/19/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.539**	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.48**	N/A	N/A	N/A	**0.0368**	N/A
	6/16/2020	N/A	N/A	< 0.02	0.0117*	< 0.02	**0.0328**	**0.0284**	**0.678**	< 0.02	< 0.02	**0.0773**	< 0.02	< 0.02	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0698**	< 0.02
	11/3/2020	< 0.02	N/A	N/A	N/A	< 0.02	**0.0746**	0.0147*	0.0172*	N/A	N/A	**0.447**	N/A	< 0.02	N/A	**0.022**	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0121**
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0628**	N/A
	4/5/2021	< 0.02	N/A	< 0.02	0.015*	< 0.02	**0.0616**	< 0.02	**0.105**	< 0.02	< 0.02	**0.19**	< 0.02	< 0.02	< 0.02	**0.0478**	0.0194*
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 0.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 0.02	**0.0697**	< 0.02	0.0155*	N/A	N/A	**0.121**	N/A	< 0.02	< 0.02	0.0179*	< 0.02
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0158*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 0.02	N/A	< 0.02	N/A	0.0113*	**0.129**	< 0.02	0.0119*	< 0.02	< 0.02	**0.068**	< 0.02	< 0.02	< 0.02	0.0195*	< 0.08
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	< 0.02	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	0.0131*	**0.0599**	< 0.02	**0.0237**	N/A	N/A	**0.0733**	N/A	**0.0248**	< 0.02	0.0157*	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.0839**	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	**0.0562**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.02	N/A	N/A
	2/21/2023	N/A	N/A	< 0.02	**0.0301**	< 0.02	**0.032**	< 0.02	0.0168*	< 0.02	< 0.02	**0.0551**	< 0.02	< 0.02	< 0.02	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	**0.0309**	N/A	N/A	N/A	N/A	**0.157**	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.02	N/A	N/A	N/A	< 0.02	**0.0443**	0.0163*	0.0183*	N/A	N/A	**0.0618**	N/A	< 0.02	< 0.02	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.0156*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Suspended Solids, mg/L (CAS NO - TSS)	2/13/2014	N/A	N/A	3340	8130	8300	6600	188	556	1410	5340	281	1550	2680	N/A	N/A	N/A
	2/13/2014	N/A	N/A	117	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	10200	N/A	1380	2490	290	805	570	67	325	1900	N/A	12700	4720	N/A	N/A	N/A
	5/18/2015	2960	1910	4.25	3.63	5.75	254	12	88.6	60.2	20.3	< 1.88	36.8	416	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	234	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	**147**	**18.9**	**24.2**	**248**	**17.1**	**24.1**	**28.5**	**87.5**	**47.4**	**15.9**	**88.4**	**60.6**	**119**	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**36.5**	N/A	N/A	N/A	N/A
	4/4/2016	1*	< 1.88	**2.13**	**3.75**	**28.3**	**16.5**	**6.62**	**7.25**	**43.2**	< 1.88	**2**	**47.5**	**80**	N/A	N/A	N/A
	4/4/2016	N/A	N/A	**2**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	**29**	**5.8**	**2.25**	**6.87**	**16.1**	**10**	**35.4**	**56**	**39**	1.38*	**2.63**	**34.5**	**151**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	**2.25**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	**6**	**2.38**	**36.8**	**4.62**	**7.13**	**6.38**	**19.5**	**18.1**	**102**	< 1.88	**6.5**	**22**	**93.6**	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	**23.9**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	**2.75**	**5.13**	**15.3**	**42**	**6.13**	**8.63**	**6.5**	**9.13**	**122**	1.13*	**5.63**	**49.8**	**77**	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**15.9**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/19/2017	N/A	N/A	N/A	N/A	N/A	N/A	**5.33**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	**4**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	**31.6**	**3.38**	**3.38**	**53.6**	**57.1**	**23.4**	**5.37**	**14.7**	**18**	**3.6**	**4.62**	**97.4**	**77**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**16.7**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/22/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**19.6**	N/A	N/A	N/A	N/A	N/A
	10/2/2018	**2.5**	1.5*	1.38*	N/A	**37.3**	**9.17**	**10.8**	**14.2**	**80.3**	< 1.88	**3.5**	**65**	**51.7**	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.88**	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	**7.13**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/14/2019	N/A	N/A	1.25*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.5**	N/A	N/A	N/A	N/A	N/A
	4/1/2019	1.38*	0.875*	1.38*	**26.8**	**7.62**	**12.8**	**9.63**	**5.5**	**68.8**	< 1.88	**4.13**	**34.3**	**60.3**	N/A	N/A	**91.9**
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**3.38**	N/A	N/A	N/A	N/A	N/A
	8/26/2019	1.5*	**2.63**	**4**	**27.4**	**13.5**	**8.88**	**5.88**	**8.75**	**4350**	0.75*	**2.75**	**77.3**	**80.6**	N/A	N/A	**13.6**
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**100**	N/A	N/A	N/A	N/A
	11/19/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**8.75**	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**38.6**	N/A	N/A	N/A	**186**	N/A
	6/16/2020	N/A	N/A	**3**	**62**	13*	2.25*	**19**	< 1.88	**60**	< 1.88	**2.25**	**39**	**52**	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**176**	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**453**	**64.5**
	9/22/2020	N/A	N/A	**2**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/3/2020	**3.6**	N/A	N/A	N/A	**32**	**10**	**32**	**17.5**	N/A	N/A	**16.3**	N/A	**124**	N/A	**35**	N/A
	11/3/2020	N/A	N/A	N/A	N/A	**25.5**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**23**
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**44.6**	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Total Metals Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Total Suspended Solids, mg/L (CAS NO - TSS)	4/5/2021	1.13*	N/A	5.25	42.8	27	11	43.8	4.88	56.3	4.25	4.75	7.67	92	32	1.63*	28.3
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	19.5	7.75	20	5.5	N/A	N/A	2.5	20.5	96	< 1.88	2.38	34
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	18	N/A	29.7	24	48.5	5	47	2*	5.33	7	147	< 5	3.33*	4.67*
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.67	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	27.5	24	65	7.25	N/A	N/A	1.88	N/A	66	0.75*	437	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5	N/A	N/A	N/A	N/A	N/A
	8/1/2022	N/A	N/A	N/A	86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/6/2022	N/A	N/A	N/A	N/A	N/A	8.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	N/A	N/A
	2/21/2023	N/A	N/A	2.13	82	64.5	8.2	19.7	4.6	29	4.25	4.25	5.4	133	< 1.88	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	8.75	N/A	N/A	N/A	N/A	11.3	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	70	31	116	29	N/A	N/A	1*	N/A	120	< 1.88	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	46.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1,1,2-Tetrachloroethane, ug/L (CAS NO - 630-20-6)	4/14/2008	N/A	N/A	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	N/A	N/A	N/A	N/A	N/A	< 0.33	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	N/A	N/A	N/A	N/A	N/A	< 0.33	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	N/A	N/A	N/A	N/A	N/A	< 0.33	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 5	< 1	< 1	< 5	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1,1,2-Tetrachloroethane, ug/L (CAS NO - 630-20-6)	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	4/14/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 2	< 1	< 1	< 2	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	4/14/2008	N/A	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	4/14/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	4/14/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	5.52	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.427	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	4.37	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	3.59	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.42	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	3.49	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	4.64	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	5.61	< 1	< 1	< 1	< 1	< 1	2.31	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	4.19	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	8.71	N/A	< 1	< 1	< 1	< 1	5.11	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	6.88	< 1	< 1	1.05	< 1	N/A	2.75	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	6.83	N/A	< 1	4.82	< 1	N/A	2.7	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	6.83	< 1	< 1	6.71	< 1	N/A	1.63	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	4.8	< 1	< 1	6.95	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	2.11	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	3.84	N/A	< 1	5.98	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	3.3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	3.5	< 1	< 1	1.87	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	2.72	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	2.46	< 1	< 1	2.31	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	2.82	< 1	< 1	3.03	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	2.44	< 1	< 1	3.43	< 1	N/A	< 1	0.517*	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	2.14	< 1	< 1	1.37	< 1	< 1	< 1	0.969*	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	2.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	8/12/2015	< 1	N/A	< 1	< 1	< 1	1.75	< 1	< 1	< 1	< 1	< 1	< 1	0.277*	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	0.232*	< 1	< 1	< 1	< 1	< 1	0.782*	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	1.63	< 1	< 1	1.69	< 1	< 1	< 1	1.15	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	1.71	< 1	< 1	1.58	< 1	< 1	< 1	0.609*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	1.5	0.253*	< 1	1.75	< 1	< 1	0.414*	0.82*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.674*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1	2.07	1.5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.05	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	1.05	< 1	< 1	< 1	< 1	< 1	0.454*	1.09	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	1.11	0.291*	< 1	1.29	< 1	< 1	0.89*	1.52	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.957*	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	0.727*	< 1	< 1	< 1	< 1	< 1	0.344*	0.807*	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.593*	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	0.755*	< 1	< 1	N/A	N/A	< 1	N/A	1.49	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	0.695*	< 1	< 1	< 1	N/A	< 1	< 1	0.602*	0.389*	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	0.764*	< 1	< 1	N/A	N/A	< 1	N/A	1.07	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	0.919*	< 1	< 1	< 1	N/A	< 1	< 1	0.987*	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	0.603*	< 1	< 1	N/A	N/A	< 1	N/A	0.573*	0.252*	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	0.694*	< 1	< 1	N/A	N/A	< 1	N/A	0.977*	0.359*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.556*	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	4/14/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	< 2	N/A	< 2	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	< 2	N/A	< 2	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 10	< 2	< 2	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 2	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	< 2	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	2/25/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 2	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	5/18/2015	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	4/4/2016	< 2	N/A	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 2	N/A	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	< 2
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	< 2
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	< 2	N/A
	6/16/2020	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2
	11/3/2020	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	N/A	< 2	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A
	4/5/2021	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	< 2	< 2
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	< 2	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	4/14/2008	N/A	N/A	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	N/A	N/A	N/A	N/A	N/A	< 0.7	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	N/A	N/A	N/A	N/A	N/A	< 0.7	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	N/A	N/A	N/A	N/A	N/A	< 0.7	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	<1	<1	<1	<1	<1	N/A	<1	<1	<1	<1	<1	<1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	4/14/2008	N/A	N/A	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	N/A	N/A	N/A	N/A	N/A	< 0.86	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	N/A	N/A	N/A	N/A	N/A	< 0.86	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	N/A	N/A	N/A	N/A	N/A	< 0.86	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	N/A	N/A	N/A	< 0.86	N/A	< 0.86	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	N/A	N/A	N/A	< 0.86	N/A	< 0.86	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.86	< 0.86	< 4.3	< 0.86	< 0.86	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	< 0.498	< 0.498	< 0.498	< 0.498	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	N/A	< 0.498	< 0.498	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.55	< 0.498	< 0.498	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.498	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	< 0.498	N/A	< 0.498	< 0.498	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.12	< 0.12	0.12	< 10	< 0.12	< 0.12	< 10	< 0.12	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.12	< 0.12	< 0.12	< 0.12	< 0.6	< 0.12	< 0.12	< 0.12	< 0.12	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.12	N/A	< 0.12	< 0.12	N/A	< 0.12	< 0.12	< 0.12	< 0.12	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.12	N/A	N/A	N/A	N/A	< 0.12	< 0.12	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.12	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.12	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.12	N/A	< 0.12	< 0.12	N/A	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	N/A	< 0.12	< 0.12	N/A	N/A	N/A
	5/18/2015	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	4/4/2016	< 0.5	N/A	< 0.5	< 0.5	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.5	N/A	< 0.5	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1.2	N/A	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	N/A	N/A	< 1.2
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.2	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1.2	N/A	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	N/A	N/A	< 1.2
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.2	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	4/14/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	< 0.25	N/A	< 0.25	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	< 0.25	N/A	< 0.25	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.25	< 0.25	< 1.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	< 0.255	< 0.255	< 0.255	< 0.255	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	N/A	< 0.255	< 0.255	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.255	< 0.255	< 0.255	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.255	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	< 0.255	N/A	< 0.255	< 0.255	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.13	< 0.13	< 0.13	< 10	< 0.13	< 0.13	< 10	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.65	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.13	N/A	< 0.13	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	< 0.13	< 0.13	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.13	N/A	< 0.13	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	< 0.13	< 0.13	N/A	N/A	N/A
	5/18/2015	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A
	4/4/2016	< 0.13	N/A	< 0.13	< 0.13	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.13	N/A	< 0.13	N/A	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.13	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 0.34	N/A	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	N/A	N/A	< 0.34
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.34	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.34	N/A	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	N/A	N/A	< 0.34
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.34	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	4/14/2008	N/A	N/A	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	N/A	N/A	N/A	N/A	< 0.21	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	N/A	N/A	N/A	N/A	< 0.21	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	N/A	N/A	N/A	N/A	< 0.21	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 2	< 2	< 2	< 1	< 2	< 2	< 1	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	4/14/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	1.19
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	0.594*
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)	4/14/2008	N/A	N/A	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	4/14/2008	N/A	N/A	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	N/A	N/A	N/A	N/A	N/A	< 0.16	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	N/A	N/A	N/A	N/A	N/A	< 0.16	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	N/A	N/A	N/A	N/A	N/A	< 0.16	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.73	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	1.57	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	1.98	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	1.92	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	2.38	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	<1	<1	<1	N/A	<1	<1	<1	<1	<1	<1	<1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	<1	<1	< 1	<1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Butanone, ug/L (CAS NO - 78-93-3)	4/14/2008	N/A	N/A	< 0.91	< 0.91	< 0.91	< 0.91	< 0.91	N/A	N/A	N/A	N/A	N/A	< 0.91	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.91	< 0.91	< 0.91	< 0.91	< 0.91	N/A	N/A	N/A	N/A	N/A	< 0.91	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.91	< 0.91	< 0.91	< 0.91	< 0.91	N/A	N/A	N/A	N/A	N/A	< 0.91	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	22.2	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 50	< 10	< 10	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	< 10	22.3	< 10	< 10	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2-Butanone, ug/L (CAS NO - 78-93-3)	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.596*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	1.54*	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	1.48*	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	1.39*	1.66*	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	2.53*	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	294	2.23*	< 10	< 10	< 10	9.33*	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10
	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Hexanone, ug/L (CAS NO - 591-78-6)	4/14/2008	N/A	N/A	< 1.76	< 1.76	< 1.76	< 1.76	< 1.76	N/A	N/A	N/A	N/A	N/A	< 1.76	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 1.76	< 1.76	< 1.76	< 1.76	< 1.76	N/A	N/A	N/A	N/A	N/A	< 1.76	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 1.76	< 1.76	< 1.76	< 1.76	< 1.76	N/A	N/A	N/A	N/A	N/A	< 1.76	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 50	< 10	< 10	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2-Hexanone, ug/L (CAS NO - 591-78-6)	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	0.258*	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10
	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	4/14/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.72	< 0.57	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 50	< 10	< 10	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10
	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Acetone, ug/L (CAS NO - 67-64-1)	4/14/2008	N/A	N/A	< 4.62	< 4.62	< 4.62	< 4.62	< 4.62	N/A	N/A	N/A	N/A	N/A	< 4.62	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 4.62	< 4.62	< 4.62	< 4.62	< 4.62	N/A	N/A	N/A	N/A	N/A	< 4.62	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 4.62	< 4.62	< 4.62	< 4.62	< 4.62	N/A	N/A	N/A	N/A	N/A	< 4.62	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 50	< 10	< 10	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	< 10	31.4	< 10	< 10	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	14.1	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	12.8	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	39.3	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	12.3	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	2.52*	< 10	< 10	< 10	< 10	1.87*	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	27.9	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	2.6*	< 10	N/A	4.61*	< 10	< 10	2.83*	< 10	N/A	6.33*	4.07*	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	2.34*	N/A	2.42*	< 10	< 10	2.49*	< 10	2.83*	2.78*	N/A	N/A	N/A
	4/4/2016	N/A	N/A	1.94*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	6.08*	< 10	< 10	< 10	3.34*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	1.81*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	3.2*	N/A	2.47*	1.91*	3.59*	4.67*	2.4*	2.67*	5.6*	3.17*	3.26*	4.16*	3.44*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.22*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	1.8*	< 10	< 10	2.86*	2.87*	< 10	3.08*	4.47*	< 10	< 10	2.05*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.71*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	3.75*	< 10	3.28*	< 10	< 10	< 10	5.31*	4.9*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	3.72*	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	13.1	< 10	< 10	5.79*	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.97*	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	261	< 10	< 10	< 10	< 10	14.8	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.21*	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10
	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	3.59*	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Acetone, ug/L (CAS NO - 67-64-1)	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	8.04*	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	4.12*	< 10	< 10	N/A	N/A	3.14*	N/A	< 10	3.41*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acrylonitrile, ug/L (CAS NO - 107-13-1)	4/14/2008	N/A	N/A	< 1.28	< 1.28	< 1.28	< 1.28	< 1.28	N/A	N/A	N/A	N/A	N/A	< 1.28	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 1.28	< 1.28	< 1.28	< 1.28	< 1.28	N/A	N/A	N/A	N/A	N/A	< 1.28	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 1.28	< 1.28	< 1.28	< 1.28	< 1.28	N/A	N/A	N/A	N/A	N/A	< 1.28	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 50	< 10	< 10	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Acrylonitrile, ug/L (CAS NO - 107-13-1)	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene, ug/L (CAS NO - 71-43-2)	4/14/2008	N/A	N/A	< 0.16	< 0.16	< 0.16	< 0.393	< 0.16	N/A	N/A	N/A	N/A	N/A	< 0.16	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.16	< 0.16	< 0.16	< 0.36	< 0.16	N/A	N/A	N/A	N/A	N/A	< 0.16	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.16	< 0.16	< 0.16	< 0.34	< 0.16	N/A	N/A	N/A	N/A	N/A	< 0.16	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	< 0.5	N/A	< 0.5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	< 0.5	N/A	< 0.5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**4.96**	< 0.5	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 2.5	< 0.5	**4.82**	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	**0.58**	N/A	< 0.5	**1.7**	< 0.5	< 0.5	**5.95**	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 0.5	< 0.5	< 0.5	**0.63**	< 0.5	< 0.5	**2.24**	< 0.5	N/A	**5.6**	< 0.5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	**0.71**	N/A	< 0.5	**1.87**	< 0.5	N/A	**4.98**	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**2.78**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 0.5	< 0.5	< 0.5	**0.97**	< 0.5	< 0.5	**2.19**	< 0.5	N/A	**7.44**	< 0.5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 0.5	< 0.5	< 0.5	**0.99**	< 0.5	< 0.5	**2.39**	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 0.5	< 0.5	< 0.5	**0.7**	< 2.5	< 0.5	**0.59**	< 0.5	< 0.5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 0.5	N/A	< 0.5	**1.15**	N/A	< 0.5	**2.07**	< 0.5	< 0.5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	< 0.5	< 0.5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.5	< 0.5	< 0.5	**1.2**	< 0.5	< 0.5	**1.5**	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.5	< 0.5	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 0.5	< 0.5	< 0.5	**1.8**	< 0.5	< 0.5	**1.44**	< 0.5	< 0.5	< 0.5	**0.99**	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 0.5	< 0.5	< 0.5	**1.94**	< 0.5	< 0.5	**0.888**	< 0.5	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 0.5	< 0.5	< 0.5	**2.22**	< 0.5	< 0.5	**1.33**	< 0.5	< 0.5	< 0.5	0.427*	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.5	< 0.5	< 0.5	**1.39**	< 0.5	< 0.5	**1.22**	< 0.5	< 0.5	< 0.5	**0.886**	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.5	N/A	< 0.5	< 0.5	N/A	**2.01**	< 0.5	< 0.5	**2.55**	< 0.5	N/A	0.131*	**1.28**	N/A	N/A	N/A
	5/18/2015	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**2.08**	< 0.5	< 0.5	**2.25**	< 0.5	< 0.5	< 0.5	0.256*	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	**2.03**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**0.556**	< 0.5	< 0.5	**2.17**	< 0.5	< 0.5	< 0.5	**0.566**	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	4/4/2016	< 0.5	N/A	< 0.5	< 0.5	< 0.5	N/A	< 0.5	< 0.5	**0.887**	< 0.5	< 0.5	< 0.5	0.461*	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**2.29**	< 0.5	< 0.5	**1.68**	< 0.5	< 0.5	< 0.5	**1.37**	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**1.03**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**1.89**	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**1.93**	< 0.5	< 0.5	**2.15**	< 0.5	< 0.5	< 0.5	**0.612**	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**2.07**	< 0.5	< 0.5	0.256*	< 0.5	< 0.5	0.229*	**2.14**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.249*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 0.5	N/A	< 0.5	N/A	< 0.5	0.448*	< 0.5	< 0.5	**1.79**	< 0.5	< 0.5	< 0.5	**0.912**	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Benzene, ug/L (CAS NO - 71-43-2)	4/1/2019	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**1.82**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.857**	N/A	N/A	**1.5**
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 0.5	N/A	< 0.5	< 0.5	< 0.5	**1.49**	< 0.5	< 0.5	**1.31**	< 0.5	< 0.5	< 0.5	**1.02**	N/A	N/A	< 0.5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	< 0.5	N/A
	6/16/2020	N/A	N/A	< 0.5	< 0.5	< 0.5	**1.23**	< 0.5	< 0.5	**1.13**	< 0.5	< 0.5	< 0.5	**0.703**	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.906**	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	< 0.5
	11/3/2020	< 0.5	N/A	N/A	N/A	< 0.5	**1.14**	< 0.5	< 0.5	N/A	N/A	< 0.5	N/A	**1.56**	N/A	< 0.5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A
	4/5/2021	< 0.5	N/A	N/A	N/A	< 0.5	**0.748**	< 0.5	< 0.5	**1.43**	N/A	< 0.5	< 0.5	**0.826**	< 0.5	< 0.5	< 0.5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.367*	**0.977**	0.247*	< 0.5	N/A	N/A	< 0.5	N/A	**1.25**	< 0.5	< 0.5	< 0.5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 0.5	N/A	N/A	N/A	< 0.5	**1.04**	< 0.5	< 0.5	0.404*	N/A	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 0.5	**1.21**	< 0.5	< 0.5	N/A	N/A	< 0.5	N/A	**1.01**	< 0.5	< 0.5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.5	< 0.5	**0.708**	< 0.5	< 0.5	N/A	N/A	< 0.5	N/A	**1.51**	< 0.5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	**0.505**	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 0.5	N/A	N/A	N/A	< 0.5	**1.09**	< 0.5	< 0.5	N/A	N/A	< 0.5	N/A	**1.06**	< 0.5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bromochloromethane, ug/L (CAS NO - 74-97-5)	4/14/2008	N/A	N/A	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	N/A	N/A	N/A	N/A	N/A	< 0.76	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	N/A	N/A	N/A	N/A	N/A	< 0.76	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.76	< 0.76	< 0.76	< 0.76	< 0.76	N/A	N/A	N/A	N/A	N/A	< 0.76	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 25	< 5	< 5	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	5/18/2015	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	4/4/2016	< 5	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Bromochloromethane, ug/L (CAS NO - 74-97-5)	6/26/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 5	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bromodichloromethane, ug/L (CAS NO - 75-27-4)	4/14/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Bromodichloromethane, ug/L (CAS NO - 75-27-4)	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	<1	<1	<1	N/A	<1	<1	<1	<1	<1	<1	<1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	<1	<1	< 1	<1	N/A	N/A	<1	N/A	<1	<1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bromoform, ug/L (CAS NO - 75-25-2)	4/14/2008	N/A	N/A	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	N/A	N/A	N/A	N/A	N/A	< 0.43	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	N/A	N/A	N/A	N/A	N/A	< 0.43	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	N/A	N/A	N/A	N/A	N/A	< 0.43	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 25	< 5	< 5	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Bromoform, ug/L (CAS NO - 75-25-2)	2/25/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	5/18/2015	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	4/4/2016	< 5	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 5	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bromomethane, ug/L (CAS NO - 74-83-9)	4/14/2008	N/A	N/A	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	N/A	N/A	N/A	N/A	N/A	< 0.48	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	N/A	N/A	N/A	N/A	N/A	< 0.48	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	N/A	N/A	N/A	N/A	N/A	< 0.48	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	< 4	N/A	< 4	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	< 4	N/A	< 4	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4	< 20	< 4	< 4	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 4	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Bromomethane, ug/L (CAS NO - 74-83-9)	2/24/2011	N/A	N/A	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 4	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A	N/A	N/A	N/A	< 50	< 50	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 4	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 4	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	5/18/2015	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	4/4/2016	0.485*	N/A	< 4	< 4	0.253*	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	4/4/2016	N/A	N/A	0.221*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 4	N/A	0.252*	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	0.317*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	0.51*	N/A	0.499*	0.42*	0.371*	0.305*	0.464*	0.472*	< 4	0.449*	0.423*	0.451*	0.502*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.506*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.47*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 4	N/A	< 4	< 4	< 4	0.23*	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 4	N/A	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	< 4
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	< 4
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	< 4	N/A
	6/16/2020	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4
	11/3/2020	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	N/A	< 4	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A
	4/5/2021	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	< 4	< 4
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	< 4	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	4/14/2008	N/A	N/A	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	N/A	N/A	N/A	N/A	N/A	< 0.18	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.18	< 0.51	< 0.18	< 0.18	< 0.18	N/A	N/A	N/A	N/A	N/A	< 0.18	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	N/A	N/A	N/A	N/A	N/A	< 0.18	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 10	< 1	< 1	< 10	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	1.98	< 1	< 1	< 1	< 1	< 1	1.05	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	0.233*	< 1	< 1	< 1	< 1	< 1	0.235*	< 1	< 1	0.29*	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	0.192*	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	0.376*	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	<1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	4/14/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	< 2	N/A	< 2	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	< 2	N/A	< 2	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 10	< 2	< 2	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 2	< 2	< 2	< 5	< 2	< 2	< 5	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 2	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	< 2	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 2	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	5/18/2015	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	4/4/2016	< 2	N/A	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 2	N/A	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	< 2
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	< 2
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	< 2	N/A
	6/16/2020	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2
	11/3/2020	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	N/A	< 2	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A
	4/5/2021	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	< 2	< 2
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	3/8/2022	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	< 2
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	< 2	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 2	N/A	N/A	N/A	< 2	< 2	< 2	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene, ug/L (CAS NO - 108-90-7)	4/14/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	1.08	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.195*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chlorobenzene, ug/L (CAS NO - 108-90-7)	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	4/14/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 25	< 5	< 5	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	5/18/2015	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	4/4/2016	< 5	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 5	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	4/1/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroethane, ug/L (CAS NO - 75-00-3)	4/14/2008	N/A	N/A	< 0.5	< 0.5	< 0.5	< 2.62	< 0.5	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.5	< 0.5	< 0.5	< 2.76	< 0.5	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.5	< 0.5	< 0.5	< 2.13	< 0.5	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	< 4	N/A	< 4	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	< 4	N/A	< 4	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4	< 20	< 4	< 4	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 4	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 4	< 4	< 4	**4.5**	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 4	N/A	< 4	< 4	N/A	< 4	**35.7**	< 4	< 4	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	< 4	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 4	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 4	< 4	< 4	2.44*	< 4	< 4	0.648*	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	1.55*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 4	< 4	< 4	2.11*	< 4	< 4	1.29*	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 4	N/A	< 4	< 4	N/A	2.45*	1.09*	< 4	1.45*	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	5/18/2015	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	4/4/2016	< 4	N/A	< 4	< 4	< 4	N/A	2.49*	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 4	N/A	< 4	< 4	< 4	1.99*	2.39*	< 4	1.49*	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	2.33*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chloroethane, ug/L (CAS NO - 75-00-3)	6/26/2017	< 4	N/A	< 4	< 4	< 4	1.98*	3.14*	< 4	1.24*	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	1.29*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	2.31*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 4	N/A	< 4	N/A	< 4	< 4	1.6*	< 4	< 4	< 4	< 4	< 4	1.87*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 4	N/A	< 4	< 4	< 4	1.64*	1.39*	< 4	< 4	< 4	< 4	< 4	1.5*	N/A	N/A	1.39*
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 4	N/A	< 4	< 4	< 4	1.63*	1.95*	< 4	0.845*	< 4	< 4	< 4	2.17*	N/A	N/A	< 4
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	< 4	N/A
	6/16/2020	N/A	N/A	< 4	< 4	< 4	< 4	1.24*	< 4	< 4	< 4	< 4	< 4	1.33*	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.63*	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4
	11/3/2020	< 4	N/A	N/A	N/A	< 4	0.814*	1.25*	< 4	N/A	N/A	< 4	N/A	5.9	N/A	< 4	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A
	4/5/2021	< 4	N/A	N/A	N/A	< 4	< 4	1.11*	< 4	< 4	N/A	< 4	< 4	2.49*	< 4	< 4	< 4
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	0.977*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 4	1.01*	0.895*	< 4	N/A	N/A	< 4	N/A	3.56*	< 4	< 4	< 4
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 4	N/A	N/A	N/A	< 4	0.909*	0.952*	< 4	< 4	N/A	< 4	< 4	4.99	< 4	< 4	< 4
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 4	0.884*	0.943*	< 4	N/A	N/A	< 4	N/A	2.92*	< 4	< 4	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 4	< 4	< 4	1.11*	< 4	N/A	N/A	< 4	N/A	5.07	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	2.92*	< 4	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform, ug/L (CAS NO - 67-66-3)	4/14/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chloroform, ug/L (CAS NO - 67-66-3)	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	<1	<1	<1	N/A	<1	<1	<1	<1	<1	<1	<1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 3	N/A	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	< 3	N/A
	6/16/2020	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	< 3
	11/3/2020	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	N/A	< 3	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A
	4/5/2021	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	< 3	< 3
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	< 3	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 3	N/A	N/A	N/A	< 3	< 3	< 3	<3	N/A	N/A	<3	N/A	< 3	< 3	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloromethane, ug/L (CAS NO - 74-87-3)	4/14/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.54	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	< 3	N/A	< 3	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	< 3	N/A	< 3	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	< 3	< 15	< 3	< 3	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 3	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 3	< 3	< 3	< 3	< 15	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 3	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	< 3	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 3	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chloromethane, ug/L (CAS NO - 74-87-3)	2/25/2013	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 3	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A
	5/18/2015	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 3	N/A	< 3	1.15*	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	4/4/2016	< 3	N/A	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.467*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	0.747*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 3	N/A	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	< 3	N/A
	6/16/2020	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	< 3
	11/3/2020	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	N/A	< 3	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A
	4/5/2021	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	< 3	< 3
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	< 3	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	4/14/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.863	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.82	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.37	< 0.37	< 0.37	< 0.52	< 0.37	N/A	N/A	N/A	N/A	N/A	< 0.37	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1.18	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	2.14	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	2.97	N/A	< 1	< 1	< 1	< 1	2.37	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	2.43	< 1	< 1	< 1	< 1	N/A	1.81	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	2.66	N/A	< 1	3.09	< 1	N/A	2.32	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	3.45	< 1	< 1	5.27	< 1	N/A	1.27	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	3.64	< 1	< 1	6.01	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	2/24/2011	N/A	N/A	< 1	< 1	< 1	2.19	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	5.97	N/A	< 1	3.67	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	3.5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	5.81	< 1	< 1	1.39	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	5.31	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	5.73	< 1	< 1	1.52	< 1	< 1	< 1	0.321*	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	3.94	< 1	< 1	3.29	< 1	< 1	< 1	0.8*	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	6.3	< 1	< 1	3.78	< 1	N/A	< 1	1.14	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	5.71	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	5.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	4.19	< 1	< 1	< 1	< 1	< 1	< 1	0.351*	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	0.395*	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	6.82	< 1	< 1	< 1	< 1	< 1	< 1	0.743*	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	5.66	< 1	< 1	0.522*	< 1	< 1	< 1	1.3	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	6.81	< 1	< 1	0.248*	< 1	< 1	< 1	0.529*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	7.98	< 1	< 1	< 1	< 1	< 1	0.269*	1.41	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	3.32	< 1	< 1	< 1	< 1	< 1	< 1	0.405*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	7.35	< 1	< 1	< 1	< 1	< 1	< 1	0.681*	N/A	N/A	1.42
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	7.05	< 1	< 1	< 1	< 1	< 1	< 1	0.791*	N/A	N/A	0.439*
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	3.91	< 1	< 1	< 1	< 1	< 1	< 1	0.503*	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.777*	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	4.06	< 1	< 1	N/A	N/A	N/A	< 1	0.906*	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	<1	3.21	< 1	< 1	< 1	N/A	< 1	< 1	0.558*	1.25	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	4.11	< 1	< 1	N/A	N/A	< 1	N/A	0.776*	0.327*	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	4.38	< 1	< 1	< 1	N/A	< 1	< 1	0.602*	0.511*	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	6.08	< 1	< 1	N/A	N/A	< 1	N/A	0.47*	0.535*	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.671*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	4.77	< 1	< 1	N/A	N/A	< 1	N/A	0.766*	1.03	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	3.32	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	7.99	< 1	< 1	N/A	N/A	< 1	N/A	< 1	0.675*	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	4/14/2008	N/A	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 25	< 5	< 5	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	5/18/2015	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	4/4/2016	< 5	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 5	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Ethylbenzene, ug/L (CAS NO - 100-41-4)	4/14/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	2.88	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	6.69	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	8.41	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	1.8	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	0.547*
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Ethylbenzene, ug/L (CAS NO - 100-41-4)	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iodomethane, ug/L (CAS NO - 74-88-4)	4/14/2008	N/A	N/A	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	N/A	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	< 20	< 100	< 20	< 20	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 20	< 20	< 20	N/A	< 20	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	< 20	< 20	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 20	N/A	< 20	< 20	N/A	< 20	< 10	< 20	< 20	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Iodomethane, ug/L (CAS NO - 74-88-4)	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Bromide, ug/L (CAS NO - 74-95-3)	4/14/2008	N/A	N/A	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	N/A	N/A	N/A	N/A	N/A	< 0.3	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	N/A	N/A	N/A	N/A	N/A	< 0.3	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	N/A	N/A	N/A	N/A	N/A	< 0.3	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Methylene Bromide, ug/L (CAS NO - 74-95-3)	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride, ug/L (CAS NO - 75-09-2)	4/14/2008	N/A	N/A	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	N/A	N/A	N/A	N/A	N/A	< 0.45	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	N/A	N/A	N/A	N/A	N/A	< 0.45	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.78	< 0.74	< 0.62	< 0.75	< 0.65	N/A	N/A	N/A	N/A	N/A	< 0.87	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 25	< 5	< 5	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	< 5	0.4*	0.593*	0.523*	0.296*	0.589*	< 5	< 5	0.652*	0.24*	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	0.401*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	0.542*	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 5	N/A	0.444*	0.437*	N/A	0.306*	0.437*	0.492*	1.06*	< 5	N/A	< 5	0.604*	N/A	N/A	N/A
	5/18/2015	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	0.327*	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	4/4/2016	< 5	N/A	< 5	< 5	< 5	N/A	0.437*	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 5	N/A	0.177*	< 5	< 5	< 5	0.368*	< 5	0.265*	< 5	< 5	< 5	0.178*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.299*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Methylene Chloride, ug/L (CAS NO - 75-09-2)	6/26/2017	0.428*	N/A	0.435*	0.352*	0.444*	0.431*	0.535*	0.345*	0.416*	0.338*	0.354*	0.373*	0.517*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.341*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	0.312*	N/A	< 5	0.616*	0.318*	< 5	< 5	0.267*	< 5	< 5	0.325*	< 5	0.451*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 5	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Styrene, ug/L (CAS NO - 100-42-5)	4/14/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 2	< 1	< 1	< 2	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Styrene, ug/L (CAS NO - 100-42-5)	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	4/14/2008	N/A	N/A	< 0.763	< 0.38	< 0.38	< 0.38	< 0.38	N/A	N/A	N/A	N/A	N/A	< 0.788	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	N/A	N/A	N/A	N/A	N/A	< 0.38	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	N/A	N/A	N/A	N/A	N/A	< 0.38	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	1.26	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	0.951*	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	1.08	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	1.16	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.04	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	0.797*	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene, ug/L (CAS NO - 108-88-3)	4/14/2008	N/A	N/A	< 0.176	< 0.14	< 0.14	< 0.14	< 0.14	N/A	N/A	N/A	N/A	N/A	< 0.382	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	N/A	N/A	N/A	N/A	N/A	< 0.14	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	N/A	N/A	N/A	N/A	N/A	< 0.14	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	1.41	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	< 1	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Toluene, ug/L (CAS NO - 108-88-3)	2/24/2011	N/A	N/A	3.37	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.229*	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	0.154*	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	0.15*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	0.199*	N/A	< 1	< 1	< 1	< 1	0.214*	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	0.568*
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	6.22	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	<1	<1	<1	<1	<1	N/A	<1	<1	<1	<1	<1	<1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.782*	0.531*	0.44*	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.431*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	4/14/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.31	< 0.31	< 0.31	< 0.31	< 0.31	N/A	N/A	N/A	N/A	N/A	< 0.31	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	0.427*	< 1	< 1	0.402*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	0.368*	< 1	< 1	0.31*	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	0.217*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	0.279*	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	0.518*	< 1	< 1	0.581*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	0.551*	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	0.485*	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	0.421*	< 1	< 1	0.412*	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	N/A	<1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	0.362*	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	0.275*	< 1	< 1	N/A	N/A	< 1	N/A	0.315*	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	0.347*	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	0.328*	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	4/14/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	N/A	N/A	N/A	N/A	< 0.17	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	< 5	N/A	< 5	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 25	< 5	< 5	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 5	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 5	N/A	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A
	5/18/2015	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	4/4/2016	< 5	N/A	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 5	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	< 5	N/A
	6/16/2020	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	< 5
	11/3/2020	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A
	4/5/2021	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	3/8/2022	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	< 5	< 5	< 5	< 5	< 5	< 5
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	< 5	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 5	N/A	N/A	N/A	< 5	< 5	< 5	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	4/14/2008	N/A	N/A	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	N/A	N/A	N/A	N/A	N/A	< 1.8	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	N/A	N/A	N/A	N/A	N/A	< 3.6	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	N/A	N/A	N/A	N/A	N/A	< 1.8	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 50	< 10	< 10	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 50	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 10	< 10	< 10	< 10	< 50	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 10	N/A	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichloroethene, ug/L (CAS NO - 79-01-6)	4/14/2008	N/A	N/A	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	N/A	N/A	N/A	N/A	N/A	< 0.24	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	N/A	N/A	N/A	N/A	N/A	< 0.24	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	N/A	N/A	N/A	N/A	N/A	< 0.24	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	1.28	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	1.2	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	< 1	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	1.06	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	< 1	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	< 1	< 1	< 1	0.463*	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	0.253*	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Trichloroethene, ug/L (CAS NO - 79-01-6)	4/1/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	0.712*	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	< 1	< 1	< 1	0.442*	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	0.634*	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.612*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	0.73*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	0.658*	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	4/14/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	< 4	N/A	< 4	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	< 4	N/A	< 4	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4	< 20	< 4	< 4	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 4	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 4	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	< 4	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 4	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 4	N/A	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A
	5/18/2015	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	4/4/2016	< 4	N/A	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	6/26/2017	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 4	N/A	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	< 4
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	< 4
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	< 4	N/A
	6/16/2020	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	< 4
	11/3/2020	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	N/A	< 4	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A
	4/5/2021	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	< 4	< 4
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	< 4	< 4	< 4	< 4	< 4	< 4
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	< 4	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 4	N/A	N/A	N/A	< 4	< 4	< 4	< 4	N/A	N/A	< 4	N/A	< 4	< 4	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	4/14/2008	N/A	N/A	< 1.36	< 1.36	< 1.36	< 1.36	< 1.36	N/A	N/A	N/A	N/A	N/A	< 1.36	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 1.36	< 1.36	< 1.36	< 1.36	< 1.36	N/A	N/A	N/A	N/A	N/A	< 1.36	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 1.36	< 1.36	< 1.36	< 1.36	< 1.36	N/A	N/A	N/A	N/A	N/A	< 1.36	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	< 2	N/A	< 2	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A	< 2	N/A	< 2	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 10	< 2	< 2	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 5	< 5	< 5	< 2	< 5	< 5	< 2	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 2	< 2	< 2	< 4	< 10	< 2	< 4	< 2	< 2	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 2	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	< 2	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 2	N/A	< 2	< 2	N/A	< 2	< 2	< 2	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A
	5/18/2015	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	8/12/2015	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	4/4/2016	< 10	N/A	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 10	N/A	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A
	6/16/2020	N/A	N/A	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	< 10
	11/3/2020	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A
	4/5/2021	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	< 10
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10	< 10	< 10	< 10
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 10	N/A	N/A	N/A	< 10	< 10	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	4/14/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	**2.94**	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	**3.26**	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.26	< 0.26	< 0.26	**2.78**	< 0.26	N/A	N/A	N/A	N/A	N/A	< 0.26	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 1	< 1	< 1	**3.26**	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 1	< 1	< 1	**2.89**	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 1	< 1	< 1	**2.53**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1	< 5	< 1	< 1	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	**3.07**	N/A	< 1	< 1	< 1	< 1	**1.05**	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 1	< 1	< 1	**2.85**	< 1	< 1	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	**2.73**	N/A	< 1	< 1	< 1	N/A	< 1	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 1	< 1	< 1	**3.66**	< 1	< 1	**1.08**	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 1	< 1	< 1	**1.72**	< 1	< 1	**1.33**	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	< 1	< 1	< 1	**1.73**	< 5	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 1	N/A	< 1	**2.22**	N/A	< 1	**1.41**	< 1	< 1	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	< 1	< 1	**2**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 1	< 1	< 1	**1.61**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	2/25/2013	N/A	N/A	< 1	< 1	< 1	1.75	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 1	< 1	< 1	2.53	< 1	< 1	0.955*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	< 1	< 1	2.15	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	N/A	< 1	< 1	N/A	1.82	< 1	< 1	0.911*	< 1	N/A	< 1	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	0.936*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	4/4/2016	< 1	N/A	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 1	N/A	< 1	< 1	< 1	0.668*	< 1	< 1	0.6*	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 1	N/A	< 1	< 1	< 1	1.09	< 1	< 1	0.333*	< 1	< 1	< 1	0.33*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	< 1	N/A	< 1	< 1	< 1	1.47	< 1	< 1	0.869*	< 1	< 1	< 1	0.107*	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 1	N/A	< 1	< 1	< 1	1.26	< 1	< 1	< 1	< 1	< 1	0.276*	0.274*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 1	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 1	N/A	< 1	< 1	< 1	1.22	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	0.71*
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 1	N/A	< 1	< 1	< 1	0.871*	< 1	< 1	0.813*	< 1	< 1	< 1	< 1	N/A	N/A	< 1
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A
	6/16/2020	N/A	N/A	< 1	< 1	< 1	1.12	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	< 1
	11/3/2020	< 1	N/A	N/A	N/A	< 1	0.586*	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
	4/5/2021	< 1	N/A	N/A	N/A	< 1	0.331*	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	0.306*	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 1	N/A	N/A	N/A	< 1	0.382*	< 1	< 1	< 1	N/A	< 1	< 1	< 1	< 1	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	1.09	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	< 1	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.287*	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 1	N/A	N/A	N/A	< 1	< 1	< 1	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylenes, total, ug/L (CAS NO - 1330-20-7)	4/14/2008	N/A	N/A	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	N/A	N/A	N/A	N/A	N/A	< 0.3	N/A	N/A	N/A
	6/13/2008	N/A	N/A	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	N/A	N/A	N/A	N/A	N/A	< 0.3	N/A	N/A	N/A
	8/20/2008	N/A	N/A	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	N/A	N/A	N/A	N/A	N/A	< 0.3	N/A	N/A	N/A
	9/30/2008	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	< 3	N/A	< 3	N/A	N/A	N/A
	9/30/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/16/2008	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	< 3	N/A	< 3	N/A	N/A	N/A
	12/16/2008	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/14/2009	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	7/14/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	< 3	< 15	< 3	< 3	N/A	N/A	N/A	N/A
	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 3	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 6	< 6	< 6	N/A	N/A	N/A	N/A	N/A	N/A
	2/23/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 7.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A
	10/14/2010	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Xylenes, total, ug/L (CAS NO - 1330-20-7)	2/24/2011	N/A	N/A	< 3	< 3	< 3	< 3	< 15	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	< 3	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	< 3	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	2/20/2012	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 3	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	8/8/2012	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	2/13/2014	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 3	N/A	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A
	5/18/2015	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	4/4/2016	< 3	N/A	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	4/4/2016	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	9/13/2016	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	9/13/2016	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	< 3	N/A	0.184*	< 3	< 3	< 3	< 3	< 3	0.995*	< 3	< 3	< 3	0.146*	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/26/2017	0.16*	N/A	< 3	< 3	0.14*	< 3	0.156*	< 3	0.131*	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	< 3	N/A	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	0.593*
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	8/26/2019	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3
	8/26/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	< 3	N/A
	6/16/2020	N/A	N/A	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	8/20/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	< 3
	11/3/2020	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	N/A	< 3	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3
	2/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A
	4/5/2021	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3
	4/5/2021	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.643*	0.405*	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	< 3	< 3
	8/25/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/8/2022	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	< 3	< 3	< 3	< 3	< 3	< 3
	3/8/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	< 3	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	7/25/2023	< 3	N/A	N/A	N/A	< 3	< 3	< 3	< 3	N/A	N/A	< 3	N/A	< 3	< 3	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M&P-Xylene, ug/L (CAS NO - 179601-23-1)	8/8/2012	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Appendix I VOC Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
O-Xylene, ug/L (CAS NO - 95-47-6)	8/8/2012	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,1-Dichloropropene, ug/L (CAS NO - 563-58-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
1,2,4,5-Tetrachlorobenzene, ug/L (CAS NO - 95-94-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
1,2,4-Trichlorobenzene, ug/L (CAS NO - 120-82-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	< 5	< 5	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,3,5-Trinitrobenzene, ug/L (CAS NO - 99-35-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
1,3-Dichlorobenzene, ug/L (CAS NO - 541-73-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
1,3-Dichloropropane, ug/L (CAS NO - 142-28-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	< 1	< 1	< 1	< 1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1,3-Dinitrobenzene, ug/L (CAS NO - 99-65-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
1,4-Naphthoquinone, ug/L (CAS NO - 130-15-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
1,4-Phenylenediamine, ug/L (CAS NO - 106-50-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
1-Naphthylamine, ug/L (CAS NO - 134-32-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2,2-Dichloropropane, ug/L (CAS NO - 594-20-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 4	N/A	< 4	< 4	< 4	< 4	< 4	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 4	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 4	< 4	N/A	N/A	< 4	N/A	< 4	N/A	N/A	< 4	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 4	< 4	N/A	N/A	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A	< 4	N/A	< 4	< 4	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 4	< 4	N/A	< 4	< 4	N/A	N/A	N/A	N/A	< 4	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 4	N/A	N/A
2,3,4,6-Tetrachlorophenol, ug/L (CAS NO - 58-90-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2,4,5-T [2C], ug/L (CAS NO - 93-76-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.21	N/A	N/A	N/A	N/A	N/A	< 0.25	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.29	N/A	N/A	< 0.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.54	N/A	N/A	< 0.54	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.43	< 0.43	N/A	N/A	< 0.43	N/A	N/A	N/A	N/A	< 0.4	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1.06	< 1.06	N/A	N/A	< 1.04	N/A	< 1.04	N/A	N/A	< 1.11	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.03	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	< 1.01	N/A	N/A	< 1.08	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1.15	< 1.11	N/A	N/A	< 1.07	N/A	N/A	N/A	N/A	< 1.06	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.05	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.15	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	< 1.06	N/A	< 1.08	< 1.09	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.5	< 0.5	N/A	< 0.5	< 0.5	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.91	N/A	N/A
2,4,5-TP [Silvex] [2C], ug/L (CAS NO - 93-72-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.21	N/A	N/A	N/A	N/A	N/A	**0.69**	N/A	N/A	N/A	N/A
	10/2/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1.1**	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.2	N/A	N/A	**0.69**	N/A	N/A	N/A	N/A
	4/22/2010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**0.57**	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.29	N/A	N/A	< 0.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.54	N/A	N/A	< 0.54	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/20/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.29	< 0.29	N/A	N/A	< 0.29	N/A	N/A	N/A	N/A	< 0.27	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.29	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1.06	< 1.06	N/A	N/A	< 1.04	N/A	< 1.04	N/A	< 1.03	< 1.11	N/A	N/A	N/A
	2/13/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.08	N/A	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.03	N/A	< 1.07	N/A	N/A	N/A	N/A
	5/18/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.12	N/A	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.07	N/A	N/A	N/A	N/A
	8/12/2015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.08	N/A	N/A	N/A	N/A
	4/4/2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.07	N/A	N/A	N/A	N/A
	9/13/2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.04	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	< 1.01	N/A	N/A	< 1.08	N/A	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1.15	< 1.11	N/A	N/A	< 1.07	N/A	N/A	N/A	< 1.03	< 1.06	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1.01	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.05	N/A	< 1.09	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.15	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	< 1.06	N/A	< 1.08	< 1.09	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.5	< 0.5	N/A	< 0.5	< 0.5	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.91	N/A	N/A
2,4,5-Trichlorophenol, ug/L (CAS NO - 95-95-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2,4,6-Trichlorophenol, ug/L (CAS NO - 88-06-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2,4-D [2C], ug/L (CAS NO - 94-75-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1.1	N/A	N/A	N/A	N/A	N/A	< 1.2	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.54	N/A	N/A	< 0.51	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1.1	N/A	N/A	< 1.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.47	< 0.47	N/A	N/A	< 0.47	N/A	N/A	N/A	N/A	< 0.43	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1.06	< 1.06	N/A	N/A	< 1.04	N/A	< 1.04	N/A	N/A	< 1.11	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.03	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	< 1.01	N/A	N/A	< 1.08	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1.15	< 1.11	N/A	N/A	< 1.07	N/A	N/A	N/A	N/A	< 1.06	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.05	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.15	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1.09	N/A	N/A	< 1.06	N/A	< 1.08	< 1.09	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.91	N/A	N/A
2,4-Dichlorophenol, ug/L (CAS NO - 120-83-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2,4-Dimethylphenol, ug/L (CAS NO - 105-67-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2,4-Dinitrophenol, ug/L (CAS NO - 51-28-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	< 23.3	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 20	< 20	N/A	N/A	< 20	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 40.8	< 21.3	N/A	N/A	< 24.1	N/A	< 20.4	N/A	N/A	< 20.2	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20.6	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20.8	N/A	N/A	< 21.5	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 20.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 21.3	< 20.4	N/A	N/A	< 21.3	N/A	N/A	N/A	N/A	< 21.3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 21.1	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20.8	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 21.3	N/A	N/A	< 21.5	N/A	< 21.7	< 21.7	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 18.5	< 18.9	N/A	< 20	< 20	N/A	N/A	N/A	N/A	< 18.9	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 19.2	N/A	N/A
2,4-Dinitrotoluene, ug/L (CAS NO - 121-14-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2,6-Dichlorophenol, ug/L (CAS NO - 87-65-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2,6-Dinitrotoluene, ug/L (CAS NO - 606-20-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2-Acetylaminofluorene, ug/L (CAS NO - 53-96-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2-Chloronaphthalene, ug/L (CAS NO - 91-58-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2-Chlorophenol, ug/L (CAS NO - 95-57-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2-Methylnaphthalene, ug/L (CAS NO - 91-57-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	8.47*	11.2	N/A	36	21.3	N/A	N/A	N/A	N/A	492	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 10	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2-Methylphenol, ug/L (CAS NO - 95-48-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2-Naphthylamine, ug/L (CAS NO - 91-59-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
2-Nitroaniline, ug/L (CAS NO - 88-74-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
2-Nitrophenol, ug/L (CAS NO - 88-75-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
3,3-Dichlorobenzidine, ug/L (CAS NO - 91-94-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 102	< 53.2	N/A	N/A	< 60.2	N/A	< 51	N/A	N/A	< 50.5	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 51.5	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 50	N/A	N/A	< 52.1	N/A	N/A	< 53.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 53.2	< 51	N/A	N/A	< 53.2	N/A	N/A	N/A	N/A	< 53.2	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
3,3-Dimethylbenzidine, ug/L (CAS NO - 119-93-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
3/4-Methylphenol, ug/L (CAS NO - T-34MP)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
3-Chloropropene, ug/L (CAS NO - 107-05-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
3-Methylcholanthrene, ug/L (CAS NO - 56-49-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
3-Nitroaniline, ug/L (CAS NO - 99-09-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
4,4`-DDD, ug/L (CAS NO - 72-54-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	0.0024*	< 0.0337	N/A	N/A	0.00371*	N/A	N/A	N/A	N/A	0.0129*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	0.00284*	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
4,4`-DDE, ug/L (CAS NO - 72-55-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	0.0029*	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
4,4`-DDT, ug/L (CAS NO - 50-29-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.00475*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	0.00463*	N/A	N/A	N/A	N/A	0.00715*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
4,6-Dinitro-2-methylphenol, ug/L (CAS NO - 534-52-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
4-Aminobiphenyl, ug/L (CAS NO - 92-67-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
4-Bromophenyl phenyl ether, ug/L (CAS NO - 101-55-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
4-Chloro-3-methylphenol, ug/L (CAS NO - 59-50-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
4-Chloroaniline, ug/L (CAS NO - 106-47-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
4-Chlorophenyl phenyl ether, ug/L (CAS NO - 7005-72-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
4-Nitroaniline, ug/L (CAS NO - 100-01-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
4-Nitrophenol, ug/L (CAS NO - 100-02-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
5-Nitro-o-toluidine, ug/L (CAS NO - 99-55-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
7,12-Dimethylbenz [a] anthracene, ug/L (CAS NO - 57-97-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Acenaphthene, ug/L (CAS NO - 83-32-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Acenaphthylene, ug/L (CAS NO - 208-96-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Acetonitrile, ug/L (CAS NO - 75-05-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10000	< 10000	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 10000	< 10000	N/A	N/A	< 10000	N/A	< 10000	N/A	N/A	< 10000	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	< 10000	N/A	N/A	< 10000	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10000	< 10000	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	< 10000	N/A	< 10000	< 10000	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10000	603*	N/A	< 10000	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10000	N/A	N/A
Acetophenone, ug/L (CAS NO - 98-86-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Acrolein, ug/L (CAS NO - 107-02-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
Aldrin, ug/L (CAS NO - 309-00-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Anthracene, ug/L (CAS NO - 120-12-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Benzo [a] anthracene, ug/L (CAS NO - 56-55-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Benzo [a] pyrene, ug/L (CAS NO - 50-32-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	0.574*	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	2.71*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Benzo [b] fluoranthene, ug/L (CAS NO - 205-99-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	0.652*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Benzo [g,h,i] perylene, ug/L (CAS NO - 191-24-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	0.966*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Benzo [k] fluoranthene, ug/L (CAS NO - 207-08-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	0.722*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Benzyl alcohol, ug/L (CAS NO - 100-51-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Alpha-BHC, ug/L (CAS NO - 319-84-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	0.00226*	N/A	< 0.0327	N/A	N/A	0.00374*	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.00176*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	0.00398*	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	0.00739*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	0.00572*	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Beta-BHC, ug/L (CAS NO - 319-85-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	0.00997*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Delta-BHC, ug/L (CAS NO - 319-86-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	0.00347*	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00388*	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Gamma-BHC [Lindane], ug/L (CAS NO - 58-89-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	0.00296*	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.00505*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	0.00572*	N/A	N/A	0.00264*	N/A	N/A	N/A	N/A	0.00709*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	0.00257*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Bis[2-chloroethoxy]methane, ug/L (CAS NO - 111-91-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Bis[2-chloroethyl]ether, ug/L (CAS NO - 111-44-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Bis[2-chloroisopropyl]ether, ug/L (CAS NO - 108-60-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Bis[2-ethylhexyl]phthalate, ug/L (CAS NO - 117-81-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	2.73*	N/A	N/A	2.62*	N/A	N/A	2.78*	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	2.26*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	8.42*	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Butyl benzyl phthalate, ug/L (CAS NO - 85-68-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	0.602*	N/A	N/A	0.599*	N/A	N/A	0.62*	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chlordane, ug/L (CAS NO - 57-74-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 2.15	< 2.06	N/A	N/A	< 2.06	N/A	< 2.04	N/A	N/A	< 2.08	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 2.02	N/A	N/A	< 2.15	N/A	N/A	< 2.15	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 2.13	< 2.11	N/A	N/A	< 2.15	N/A	N/A	N/A	N/A	< 2.13	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 2.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2.13	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 21.1	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 2.22	N/A	N/A	< 2.13	N/A	< 2.11	< 2.13	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1.92	< 1.85	N/A	< 2	< 1.89	N/A	N/A	N/A	N/A	< 1.89	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.89	N/A	N/A
Chlorobenzilate, ug/L (CAS NO - 510-15-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Chloroprene, ug/L (CAS NO - 126-99-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	< 1	N/A	< 1	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Chrysene, ug/L (CAS NO - 218-01-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Cyanide, mg/L (CAS NO - 57-12-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	**0.0481**	**0.0543**	N/A	N/A	**0.0194**	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A
	2/13/2014	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.01	< 0.01	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	< 0.01	N/A	< 0.01	< 0.01	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.01	< 0.01	N/A	< 0.01	< 0.01	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.01	N/A	N/A
Diallate [cis or trans], ug/L (CAS NO - 2303-16-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Dibenz [a,h] anthracene, ug/L (CAS NO - 53-70-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	1.15*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Dibenzofuran, ug/L (CAS NO - 132-64-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Dichlorodifluoromethane, ug/L (CAS NO - 75-71-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 3	N/A	< 3	< 3	< 3	< 3	< 3	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 3	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 3	< 3	N/A	N/A	< 3	N/A	< 3	N/A	N/A	< 3	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 3	< 3	N/A	N/A	< 3	N/A	N/A	N/A	N/A	0.787*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A	< 3	N/A	< 3	< 3	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 3	< 3	N/A	< 3	< 3	N/A	N/A	N/A	N/A	< 3	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 3	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Dieldrin, ug/L (CAS NO - 60-57-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.00452*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0229*	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	0.00399*	N/A	N/A	< 0.034	N/A	< 0.0337	0.00316*	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Diethyl phthalate, ug/L (CAS NO - 84-66-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Dimethoate, ug/L (CAS NO - 60-51-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Dimethyl phthalate, ug/L (CAS NO - 131-11-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Dimethylaminoazobenzene, ug/L (CAS NO - 60-11-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Di-n-butyl phthalate, ug/L (CAS NO - 84-74-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	0.582*	N/A	N/A	0.6*	N/A	N/A	0.628*	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	0.884*	0.84*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	0.911*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Di-n-octyl phthalate, ug/L (CAS NO - 117-84-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	0.534*	0.277*	N/A	N/A	< 24.1	N/A	< 20.4	N/A	N/A	0.308*	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20.6	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	1.55*	N/A	N/A	1.62*	N/A	N/A	1.65*	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 20.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 21.3	< 20.4	N/A	N/A	< 21.3	N/A	N/A	N/A	N/A	< 21.3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 21.1	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20.8	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 21.3	N/A	N/A	< 21.5	N/A	< 21.7	< 21.7	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 18.5	< 18.9	N/A	< 20	< 20	N/A	N/A	N/A	N/A	< 18.9	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 19.2	N/A	N/A
Dinoseb, ug/L (CAS NO - 88-85-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Diphenylamine, ug/L (CAS NO - 122-39-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Disulfoton, ug/L (CAS NO - 298-04-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Endosulfan I, ug/L (CAS NO - 959-98-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00536*	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	0.00261*	N/A	< 0.0337	0.0166*	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Endosulfan II, ug/L (CAS NO - 33213-65-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Endosulfan sulfate, ug/L (CAS NO - 1031-07-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	0.0116*	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	0.00666*	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Endrin, ug/L (CAS NO - 72-20-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Endrin aldehyde, ug/L (CAS NO - 7421-93-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.0152*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	0.0157*	N/A	N/A	0.011*	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Ethyl Methacrylate, ug/L (CAS NO - 97-63-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
Ethyl Methanesulfonate, ug/L (CAS NO - 62-50-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Famphur, ug/L (CAS NO - 52-85-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	< 23.3	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 20	< 20	N/A	N/A	< 20	N/A	N/A	N/A	N/A	< 20	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 40.8	< 21.3	N/A	N/A	< 24.1	N/A	< 20.4	N/A	N/A	< 20.2	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20.6	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20.8	N/A	N/A	< 21.5	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 20.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 21.3	< 20.4	N/A	N/A	< 21.3	N/A	N/A	N/A	N/A	< 21.3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Fluoranthene, ug/L (CAS NO - 206-44-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.712*	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Fluorene, ug/L (CAS NO - 86-73-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Heptachlor, ug/L (CAS NO - 76-44-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	0.0241*	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	0.0116*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	0.00309*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	0.00478*	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Heptachlor Epoxide, ug/L (CAS NO - 1024-57-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.034	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A
Hexachlorobenzene, ug/L (CAS NO - 118-74-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Hexachlorobutadiene, ug/L (CAS NO - 87-68-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	< 5	< 5	< 5	< 5	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Hexachlorocyclopentadiene, ug/L (CAS NO - 77-47-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 40.8	< 21.3	N/A	N/A	< 24.1	N/A	< 20.4	N/A	N/A	< 20.2	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 20.6	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 20	N/A	N/A	< 20.8	N/A	N/A	< 21.5	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 20.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 21.3	< 20.4	N/A	N/A	< 21.3	N/A	N/A	N/A	N/A	< 21.3	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Hexachloroethane, ug/L (CAS NO - 67-72-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Hexachloropropene, ug/L (CAS NO - 1888-71-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Indeno [1,2,3-cd] pyrene, ug/L (CAS NO - 193-39-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	0.809*	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	1.32*	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Isobutanol, mg/L (CAS NO - 78-83-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
Isodrin, ug/L (CAS NO - 465-73-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Isophorone, ug/L (CAS NO - 78-59-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Isosafrole, ug/L (CAS NO - 120-58-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Kepone, ug/L (CAS NO - 143-50-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Methacrylonitrile, ug/L (CAS NO - 126-98-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
Methapyrilene, ug/L (CAS NO - 91-80-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Methoxychlor, ug/L (CAS NO - 72-43-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.032	< 0.032	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.0344	< 0.033	N/A	N/A	< 0.033	N/A	< 0.0327	N/A	N/A	< 0.0333	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.032	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 0.0323	N/A	N/A	< 0.0344	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	0.00362*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	0.0168*	< 0.0337	N/A	N/A	< 0.0344	N/A	N/A	N/A	N/A	0.00265*	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	0.00266*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.034	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.337	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.0356	N/A	N/A	< 0.034	N/A	< 0.0337	< 0.034	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.064	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.0615	< 0.0593	N/A	< 0.064	< 0.0604	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.0604	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Methyl Methacrylate, ug/L (CAS NO - 80-62-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 2	< 2	N/A	< 2	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
Methyl Methanesulfonate, ug/L (CAS NO - 66-27-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Naphthalene, ug/L (CAS NO - 91-20-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 5	N/A	< 5	< 5	< 5	< 5	< 5	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 5	< 5	N/A	N/A	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	**7.18**	N/A	N/A	3.14*	N/A	< 5	< 5	N/A	N/A	N/A	N/A
	6/15/2021	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 5	< 5	N/A	< 5	< 5	N/A	N/A	N/A	N/A	< 5	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Nitrobenzene, ug/L (CAS NO - 98-95-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
N-Nitrosodiethylamine, ug/L (CAS NO - 55-18-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
N-Nitrosodimethylamine, ug/L (CAS NO - 62-75-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
N-Nitrosodi-n-butylamine, ug/L (CAS NO - 924-16-3)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
N-Nitrosodi-n-propylamine, ug/L (CAS NO - 621-64-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
N-Nitrosodiphenylamine, ug/L (CAS NO - 86-30-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	3.34*	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
N-Nitrosomethylethylamine, ug/L (CAS NO - 10595-95-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
N-Nitrosopiperidine, ug/L (CAS NO - 100-75-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
N-Nitrosopyrrolidine, ug/L (CAS NO - 930-55-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
O,O,O-Triethyl Phosphorothioate, ug/L (CAS NO - 126-68-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
O-Toluidine, ug/L (CAS NO - 95-53-4)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Parathion-Ethyl, ug/L (CAS NO - 56-38-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Parathion-Methyl, ug/L (CAS NO - 298-00-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	1.72*	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
PCB-1016, ug/L (CAS NO - 12674-11-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A
PCB-1221, ug/L (CAS NO - 11104-28-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
PCB-1232, ug/L (CAS NO - 11141-16-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A
PCB-1242, ug/L (CAS NO - 53469-21-9)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A
PCB-1248, ug/L (CAS NO - 12672-29-6)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
PCB-1254, ug/L (CAS NO - 11097-69-1)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A
PCB-1260, ug/L (CAS NO - 11096-82-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	< 0.909	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.8	< 0.8	N/A	N/A	< 0.8	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 0.899	< 0.808	N/A	N/A	< 0.808	N/A	< 0.8	N/A	N/A	< 0.816	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.842	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 1.57	N/A	N/A	< 0.8	N/A	N/A	< 0.86	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.833	< 0.842	N/A	N/A	< 0.851	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 0.808	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.833	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 8.42	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 0.889	N/A	N/A	< 0.851	N/A	< 0.842	< 0.851	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.8	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 0.769	< 0.741	N/A	< 0.8	< 0.755	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.755	N/A	N/A
Pentachlorobenzene, ug/L (CAS NO - 608-93-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Pentachloronitrobenzene, ug/L (CAS NO - 82-68-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Pentachlorophenol [2C], ug/L (CAS NO - 87-86-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Phenacetin, ug/L (CAS NO - 62-44-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Phenanthrene, ug/L (CAS NO - 85-01-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Phenol, ug/L (CAS NO - 108-95-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Phorate, ug/L (CAS NO - 298-02-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Pronamide, ug/L (CAS NO - 23950-58-5)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Propionitrile, ug/L (CAS NO - 107-12-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 10	< 10	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
Pyrene, ug/L (CAS NO - 129-00-0)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.291*	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A

SCS ENGINEERS

Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Safrole, ug/L (CAS NO - 94-59-7)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Sulfide, mg/L (CAS NO - 18496-25-8)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**3.8**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 0.19	N/A	N/A	**2.3**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/19/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1.5**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/20/2012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 0.23	**4.4**	N/A	N/A	< 0.23	N/A	N/A	N/A	N/A	**1.5**	N/A	N/A	N/A
	8/8/2012	N/A	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A	**2.5**	N/A	N/A	N/A	< 0.23	N/A	N/A	N/A
	12/27/2012	N/A	N/A	N/A	N/A	**3.8**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**8.4**	N/A	N/A	N/A
	2/25/2013	N/A	N/A	N/A	N/A	**3.01**	N/A	N/A	N/A	**8.75**	N/A	N/A	N/A	**2.39**	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	0.208*	< 1	N/A	N/A	< 1	**4.16**	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	2/13/2014	N/A	N/A	N/A	N/A	0.212*	N/A	N/A	N/A	**9.33**	N/A	N/A	N/A	**4.8**	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	0.784*	< 1	N/A	N/A	< 1	N/A	N/A	N/A
	5/18/2015	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	8/12/2015	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	4/4/2016	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	9/13/2016	< 1	< 1	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	< 1	< 1	N/A	N/A	< 1	N/A	N/A	< 1	< 1	N/A	N/A	N/A
	6/26/2017	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 1	**6.53**	N/A	N/A	< 1	< 1	N/A	N/A	N/A	**3.18**	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	0.496*	N/A	< 1	N/A	**1.14**	N/A	N/A	N/A	0.88*	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	< 1	N/A	N/A	**7.98**	N/A	N/A	N/A
	8/26/2019	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**4.92**	N/A	N/A	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	< 10	N/A	< 10	N/A	< 10	N/A	N/A	N/A
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	11/3/2020	N/A	N/A	N/A	N/A	11.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	< 10	< 10	< 10	N/A	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	3/8/2022	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	< 1	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.237*	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A	< 1	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P

Other Constituents	Sample Date	MW-53 UPG	MW-54 UPG	91-MW-14 DNG	93-MW-32 DNG	MW-39R DNG	MW-40 DNG	04-MW-56 DNG	MW-58 DNG	MW-59 DNG	MW-62 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG	MW-81 DNG	GU-6 DNG	GU-7 DNG
Thionazin, ug/L (CAS NO - 297-97-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	< 11.6	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 10	< 10	N/A	N/A	< 10	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 20.4	< 10.6	N/A	N/A	< 12	N/A	< 10.2	N/A	N/A	< 10.1	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.3	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	< 10.4	N/A	N/A	< 10.8	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 10.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 10.6	< 10.2	N/A	N/A	< 10.6	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.5	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10.4	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 10.6	N/A	N/A	< 10.8	N/A	< 10.9	< 10.9	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 10	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 9.26	< 9.43	N/A	< 10	< 10	N/A	N/A	N/A	N/A	< 9.43	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 9.62	N/A	N/A
Toxaphene, ug/L (CAS NO - 8001-35-2)	8/27/2009	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	12/21/2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/14/2010	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	2/24/2011	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/13/2011	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A
	5/29/2012	N/A	N/A	N/A	< 2	< 2	N/A	N/A	< 2	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A
	8/19/2013	N/A	N/A	N/A	< 2.15	< 2.06	N/A	N/A	< 2.06	N/A	< 2.04	N/A	N/A	< 2.08	N/A	N/A	N/A
	8/21/2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A
	1/9/2017	N/A	N/A	N/A	N/A	N/A	< 2.02	N/A	N/A	< 2.15	N/A	N/A	< 2.15	N/A	N/A	N/A	N/A
	11/28/2017	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 2.13	< 2.11	N/A	N/A	< 2.15	N/A	N/A	N/A	N/A	< 2.13	N/A	N/A	N/A
	10/2/2018	N/A	N/A	N/A	N/A	N/A	N/A	< 2.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2.13	N/A	N/A	N/A	N/A	N/A	N/A
	2/6/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 21.1	N/A	N/A	N/A	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	N/A	< 2.22	N/A	N/A	< 2.13	N/A	< 2.11	< 2.13	N/A	N/A	N/A	N/A
	10/31/2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 2	N/A	N/A
	2/21/2023	N/A	N/A	N/A	< 1.92	< 1.85	N/A	< 2	< 1.89	N/A	N/A	N/A	N/A	< 1.89	N/A	N/A	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	< 1.89	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.

Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

Appendix C-2

Summary of Groundwater Chemistry – Source Wells

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Total Metals Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Antimony, mg/L (CAS NO - 7440-36-0)	10/22/2018	< 0.001	0.000714*	N/A	N/A
	4/1/2019	< 0.001	< 0.001	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001
	6/16/2020	< 0.001	0.000576*	< 0.001	< 0.001
	11/3/2020	< 0.001	< 0.001	< 0.001	< 0.001
	4/5/2021	< 0.002	< 0.004	< 0.008	< 0.014
	8/25/2021	< 0.002	< 0.002	< 0.002	< 0.002
	3/8/2022	< 0.002	< 0.002	< 0.002	< 0.002
	6/22/2022	< 0.002	< 0.002	< 0.002	< 0.002
	2/21/2023	< 0.002	< 0.002	N/A	< 0.002
	7/25/2023	< 0.002	< 0.002	N/A	< 0.002
	7/25/2023	< 0.002	N/A	N/A	N/A
Arsenic, mg/L (CAS NO - 7440-38-2)	10/2/2018	N/A	N/A	**0.00868**	N/A
	10/22/2018	0.0016*	**0.0168**	N/A	N/A
	4/1/2019	< 0.002	**0.0221**	**0.00602**	N/A
	8/26/2019	< 0.002	**0.0182**	**0.0128**	< 0.002
	6/16/2020	< 0.002	**0.00298**	**0.00864**	< 0.002
	11/3/2020	**0.00296**	**0.00538**	**0.0113**	0.000976*
	4/5/2021	0.00158*	**0.00436**	**0.00884**	< 0.014
	8/25/2021	0.00174*	**0.00699**	**0.0152**	0.000837*
	3/8/2022	**0.00577**	**0.00628**	**0.00653**	< 0.002
	6/22/2022	**0.00397**	**0.00544**	**0.0115**	< 0.002
	2/21/2023	**0.00498**	**0.00649**	N/A	< 0.002
	7/25/2023	0.00122*	**0.00456**	N/A	< 0.002
	7/25/2023	0.00123*	N/A	N/A	N/A
Barium, mg/L (CAS NO - 7440-39-3)	10/22/2018	**0.0615**	**0.0228**	N/A	N/A
	4/1/2019	**0.0365**	**0.0191**	N/A	N/A
	8/26/2019	**0.0355**	**0.0201**	**0.0616**	**0.0953**
	6/16/2020	**0.0248**	**0.0165**	**0.0565**	**0.0887**
	11/3/2020	**0.0599**	**0.0147**	**0.0592**	**0.0685**
	4/5/2021	**0.036**	**0.0163**	**0.064**	**0.0802**
	8/25/2021	**0.105**	**0.0157**	**0.0589**	**0.104**
	3/8/2022	**0.0874**	**0.0149**	**0.0588**	**0.0784**
	6/22/2022	**0.0789**	**0.0169**	**0.0588**	**0.0684**
	2/21/2023	**0.0606**	**0.0217**	N/A	**0.0951**
	7/25/2023	**0.0426**	**0.015**	N/A	**0.105**
	7/25/2023	**0.0438**	N/A	N/A	N/A
Beryllium, mg/L (CAS NO - 7440-41-7)	10/22/2018	< 0.001	< 0.001	N/A	N/A
	4/1/2019	< 0.001	< 0.001	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	0.000887*
	6/16/2020	< 0.001	< 0.001	< 0.001	**0.00245**
	11/3/2020	< 0.001	< 0.001	< 0.001	**0.00283**
	4/5/2021	< 0.001	< 0.002	< 0.004	0.00323*
	8/25/2021	< 0.001	< 0.001	< 0.001	0.000821*
	3/8/2022	< 0.001	< 0.004	< 0.001	< 0.001
	6/22/2022	< 0.001	0.000307*	0.000348*	< 0.001
	2/21/2023	< 0.001	0.00046*	N/A	< 0.001
	7/25/2023	< 0.001	< 0.001	N/A	< 0.001
	7/25/2023	< 0.001	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Total Metals Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Cadmium, mg/L (CAS NO - 7440-43-9)	10/22/2018	0.000308*	< 0.0005	N/A	N/A
	4/1/2019	0.000189*	< 0.0005	N/A	N/A
	8/26/2019	**0.00392**	< 0.0001	**0.014**	**0.00627**
	6/16/2020	0.000086*	**0.000137**	**0.0082**	**0.0922**
	11/3/2020	**0.00346**	**0.000187**	**0.0706**	**0.0916**
	4/5/2021	**0.00095**	< 0.0002	**0.019**	**0.0199**
	8/25/2021	**0.00101**	< 0.0001	**0.0108**	**0.0382**
	3/8/2022	**0.000741**	< 0.0001	**0.00605**	**0.00702**
	6/22/2022	**0.000365**	**0.000498**	**0.00417**	**0.00162**
	2/21/2023	**0.000793**	**0.00135**	N/A	**0.0017**
	7/25/2023	**0.000887**	**0.000242**	N/A	**0.00143**
	7/25/2023	**0.00094**	N/A	N/A	N/A
Chromium, mg/L (CAS NO - 7440-47-3)	10/22/2018	0.000997*	0.00101*	N/A	N/A
	4/1/2019	< 0.005	< 0.005	N/A	N/A
	8/26/2019	**0.00784**	< 0.005	< 0.005	< 0.005
	6/16/2020	< 0.005	0.00206*	< 0.005	< 0.005
	11/3/2020	< 0.005	< 0.005	< 0.005	< 0.005
	4/5/2021	< 0.005	< 0.01	< 0.02	< 0.035
	8/25/2021	< 0.005	< 0.005	< 0.005	0.00187*
	3/8/2022	< 0.005	< 0.005	< 0.005	< 0.005
	6/22/2022	< 0.005	0.00159*	< 0.005	< 0.005
	2/21/2023	< 0.005	0.00218*	N/A	< 0.005
	7/25/2023	< 0.005	< 0.005	N/A	< 0.005
	7/25/2023	< 0.005	N/A	N/A	N/A
Cobalt, mg/L (CAS NO - 7440-48-4)	10/22/2018	**0.00128**	**0.0199**	N/A	N/A
	4/1/2019	**0.000519**	**0.0263**	N/A	N/A
	8/26/2019	**0.00227**	**0.0247**	**0.073**	**0.0032**
	6/16/2020	< 0.0005	**0.00497**	**0.0644**	**0.00379**
	11/3/2020	**0.0185**	**0.00579**	**0.0592**	**0.0046**
	4/5/2021	0.000288*	**0.00797**	**0.0677**	**0.00434**
	8/25/2021	**0.0194**	**0.0135**	**0.0579**	**0.00702**
	3/8/2022	**0.0118**	**0.00914**	**0.0552**	**0.00272**
	6/22/2022	**0.0109**	**0.0087**	**0.0512**	**0.00185**
	2/21/2023	**0.00679**	**0.0117**	N/A	**0.00245**
	7/25/2023	**0.00702**	**0.00986**	N/A	**0.0028**
	7/25/2023	**0.00738**	N/A	N/A	N/A
Copper, mg/L (CAS NO - 7440-50-8)	10/22/2018	< 0.005	< 0.005	N/A	N/A
	4/1/2019	< 0.005	< 0.005	N/A	N/A
	8/26/2019	< 0.005	< 0.005	< 0.005	**0.0212**
	6/16/2020	< 0.005	< 0.005	< 0.005	**0.0453**
	11/3/2020	0.00307*	< 0.005	0.00419*	**0.0974**
	4/5/2021	< 0.005	< 0.01	0.00624*	**0.303**
	8/25/2021	< 0.005	< 0.005	0.00208*	**0.00536**
	3/8/2022	0.00199*	**0.00634**	< 0.005	0.00223*
	6/22/2022	< 0.005	**0.00711**	0.00275*	< 0.005
	2/21/2023	0.00245*	**0.012**	N/A	< 0.005
	7/25/2023	< 0.005	**0.0101**	N/A	< 0.005
	7/25/2023	< 0.005	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Total Metals Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Lead, mg/L (CAS NO - 7439-92-1)	10/22/2018	**0.00131**	**0.000977**	N/A	N/A
	4/1/2019	0.000324*	< 0.0005	N/A	N/A
	8/26/2019	< 0.0005	< 0.0005	0.000402*	< 0.0005
	6/16/2020	< 0.0005	0.000169*	0.000173*	**0.00224**
	11/3/2020	0.000236*	**0.000967**	**0.00105**	**0.0024**
	4/5/2021	0.000262*	0.00051*	< 0.002	< 0.0035
	8/25/2021	0.000281*	< 0.0005	0.000257*	**0.00687**
	3/8/2022	0.000286*	< 0.0005	< 0.0005	**0.000933**
	6/22/2022	0.000406*	**0.00357**	< 0.0005	< 0.0005
	2/21/2023	< 0.0005	**0.00456**	N/A	< 0.0005
	7/25/2023	< 0.0005	**0.000785**	N/A	< 0.0005
	7/25/2023	< 0.0005	N/A	N/A	N/A
Mercury, mg/L (CAS NO - 7439-97-6)	10/22/2018	N/A	< 0.0002	N/A	N/A
Nickel, mg/L (CAS NO - 7440-02-0)	10/22/2018	**0.0157**	**0.0194**	N/A	N/A
	4/1/2019	**0.0111**	**0.0341**	N/A	N/A
	8/26/2019	**0.0633**	**0.036**	**0.0291**	**0.0334**
	6/16/2020	< 0.005	**0.0147**	**0.028**	**0.0357**
	11/3/2020	**0.0409**	**0.0169**	**0.0259**	**0.0383**
	4/5/2021	0.00437*	**0.018**	**0.0286**	**0.0354**
	8/25/2021	**0.0198**	**0.0203**	**0.0249**	**0.0739**
	3/8/2022	**0.0153**	**0.0203**	**0.0228**	**0.024**
	6/22/2022	**0.02**	**0.0241**	**0.0229**	**0.0167**
	2/21/2023	**0.0193**	**0.0279**	N/A	**0.0223**
	7/25/2023	**0.0132**	**0.0321**	N/A	**0.0223**
	7/25/2023	**0.0137**	N/A	N/A	N/A
Selenium, mg/L (CAS NO - 7782-49-2)	10/22/2018	**0.00879**	< 0.005	N/A	N/A
	4/1/2019	**0.00913**	< 0.005	N/A	N/A
	8/26/2019	< 0.005	< 0.005	< 0.005	< 0.005
	6/16/2020	**0.00638**	< 0.005	< 0.005	< 0.005
	11/3/2020	< 0.005	< 0.005	< 0.005	< 0.005
	4/5/2021	0.00478*	< 0.01	< 0.02	< 0.035
	8/25/2021	0.00138*	< 0.005	< 0.005	< 0.005
	3/8/2022	< 0.005	< 0.005	< 0.005	< 0.005
	6/22/2022	0.00132*	0.00127*	< 0.005	< 0.005
	2/21/2023	0.00293*	0.00199*	N/A	< 0.005
	7/25/2023	0.00238*	< 0.005	N/A	< 0.005
	7/25/2023	0.00253*	N/A	N/A	N/A
Silver, mg/L (CAS NO - 7440-22-4)	10/22/2018	< 0.001	< 0.001	N/A	N/A
	4/1/2019	< 0.001	< 0.001	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001
	6/16/2020	< 0.001	< 0.001	< 0.001	< 0.001
	11/3/2020	< 0.001	< 0.001	< 0.001	< 0.001
	4/5/2021	< 0.001	< 0.002	< 0.004	< 0.007
	8/25/2021	< 0.001	< 0.001	< 0.001	< 0.001
	3/8/2022	< 0.001	< 0.001	< 0.001	< 0.001
	6/22/2022	< 0.001	< 0.001	< 0.001	< 0.001
	2/21/2023	< 0.001	< 0.001	N/A	< 0.001
	7/25/2023	< 0.001	< 0.001	N/A	< 0.001
	7/25/2023	< 0.001	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Total Metals Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Thallium, mg/L (CAS NO - 7440-28-0)	10/22/2018	< 0.001	< 0.001	N/A	N/A
	4/1/2019	< 0.001	< 0.001	N/A	N/A
	8/26/2019	< 0.001	< 0.001	< 0.001	< 0.001
	6/16/2020	< 0.001	< 0.001	< 0.001	< 0.001
	11/3/2020	< 0.001	< 0.001	< 0.001	< 0.001
	4/5/2021	**0.00157**	< 0.002	< 0.004	< 0.007
	8/25/2021	0.000765*	< 0.001	< 0.001	< 0.001
	3/8/2022	< 0.001	< 0.001	< 0.001	< 0.001
	6/22/2022	< 0.001	< 0.001	< 0.001	< 0.001
	2/21/2023	< 0.001	< 0.001	N/A	< 0.001
	7/25/2023	< 0.001	< 0.001	N/A	< 0.001
	7/25/2023	< 0.001	N/A	N/A	N/A
Tin, mg/L (CAS NO - 7440-31-5)	10/22/2018	N/A	< 0.005	N/A	N/A
Vanadium, mg/L (CAS NO - 7440-62-2)	10/22/2018	0.00297*	0.000943*	N/A	N/A
	4/1/2019	< 0.005	< 0.005	N/A	N/A
	8/26/2019	< 0.005	< 0.005	< 0.005	< 0.005
	6/16/2020	< 0.005	< 0.005	< 0.005	0.00317*
	11/3/2020	< 0.005	0.00107*	< 0.005	0.00466*
	4/5/2021	< 0.005	< 0.01	< 0.02	< 0.035
	8/25/2021	< 0.005	< 0.005	< 0.005	**0.0192**
	3/8/2022	< 0.005	< 0.005	< 0.005	0.00214*
	6/22/2022	< 0.005	0.00472*	< 0.005	< 0.005
	2/21/2023	< 0.005	**0.00567**	N/A	< 0.005
	7/25/2023	< 0.005	< 0.005	N/A	< 0.005
	7/25/2023	< 0.005	N/A	N/A	N/A
Zinc, mg/L (CAS NO - 7440-66-6)	10/22/2018	0.0111*	**1.44**	N/A	N/A
	4/1/2019	< 0.02	< 0.02	N/A	N/A
	8/26/2019	0.017*	< 0.02	**0.125**	**0.0644**
	6/16/2020	< 0.02	**0.0291**	**0.0741**	**0.424**
	11/3/2020	0.0118*	**0.0209**	**0.372**	**0.471**
	4/5/2021	< 0.02	< 0.04	**0.167**	**0.154**
	8/25/2021	0.0106*	0.0116*	**0.131**	**0.136**
	3/8/2022	< 0.02	0.0129*	**0.0691**	**0.0275**
	6/22/2022	< 0.02	**0.0431**	**0.0603**	< 0.02
	2/21/2023	< 0.02	**0.048**	N/A	0.0105*
	7/25/2023	< 0.02	**0.0234**	N/A	0.0117*
	7/25/2023	0.00777*	N/A	N/A	N/A
Total Suspended Solids, mg/L (CAS NO - TSS)	10/2/2018	N/A	N/A	**22.9**	N/A
	10/22/2018	**97**	**74.5**	N/A	N/A
	4/1/2019	**21.1**	**25.5**	**3.38**	N/A
	8/26/2019	1.75*	**15.1**	**7**	**4.62**
	6/16/2020	1.13*	**12.3**	**4.5**	**38**
	11/3/2020	**10.5**	**46**	**23.5**	**81**
	4/5/2021	**4.38**	**37**	**14.5**	**49.7**
	8/25/2021	**7**	**18.5**	**25.5**	**508**
	3/8/2022	**13**	**17.7**	**6**	**31.7**
	6/22/2022	**12.8**	**334**	**15.7**	**3.38**
	2/21/2023	**8.63**	**378**	N/A	**2**
	7/25/2023	3.5*	**86**	N/A	**5.75**
	7/25/2023	3.5*	N/A	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
1,1,1,2-Tetrachloroethane, ug/L (CAS NO - 630-20-6)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,1,1-Trichloroethane, ug/L (CAS NO - 71-55-6)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane, ug/L (CAS NO - 79-34-5)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,1,2-Trichloroethane, ug/L (CAS NO - 79-00-5)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
1,1-Dichloroethane, ug/L (CAS NO - 75-34-3)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	**1.04**	0.332*	**5.8**	**5.1**
	6/16/2020	< 1	0.673*	**4.76**	**4.16**
	11/3/2020	**1.51**	0.844*	**4.81**	**2.69**
	4/5/2021	< 1	0.995*	**4.7**	**3.36**
	8/25/2021	**1.05**	0.807*	**3.61**	**2.85**
	3/8/2022	**1.11**	0.722*	**3.43**	**1.1**
	6/22/2022	**1.07**	0.9*	**3.29**	**1.26**
	2/21/2023	0.59*	0.623*	N/A	**2.74**
	7/25/2023	< 1	< 1	N/A	**2.26**
	7/25/2023	< 1	N/A	N/A	N/A
1,1-Dichloroethene, ug/L (CAS NO - 75-35-4)	10/22/2018	< 2	< 2	N/A	N/A
	4/1/2019	< 2	< 2	N/A	N/A
	8/26/2019	< 2	< 2	< 2	< 2
	6/16/2020	< 2	< 2	< 2	< 2
	11/3/2020	< 2	< 2	< 2	< 2
	4/5/2021	< 2	< 2	< 2	< 2
	8/25/2021	< 2	< 2	< 2	< 2
	3/8/2022	0.688*	< 2	< 2	< 2
	6/22/2022	< 2	< 2	< 2	< 2
	2/21/2023	< 2	< 2	N/A	< 2
	7/25/2023	< 2	< 2	N/A	< 2
	7/25/2023	< 2	N/A	N/A	N/A
1,2,3-Trichloropropane, ug/L (CAS NO - 96-18-4)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,2-Dibromo-3-Chloropropane, ug/L (CAS NO - 96-12-8)	10/22/2018	< 1.2	< 1.2	N/A	N/A
	4/1/2019	< 1.2	< 1.2	N/A	N/A
	8/26/2019	< 1.2	< 1.2	< 1.2	< 1.2
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
1,2-Dibromoethane [EDB], ug/L (CAS NO - 106-93-4)	10/22/2018	< 0.34	< 0.34	N/A	N/A
	4/1/2019	< 0.34	< 0.34	N/A	N/A
	8/26/2019	< 0.34	< 0.34	< 0.34	< 0.34
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,2-Dichlorobenzene, ug/L (CAS NO - 95-50-1)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,2-Dichloroethane, ug/L (CAS NO - 107-06-2)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
1,2-Dichloropropane, ug/L (CAS NO - 78-87-5)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	**1.34**	0.644*
	6/16/2020	< 1	< 1	**1.32**	0.829*
	11/3/2020	0.354*	< 1	**1.08**	0.648*
	4/5/2021	< 1	< 1	**1.18**	0.702*
	8/25/2021	< 1	< 1	0.728*	0.436*
	3/8/2022	< 1	< 1	0.744*	< 1
	6/22/2022	0.278*	< 1	0.747*	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A

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Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
1,4-Dichlorobenzene, ug/L (CAS NO - 106-46-7)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	0.3*	N/A	N/A
	8/26/2019	< 1	< 1	< 1	0.394*
	6/16/2020	< 1	< 1	0.261*	**1.12**
	11/3/2020	< 1	< 1	< 1	**1.27**
	4/5/2021	< 1	< 1	0.446*	< 1
	8/25/2021	< 1	< 1	0.379*	0.638*
	3/8/2022	< 1	< 1	0.388*	0.563*
	6/22/2022	< 1	< 1	0.397*	0.546*
	2/21/2023	< 1	< 1	N/A	0.612*
	7/25/2023	< 1	< 1	N/A	0.753*
	7/25/2023	< 1	N/A	N/A	N/A
2-Butanone, ug/L (CAS NO - 78-93-3)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	2.55*
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A
2-Hexanone, ug/L (CAS NO - 591-78-6)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	< 10
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A
4-Methyl-2-Pentanone, ug/L (CAS NO - 108-10-1)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	< 10
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A

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Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Acetone, ug/L (CAS NO - 67-64-1)	10/22/2018	< 10	3.23*	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	3.4*
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	5.53*
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A
Acrylonitrile, ug/L (CAS NO - 107-13-1)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A
Benzene, ug/L (CAS NO - 71-43-2)	10/2/2018	N/A	N/A	**0.772**	0.43*
	10/22/2018	< 0.5	< 0.5	N/A	N/A
	4/1/2019	< 0.5	< 0.5	**1.06**	**0.624**
	8/26/2019	0.241*	< 0.5	**0.91**	**0.631**
	6/16/2020	< 0.5	< 0.5	**0.617**	0.462*
	11/3/2020	**1**	< 0.5	**0.541**	0.438*
	4/5/2021	< 0.5	< 0.5	0.487*	0.416*
	8/25/2021	**0.696**	0.269*	**0.507**	0.455*
	3/8/2022	< 0.5	< 0.5	0.416*	< 0.5
	6/22/2022	**0.501**	< 0.5	0.371*	< 0.5
	2/21/2023	0.346*	< 0.5	N/A	**0.526**
	7/25/2023	< 0.5	< 0.5	N/A	0.358*
	7/25/2023	< 0.5	N/A	N/A	N/A
Bromochloromethane, ug/L (CAS NO - 74-97-5)	10/22/2018	< 5	< 5	N/A	N/A
	4/1/2019	< 5	< 5	N/A	N/A
	8/26/2019	< 5	< 5	< 5	< 5
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A

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Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Bromodichloromethane, ug/L (CAS NO - 75-27-4)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Bromoform, ug/L (CAS NO - 75-25-2)	10/22/2018	< 5	< 5	N/A	N/A
	4/1/2019	< 5	< 5	N/A	N/A
	8/26/2019	< 5	< 5	< 5	< 5
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A
Bromomethane, ug/L (CAS NO - 74-83-9)	10/22/2018	< 4	< 4	N/A	N/A
	4/1/2019	< 4	< 4	N/A	N/A
	8/26/2019	< 4	< 4	< 4	< 4
	6/16/2020	< 4	< 4	< 4	< 4
	11/3/2020	< 4	< 4	< 4	< 4
	4/5/2021	< 4	< 4	< 4	< 4
	8/25/2021	< 4	< 4	< 4	< 4
	3/8/2022	< 4	< 4	< 4	< 4
	6/22/2022	< 4	< 4	< 4	< 4
	2/21/2023	< 4	< 4	N/A	< 4
	7/25/2023	< 4	< 4	N/A	< 4
	7/25/2023	< 4	N/A	N/A	N/A
Carbon Disulfide, ug/L (CAS NO - 75-15-0)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	0.513*	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	0.518*	< 1
	6/22/2022	< 1	< 1	< 1	0.525*
	2/21/2023	< 1	< 1	N/A	**5.98**
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A

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Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Carbon Tetrachloride, ug/L (CAS NO - 56-23-5)	10/22/2018	< 2	< 2	N/A	N/A
	4/1/2019	< 2	< 2	N/A	N/A
	8/26/2019	< 2	< 2	< 2	< 2
	6/16/2020	< 2	< 2	< 2	< 2
	11/3/2020	< 2	< 2	< 2	< 2
	4/5/2021	< 2	< 2	< 2	< 2
	8/25/2021	< 2	< 2	< 2	< 2
	3/8/2022	< 2	< 2	< 2	< 2
	6/22/2022	< 2	< 2	< 2	< 2
	2/21/2023	< 2	< 2	N/A	< 2
	7/25/2023	< 2	< 2	N/A	< 2
	7/25/2023	< 2	N/A	N/A	N/A
Chlorobenzene, ug/L (CAS NO - 108-90-7)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	0.422*	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Chlorodibromomethane, ug/L (CAS NO - 124-48-1)	10/22/2018	< 5	< 5	N/A	N/A
	4/1/2019	< 5	< 5	N/A	N/A
	8/26/2019	< 5	< 5	< 5	< 5
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A
Chloroethane, ug/L (CAS NO - 75-00-3)	10/22/2018	< 4	< 4	N/A	N/A
	4/1/2019	< 4	< 4	N/A	N/A
	8/26/2019	< 4	< 4	< 4	< 4
	6/16/2020	< 4	< 4	< 4	< 4
	11/3/2020	< 4	< 4	< 4	< 4
	4/5/2021	< 4	< 4	< 4	0.815*
	8/25/2021	< 4	< 4	< 4	< 4
	3/8/2022	< 4	< 4	< 4	< 4
	6/22/2022	< 4	< 4	< 4	< 4
	2/21/2023	< 4	< 4	N/A	< 4
	7/25/2023	< 4	< 4	N/A	< 4
	7/25/2023	< 4	N/A	N/A	N/A

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Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Chloroform, ug/L (CAS NO - 67-66-3)	10/22/2018	< 3	**4.03**	N/A	N/A
	4/1/2019	< 3	< 3	N/A	N/A
	8/26/2019	< 3	< 3	< 3	< 3
	6/16/2020	< 3	< 3	< 3	< 3
	11/3/2020	< 3	< 3	< 3	< 3
	4/5/2021	< 3	< 3	< 3	< 3
	8/25/2021	< 3	< 3	< 3	< 3
	3/8/2022	< 3	< 3	< 3	< 3
	6/22/2022	< 3	< 3	< 3	< 3
	2/21/2023	< 3	< 3	N/A	< 3
	7/25/2023	< 3	< 3	N/A	< 3
	7/25/2023	< 3	N/A	N/A	N/A
Chloromethane, ug/L (CAS NO - 74-87-3)	10/22/2018	< 3	< 3	N/A	N/A
	4/1/2019	< 3	< 3	N/A	N/A
	8/26/2019	< 3	< 3	< 3	< 3
	6/16/2020	< 3	< 3	< 3	< 3
	11/3/2020	< 3	< 3	< 3	< 3
	4/5/2021	< 3	< 3	< 3	< 3
	8/25/2021	< 3	< 3	< 3	< 3
	3/8/2022	< 3	< 3	< 3	< 3
	6/22/2022	< 3	< 3	1.83*	< 3
	2/21/2023	< 3	< 3	N/A	< 3
	7/25/2023	< 3	< 3	N/A	< 3
	7/25/2023	< 3	N/A	N/A	N/A
cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	10/2/2018	N/A	N/A	**51.5**	**64**
	10/22/2018	0.875*	**1.43**	N/A	N/A
	4/1/2019	0.913*	**2.95**	**57.2**	**67.1**
	8/26/2019	**8.15**	**1.86**	**54.3**	**78.4**
	6/16/2020	0.546*	**2.68**	**51.9**	**68.8**
	11/3/2020	**24.7**	**7.6**	**40.1**	**61.8**
	4/5/2021	< 1	**12.7**	**46.1**	**60**
	8/25/2021	**20.5**	**7.46**	**34.9**	**46.8**
	3/8/2022	**20.7**	**10.5**	**31.8**	**17.2**
	6/22/2022	**15.6**	**10.4**	**29.2**	**17.6**
	2/21/2023	**4.84**	**7.37**	N/A	**38.8**
	7/25/2023	**5.88**	**17.3**	N/A	**38.2**
	7/25/2023	**5.72**	N/A	N/A	N/A
cis-1,3-Dichloropropene, ug/L (CAS NO - 10061-01-5)	10/22/2018	< 5	< 5	N/A	N/A
	4/1/2019	< 5	< 5	N/A	N/A
	8/26/2019	< 5	< 5	< 5	< 5
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A

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Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Ethylbenzene, ug/L (CAS NO - 100-41-4)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Iodomethane, ug/L (CAS NO - 74-88-4)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	< 10
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A
Methylene Bromide, ug/L (CAS NO - 74-95-3)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Methylene Chloride, ug/L (CAS NO - 75-09-2)	10/22/2018	< 5	< 5	N/A	N/A
	4/1/2019	< 5	< 5	N/A	N/A
	8/26/2019	< 5	< 5	< 5	< 5
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Styrene, ug/L (CAS NO - 100-42-5)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	10/2/2018	N/A	N/A	**9.54**	N/A
	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	0.643*	**8.8**	< 1
	8/26/2019	**2.31**	0.698*	**8.15**	< 1
	6/16/2020	< 1	0.653*	**5.43**	< 1
	11/3/2020	< 1	< 1	**3.97**	< 1
	4/5/2021	< 1	< 1	**4.28**	< 1
	8/25/2021	< 1	< 1	**3.69**	< 1
	3/8/2022	< 1	< 1	**2.9**	< 1
	6/22/2022	< 1	< 1	**2.98**	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Toluene, ug/L (CAS NO - 108-88-3)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	< 1	< 1
	6/16/2020	< 1	< 1	< 1	< 1
	11/3/2020	< 1	< 1	< 1	< 1
	4/5/2021	< 1	< 1	< 1	< 1
	8/25/2021	< 1	< 1	< 1	< 1
	3/8/2022	< 1	< 1	< 1	< 1
	6/22/2022	< 1	< 1	< 1	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
trans-1,2-Dichloroethene, ug/L (CAS NO - 156-60-5)	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	N/A	N/A
	8/26/2019	< 1	< 1	**1.16**	**1.27**
	6/16/2020	< 1	< 1	**1.04**	**1.01**
	11/3/2020	0.684*	< 1	0.911*	**1.04**
	4/5/2021	< 1	0.275*	0.915*	**1.07**
	8/25/2021	0.71*	0.376*	0.779*	0.77*
	3/8/2022	0.521*	< 1	0.827*	0.295*
	6/22/2022	0.326*	< 1	0.681*	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
trans-1,3-Dichloropropene, ug/L (CAS NO - 10061-02-6)	10/22/2018	< 5	< 5	N/A	N/A
	4/1/2019	< 5	< 5	N/A	N/A
	8/26/2019	< 5	< 5	< 5	< 5
	6/16/2020	< 5	< 5	< 5	< 5
	11/3/2020	< 5	< 5	< 5	< 5
	4/5/2021	< 5	< 5	< 5	< 5
	8/25/2021	< 5	< 5	< 5	< 5
	3/8/2022	< 5	< 5	< 5	< 5
	6/22/2022	< 5	< 5	< 5	< 5
	2/21/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	< 5	N/A	< 5
	7/25/2023	< 5	N/A	N/A	N/A
trans-1,4-Dichloro-2-Butene, ug/L (CAS NO - 110-57-6)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	< 10
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A
Trichloroethene, ug/L (CAS NO - 79-01-6)	10/2/2018	N/A	N/A	**9.91**	< 1
	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	0.676*	**10.2**	< 1
	8/26/2019	**2.1**	0.691*	**9.67**	0.439*
	6/16/2020	< 1	< 1	**8.51**	< 1
	11/3/2020	**1.12**	< 1	**7.66**	< 1
	4/5/2021	< 1	< 1	**7.49**	< 1
	8/25/2021	0.553*	< 1	**6.35**	< 1
	3/8/2022	< 1	< 1	**6.15**	< 1
	6/22/2022	< 1	< 1	**5.78**	< 1
	2/21/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	< 1	N/A	< 1
	7/25/2023	< 1	N/A	N/A	N/A
Trichlorofluoromethane, ug/L (CAS NO - 75-69-4)	10/22/2018	< 4	< 4	N/A	N/A
	4/1/2019	< 4	< 4	N/A	N/A
	8/26/2019	< 4	< 4	< 4	< 4
	6/16/2020	< 4	< 4	< 4	< 4
	11/3/2020	< 4	< 4	< 4	< 4
	4/5/2021	< 4	< 4	< 4	< 4
	8/25/2021	< 4	< 4	< 4	< 4
	3/8/2022	< 4	< 4	< 4	< 4
	6/22/2022	< 4	< 4	< 4	< 4
	2/21/2023	< 4	< 4	N/A	< 4
	7/25/2023	< 4	< 4	N/A	< 4
	7/25/2023	< 4	N/A	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Appendix I VOC Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Vinyl Acetate, ug/L (CAS NO - 108-05-4)	10/22/2018	< 10	< 10	N/A	N/A
	4/1/2019	< 10	< 10	N/A	N/A
	8/26/2019	< 10	< 10	< 10	< 10
	6/16/2020	< 10	< 10	< 10	< 10
	11/3/2020	< 10	< 10	< 10	< 10
	4/5/2021	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10
	6/22/2022	< 10	< 10	< 10	< 10
	2/21/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	< 10	N/A	< 10
	7/25/2023	< 10	N/A	N/A	N/A
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	10/2/2018	N/A	N/A	**4.27**	**3.63**
	10/22/2018	< 1	< 1	N/A	N/A
	4/1/2019	< 1	< 1	**7.15**	**4.71**
	8/26/2019	0.556*	< 1	**5.81**	**5.02**
	6/16/2020	< 1	< 1	**5.01**	**3.63**
	11/3/2020	**2.08**	< 1	**3.62**	**3.2**
	4/5/2021	< 1	< 1	**4.56**	**4.46**
	8/25/2021	**2.43**	< 1	**2.99**	**2.37**
	3/8/2022	**2.4**	< 1	**2.63**	0.796*
	6/22/2022	**1.7**	< 1	**3.23**	**1.15**
	2/21/2023	0.403*	< 1	N/A	**4.54**
	7/25/2023	< 1	< 1	N/A	**4.98**
	7/25/2023	< 1	N/A	N/A	N/A
Xylenes, total, ug/L (CAS NO - 1330-20-7)	10/22/2018	< 3	< 3	N/A	N/A
	4/1/2019	< 3	< 3	N/A	N/A
	8/26/2019	< 3	< 3	< 3	< 3
	6/16/2020	< 3	< 3	< 3	< 3
	11/3/2020	< 3	< 3	< 3	< 3
	4/5/2021	< 3	< 3	< 3	< 3
	8/25/2021	< 3	< 3	< 3	0.519*
	3/8/2022	< 3	< 3	< 3	< 3
	6/22/2022	< 3	< 3	< 3	< 3
	2/21/2023	< 3	< 3	N/A	< 3
	7/25/2023	< 3	< 3	N/A	< 3
	7/25/2023	< 3	N/A	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Other Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Endosulfan I, ug/L (CAS NO - 959-98-8)	8/27/2009	< 0.032	< 0.032	N/A	N/A
	10/14/2010	< 0.032	< 0.032	N/A	N/A
	2/24/2011	N/A	< 0.032	N/A	N/A
	10/13/2011	< 0.032	N/A	N/A	N/A
	1/9/2017	< 0.172	N/A	N/A	N/A
	10/22/2018	N/A	**0.132**	N/A	N/A
	4/1/2019	N/A	**0.0654**	N/A	N/A
	8/26/2019	N/A	< 0.033	N/A	N/A
	6/16/2020	N/A	< 0.034	N/A	N/A
	11/3/2020	N/A	< 0.0337	N/A	N/A
	4/5/2021	N/A	0.00495*	N/A	N/A
	8/25/2021	N/A	< 0.034	N/A	N/A
	3/8/2022	N/A	< 0.064	N/A	N/A
	6/22/2022	N/A	< 0.0627	N/A	N/A
	7/25/2023	N/A	< 0.0604	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Source

Total Natural_Attenuations Constituents	Sample Date	93-MW-31R DNG	MW-61R DNG	MW-73 DNG	MW-79 DNG
Iron, Total, mg/L (CAS NO - 7439-89-6)	8/21/2014	N/A	N/A	**6.18**	N/A
	8/13/2015	N/A	N/A	N/A	**16.5**
	8/14/2015	N/A	N/A	**9.88**	N/A
	6/16/2020	0.245*	**2.51**	**6.59**	**1.2**
	4/5/2021	**0.823**	**3.7**	**7.76**	**0.822**
	8/25/2021	**4.64**	**11.2**	**8.98**	**1.81**
	3/8/2022	**10.1**	**6.16**	**5.57**	0.257*
	2/21/2023	**3.86**	**6.48**	N/A	**0.197**
Manganese, mg/L (CAS NO - 7439-96-5)	8/21/2014	N/A	N/A	**5.99**	N/A
	8/13/2015	N/A	N/A	N/A	**6.2**
	8/14/2015	N/A	N/A	**6.93**	N/A
	6/16/2020	**0.182**	**4.09**	**5.66**	**14.9**
	4/5/2021	**0.196**	**5.99**	**6.19**	**18.1**
	8/25/2021	**38.1**	**7.51**	**5.23**	**21.1**
	3/8/2022	**40.5**	**6.04**	**5.35**	**13.1**
	2/21/2023	**6.84**	**3.54**	N/A	**19.3**
Nitrate (NO3), mg/L (CAS NO - 14797-55-8)	8/21/2014	N/A	N/A	< 0.1	N/A
	8/13/2015	N/A	N/A	N/A	< 0.1
	8/14/2015	N/A	N/A	< 0.1	N/A
	6/16/2020	**2.43**	< 0.1	< 0.1	< 0.1
	6/16/2020	N/A	< 0.1	< 0.1	< 0.1
	4/5/2021	**3.46**	< 0.1	**0.988**	**1.02**
	8/25/2021	< 0.1	< 0.1	< 0.1	< 0.1
	3/8/2022	< 0.1	< 0.1	< 0.1	< 0.1
	2/21/2023	N/A	**0.116**	N/A	< 0.1
Sulfate, mg/L (CAS NO - 14808-79-8)	8/21/2014	N/A	N/A	**70.8**	N/A
	5/18/2015	N/A	N/A	**64.2**	N/A
	8/13/2015	N/A	N/A	N/A	**118**
	8/14/2015	N/A	N/A	**77.9**	N/A
	6/16/2020	**139**	**1720**	**79.7**	**196**
	4/5/2021	**105**	**1720**	**71.7**	**146**
	8/25/2021	**214**	**1560**	**64.3**	**122**
	3/8/2022	**169**	**1610**	**64.8**	**82.5**
	2/21/2023	**135**	**760**	N/A	**55.4**
Total Organic Carbon, mg/L (CAS NO - TOC)	8/21/2014	N/A	N/A	0.987*	N/A
	8/13/2015	N/A	N/A	N/A	0.997*
	8/14/2015	N/A	N/A	**1.15**	N/A
	6/16/2020	**3.39**	**1.42**	**2.84**	0.769*
	4/5/2021	0.731*	**3.31**	**1.16**	**1.98**
	8/25/2021	**2.16**	3.92*	0.812*	0.71*
	3/8/2022	**2.67**	**3.29**	**1.09**	0.743*
	2/21/2023	**2.42**	**3.41**	N/A	**7.83**

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

Appendix C-3

Summary of Groundwater Chemistry – Corrective Action Wells

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Corrective Action

Total Metals Constituents	Sample Date	MW-66 DNG	MW-67 DNG	MW-68 DNG	MW-71 DNG	MW-74 DNG	MW-75 DNG	MW-78 DNG	MW-80 DNG
Arsenic, mg/L (CAS NO - 7440-38-2)	2/13/2014	0.00422	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	0.00532	N/A	N/A	0.00171*	N/A
	4/1/2019	N/A	N/A	N/A	0.0033	0.00852	N/A	< 0.002	N/A
	8/26/2019	N/A	N/A	N/A	0.00553	0.0507	N/A	< 0.002	N/A
	8/20/2020	N/A	N/A	N/A	0.0294	0.101	N/A	0.00213	N/A
	11/3/2020	N/A	N/A	N/A	0.0167	0.0412	N/A	N/A	N/A
	11/24/2020	< 0.002	< 0.002	< 0.002	N/A	N/A	N/A	N/A	N/A
	4/5/2021	< 0.002	< 0.002	< 0.002	0.00773	0.0219	N/A	N/A	N/A
	8/25/2021	N/A	< 0.002	N/A	0.01	0.0338	N/A	N/A	N/A
	3/8/2022	< 0.002	< 0.002	< 0.002	0.00905	0.0264	N/A	N/A	N/A
	6/22/2022	N/A	< 0.002	N/A	0.0122	0.0161	N/A	< 0.002	N/A
	2/21/2023	< 0.002	N/A	< 0.002	0.00762	0.0288	N/A	N/A	N/A
Cobalt, mg/L (CAS NO - 7440-48-4)	8/8/2012	0.212	0.347	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	0.238	0.293	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	0.238	0.293	N/A	N/A	N/A	N/A	N/A	N/A
	2/13/2014	0.0391	0.119	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	0.0173	0.0273	0.267	0.0702	0.0471	0.0132	N/A	N/A
	5/18/2015	N/A	0.0369	N/A	0.0639	0.0361	0.0119	N/A	N/A
	5/19/2015	N/A	N/A	0.0281	N/A	N/A	N/A	N/A	N/A
	8/13/2015	N/A	0.0119	0.00737	N/A	N/A	N/A	0.024	N/A
	8/14/2015	N/A	N/A	N/A	0.034	0.0525	N/A	N/A	N/A
	4/4/2016	0.000441*	0.027	N/A	N/A	0.0421	N/A	N/A	N/A
	4/5/2016	N/A	N/A	0.00265	0.0343	N/A	N/A	N/A	N/A
	9/13/2016	0.00171	0.0195	N/A	0.025	0.0354	0.0106	0.00922	N/A
	4/19/2017	0.000117*	0.00597	0.00107	0.0164	0.0473	N/A	N/A	N/A
	8/3/2017	N/A	N/A	N/A	0.0159	0.03	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	0.00742	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	0.0461	N/A	N/A	N/A
	8/26/2019	N/A	N/A	N/A	0.00802	0.0115	N/A	0.00876	N/A
	8/20/2020	N/A	N/A	N/A	0.0336	0.0172	N/A	0.013	N/A
	11/3/2020	N/A	N/A	N/A	0.0094	0.00277	N/A	0.0073	N/A
	11/24/2020	0.00208	0.000689	0.00144	N/A	N/A	N/A	N/A	N/A
	4/5/2021	< 0.0005	0.000329*	0.00105	0.00788	0.0273	N/A	0.00802	N/A
	8/25/2021	N/A	0.000375*	N/A	0.0168	0.0166	N/A	0.0128	N/A
	3/8/2022	0.00306	0.00105	0.000665	0.00464	0.0018	N/A	0.00694	N/A
	6/22/2022	N/A	0.000199*	N/A	0.00605	0.00377	N/A	0.00682	N/A
	2/21/2023	0.00168	N/A	0.000255*	0.002	0.00587	N/A	0.00342	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.00559	N/A
Total Suspended Solids, mg/L (CAS NO - TSS)	2/13/2014	8530	4980	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	905	585	9920	1640	3620	1200	N/A	N/A
	5/18/2015	N/A	716	N/A	1090	3510	583	N/A	N/A
	5/19/2015	N/A	N/A	7840	N/A	N/A	N/A	N/A	N/A
	8/12/2015	18.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/13/2015	N/A	37.1	213	N/A	N/A	N/A	1210	N/A
	8/14/2015	N/A	N/A	N/A	1070	4660	N/A	N/A	N/A
	4/4/2016	10.9	150	N/A	N/A	1020	N/A	N/A	N/A
	4/5/2016	N/A	N/A	285	560	N/A	253	515	N/A
	9/13/2016	8	50.6	N/A	39.2	88.5	12.9	900	N/A
	4/19/2017	15.3	76.3	10	25.3	24.8	35.4	N/A	N/A
	8/3/2017	N/A	N/A	N/A	23	3.13	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	34.4	N/A	N/A	N/A	N/A
	10/22/2018	N/A	N/A	N/A	29.6	N/A	N/A	671	N/A
	4/1/2019	N/A	N/A	N/A	11.8	4.13	N/A	21	N/A
	8/26/2019	N/A	N/A	N/A	16.6	62.7	N/A	24.3	N/A
	8/20/2020	N/A	N/A	N/A	7440	84	N/A	118	N/A
	11/3/2020	N/A	N/A	N/A	1500	120	N/A	6.12	N/A
	11/24/2020	5.5	2.75	90	N/A	N/A	N/A	N/A	N/A
	4/5/2021	1.88	1*	66.3	1050	65.1	N/A	9.63	N/A
	8/25/2021	N/A	1.63*	N/A	2290	22	N/A	708	N/A
	3/8/2022	4*	4.33*	12.7	532	85	N/A	18.7	N/A
	6/22/2022	N/A	< 1.88	N/A	568	61	N/A	9.87	N/A
	2/21/2023	29.7	N/A	1.75*	216	16	N/A	10.4	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	16.5	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Corrective Action

Appendix I VOC Constituents	Sample Date	MW-66 DNG	MW-67 DNG	MW-68 DNG	MW-71 DNG	MW-74 DNG	MW-75 DNG	MW-78 DNG	MW-80 DNG
Benzene, ug/L (CAS NO - 71-43-2)	8/8/2012	< 0.5	0.95	< 0.5	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 0.5	0.78	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 0.5	0.78	N/A	N/A	N/A	N/A	N/A	N/A
	10/10/2013	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	2/13/2014	< 0.5	< 0.5	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 0.5	< 0.5	N/A	< 0.5	0.958	< 0.5	N/A	N/A
	5/18/2015	N/A	< 0.5	N/A	< 0.5	0.79	< 0.5	N/A	N/A
	8/13/2015	N/A	< 0.5	N/A	N/A	N/A	N/A	< 0.5	N/A
	8/14/2015	N/A	N/A	N/A	N/A	0.815	N/A	N/A	N/A
	4/4/2016	N/A	N/A	N/A	N/A	1.55	N/A	N/A	N/A
	4/5/2016	N/A	N/A	N/A	0.126*	N/A	< 0.5	N/A	N/A
	9/13/2016	N/A	N/A	N/A	0.148*	2.12	< 0.5	N/A	N/A
	4/19/2017	N/A	N/A	N/A	< 0.5	0.717	< 0.5	N/A	N/A
	8/3/2017	N/A	N/A	N/A	< 0.5	0.422*	N/A	N/A	N/A
	3/5/2018	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	10/3/2018	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 0.5	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	< 0.5	0.551	N/A	< 0.5	N/A
	8/26/2019	N/A	N/A	N/A	< 0.5	0.756	< 0.5	< 0.5	N/A
	8/20/2020	N/A	N/A	N/A	< 0.5	1.05	N/A	< 0.5	N/A
	11/3/2020	N/A	N/A	N/A	N/A	1.8	N/A	N/A	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	< 0.5	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	0.976	< 0.5	N/A	N/A
	8/25/2021	N/A	N/A	N/A	N/A	0.648	N/A	N/A	N/A
	3/8/2022	N/A	N/A	N/A	N/A	1.68	< 0.5	N/A	N/A
	6/22/2022	N/A	N/A	N/A	N/A	1.41	N/A	N/A	N/A
	2/21/2023	N/A	N/A	N/A	N/A	0.499*	< 0.5	N/A	N/A
cis-1,2-Dichloroethene, ug/L (CAS NO - 156-59-2)	8/8/2012	1.43	4.5	< 1	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 1	3.52	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 1	3.52	N/A	N/A	N/A	N/A	N/A	N/A
	10/10/2013	N/A	N/A	N/A	1.09	N/A	N/A	N/A	N/A
	2/13/2014	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	< 1	N/A	< 1	50.7	< 1	N/A	N/A
	5/18/2015	N/A	< 1	N/A	2.4	47.9	< 1	N/A	N/A
	8/13/2015	N/A	< 1	< 1	N/A	N/A	N/A	1.97	N/A
	8/14/2015	N/A	N/A	N/A	1.67	42.7	N/A	N/A	N/A
	4/4/2016	N/A	N/A	N/A	N/A	58.1	N/A	N/A	N/A
	4/5/2016	N/A	N/A	N/A	3.16	N/A	< 1	1.94	N/A
	9/13/2016	N/A	N/A	N/A	4.39	56.5	< 1	1.84	N/A
	4/19/2017	N/A	N/A	N/A	1.87	39.3	< 1	1.18	1.75*
	8/3/2017	N/A	N/A	N/A	2.05	36	N/A	1.69	0.993*
	3/5/2018	N/A	N/A	N/A	0.316*	N/A	N/A	1.15	11
	10/3/2018	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	1.75	70.7
	4/1/2019	N/A	N/A	N/A	0.563*	40.6	N/A	2.78	48.2
	8/26/2019	N/A	N/A	N/A	2.31	53.6	< 1	3.11	9.67
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.722*
	8/20/2020	N/A	N/A	N/A	0.393*	54.1	N/A	0.976*	N/A
	11/3/2020	N/A	N/A	N/A	< 1	61.8	N/A	0.648	11.5
	11/24/2020	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	4/5/2021	N/A	N/A	N/A	< 1	56.3	< 1	0.805*	0.969*
	8/25/2021	N/A	N/A	N/A	0.319*	44.8	N/A	1.02	0.474*
	3/8/2022	N/A	N/A	N/A	0.273*	63.7	< 1	0.577*	0.249*
	6/22/2022	N/A	N/A	N/A	0.4*	57.7	N/A	0.621*	0.25*
	2/21/2023	N/A	N/A	N/A	< 1	25.9	< 1	0.634*	9.28
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	0.61*	N/A
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	8/8/2012	< 1	9.15	< 1	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 1	8.33	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 1	8.33	N/A	N/A	N/A	N/A	N/A	N/A
	10/10/2013	N/A	N/A	N/A	1.21	N/A	N/A	N/A	N/A
	2/13/2014	< 1	2.74	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	1.49	< 1	0.701*	17.3	< 1	N/A	N/A
	5/18/2015	N/A	1.47	N/A	3.7	16.9	< 1	N/A	N/A
	5/19/2015	N/A	N/A	< 1	N/A	N/A	N/A	N/A	N/A
	8/12/2015	< 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/13/2015	N/A	0.738*	< 1	N/A	N/A	N/A	4.47	N/A
	8/14/2015	N/A	N/A	N/A	3.67	12.1	N/A	N/A	N/A
	4/4/2016	N/A	0.651*	N/A	N/A	14.9	N/A	N/A	N/A
	4/5/2016	N/A	N/A	N/A	3.77	N/A	< 1	3.94	N/A
	9/13/2016	N/A	1.37	N/A	3.65	16.9	< 1	3.4	N/A
	4/19/2017	N/A	0.847*	N/A	2.12	9.17	< 1	2.44	N/A
	8/3/2017	N/A	N/A	N/A	1.26	9.59	N/A	3.83	N/A
	3/5/2018	N/A	N/A	N/A	0.325*	N/A	N/A	2.48	N/A
	10/3/2018	< 1	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	2.76	N/A
	4/1/2019	N/A	N/A	N/A	< 1	4.72	N/A	2.47	N/A
	8/26/2019	< 1	< 1	N/A	0.83*	2.13	< 1	2.89	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - Corrective Action

Appendix I VOC Constituents	Sample Date	MW-66 DNG	MW-67 DNG	MW-68 DNG	MW-71 DNG	MW-74 DNG	MW-75 DNG	MW-78 DNG	MW-80 DNG
Tetrachloroethene, ug/L (CAS NO - 127-18-4)	8/20/2020	N/A	N/A	N/A	< 1	< 1	N/A	**1.24**	N/A
	11/3/2020	N/A	N/A	N/A	N/A	< 1	N/A	**1.7**	N/A
	11/24/2020	N/A	< 1	N/A	N/A	N/A	< 1	N/A	N/A
	4/5/2021	N/A	0.539*	N/A	N/A	**4.79**	< 1	**1.28**	N/A
	8/25/2021	N/A	< 1	N/A	N/A	< 1	N/A	**1.51**	N/A
	3/8/2022	N/A	0.5*	N/A	N/A	< 1	< 1	**1.15**	N/A
	6/22/2022	N/A	0.615*	N/A	N/A	< 1	N/A	**1.2**	N/A
	2/21/2023	N/A	N/A	N/A	N/A	< 1	< 1	0.788*	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	**1.24**	N/A
Trichloroethene, ug/L (CAS NO - 79-01-6)	8/8/2012	< 1	**3.95**	< 1	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 1	**4.12**	N/A	N/A	N/A	N/A	N/A	N/A
	12/27/2012	< 1	**4.12**	N/A	N/A	N/A	N/A	N/A	N/A
	10/10/2013	N/A	N/A	N/A	0.707*	N/A	N/A	N/A	N/A
	2/13/2014	< 1	0.623*	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	< 1	N/A	< 1	**10.5**	< 1	N/A	N/A
	5/18/2015	N/A	0.267*	N/A	**1.73**	**9.56**	< 1	N/A	N/A
	8/13/2015	N/A	< 1	< 1	N/A	N/A	N/A	**2.09**	N/A
	8/14/2015	N/A	N/A	N/A	**1.32**	**7.64**	N/A	N/A	N/A
	4/4/2016	N/A	< 1	N/A	N/A	**8.71**	N/A	N/A	N/A
	4/5/2016	N/A	N/A	< 1	**2.26**	N/A	< 1	**2.02**	N/A
	9/13/2016	N/A	< 1	N/A	**4.53**	**9.09**	< 1	**1.64**	N/A
	4/19/2017	N/A	< 1	< 1	**1.54**	**6.69**	< 1	**1.24**	N/A
	8/3/2017	N/A	N/A	N/A	**1.99**	**6.55**	N/A	**1.5**	N/A
	3/5/2018	N/A	N/A	N/A	0.435*	N/A	N/A	**1.23**	N/A
	10/3/2018	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	10/22/2018	N/A	N/A	N/A	< 1	N/A	N/A	**1.63**	N/A
	4/1/2019	N/A	N/A	N/A	< 1	**5.89**	N/A	**1.66**	N/A
	8/26/2019	N/A	N/A	N/A	**1.59**	**2.67**	< 1	**1.8**	N/A
	8/20/2020	N/A	N/A	N/A	< 1	**1.71**	N/A	0.793*	N/A
	11/3/2020	N/A	N/A	N/A	< 1	< 1	N/A	**0.646**	N/A
	11/24/2020	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	4/5/2021	N/A	N/A	N/A	< 1	**9.17**	< 1	0.77*	N/A
	8/25/2021	N/A	N/A	N/A	< 1	**4.1**	N/A	0.728*	N/A
	3/8/2022	N/A	N/A	N/A	< 1	< 1	< 1	0.605*	N/A
	6/22/2022	N/A	N/A	N/A	< 1	0.926*	N/A	0.543*	N/A
	2/21/2023	N/A	N/A	N/A	< 1	**1.07**	< 1	< 1	N/A
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A
Vinyl Chloride, ug/L (CAS NO - 75-01-4)	10/10/2013	N/A	N/A	N/A	< 1	N/A	N/A	N/A	N/A
	2/13/2014	< 1	< 1	N/A	N/A	N/A	N/A	N/A	N/A
	8/21/2014	< 1	< 1	N/A	< 1	**3.01**	< 1	N/A	N/A
	5/18/2015	N/A	< 1	N/A	< 1	**2.1**	< 1	N/A	N/A
	8/13/2015	N/A	< 1	N/A	N/A	N/A	N/A	< 1	N/A
	8/14/2015	N/A	N/A	N/A	< 1	**2.12**	N/A	N/A	N/A
	4/4/2016	N/A	N/A	N/A	N/A	**3.09**	N/A	N/A	N/A
	4/5/2016	N/A	N/A	N/A	< 1	N/A	< 1	0.214*	N/A
	9/13/2016	N/A	N/A	N/A	0.673*	**2.65**	< 1	< 1	N/A
	4/19/2017	N/A	N/A	N/A	0.146*	**1.82**	< 1	< 1	1.34*
	8/3/2017	N/A	N/A	N/A	< 1	0.982*	N/A	< 1	0.767*
	3/5/2018	N/A	N/A	N/A	< 1	N/A	N/A	< 1	**6.28**
	10/3/2018	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	10/22/2018	N/A	N/A	< 1	< 1	N/A	N/A	< 1	**9.85**
	4/1/2019	N/A	N/A	N/A	< 1	**2.97**	N/A	< 1	**6.81**
	8/26/2019	N/A	N/A	< 1	< 1	**2.65**	< 1	0.449*	**1.78**
	6/16/2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.183*
	8/20/2020	N/A	N/A	N/A	< 1	**2.77**	N/A	< 1	N/A
	11/3/2020	N/A	N/A	N/A	N/A	**1.95**	N/A	< 1	**2.22**
	11/24/2020	N/A	N/A	N/A	N/A	N/A	< 1	N/A	N/A
	4/5/2021	N/A	N/A	N/A	N/A	**2.89**	< 1	< 1	**1.94**
	8/25/2021	N/A	N/A	N/A	N/A	**1.36**	N/A	< 1	< 1
	3/8/2022	N/A	N/A	N/A	N/A	**1.65**	< 1	< 1	< 1
	6/22/2022	N/A	N/A	N/A	N/A	**1.92**	N/A	< 1	< 1
	2/21/2023	N/A	N/A	N/A	N/A	0.926*	< 1	< 1	**2.26**
	7/25/2023	N/A	N/A	N/A	N/A	N/A	N/A	< 1	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

Appendix C-4

Summary of Groundwater Chemistry – Acid Mine Drainage Wells

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - AMD

AMD Constituents	Sample Date	04-MW-56 DNG	MW-39R DNG	MW-40 DNG	MW-58 DNG	MW-59 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG
Alkalinity, Total [CaCO3], mg/L (CAS NO - TALK)	8/8/2012	N/A	345	N/A	206	738	N/A	454	506
	10/24/2012	N/A	N/A	49.3	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	74	N/A	735	N/A	434	N/A
	8/20/2013	N/A	469	N/A	227	N/A	N/A	N/A	528
	8/21/2014	217	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	489	N/A	N/A
	6/16/2020	554	559	327	< 5	619	535	1290	614
	11/3/2020	511	435	246	237	814	416	1050	672
	4/5/2021	547	485	228	171	447	428	918	619
	8/25/2021	604	594	248	277	N/A	505	901	743
	3/8/2022	725	363	127	274	470	480	804	764
	2/21/2023	750	823	308	179	277	513	753	823
	2/21/2023	N/A	N/A	N/A	N/A	N/A	507	N/A	N/A
Bicarbonate, mg/L (CAS NO - BICARB)	8/8/2012	N/A	345	N/A	206	738	N/A	454	506
	10/24/2012	N/A	N/A	49.3	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	74	N/A	735	N/A	434	N/A
	8/20/2013	N/A	469	N/A	227	N/A	N/A	N/A	528
	8/21/2014	217	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	N/A	N/A	191	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	489	N/A	N/A
	11/3/2020	511	435	246	237	814	416	1050	672
	4/5/2021	547	485	228	171	447	428	918	619
	8/25/2021	604	594	248	277	N/A	505	901	743
	3/8/2022	725	363	127	274	470	480	804	764
	2/21/2023	750	823	308	179	277	513	753	823
	2/21/2023	N/A	N/A	N/A	N/A	N/A	507	N/A	N/A
Carbonate, mg/L (CAS NO - CARB)	8/8/2012	N/A	< 5	N/A	< 5	< 5	N/A	< 5	< 5
	10/24/2012	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	< 5	N/A	< 5	N/A	< 5	N/A
	8/20/2013	N/A	< 5	N/A	< 5	N/A	N/A	N/A	< 5
	8/21/2014	< 10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/12/2015	N/A	N/A	< 5	N/A	N/A	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
	11/3/2020	< 10	< 10	< 10	< 5	< 10	< 10	< 9.09	< 10
	4/5/2021	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
	8/25/2021	< 10	< 10	< 10	< 10	N/A	< 10	< 10	< 10
	3/8/2022	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
	2/21/2023	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	2/21/2023	N/A	N/A	N/A	N/A	N/A	< 5	N/A	N/A
Aluminum, mg/L (CAS NO - 7429-90-5)	8/12/2015	N/A	0.0681*	0.056*	0.347	0.0855*	N/A	N/A	0.169
	6/16/2020	< 0.1	< 0.1	< 0.1	22.9	< 0.1	0.119	0.0669*	< 0.1
	11/3/2020	< 0.1	< 0.1	0.159	< 0.1	< 0.1	4.75	< 0.1	< 0.1
	4/5/2021	< 0.2	0.0338*	0.0682	0.0571	< 0.05	0.462	< 0.05	< 0.05
	4/5/2021	< 0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	< 0.05	0.0207*	0.0703	< 0.05	N/A	0.0395*	< 0.05	0.0168*
	3/8/2022	< 0.2	< 0.4	0.23	< 0.2	< 0.2	0.294	< 0.2	0.133*
	2/21/2023	< 0.05	< 0.05	0.0393*	< 0.05	0.0215*	0.124	< 0.05	< 0.05
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.688	N/A	N/A
Iron, Total, mg/L (CAS NO - 7439-89-6)	8/19/2013	N/A	N/A	46.9	N/A	N/A	N/A	N/A	N/A
	8/21/2014	N/A	N/A	18	N/A	N/A	N/A	N/A	N/A
	8/12/2015	N/A	31.2	5.09	14.3	41.5	N/A	N/A	62.8
	8/12/2015	N/A	N/A	N/A	43	37.5	N/A	N/A	N/A
	6/16/2020	48.9	37.7	39.3	0.341*	37.7	< 0.5	15.8	37.7
	11/3/2020	41.9	42.9	44.6	46.5	106	1.93	14.4	60.6
	4/5/2021	45.7	63.6	37.4	12.9	35.4	< 0.1	2.84	39.7
	4/5/2021	43.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	34.6	50.1	43.8	45.9	N/A	< 0.1	9.88	56.8
	3/8/2022	40.8	130	58	24.8	47.8	< 0.5	3.45	79.8
	2/21/2023	30.7	46.5	12	1.55	17.5	0.107	2.17	66.1
	2/21/2023	N/A	N/A	N/A	N/A	N/A	0.415	N/A	N/A
Manganese, mg/L (CAS NO - 7439-96-5)	8/19/2013	N/A	N/A	27	N/A	N/A	N/A	N/A	N/A
	8/21/2014	N/A	N/A	26.5	N/A	N/A	N/A	N/A	N/A
	8/12/2015	N/A	35.4	32.8	7.64	9.71	N/A	N/A	6.03
	8/12/2015	N/A	N/A	N/A	4.39	9.02	N/A	N/A	N/A
	6/16/2020	13.4	51.1	33.3	9.43	7.94	0.923	0.283	2.85
	11/3/2020	12.4	17	33.6	4.98	10.6	8.25	0.253	2.95
	4/5/2021	10.9	47.6	40.9	4.08	10.8	0.157	0.201	2.45
	4/5/2021	10.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	8/25/2021	9.13	31.2	36	4.98	N/A	1.58	0.214	3.32
	3/8/2022	10.2	15.5	26.6	2.58	9.31	0.218	0.199	3.34
	2/21/2023	8.26	4.4	31.2	0.508	7.17	0.51	0.182	3.97
	2/21/2023	N/A	N/A	N/A	N/A	N/A	1.06	N/A	N/A

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Summary of Groundwater Chemistry

Ottumwa-Wapello County Landfill - 90-SDP-01-75P - AMD

AMD Constituents	Sample Date	04-MW-56 DNG	MW-39R DNG	MW-40 DNG	MW-58 DNG	MW-59 DNG	MW-63R DNG	MW-64 DNG	MW-65 DNG
Sulfate, mg/L (CAS NO - 14808-79-8)	8/8/2012	N/A	2010	N/A	1710	929	N/A	197	1020
	10/24/2012	N/A	N/A	585	N/A	N/A	N/A	N/A	N/A
	8/19/2013	N/A	N/A	577	N/A	672	N/A	273	N/A
	8/19/2013	N/A	N/A	519	N/A	N/A	N/A	N/A	N/A
	8/20/2013	N/A	1860	N/A	1440	N/A	N/A	N/A	770
	8/21/2014	679	N/A	49.9	N/A	N/A	N/A	N/A	N/A
	8/12/2015	N/A	2260	520	1400	762	N/A	N/A	781
	8/12/2015	N/A	N/A	N/A	1670	752	N/A	N/A	N/A
	4/1/2019	N/A	N/A	N/A	N/A	N/A	1880	N/A	N/A
	6/16/2020	634	2220	387	1320	829	1890	39.7	622
	11/3/2020	412	2170	452	1700	884	2390	43.1	268
	4/5/2021	737	2550	602	1680	793	3040	347	516
	8/25/2021	327	2120	594	1690	N/A	2010	56.7	256
	3/8/2022	256	2410	640	1490	697	2040	53.9	313
	2/21/2023	272	1430	473	762	953	1950	56.6	280
	2/21/2023	N/A	N/A	N/A	N/A	N/A	1970	N/A	N/A

Note: * indicates 'J flag'. Detection is below the reporting limit, but greater than the MDL (Method Detection Limit). The concentration is estimated.

Denotes Detection.
Denotes Confirmed Outlier. Statistically Excluded.

Sampling performed over multiple dates is recorded on the first date sampled. Refer to field forms for exact sample date.

Appendix D

Statistical Method and Output

Statistical Method and Output

The purpose of this document is to describe the statistical methods used in the evaluation of groundwater analytical data collected from the groundwater monitoring network of the West municipal solid waste landfill unit (West MSWLF unit) at the Ottumwa-Wapello County Landfill.

Diagnostic and Exploratory Evaluations and Tests of Assumptions

The detection and assessment/corrective action monitoring statistical programs include diagnostic and exploratory evaluations and statistical tests of assumptions, as appropriate, including the following:

- Time Series Plots
- Shapiro-Wilk test for normality
- Ohio Environmental Protection Agency (EPA) Method for outliers
- Mann-Kendall/Sen's Slope trend test

Management of Non-Detect Data

Non-detect values in the dataset are managed using simple substitution or the Kaplan-Meier estimator. If less than 15% of the data are non-detects, simple substitution is used, where non-detect values are assigned a concentration of one-half (½) of the practical quantification limit (PQL). If greater than 15% but less than 50% of the data are non-detects, the Kaplan-Meier estimator is used to define the distribution for the dataset. If non-detects comprise greater than 50% of the available data, non-parametric statistical methods are used.

Management of Outliers

Background datasets are evaluated for outliers using the Ohio EPA Method as included in the Sanitas™ statistical software program and described below, which includes the use of Dixon's, Rosner's, and Tukey's outlier tests, as appropriate based on the diagnostic tests, for the datasets that contain less than 75% of the measured concentrations below the PQL. Outliers are not confirmed unless a physical cause or explanation for the outlier is determined.

Management of Data (ND data < 75%)

If less than 75% of the background dataset is below the PQL, outliers are statistically evaluated using the following guidelines.

- A parametric dataset with $n < 20$ is evaluated with the Dixon's outlier test.
- A parametric dataset with $n \geq 20$ is evaluated with the Rosner's outlier test.
- A non-parametric dataset is evaluated with the Tukey's outlier test.

In accordance with the Ohio EPA Method, if a statistically significant outlier is not found using the above tests, but the highest value data point exceeds the second highest data point by an order of magnitude, the highest point is considered an outlier.

Management of Data (ND data ≥ 75%)

If greater than or equal to 75% of the background dataset is less than the PQL, outliers are statistically evaluated using the following guidelines.

- Single detection ≥ the PQL:
  - If ≥ 50% of the background dataset has detections ≥ the method detection limit (MDL), any value ≥ two times the PQL of background is considered an outlier.
  - If < 50% of the background dataset has detections ≥ the MDL, any value ≥ the PQL of background is considered an outlier.
- Two or more detections ≥ the PQL:
  - If ≥ 50% of the background dataset has detections ≥ the MDL, any value ≥ three times the PQL of background is considered an outlier.
  - If < 50% of the background dataset has detections ≥ the MDL, any value ≥ two times the PQL of background is considered an outlier.

Confirmed outliers, if any, are shown in the Summary of Groundwater Chemistry included in the Annual Water Quality Report.

Detection Monitoring Statistical Program/Inorganic Acid Mine Drainage Statistical Evaluation

Groundwater monitoring data associated with the West MSWLF unit for the detection monitoring program and inorganic data from acid mine drainage (AMD) impacted monitoring wells is statistically analyzed by the diagnostic evaluations listed above and by interwell prediction limits, intrawell prediction limits, and the double quantification method. The procedures for these evaluations are described below.

For acid mine drainage wells, both interwell and intrawell prediction limits were selected for the determination of statistically significant increases (SSIs) over background for inorganic constituents with historical detections in background. An SSI must be indicated in both the interwell and intrawell statistical evaluation for the SSI to be considered. Data from the most recent sampling event is compared to the prediction limits for the determination of SSIs.

Interwell Prediction Limits with Retesting

- If the dataset has a normal distribution (or can be transformed to a normal distribution using Ladder of Powers), parametric interwell prediction limits are calculated if at least five datasets have been collected from the background monitoring point(s).
- If the dataset does not have a normal distribution (and cannot be transformed to a normal distribution using Ladder of Powers) or has greater than 50% non-detects, nonparametric interwell prediction limits are calculated if at least five datasets have been collected from the background monitoring point(s).
- If an SSI above the prediction limit is indicated, retesting samples using the 1-of-2 retesting scheme should be collected prior to the next regularly scheduled sampling event with temporal sample spacing consideration to provide samples with greater independence. If the retesting result is above the prediction limit, the SSI is confirmed, and the monitoring point should be placed into the assessment monitoring program for the monitoring wells or treated with the leachate for the groundwater underdrains. If the retesting sample concentration is below the prediction limit, the SSI is not confirmed, and the monitoring point continues in the detection monitoring program.
- If an SSI above the prediction limit is indicated for AMD wells using both interwell and intrawell statistical methods, further evaluation will be performed regarding the impact of AMD on affected parameters.

Intrawell Prediction Limits

- If the dataset has a normal distribution (or can be transformed to a normal distribution using Ladder of Powers), parametric intrawell prediction limits are calculated if at least six samples have been collected.
- If the dataset does not have a normal distribution (and cannot be transformed to a normal distribution using Ladder of Powers) or has greater than 50% non-detects, non-parametric intrawell prediction limits are calculated if at least six samples have been collected.
- If an SSI above the prediction limit is indicated for AMD wells using both interwell and intrawell statistical methods, further evaluation will be performed regarding the impact of AMD on affected parameters.
- If an SSI above the prediction limit is indicated for the groundwater underdrains, retesting samples using the 1-of-2 retesting scheme should be collected prior to the next regularly scheduled sampling event with temporal sample spacing consideration to provide samples with greater independence. If the retesting result is above the prediction limit, the SSI is confirmed, and the discharge will be treated with the leachate. If the retesting sample concentration is below the prediction limit, the SSI is not confirmed, and the monitoring point continues in the detection monitoring program.

Updating the Background Dataset for Intrawell Prediction Limits

If no SSI is confirmed for any two-year period, the intrawell background datasets are updated using the following procedure:

- Test the new dataset for normal distribution either outright or through a transformation using Ladder of Powers using the Shapiro-Wilk test.
- Test the new dataset for statistically significant outliers using the Ohio EPA Method and remove the confirmed outliers (see the "Management of Outliers" section).
- Test the new dataset for statistically significant trends using the Mann-Kendall/Sen's Slope trend test. If a statistically significantly increasing trend is detected, the monitoring point will be placed into the assessment monitoring program or treated with the leachate, whichever is appropriate.
- If the dataset has a normal distribution and no statistically significant increasing trend is present, a two-sample Welch's t-test at a 0.01 significance level is performed to compare current background to the most recent two years of detection monitoring data. If the Welch's t-test is significant and shows that the most recent two years of concentration data appear to be increasing, the background will not be updated.
- If the dataset does not have a normal distribution and no statistically significant increasing trend is present, a two-sample non-parametric Wilcoxon rank-sum test (also known as the Mann-Whitney test) at a 0.01 significance level is performed to compare current background to the most recent two years of detection monitoring data. If the Wilcoxon rank-sum test is significant and shows that the most recent two years of concentration data appear to be increasing, the background will not be updated.
- If the Welch's t-test or the Wilcoxon rank-sum tests are not significant, the most recent two years of detection monitoring data will be added to the intrawell background dataset. The process will repeat every two years in which an SSI is not confirmed.

Double Quantification Method

The quasi-statistical "double quantification" method is used for constituents not detected in the background monitoring points. If a constituent is detected in the compliance dataset that has not been historically detected in the background dataset, that constituent must be retested before the

next regularly scheduled sampling event. If the retesting results confirm the original detection with a quantifiable detection, the SSI is confirmed, and the monitoring point must be placed into the assessment monitoring program or treated with the leachate for the groundwater underdrains.

Assessment Monitoring Program/Organic Acid Mine Drainage Statistical Evaluation

The assessment monitoring statistical evaluations are performed using the most recent eight samples or all samples if less than eight samples are available. Transformation of the distribution is not considered. The analysis is performed for detected Appendix II parameters for the assessment monitoring program and for organic parameters and sulfide for the AMD-impacted monitoring wells.

Confidence Intervals or Confidence Bands

- A parametric confidence interval around a normal mean is calculated if the dataset has a normal distribution and no statistically significant trend is present.
- A non-parametric confidence interval around a median is calculated if the dataset does not have a normal distribution and no statistically significant trend is present.
- Non-parametric confidence bands around a Theil-Sen trend line are calculated if the dataset has a statistically significant trend.

In the event that the lower confidence limit or any part of the lower confidence band, as appropriate, exceeds the GWPS, then the monitoring point is declared out of compliance, and an assessment of corrective measures (ACM) is required. An ACM report for the West MSWLF unit was submitted September 23, 2019 (Doc #95983) and approved in correspondence dated July 29, 2020 (Doc #98166).

Statistical Software Output

Sanitas™ statistical software is used to perform the statistical evaluations. The statistical output for the 1st and 2nd 2023 statistical evaluations are included in Attachments A and B of this appendix, respectively.

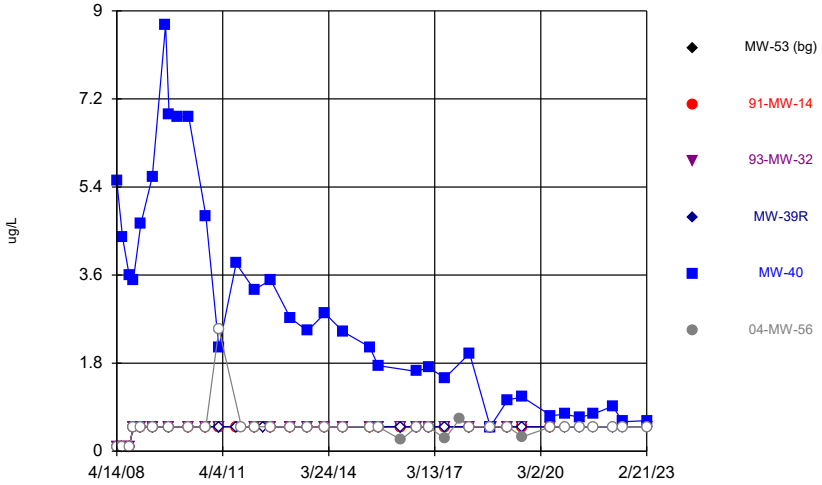
Attachment A

1st 2023 Statistical Evaluation Output

Time Series Plots

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

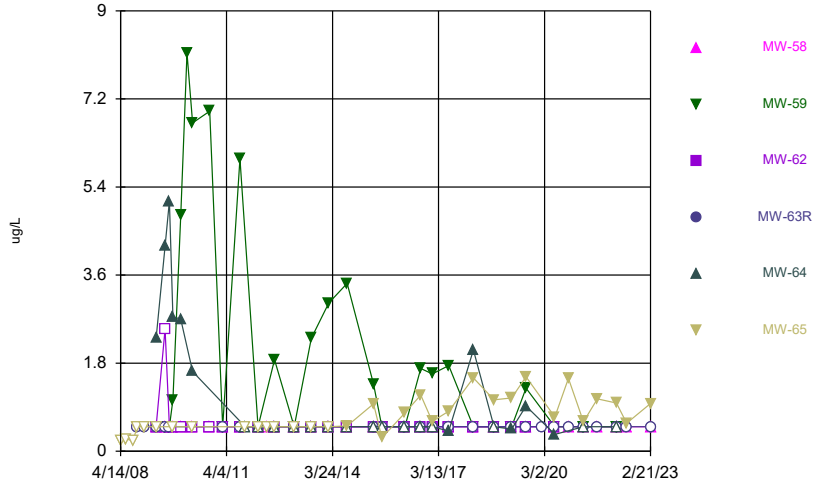
Time Series



Constituent: 1,1-Dichloroethane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



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Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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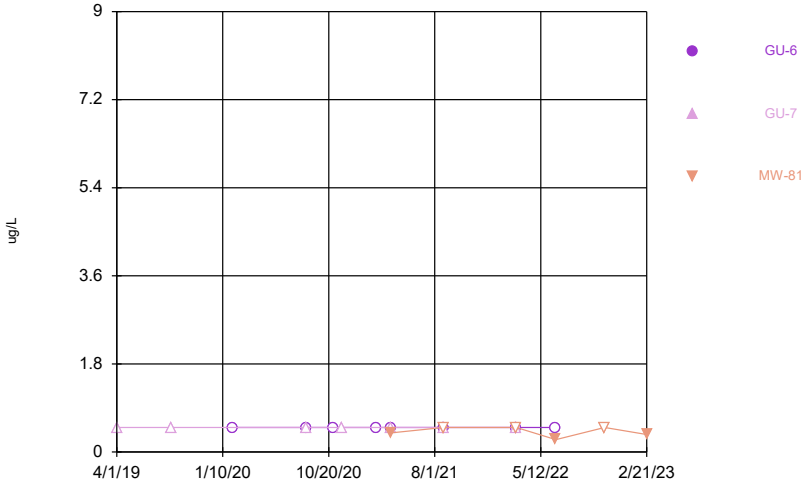
Time Series



Constituent: 1,1-Dichloroethane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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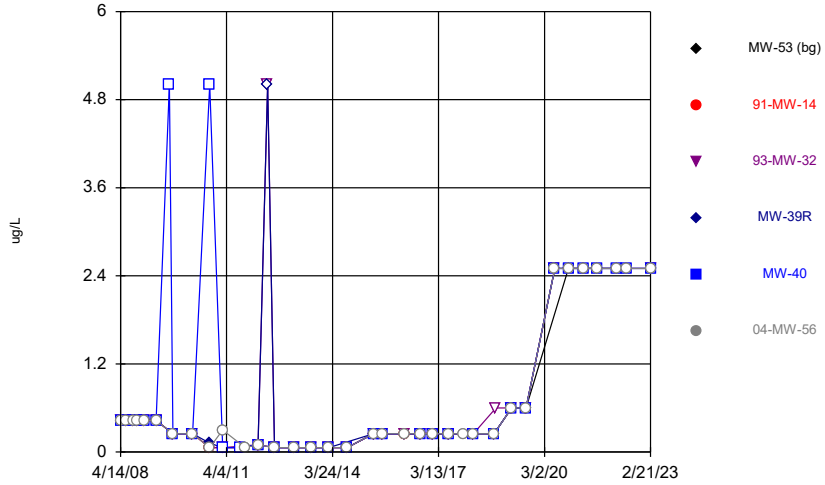
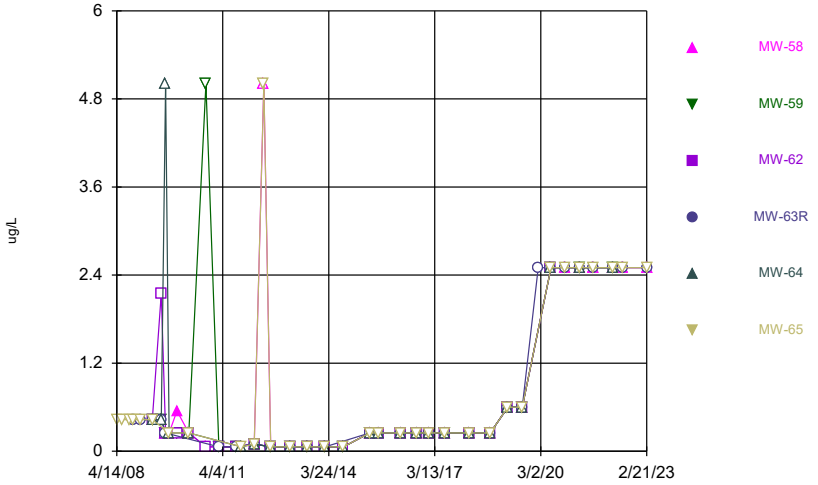
Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Serie
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Serie
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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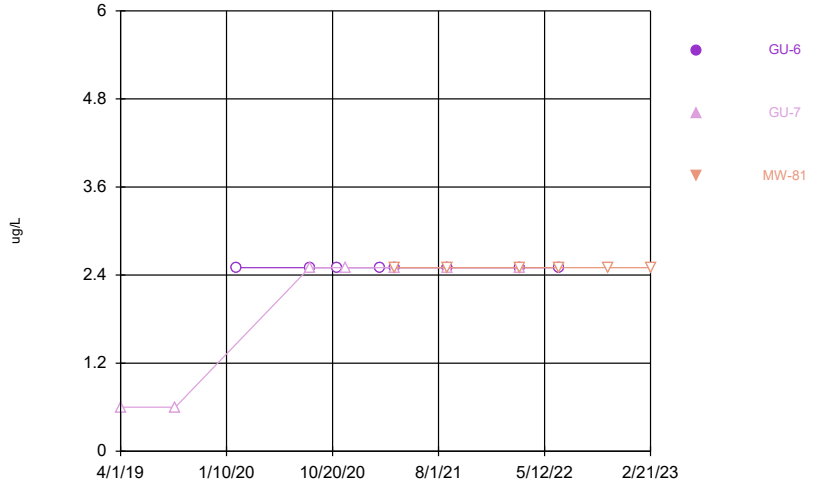
Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Serie
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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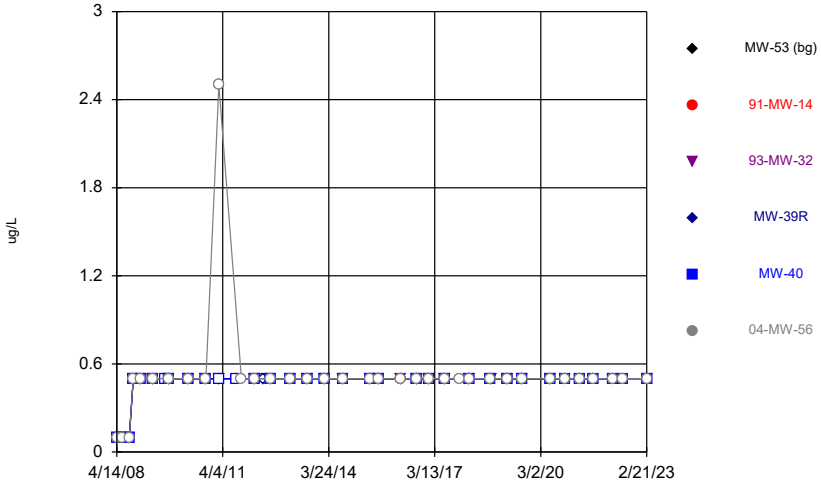
Time Series



Constituent: 1,2-Dichloroethane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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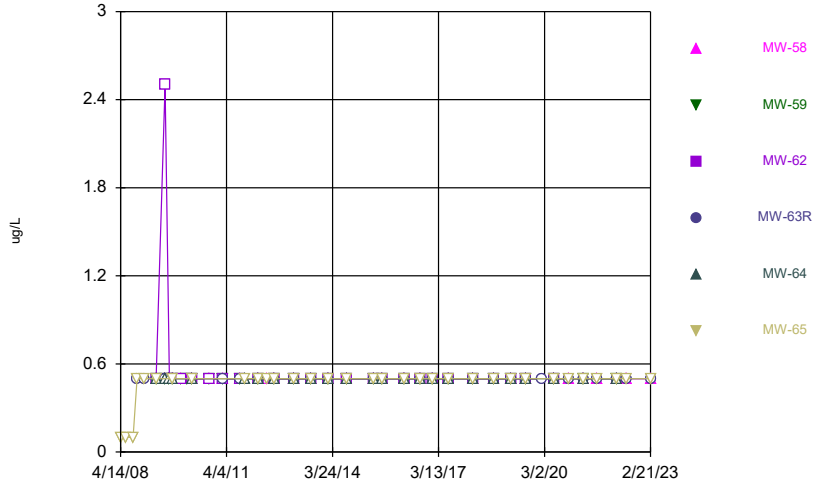
Time Series



Constituent: 1,2-Dichloroethane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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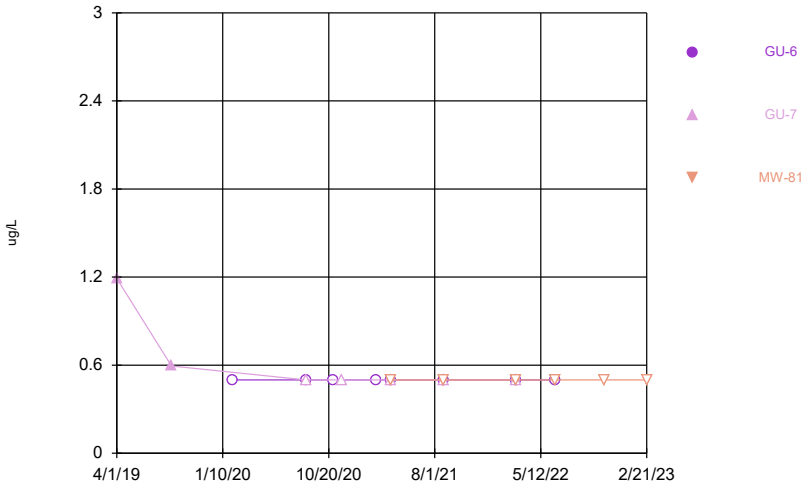
Time Series



Constituent: 1,2-Dichloroethane Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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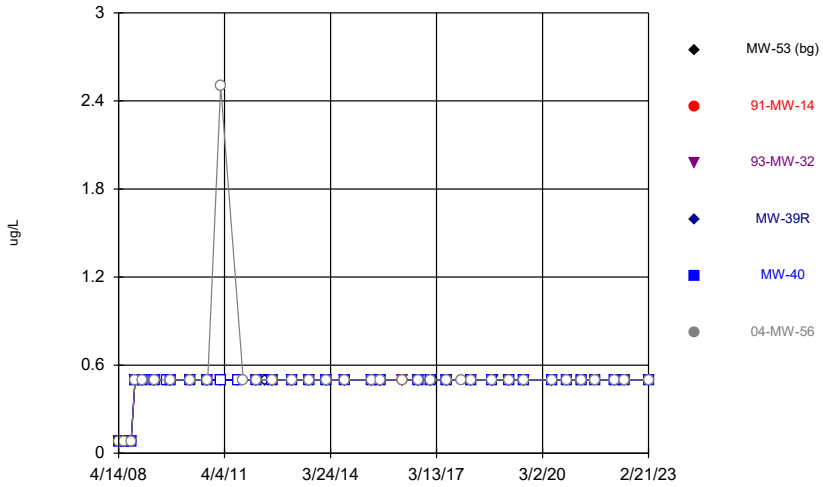
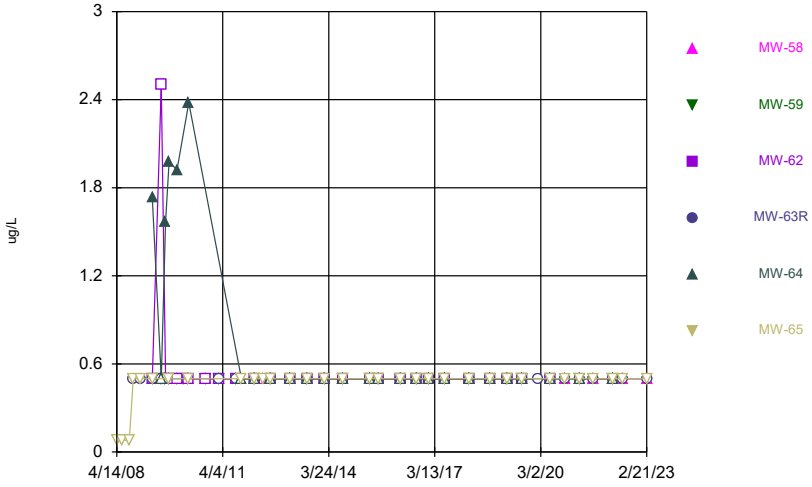
Time Series



Constituent: 1,4-Dichlorobenzene Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 1,4-Dichlorobenzene Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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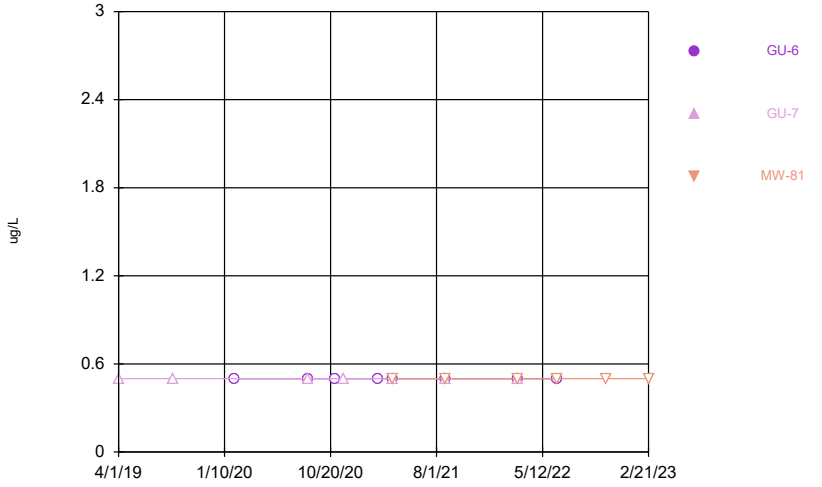
Time Series



Constituent: 1,4-Dichlorobenzene Analysis Run 4/10/2023 2:21 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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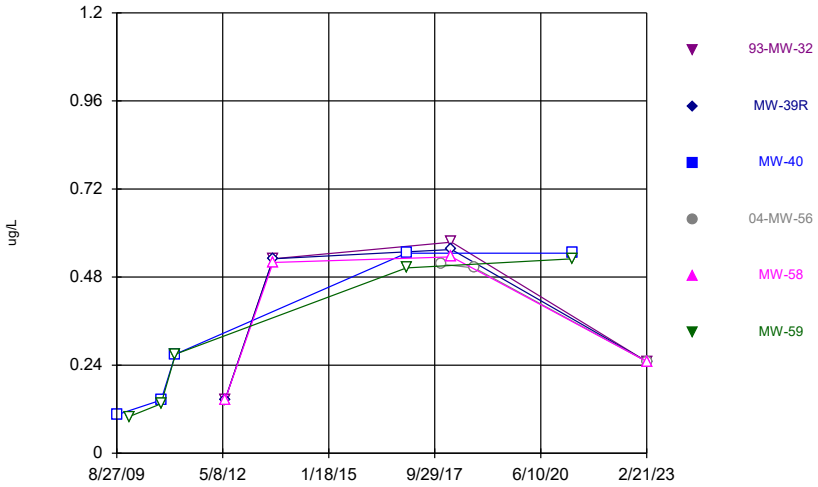
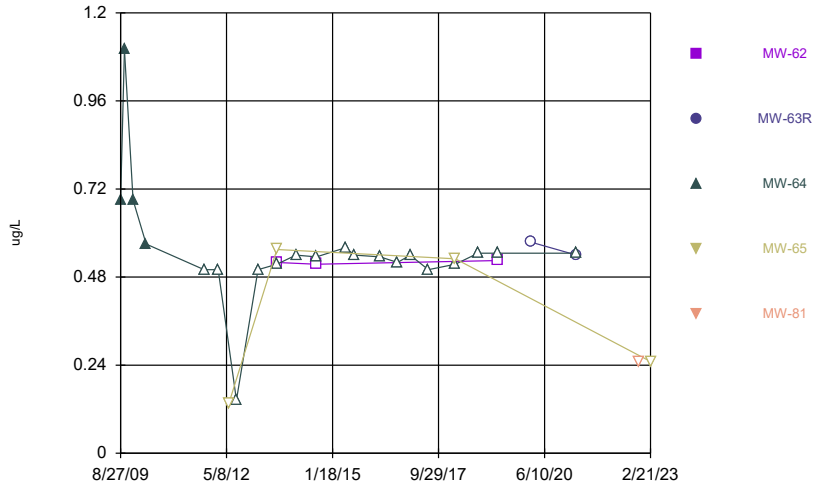
Time Series



Constituent: 2,4,5-TP [Silvex] [2C] Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

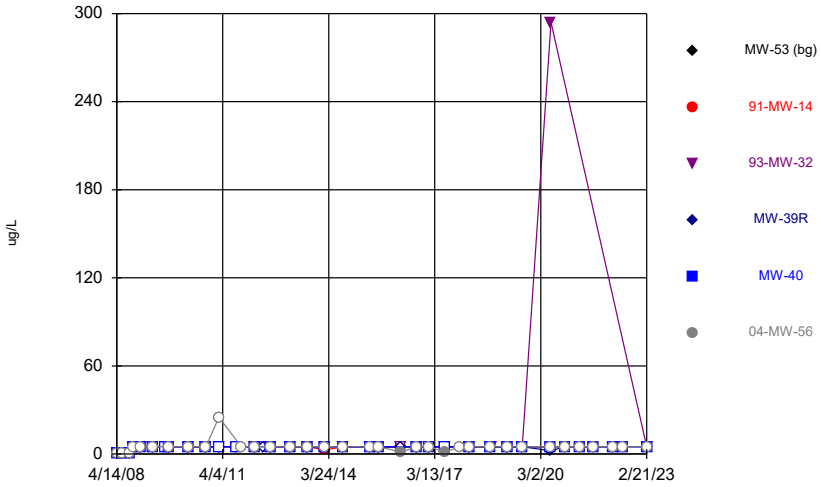
Time Series



Constituent: 2,4,5-TP [Silvex] [2C] Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

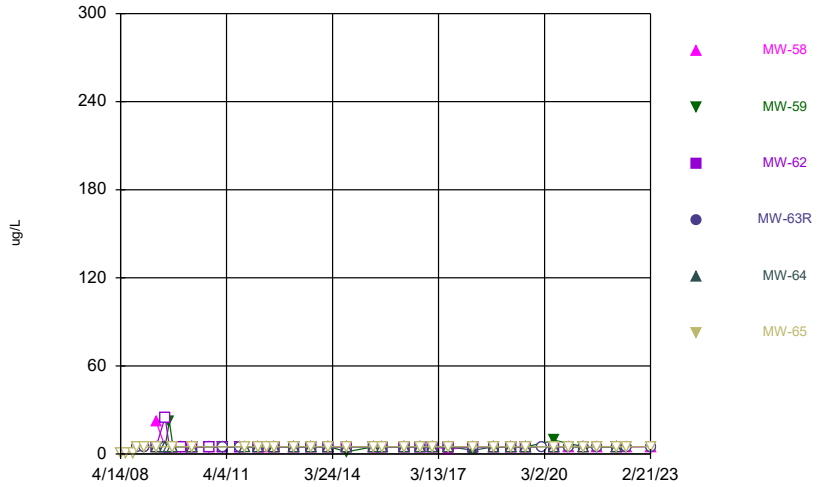
Time Series



Constituent: 2-Butanone Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

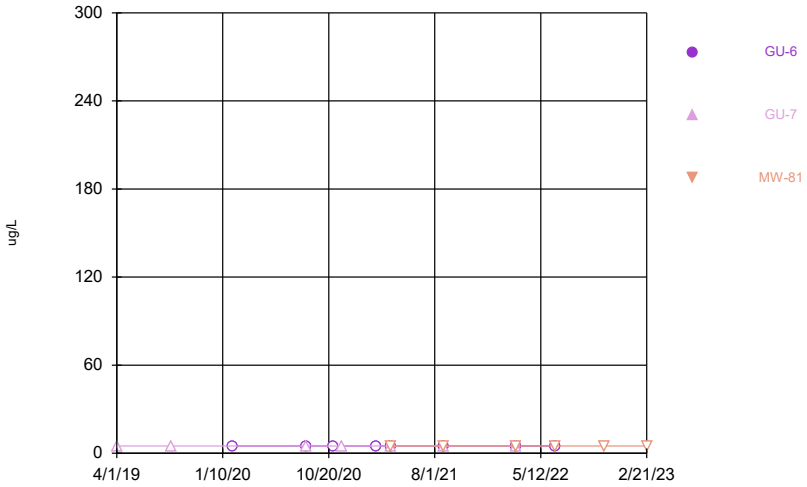
Time Series



Constituent: 2-Butanone Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

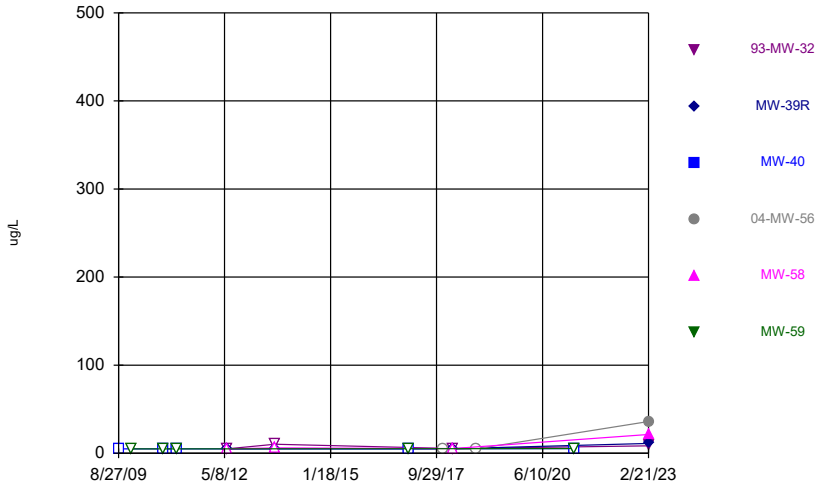
Time Series



Constituent: 2-Butanone Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

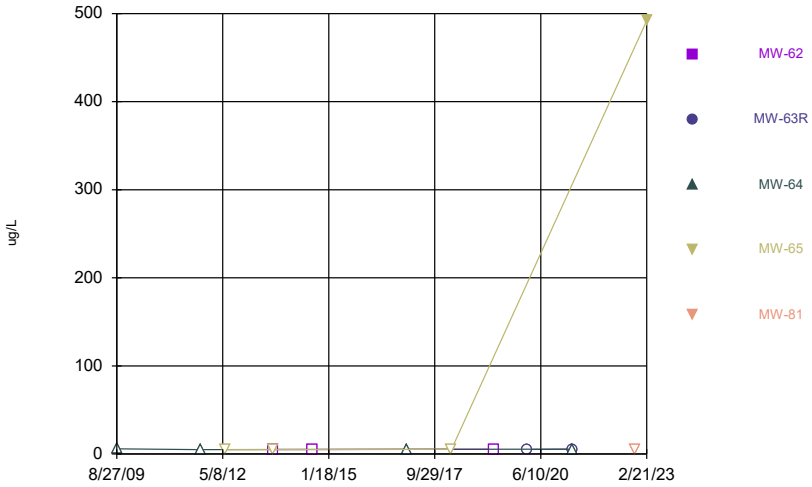
Time Series



Constituent: 2-Methylnaphthalene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

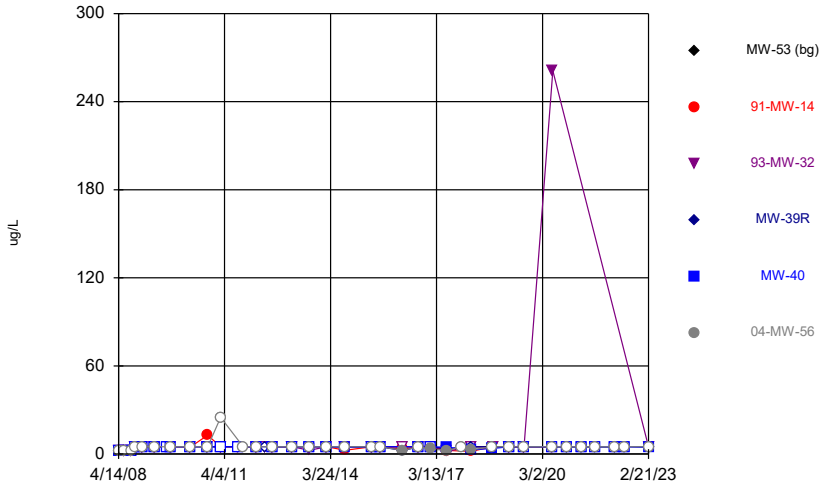
Time Series



Constituent: 2-Methylnaphthalene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

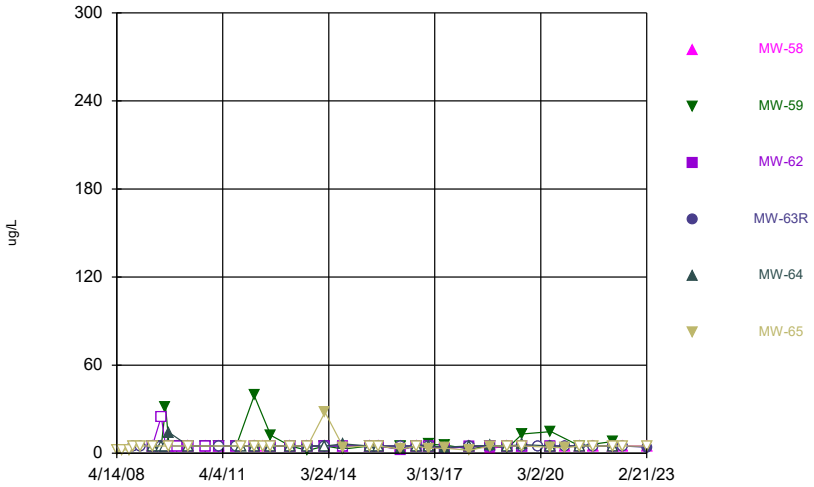
Time Series



Constituent: Acetone Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

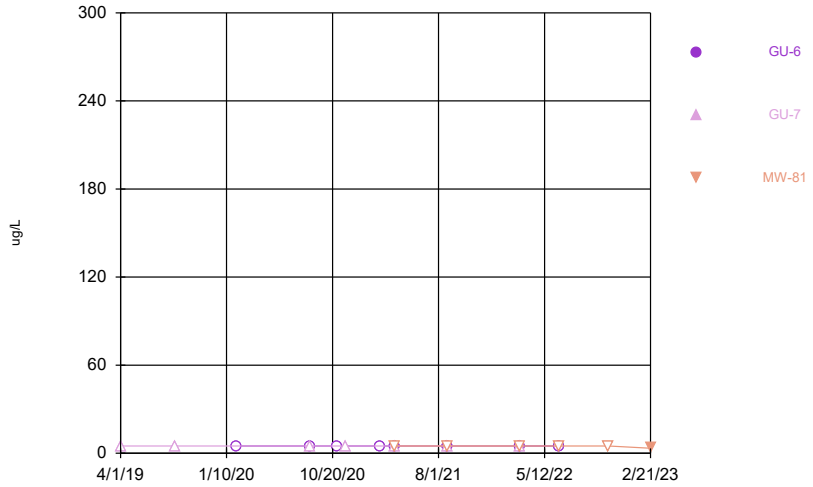
Time Series



Constituent: Acetone Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

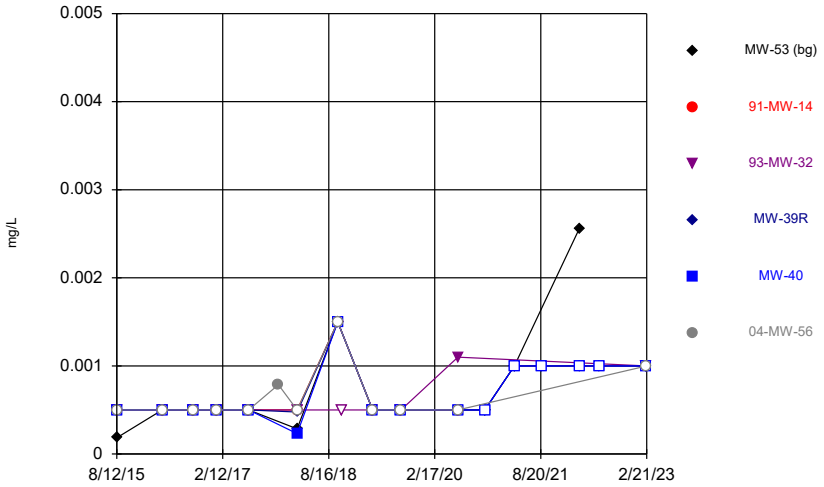
Time Series



Constituent: Acetone Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

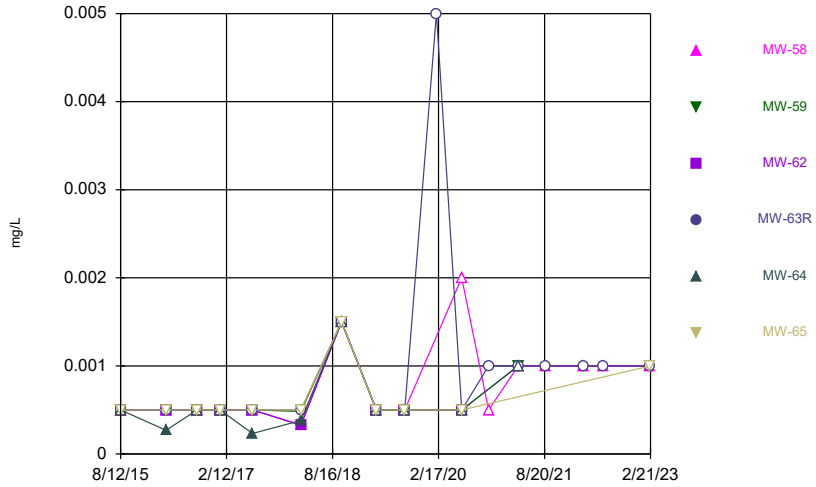
Time Series



Constituent: Antimony Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

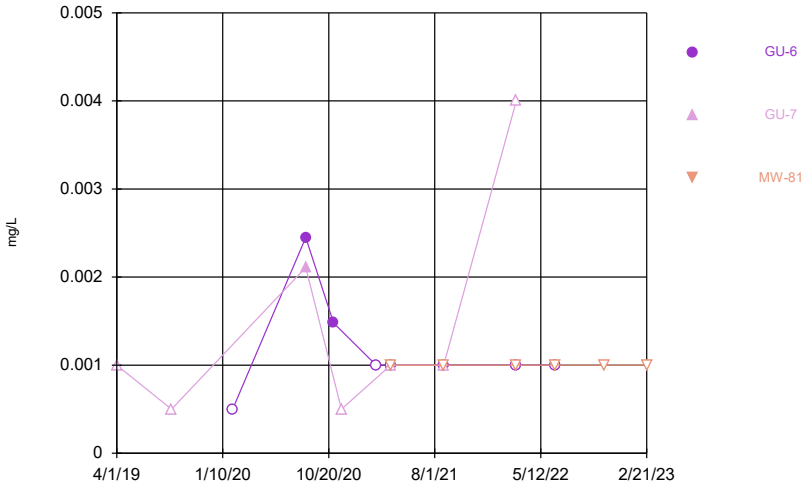
Time Series



Constituent: Antimony Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

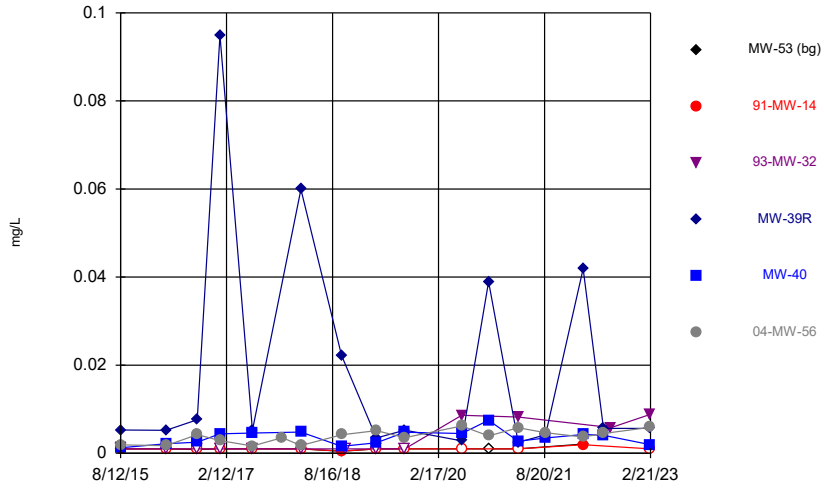
Time Series



Constituent: Antimony Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

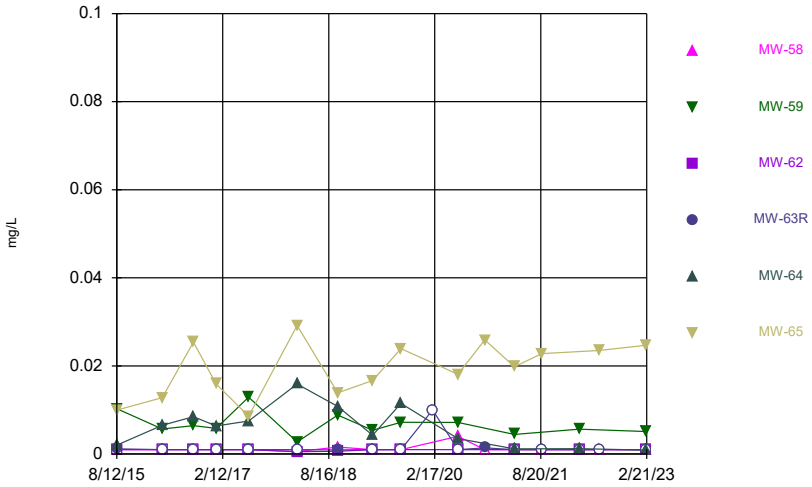
Time Series



Constituent: Arsenic Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

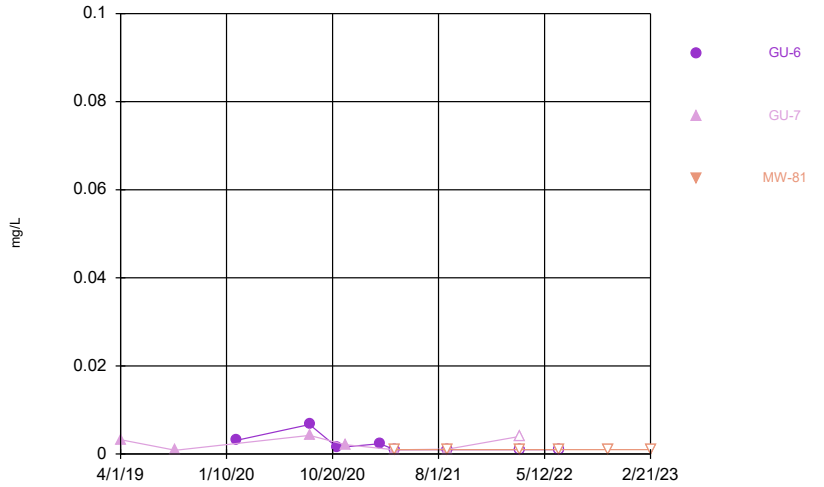
Time Series



Constituent: Arsenic Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

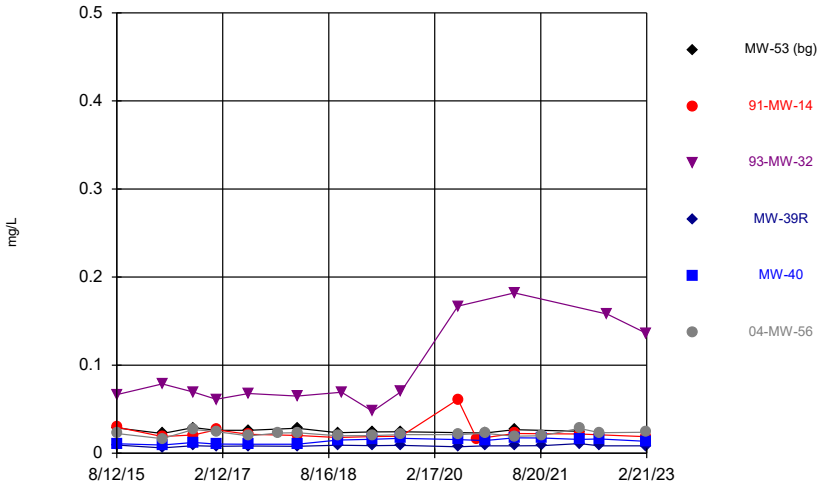
Time Series



Constituent: Arsenic Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

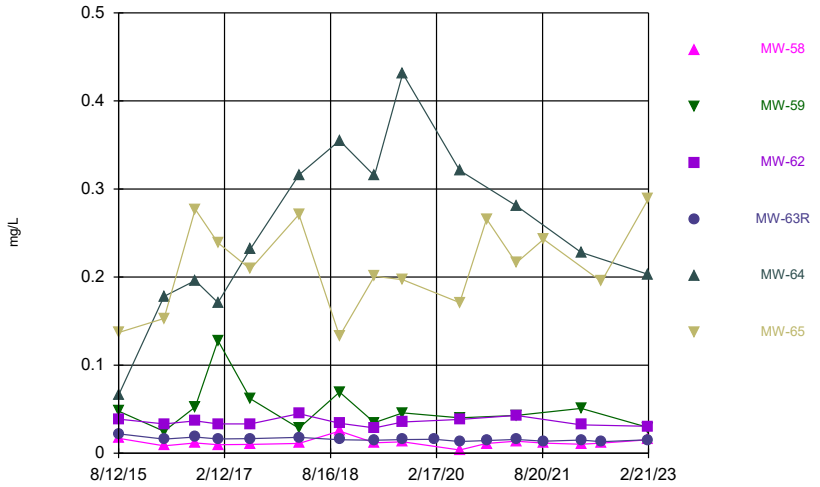
Time Series



Constituent: Barium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

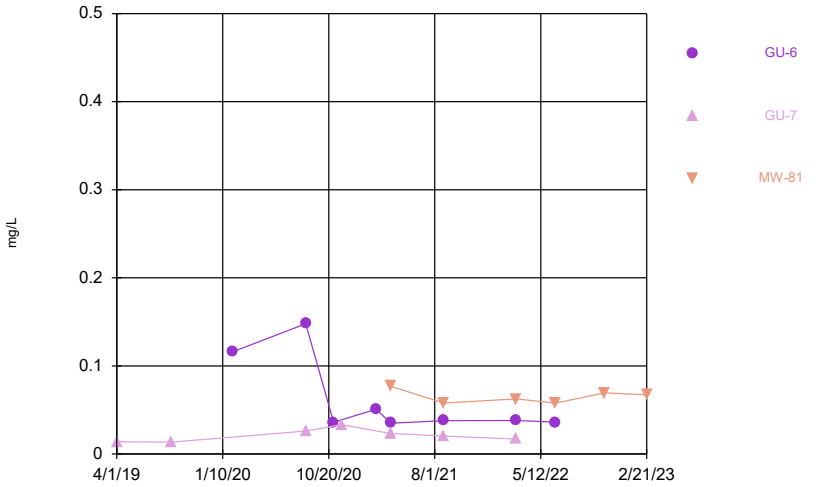
Time Series



Constituent: Barium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

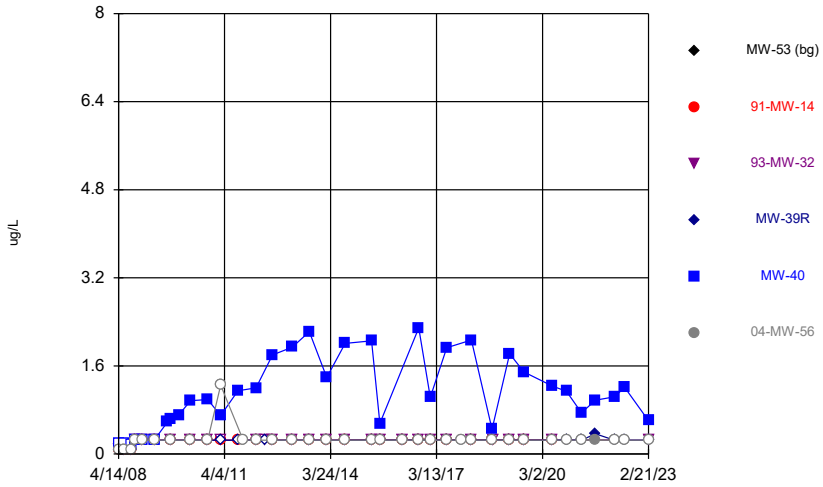
Time Series



Constituent: Barium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

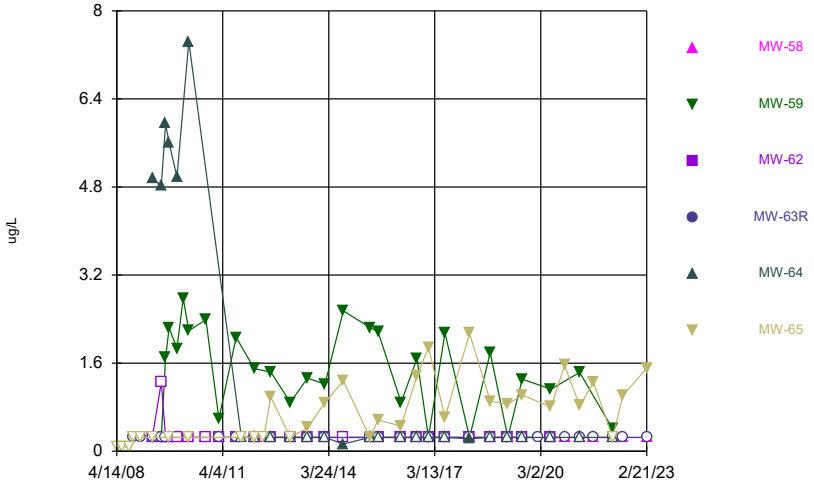
Time Series



Constituent: Benzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Benzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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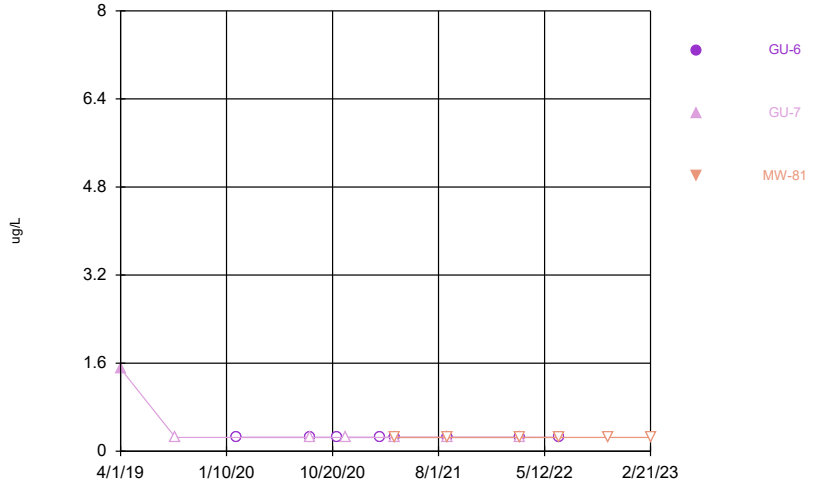
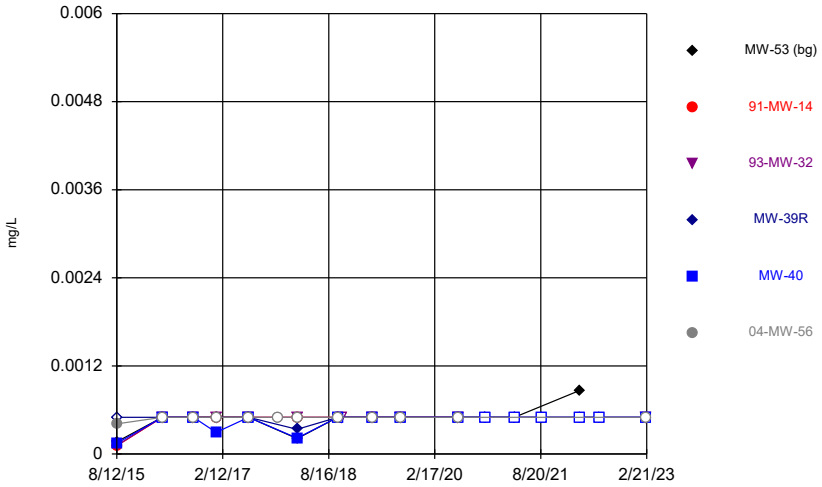


Constituent: Benzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

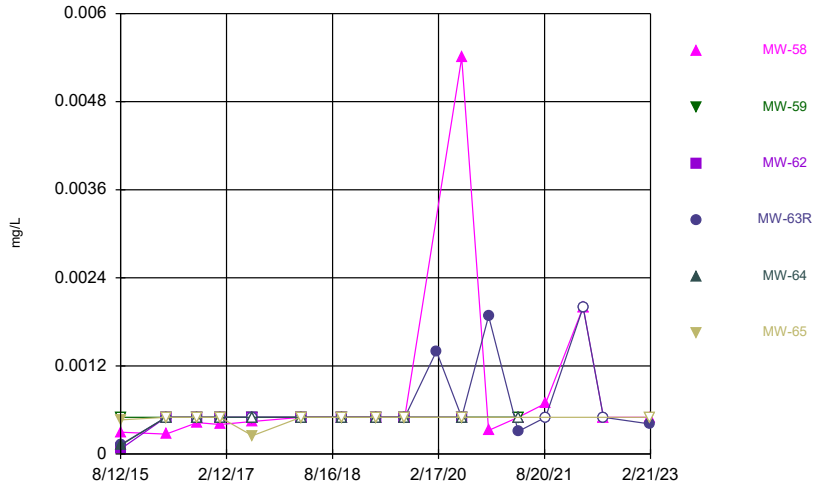
Time Series



Constituent: Beryllium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

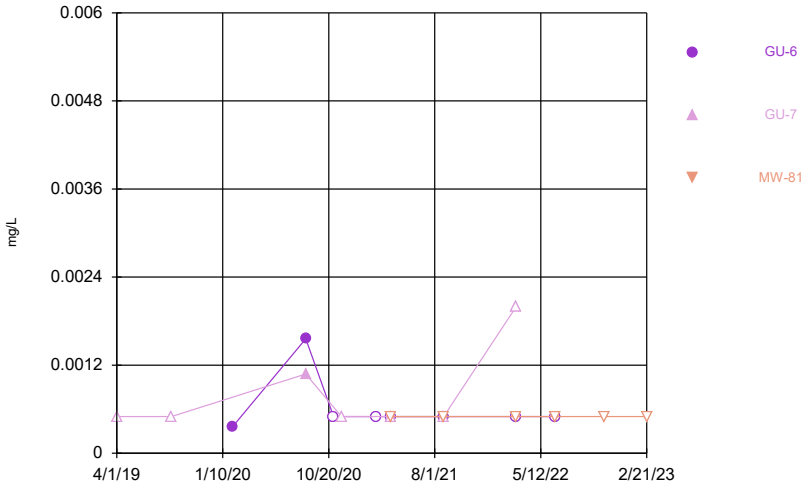
Time Series



Constituent: Beryllium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Beryllium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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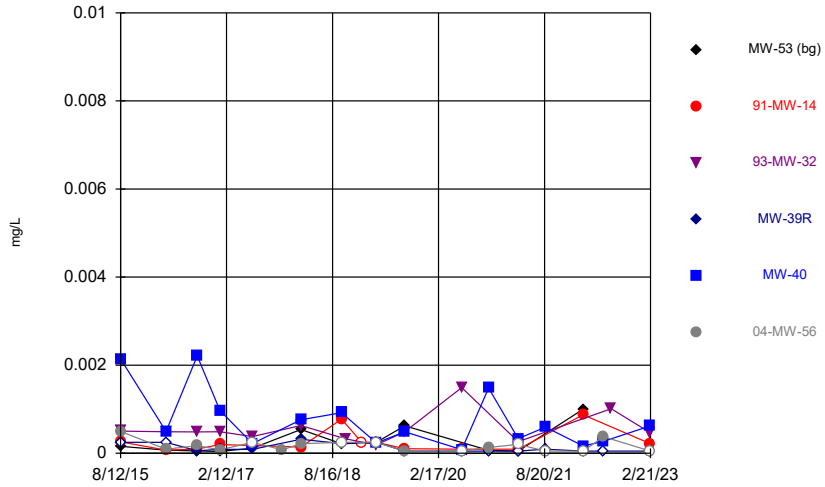
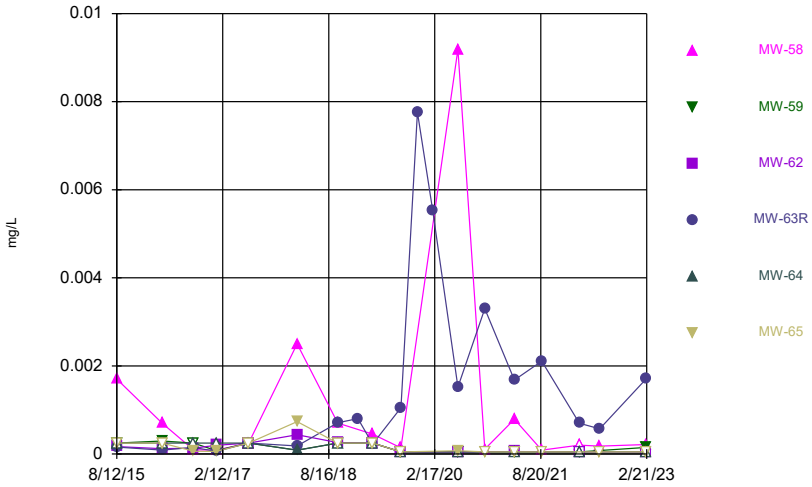
Time Series



Constituent: Cadmium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

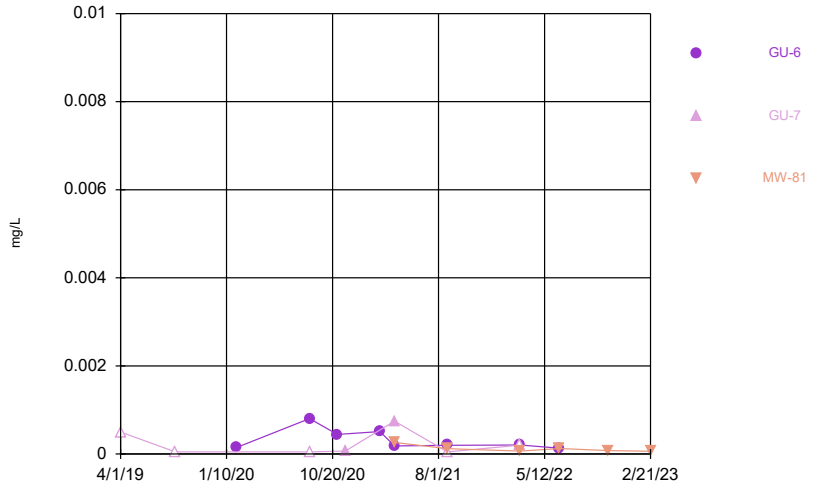
Time Series



Constituent: Cadmium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

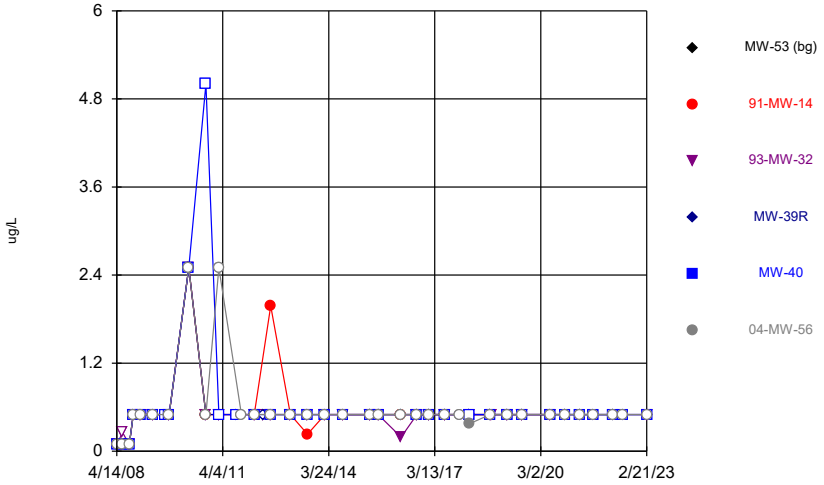
Time Series



Constituent: Cadmium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

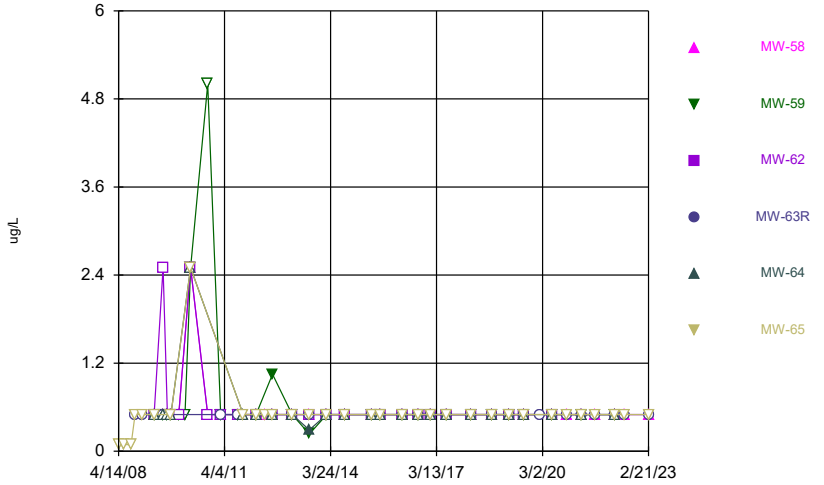
Time Series



Constituent: Carbon disulfide Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Carbon disulfide Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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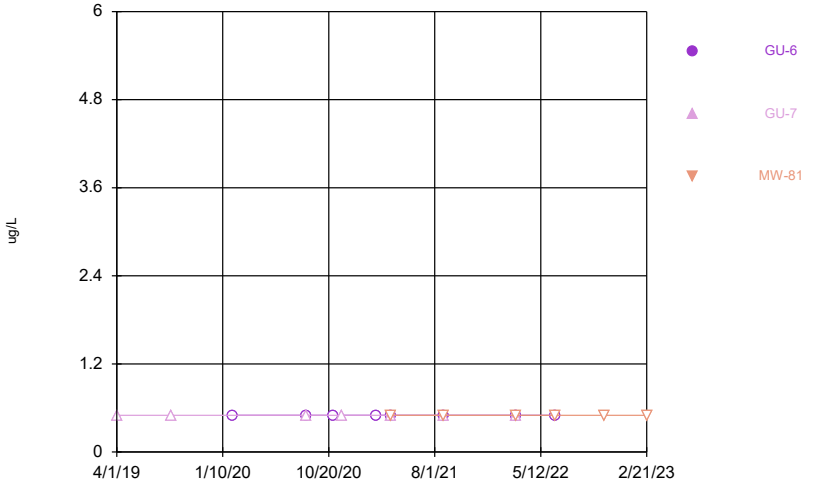

Constituent: Carbon disulfide Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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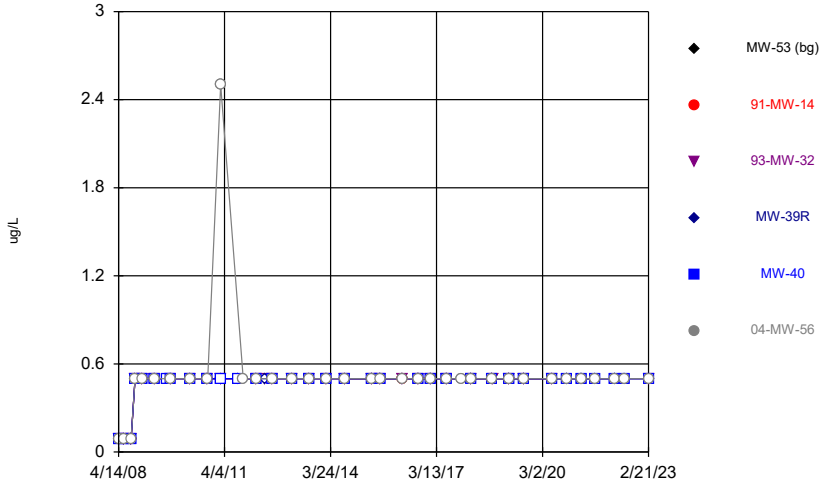
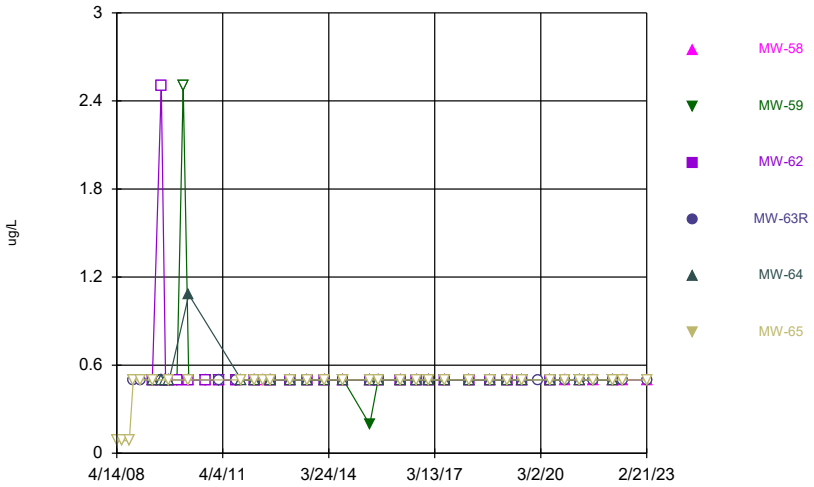


Constituent: Chlorobenzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

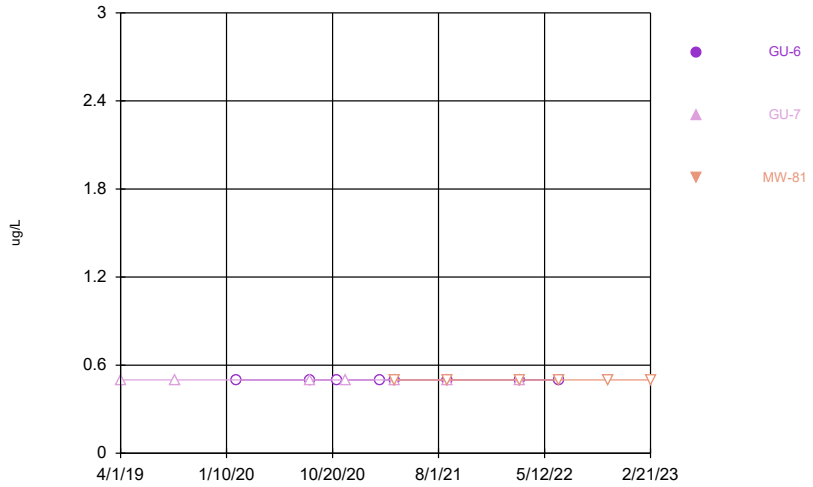
Time Series



Constituent: Chlorobenzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

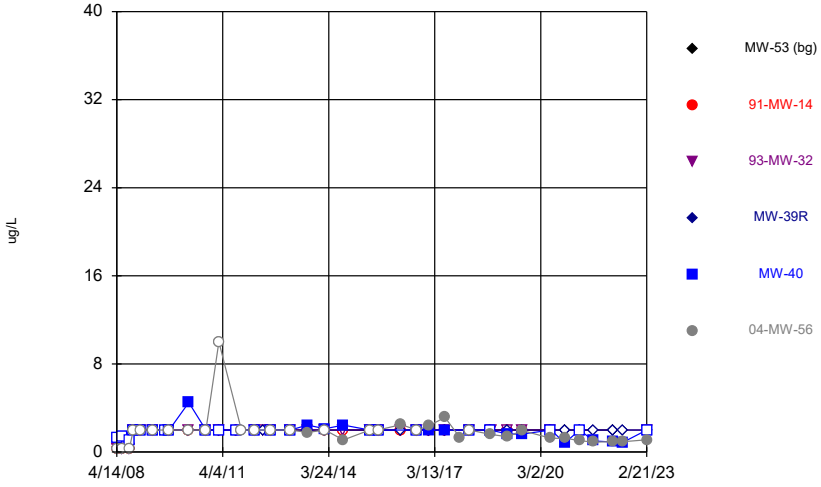
Time Series



Constituent: Chlorobenzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

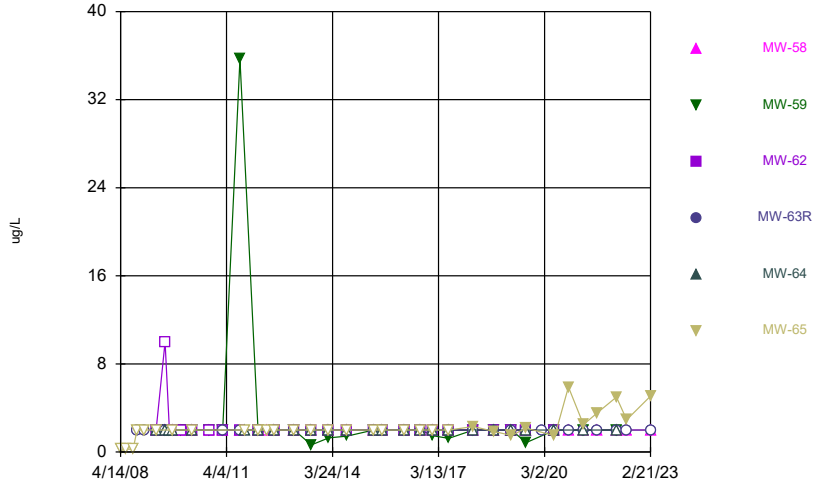
Time Series



Constituent: Chloroethane Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

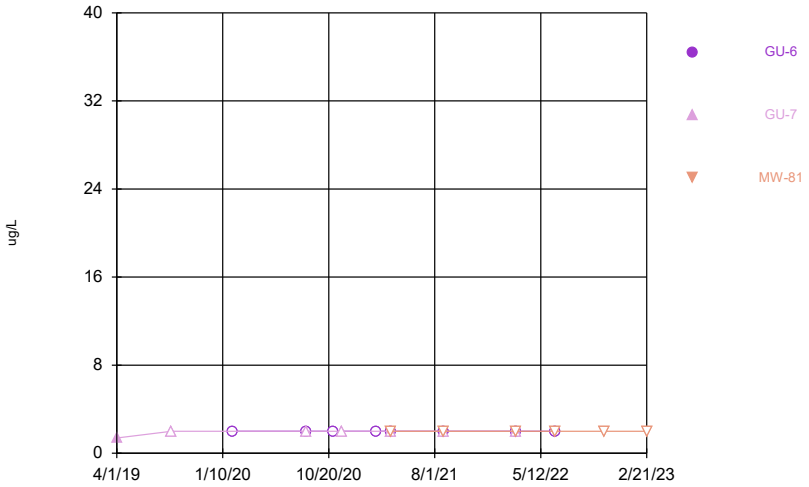
Time Series



Constituent: Chloroethane Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Chloroethane Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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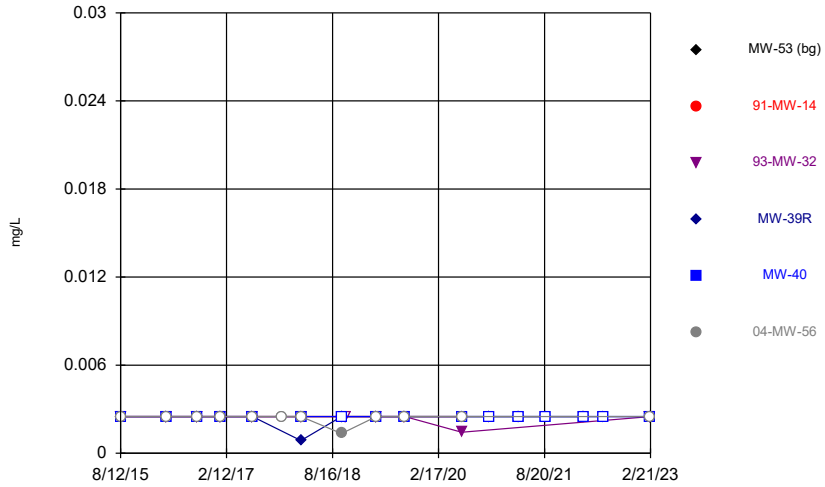
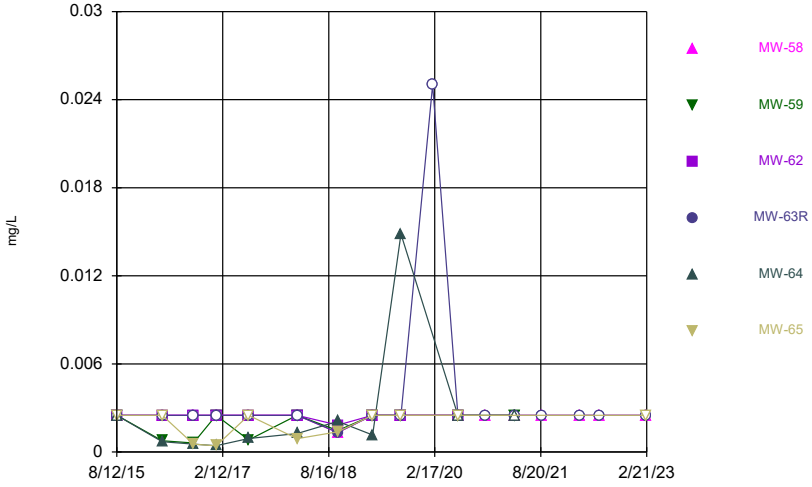
Time Series



Constituent: Chromium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

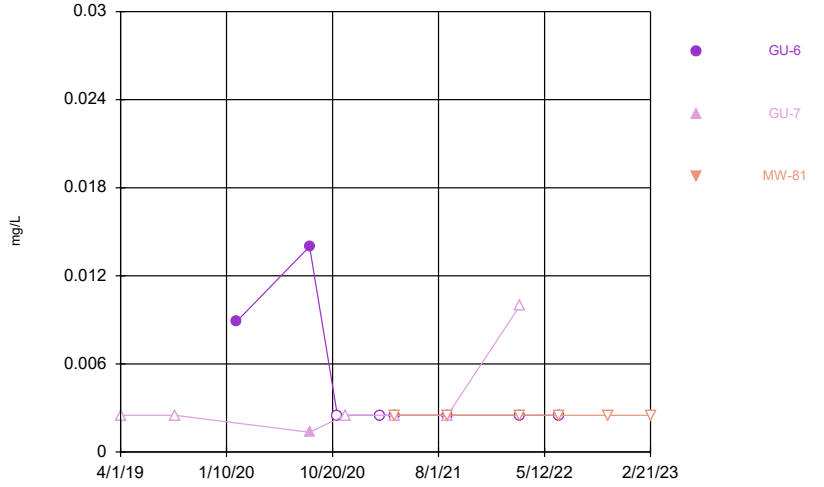
Time Series



Constituent: Chromium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

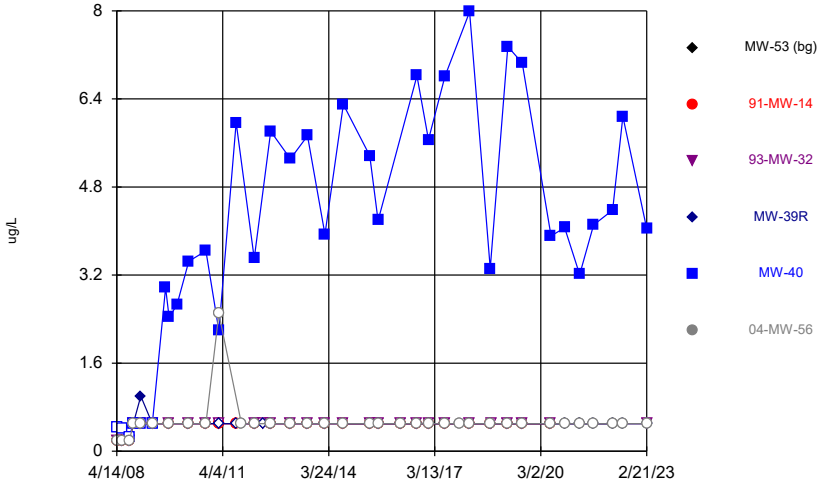
Time Series



Constituent: Chromium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

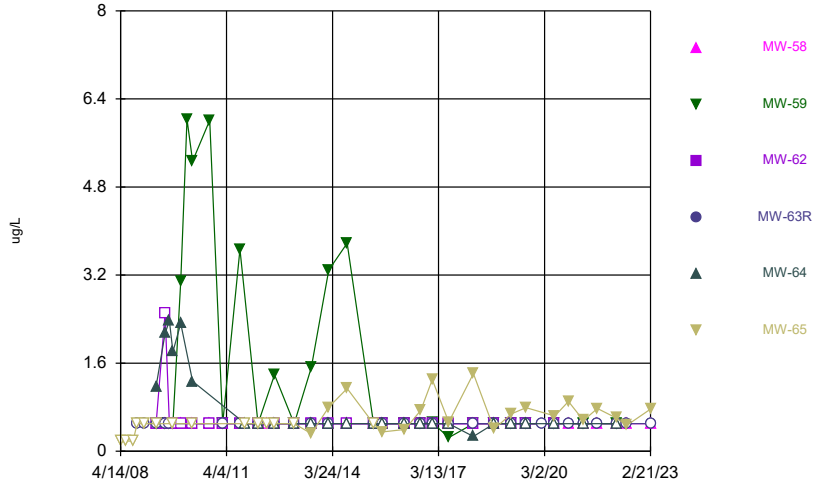
Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

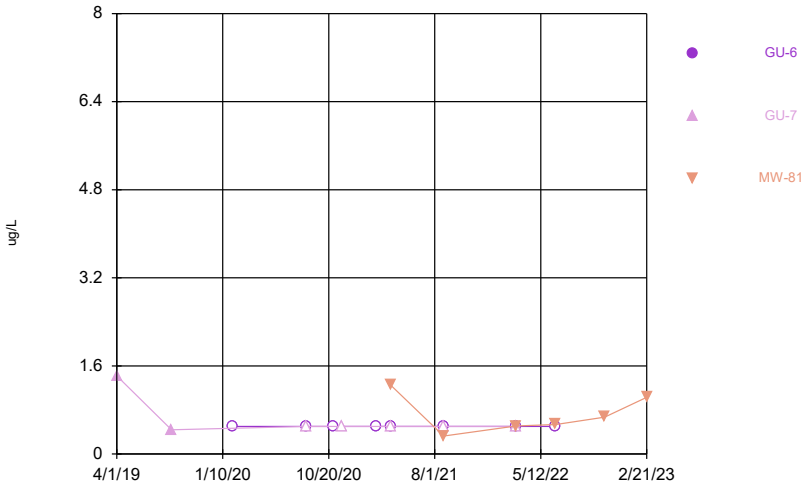
Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

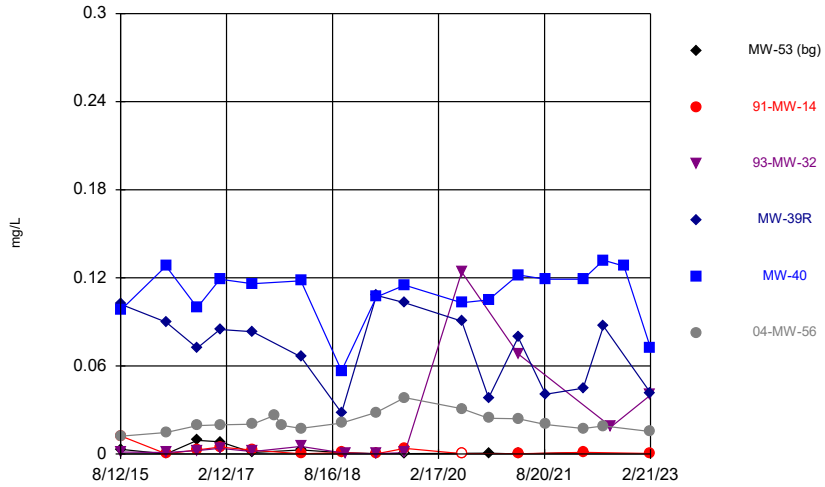
Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

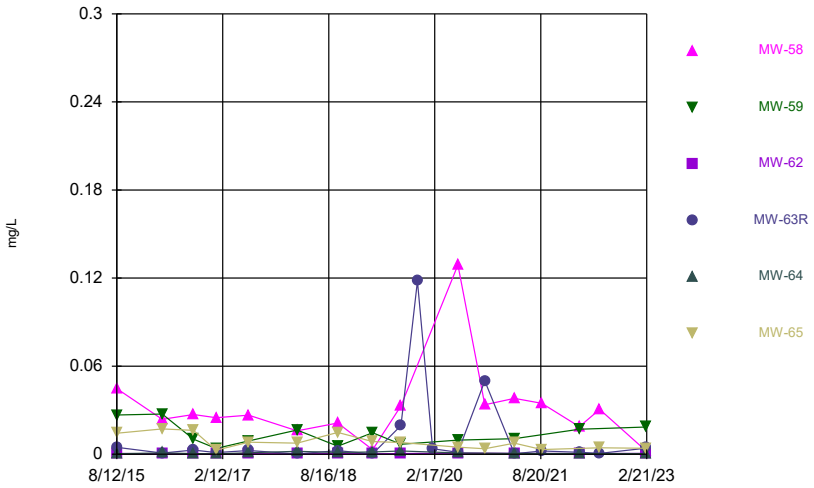
Time Series



Constituent: Cobalt Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Cobalt Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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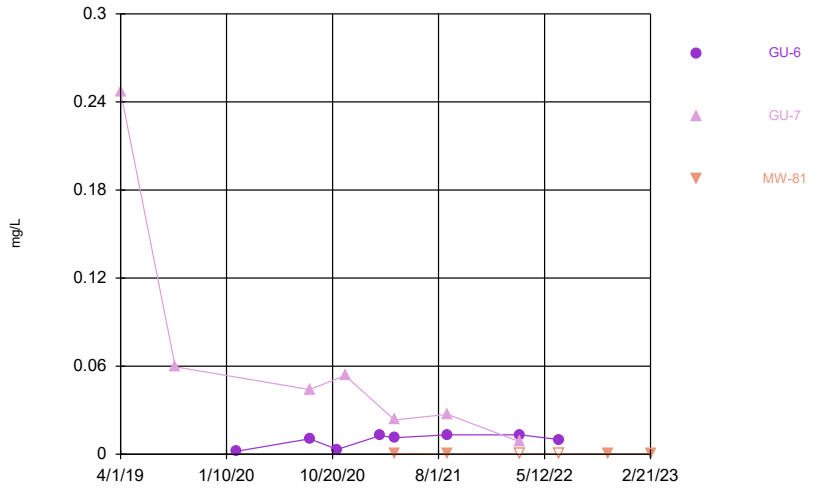
Time Series



Constituent: Cobalt Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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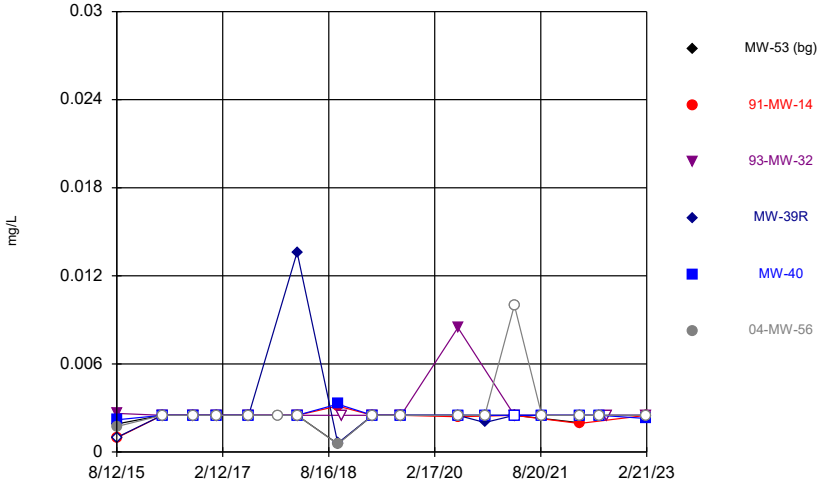
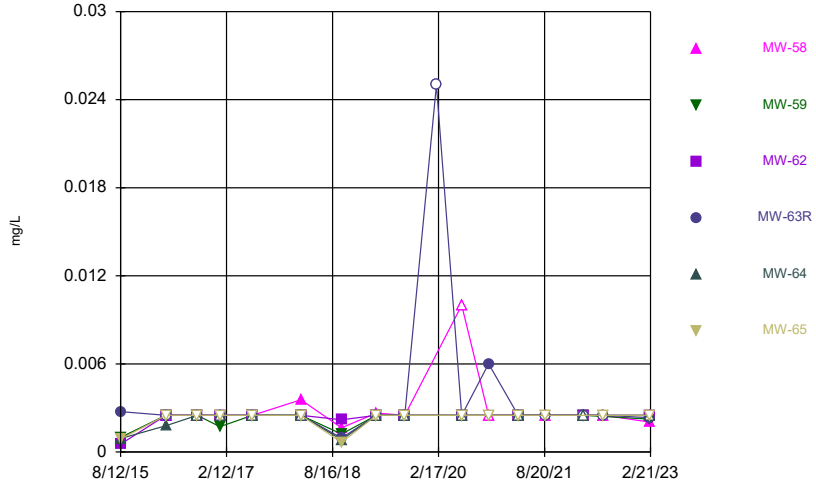
Time Series



Constituent: Copper Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

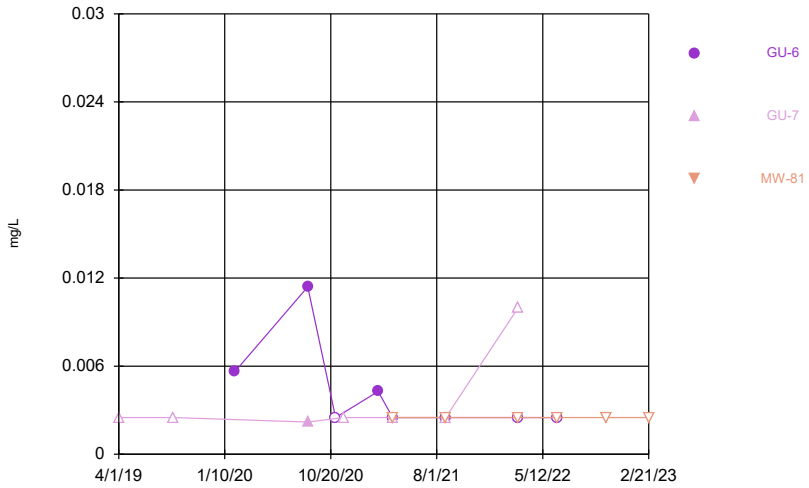
Time Series



Constituent: Copper Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

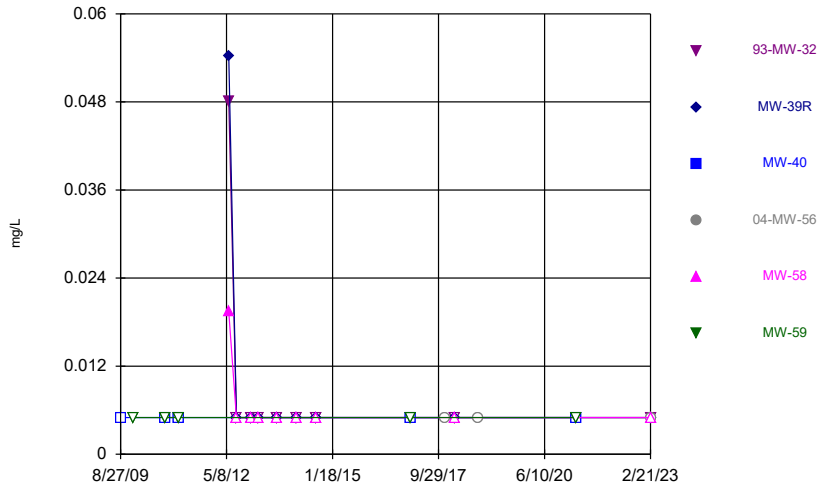
Time Series



Constituent: Copper Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

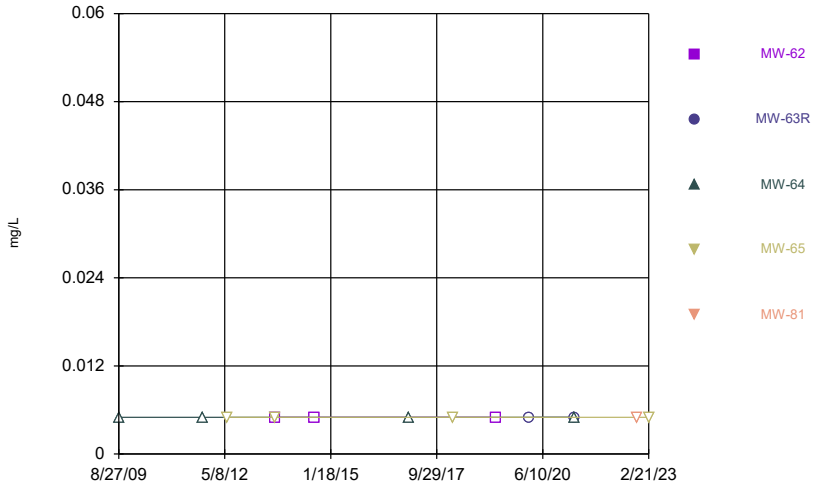
Time Series



Constituent: Cyanide Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

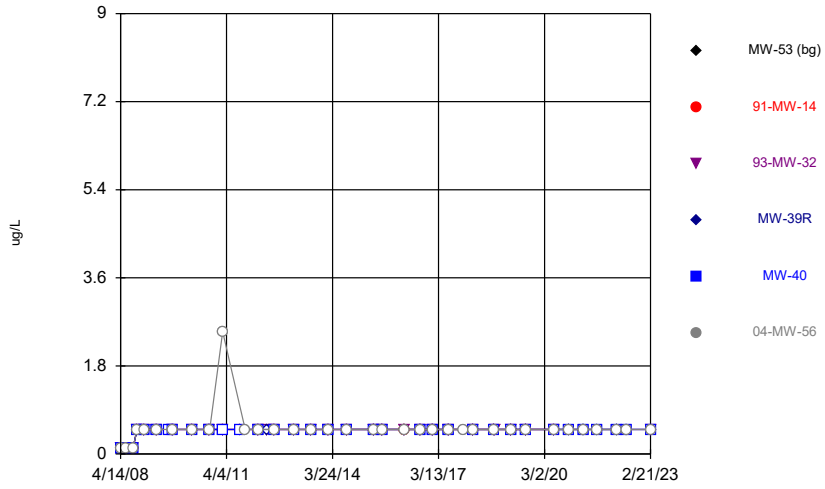
Time Series



Constituent: Cyanide Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

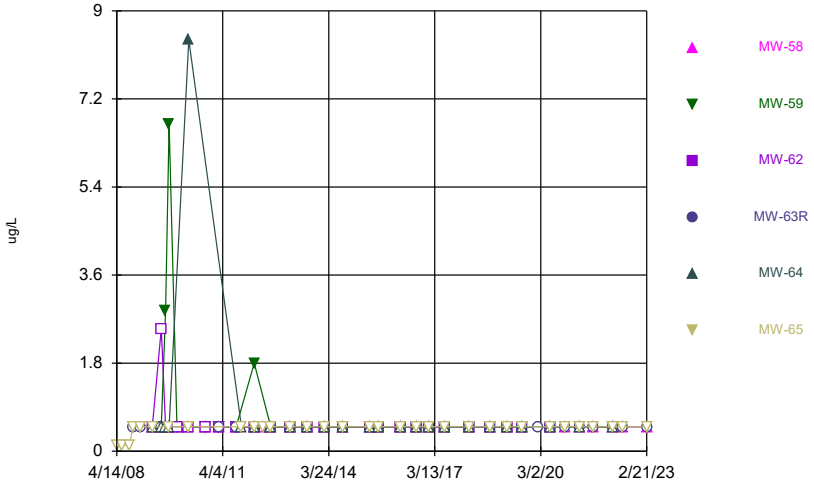
Time Series



Constituent: Ethylbenzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

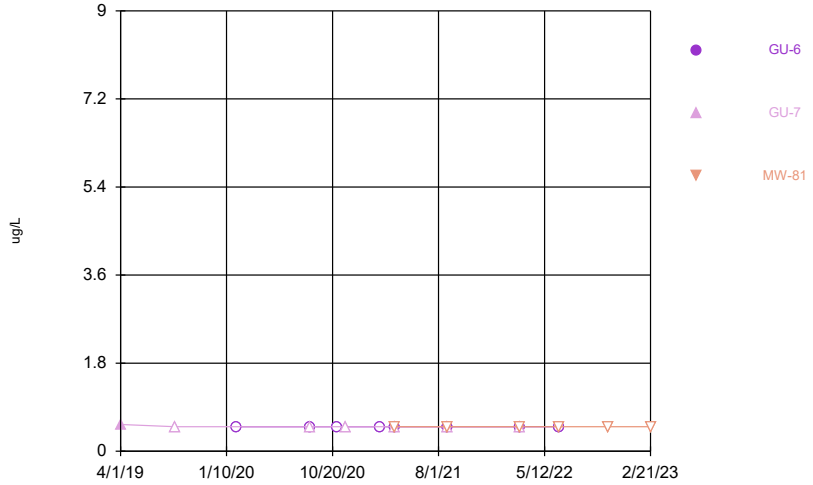
Time Series



Constituent: Ethylbenzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Ethylbenzene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
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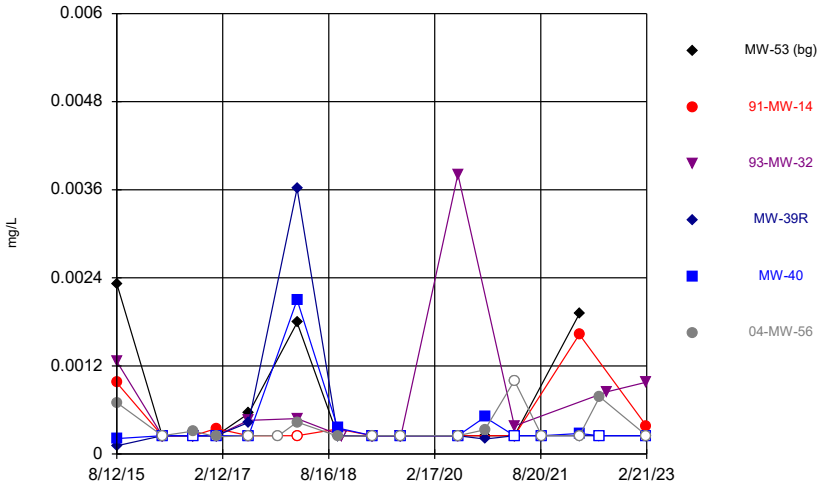
Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

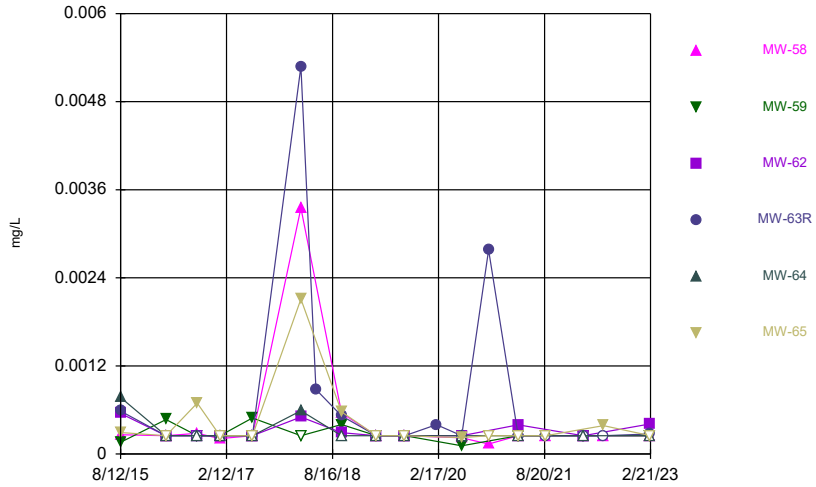
Time Series



Constituent: Lead Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

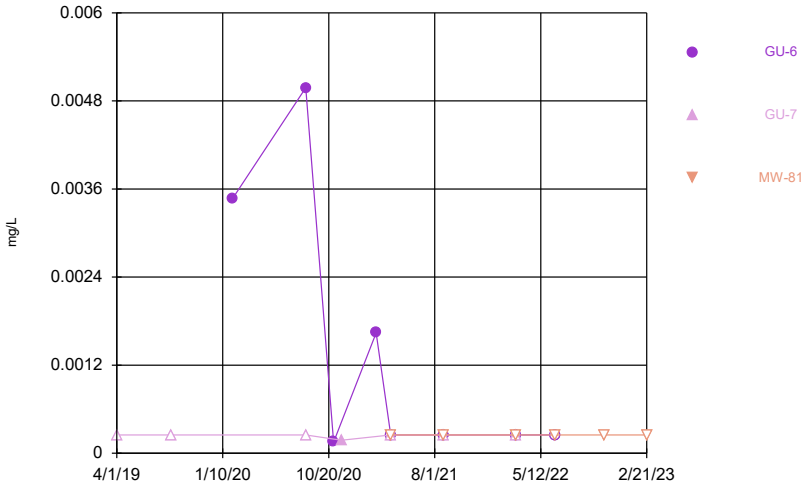
Time Series



Constituent: Lead Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Lead Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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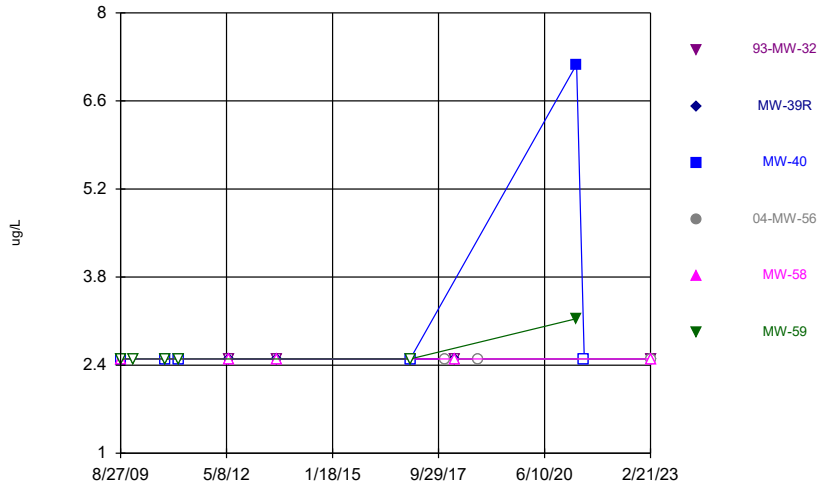
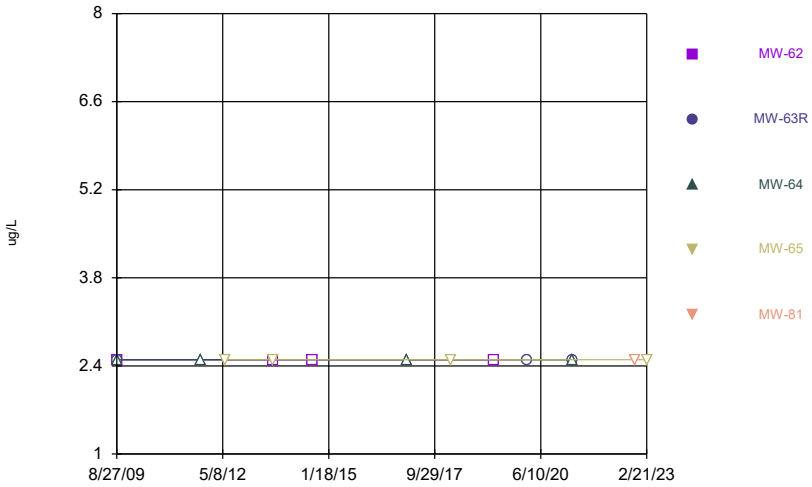
Time Series



Constituent: Naphthalene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

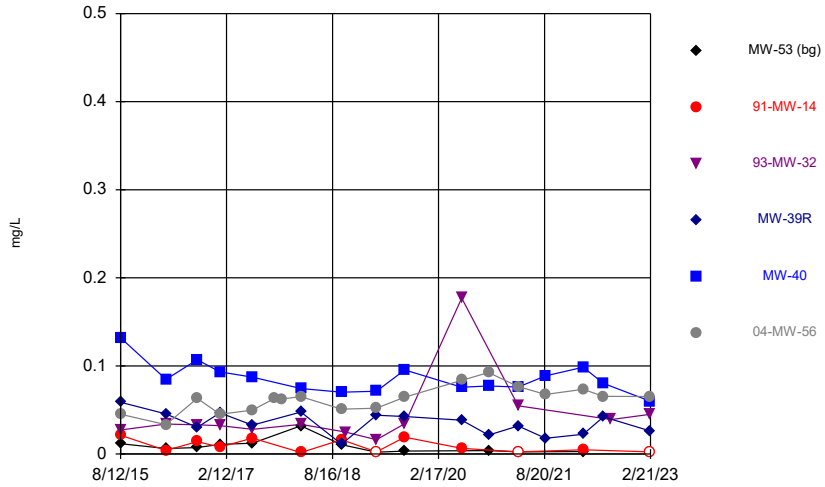
Time Series



Constituent: Naphthalene Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

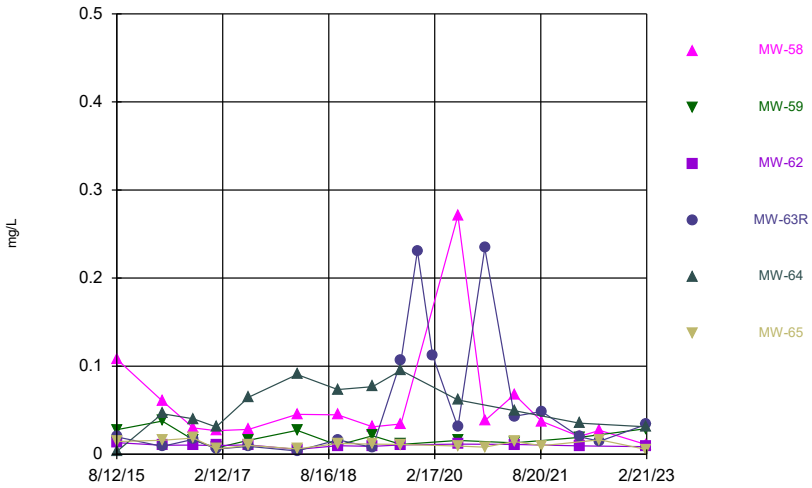
Time Series



Constituent: Nickel Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Nickel Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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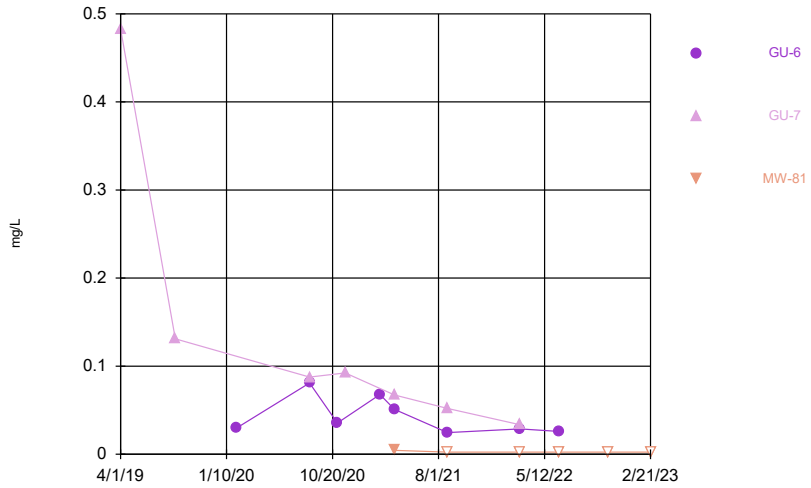
Time Series



Constituent: Nickel Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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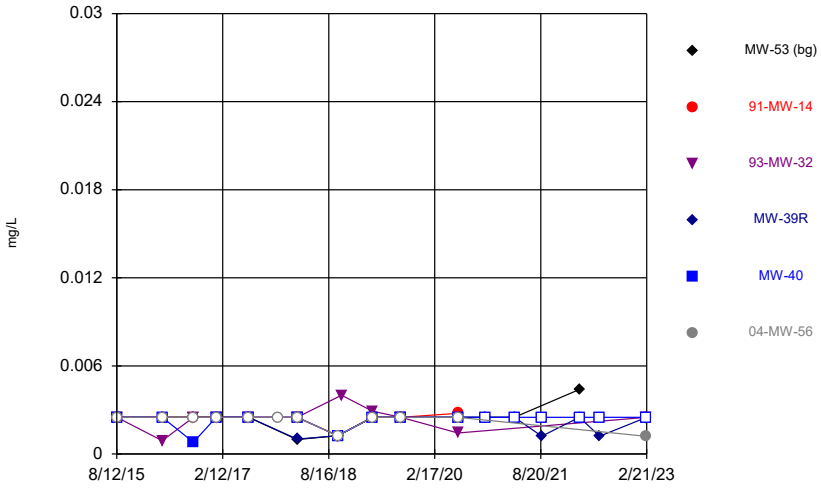
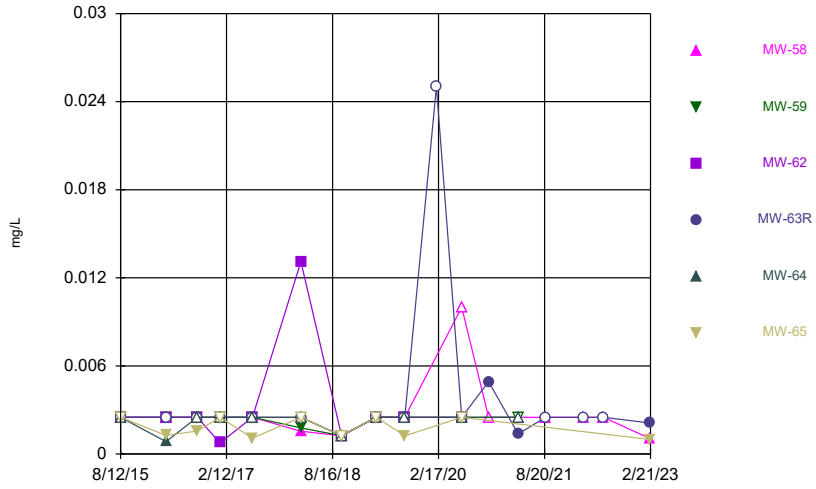


Constituent: Selenium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

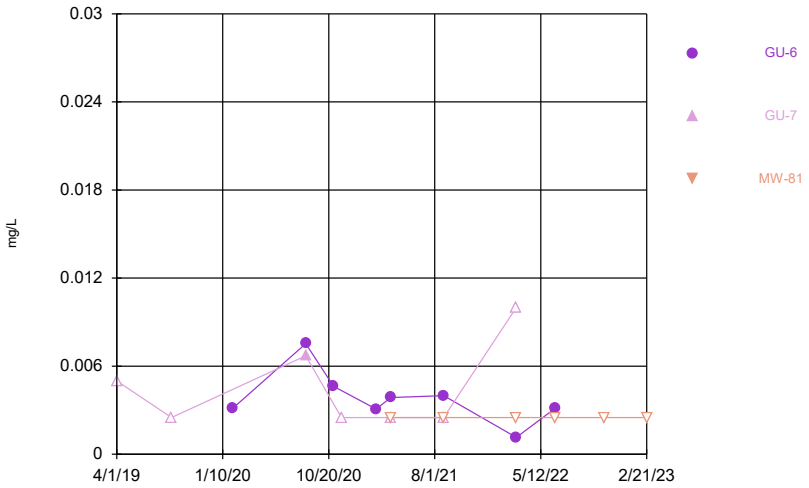
Time Series



Constituent: Selenium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

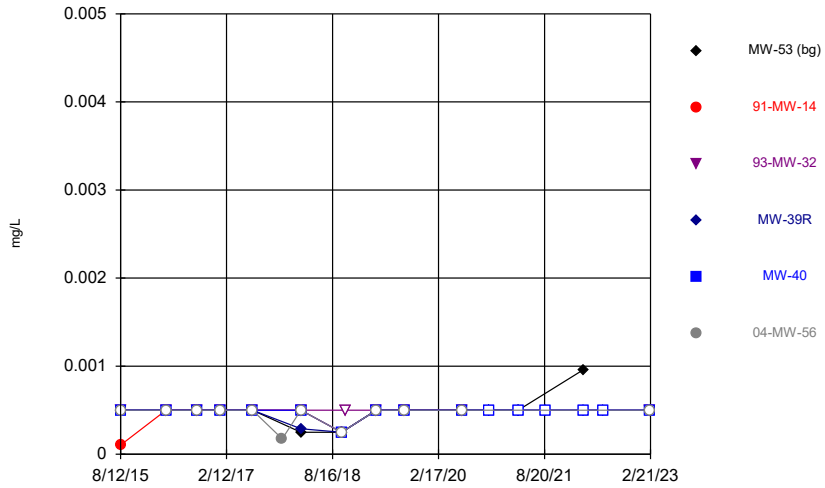
Time Series



Constituent: Selenium Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

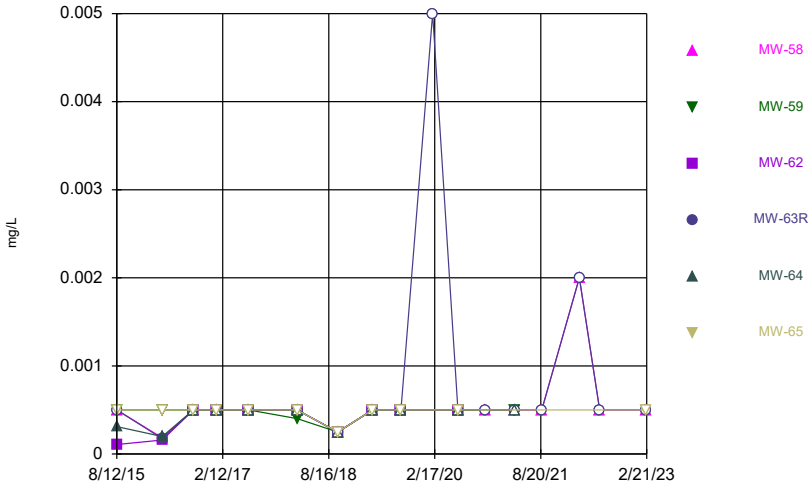
Time Series



Constituent: Silver Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

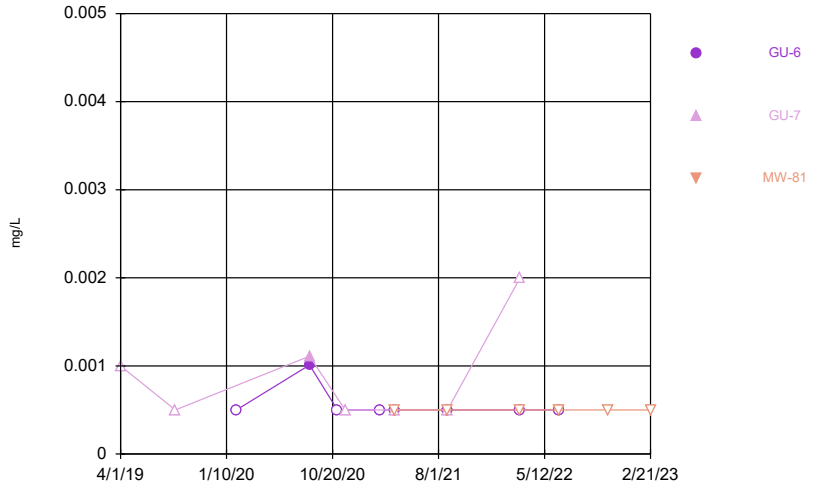
Time Series



Constituent: Silver Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Silver Analysis Run 4/10/2023 2:22 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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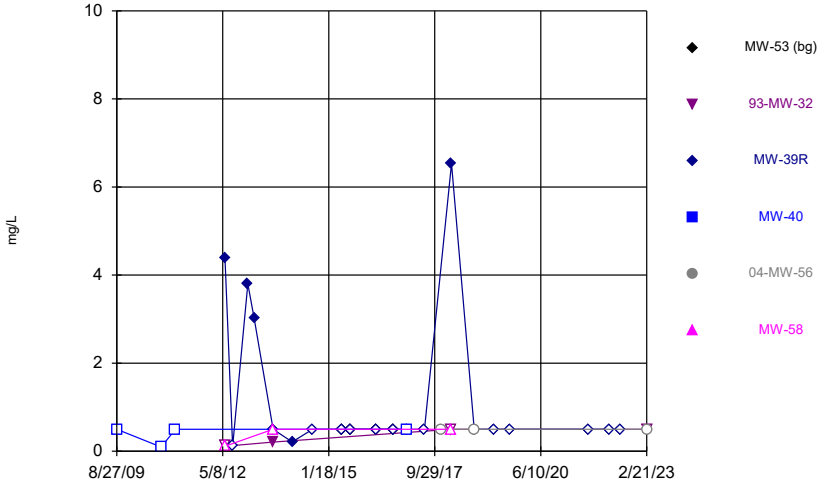
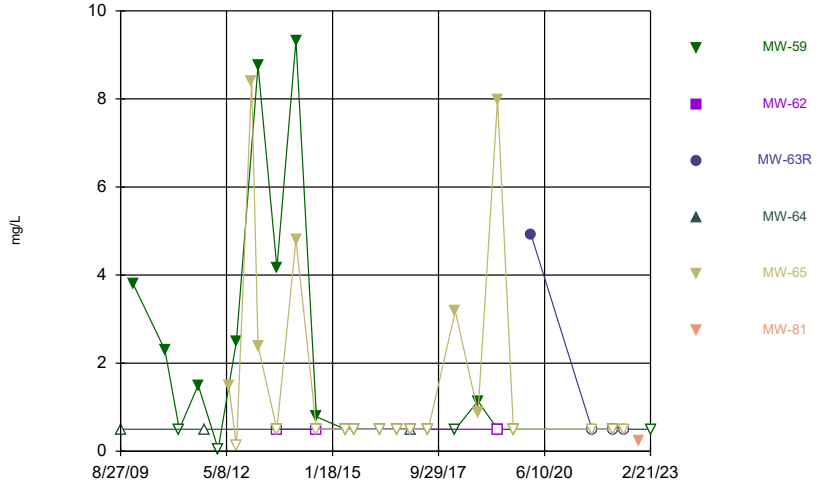
Time Series



Constituent: Sulfide Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

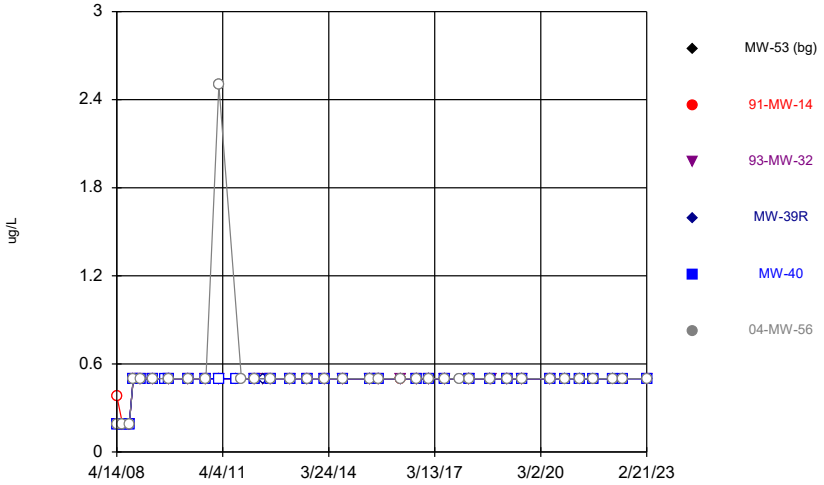
Time Series



Constituent: Sulfide Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

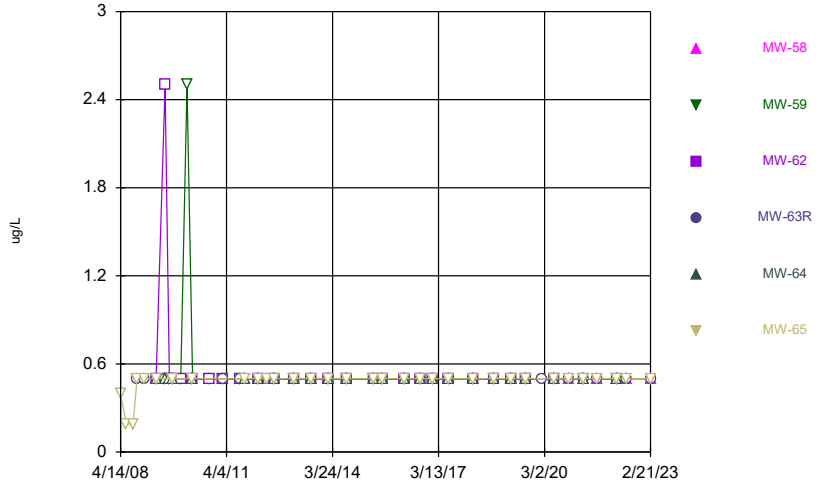
Time Series



Constituent: Tetrachloroethene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

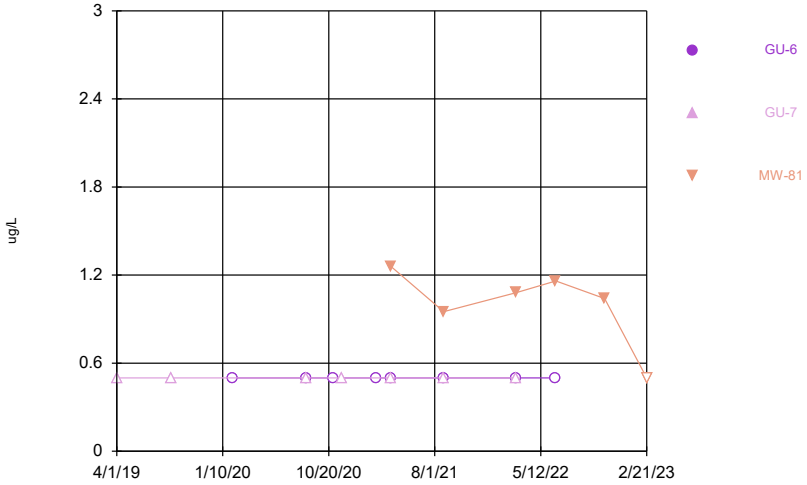
Time Series



Constituent: Tetrachloroethene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

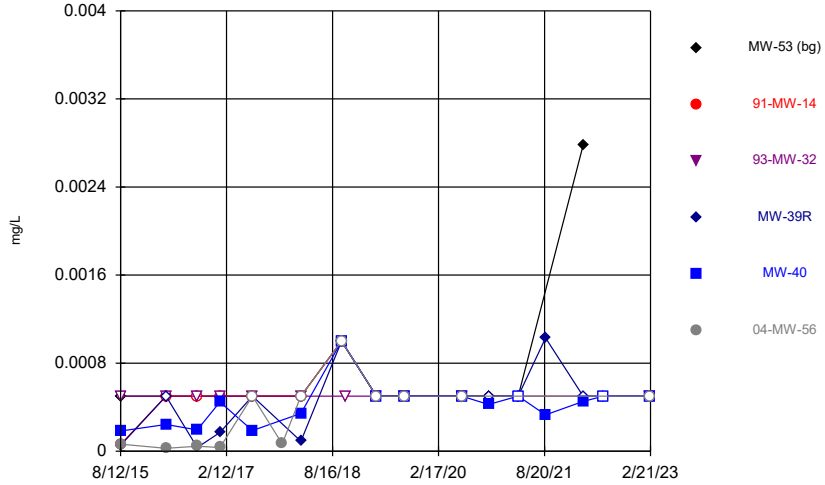
Time Series



Constituent: Tetrachloroethene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

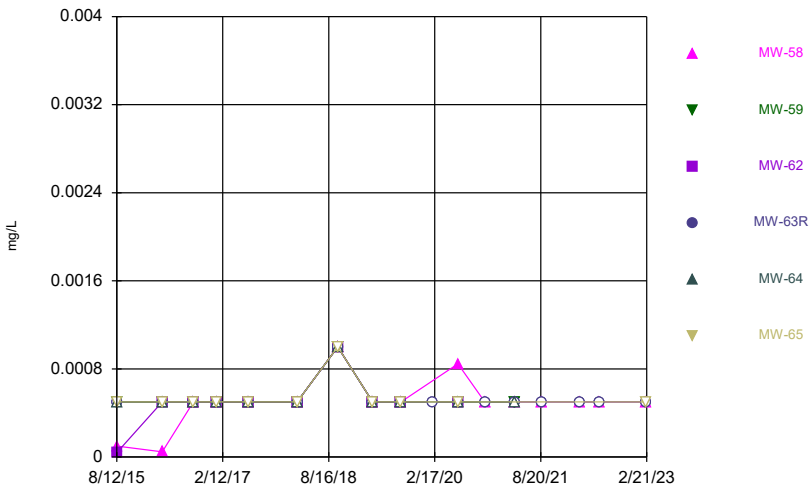
Time Series



Constituent: Thallium Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

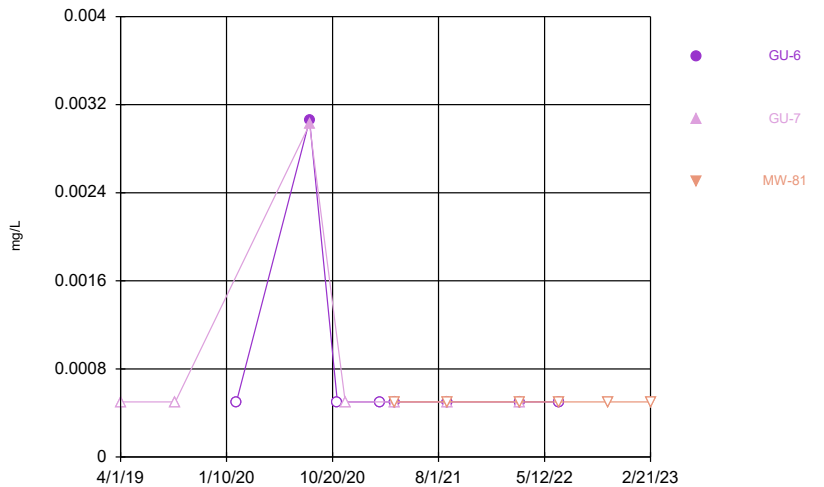
Time Series



Constituent: Thallium Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

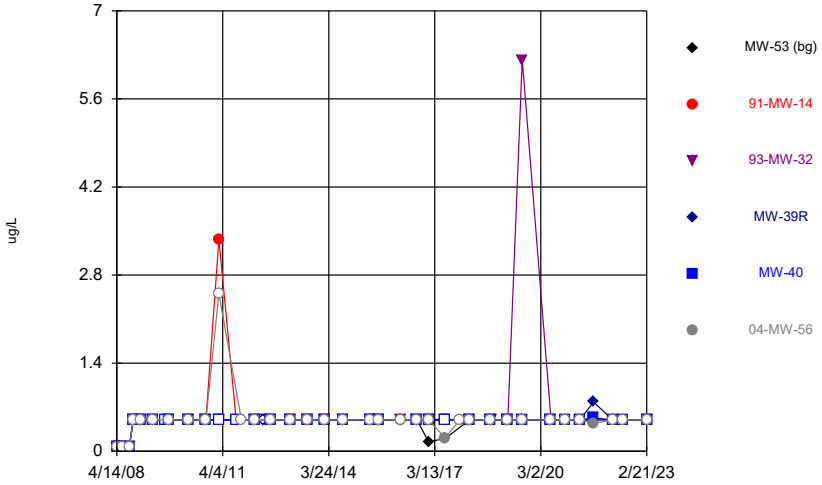
Time Series



Constituent: Thallium Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

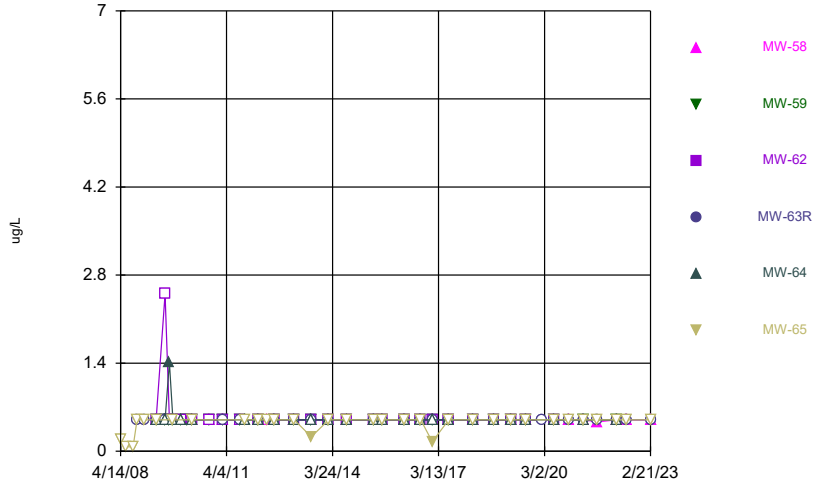
Time Series



Constituent: Toluene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

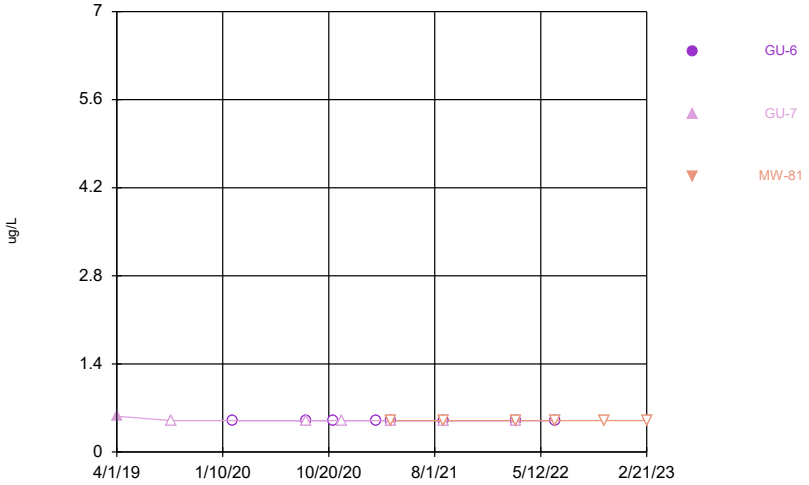
Time Series



Constituent: Toluene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

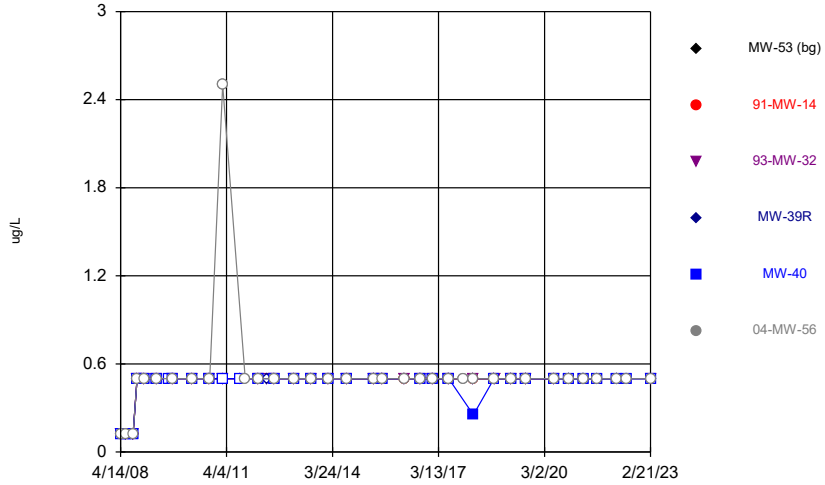
Time Series



Constituent: Toluene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

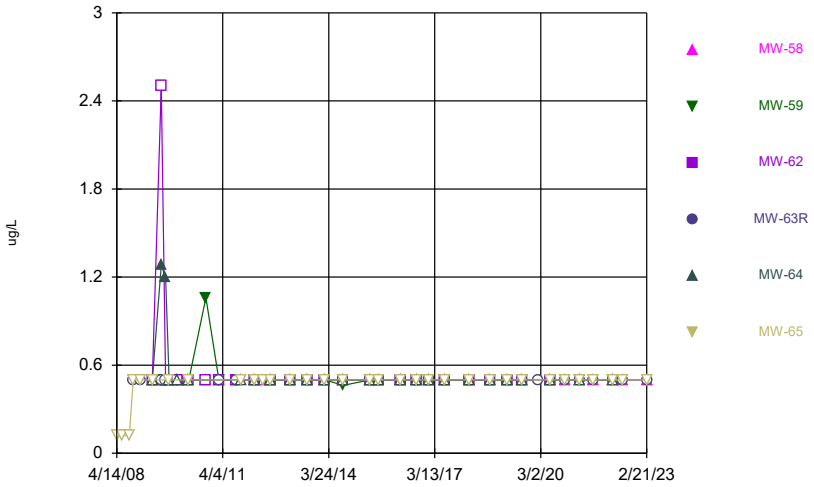
Time Series



Constituent: Trichloroethene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

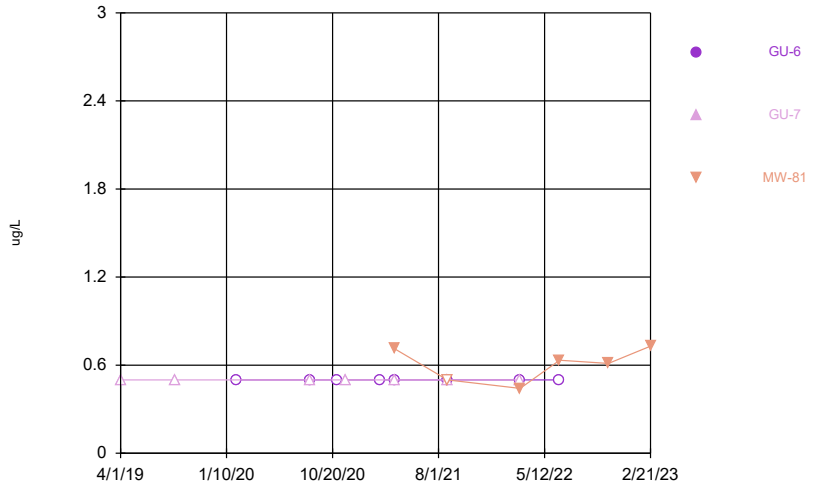
Time Series



Constituent: Trichloroethene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

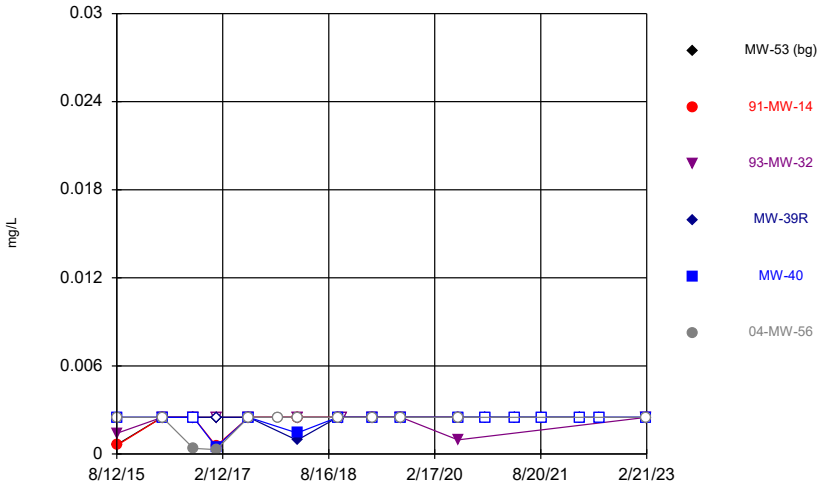
Time Series



Constituent: Trichloroethene Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Vanadium Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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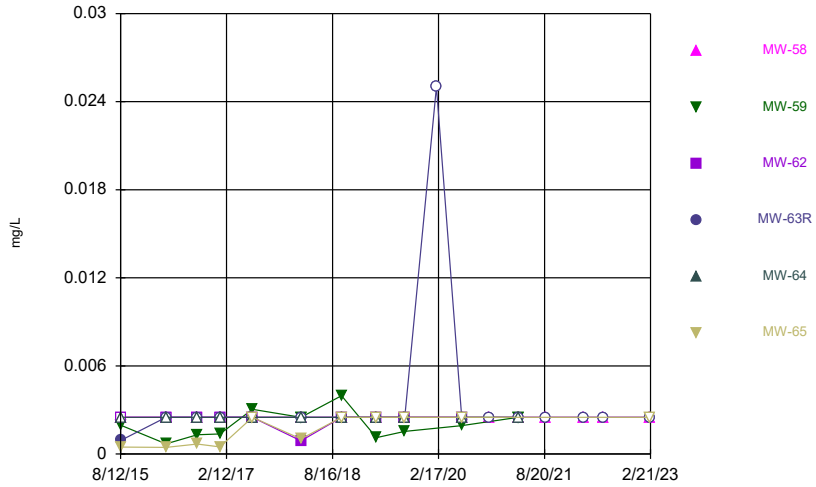
Hollow symbols indicate censored values.

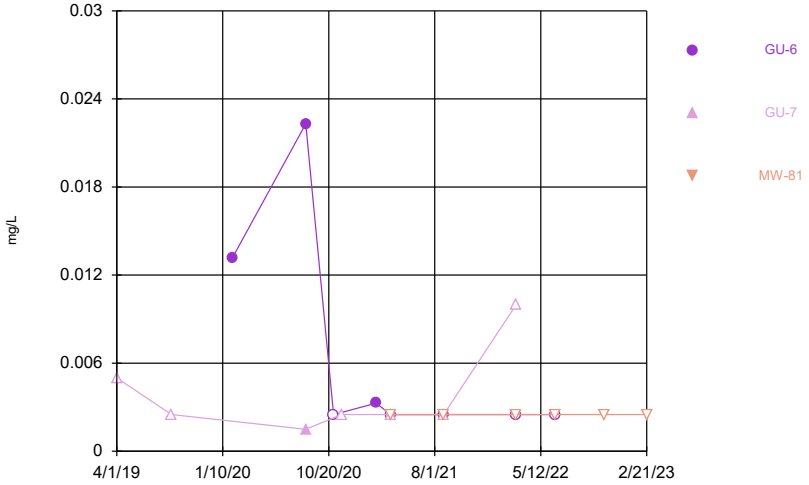
Time Series



Constituent: Vanadium Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

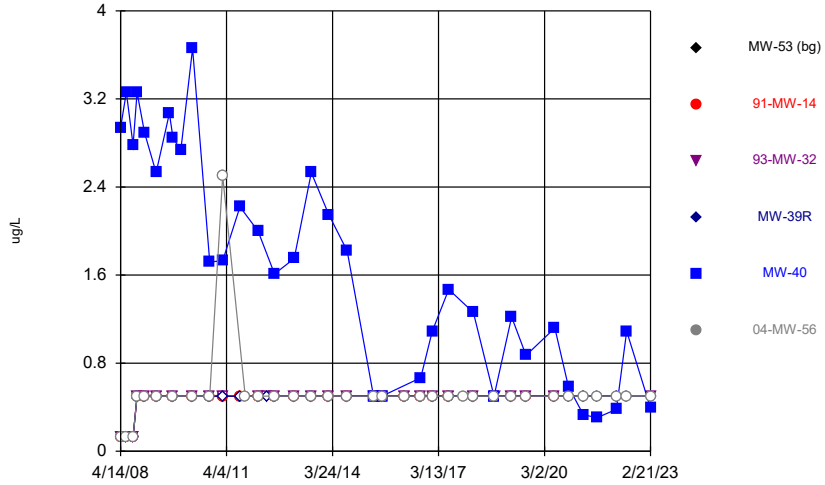
Time Series



Constituent: Vanadium Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

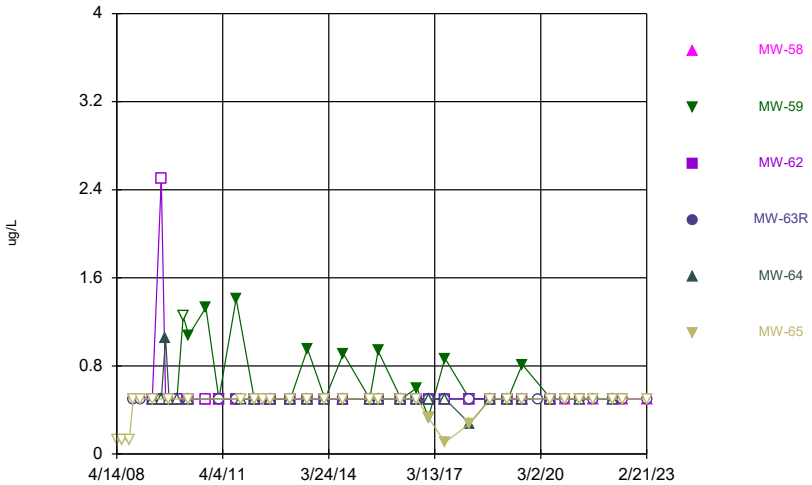
Time Series



Constituent: Vinyl chloride Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

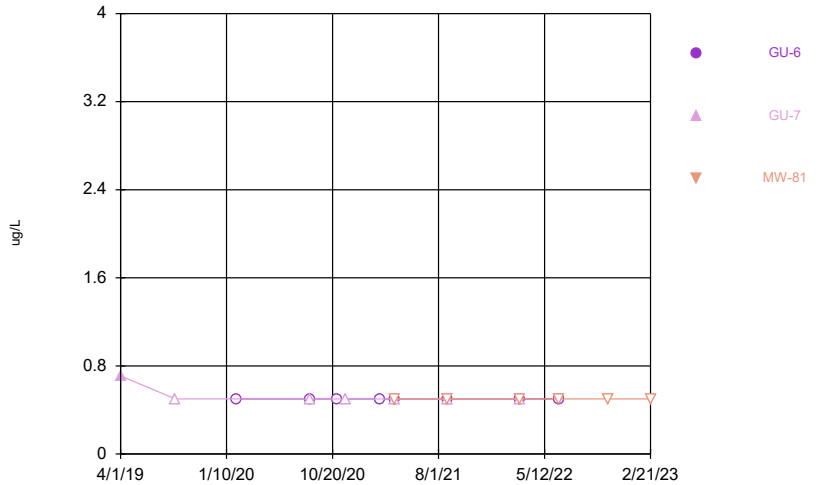
Time Series



Constituent: Vinyl chloride Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

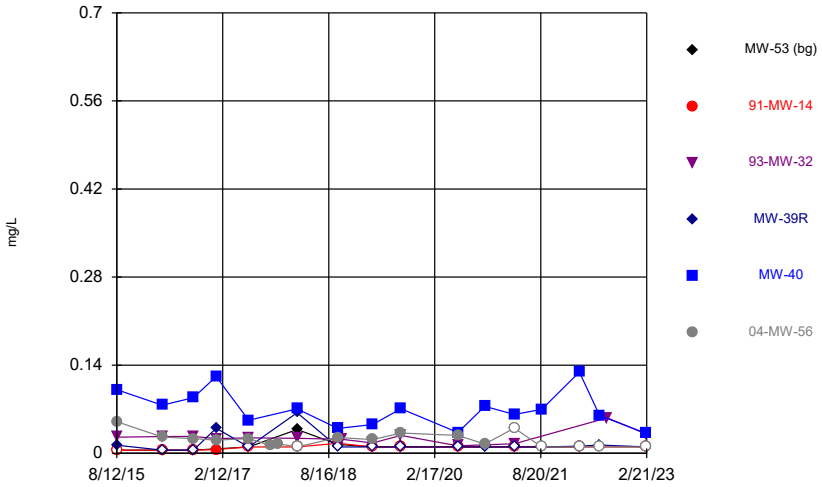
Time Series



Constituent: Vinyl chloride Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

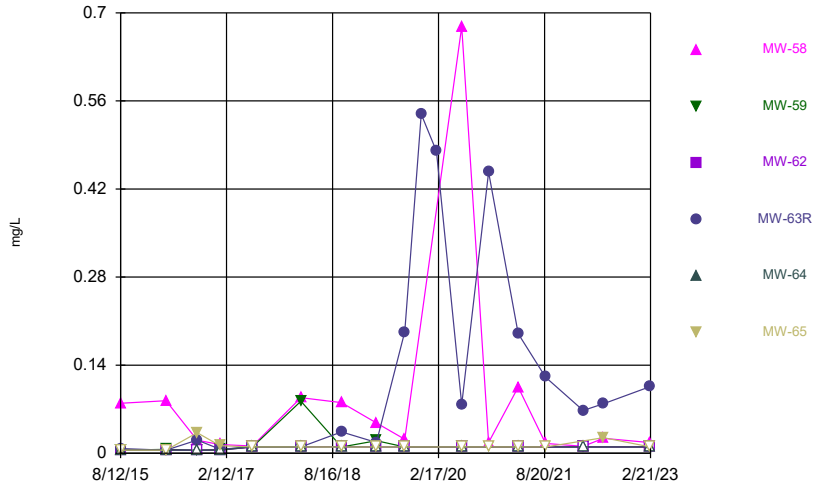
Time Series



Constituent: Zinc Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

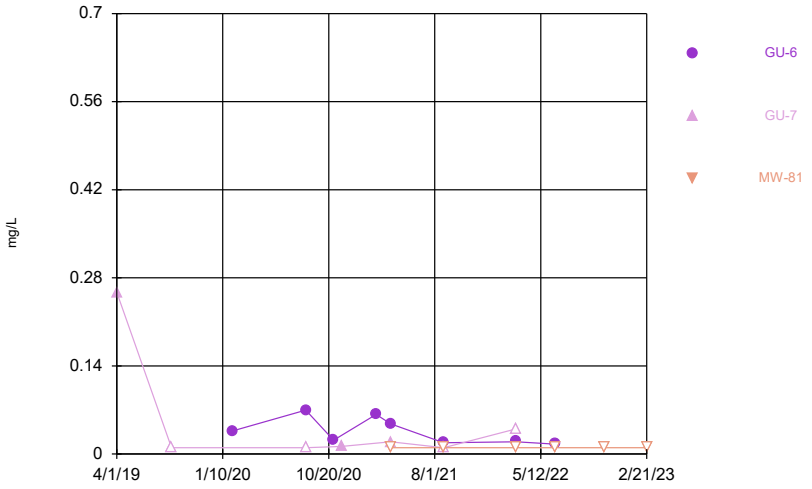
Time Series



Constituent: Zinc Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Zinc Analysis Run 4/10/2023 2:23 PM View: 2023SSN - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Outlier Tests Summary Table and Graphs

Outlier Analysis

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 11:47 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Normality...
Antimony (mg/L)	**MW-53,MW-54**	**Yes**	**0.00256**	**n/a w/combined bg**	**OH**	**NaN**	**21**	**0.0006919**	**0.0005416**	**n/a**
Arsenic (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.0009986	0.0002876	n/a
Barium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	NP (nrm)/OH	NaN	21	0.01992	0.007025	ShapiroWilk
Beryllium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.0004877	0.0001273	n/a
Cadmium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	EPA/OH	0.05	21	0.0002554	0.0002349	ShapiroWilk
Chromium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.002542	0.0001942	n/a
Cobalt (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	EPA/OH	0.05	21	0.002479	0.003472	ShapiroWilk
Copper (mg/L)	**MW-53,MW-54**	**Yes**	**0.000562,0.00837,0.00163**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**21**	**0.002577**	**0.001406**	**ShapiroWilk**
Lead (mg/L)	**MW-53,MW-54**	**Yes**	**0.00232,0.000553,0.00179,0.00191**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**21**	**0.0005156**	**0.0006334**	**ShapiroWilk**
Nickel (mg/L)	MW-54,MW-53	No	n/a	n/a w/combined bg	EPA/OH	0.05	21	0.007948	0.007663	ShapiroWilk
Selenium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.002399	0.000664	n/a
Silver (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.0004721	0.0001528	n/a
Thallium (mg/L)	**MW-53,MW-54**	**Yes**	**0.00278**	**n/a w/combined bg**	**OH**	**NaN**	**21**	**0.0006562**	**0.0005092**	**n/a**
Vanadium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.002411	0.0004065	n/a
Zinc (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	21	0.009694	0.00695	n/a

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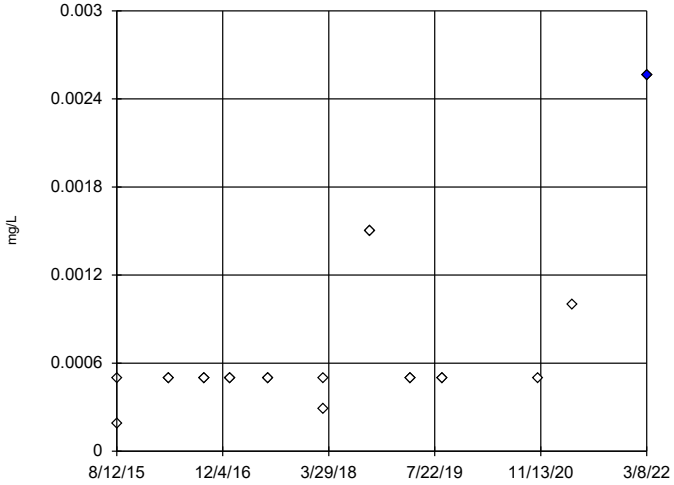
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Antimony Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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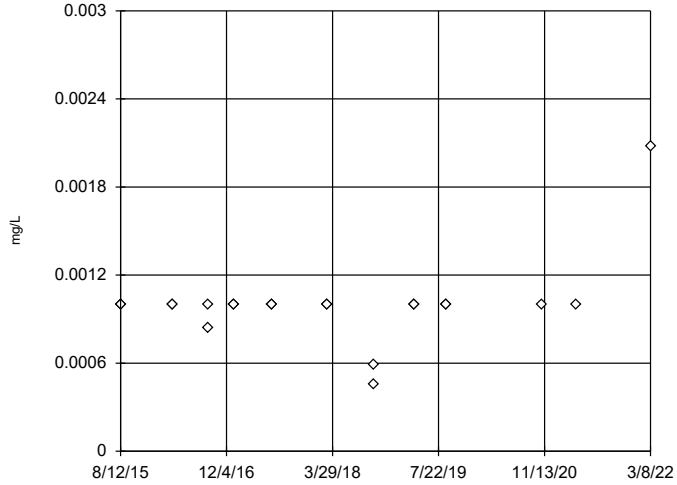
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

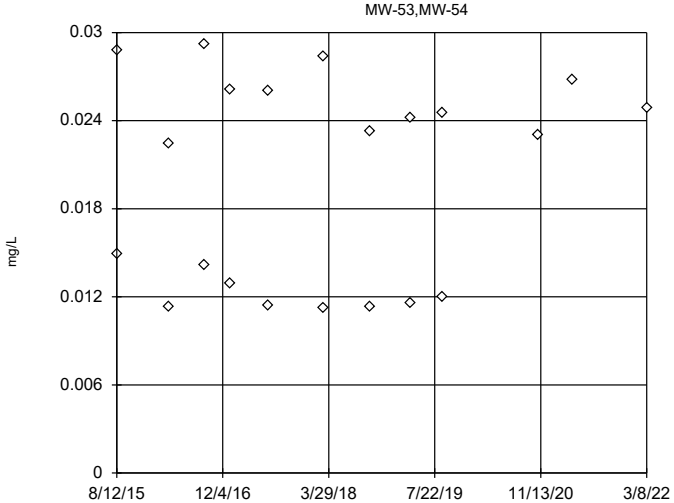
No statistical outliers.

Constituent: Arsenic Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.0688, low cutoff = -0.03095, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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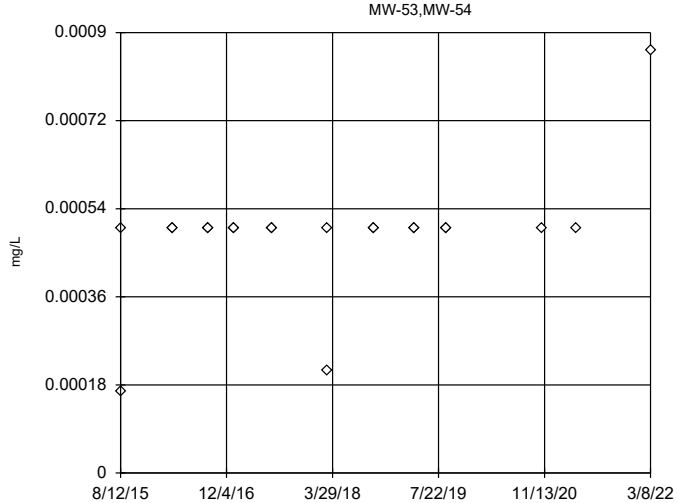
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



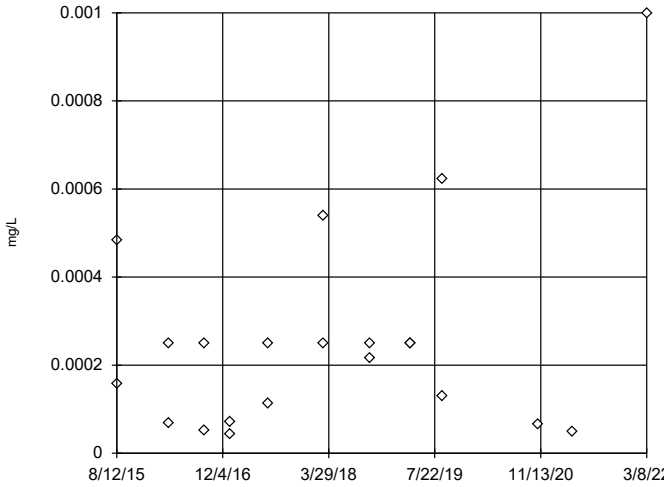
n = 21

No statistical outliers.

Constituent: Beryllium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

EPA Screening (suspected outliers for Rosner's Test)

MW-53,MW-54



n = 21

Rosner's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.0002554, std. dev. 0.0002349, critical Tn 2.58

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9417
Critical = 0.873 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Cadmium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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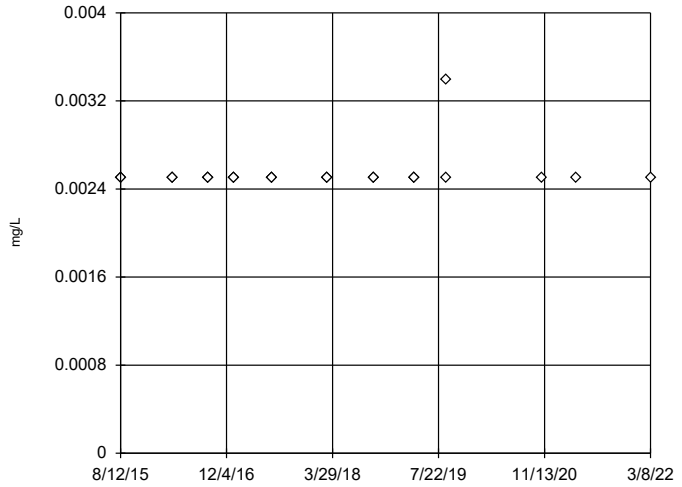
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

No statistical outliers.

Constituent: Chromium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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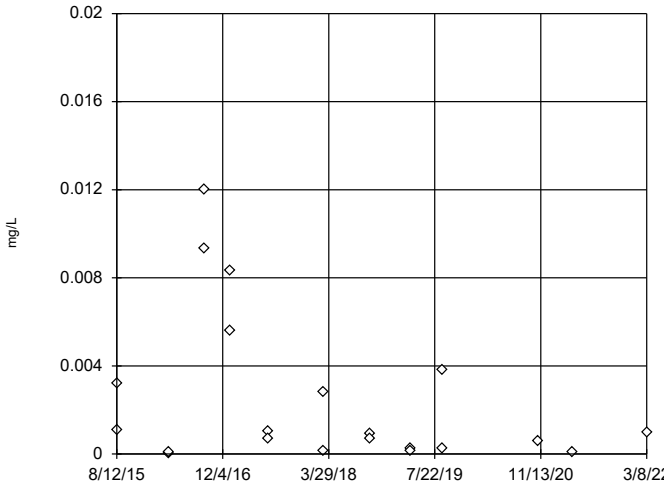
EPA Screening (suspected outliers for Rosner's Test)

MW-53,MW-54



n = 21

Rosner's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.002479, std. dev. 0.003472, critical Tn 2.58

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9552
Critical = 0.873 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Cobalt Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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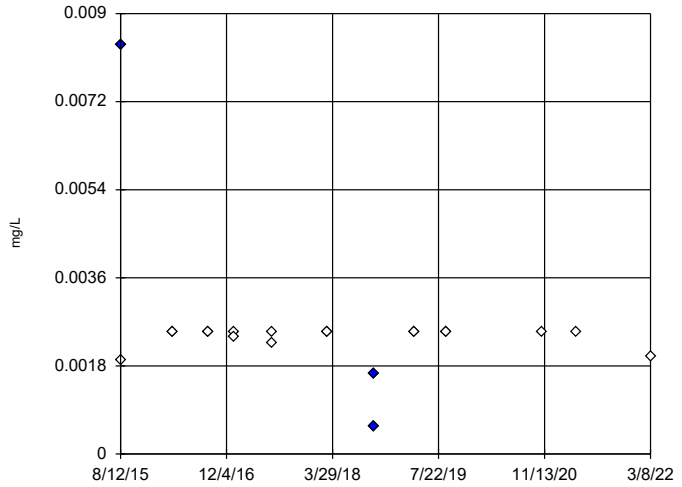
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.003025, low cutoff = 0.0018, based on IQR multiplier of 3.

Constituent: Copper Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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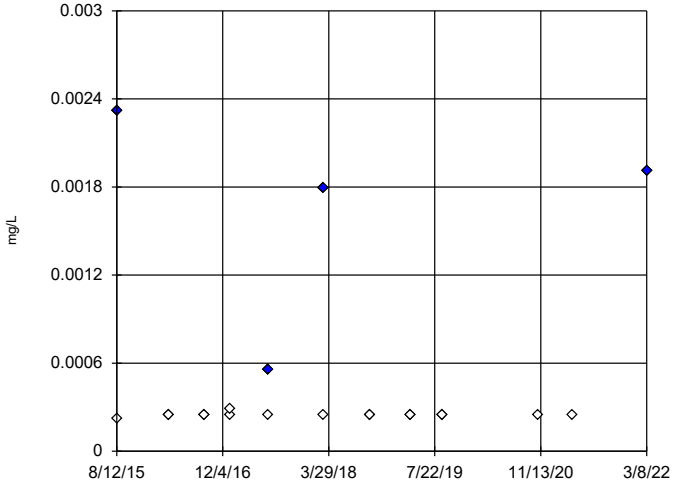
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.000324, low cutoff = 0.0001945, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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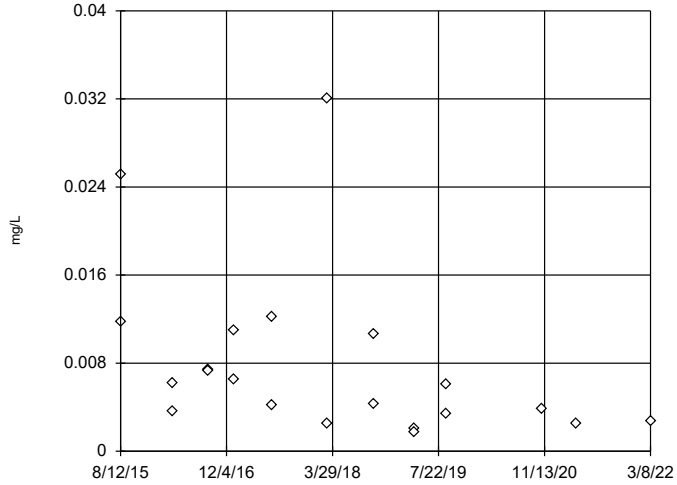
EPA Screening (suspected outliers for Rosner's Test)

MW-54,MW-53



n = 21

Rosner's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.007948, std. dev. 0.007663, critical Tn 2.58

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9582
Critical = 0.873 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Nickel Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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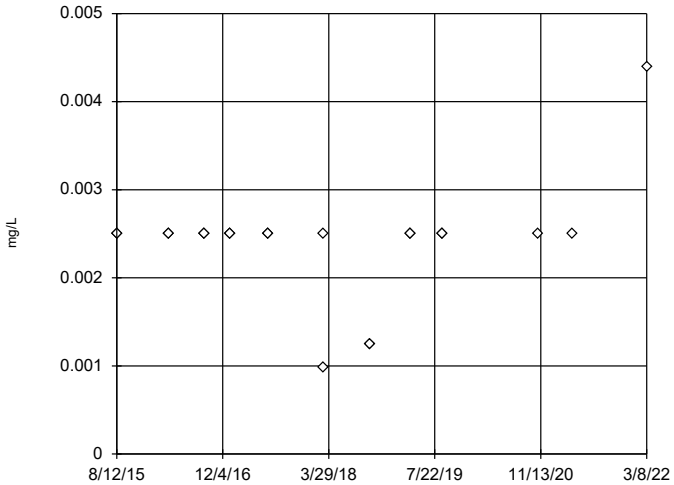
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

No statistical outliers.

Constituent: Selenium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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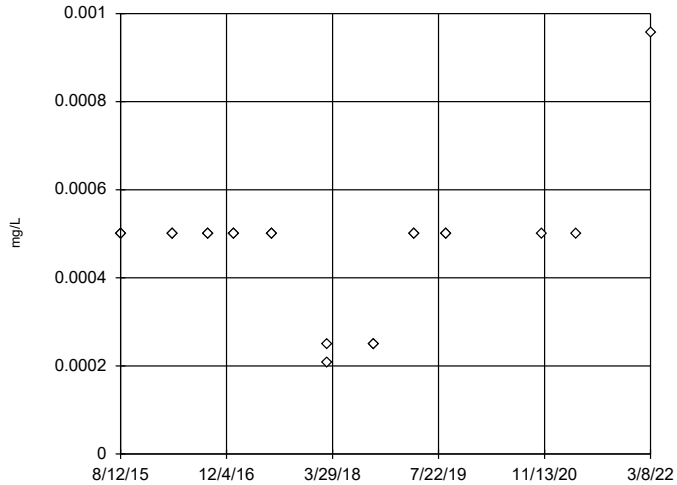
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

No statistical outliers.

Constituent: Silver Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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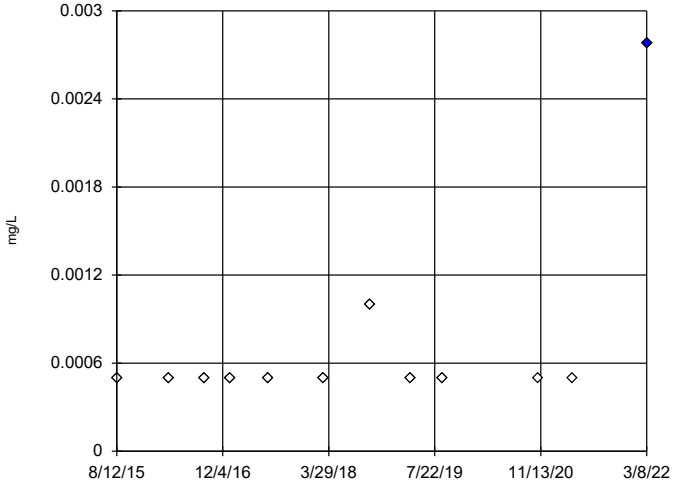
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Thallium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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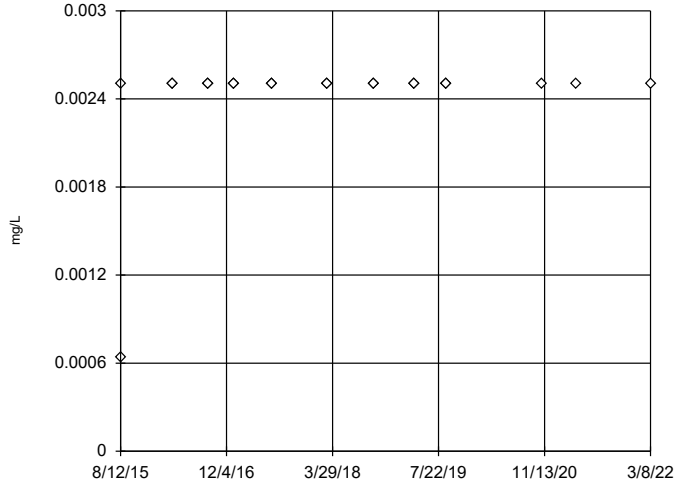
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

No statistical outliers.

Constituent: Vanadium Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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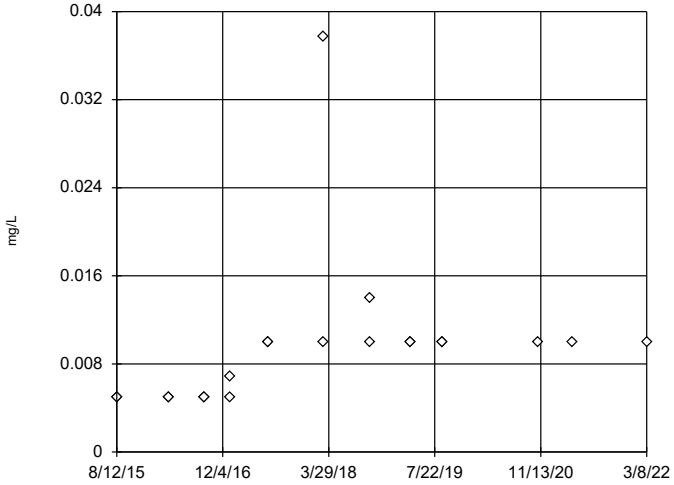
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 21

No statistical outliers.

Constituent: Zinc Analysis Run 4/11/2023 11:39 AM View: 2023SSN - BG Outliers
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

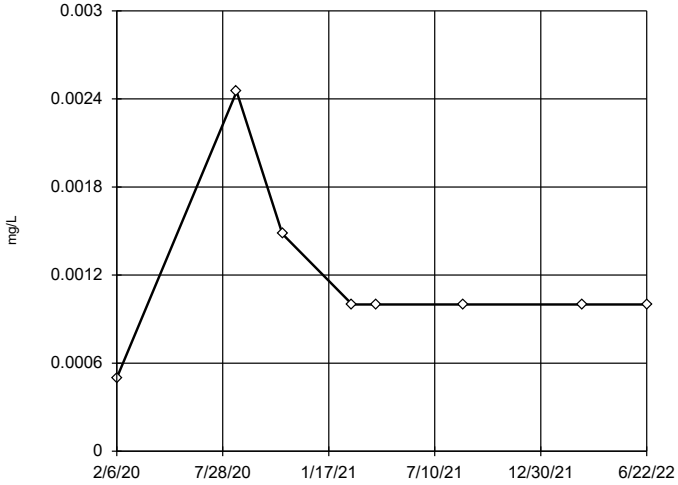
Outlier Analysis

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 12:13 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Normality...
Antimony (mg/L)	GU-6	No	n/a	n/a	OH	NaN	8	0.001179	0.0005766	n/a
Arsenic (mg/L)	GU-6	No	n/a	n/a	EPA/OH	0.05	8	0.002201	0.001978	ShapiroWilk
Barium (mg/L)	GU-6	No	n/a	n/a	NP (nrm)/OH	NaN	8	0.06226	0.04418	ShapiroWilk
Beryllium (mg/L)	GU-6	No	n/a	n/a	OH	NaN	8	0.0006153	0.0003848	n/a
Cadmium (mg/L)	GU-6	No	n/a	n/a	EPA/OH	0.05	8	0.0003281	0.0002385	ShapiroWilk
Chromium (mg/L)	**GU-6**	**Yes**	**0.014**	**8/20/2020**	**OH**	**NaN**	**8**	**0.004734**	**0.004357**	**n/a**
Cobalt (mg/L)	GU-6	No	n/a	n/a	EPA/OH	0.05	8	0.009525	0.004418	ShapiroWilk
Copper (mg/L)	GU-6	No	n/a	n/a	NP (nrm)/OH	NaN	8	0.004224	0.003123	ShapiroWilk
Lead (mg/L)	GU-6	No	n/a	n/a	EPA/OH	0.05	8	0.001405	0.001852	ShapiroWilk
Nickel (mg/L)	GU-6	No	n/a	n/a	EPA/OH	0.05	8	0.043	0.02135	ShapiroWilk
Selenium (mg/L)	GU-6	No	n/a	n/a	Dixon/OH	0.01	8	0.003815	0.001817	ShapiroWilk
Silver (mg/L)	**GU-6**	**Yes**	**0.00101**	**8/20/2020**	**OH**	**NaN**	**8**	**0.0005638**	**0.0001803**	**n/a**
Thallium (mg/L)	**GU-6**	**Yes**	**0.00306**	**8/20/2020**	**OH**	**NaN**	**8**	**0.00082**	**0.0009051**	**n/a**
Vanadium (mg/L)	GU-6	No	n/a	n/a	NP (nrm)/OH	NaN	8	0.006409	0.007415	ShapiroWilk
Zinc (mg/L)	GU-6	No	n/a	n/a	EPA/OH	0.05	8	0.03654	0.0214	ShapiroWilk

Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

No statistical outliers.

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9582
Critical = 0.873 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Antimony Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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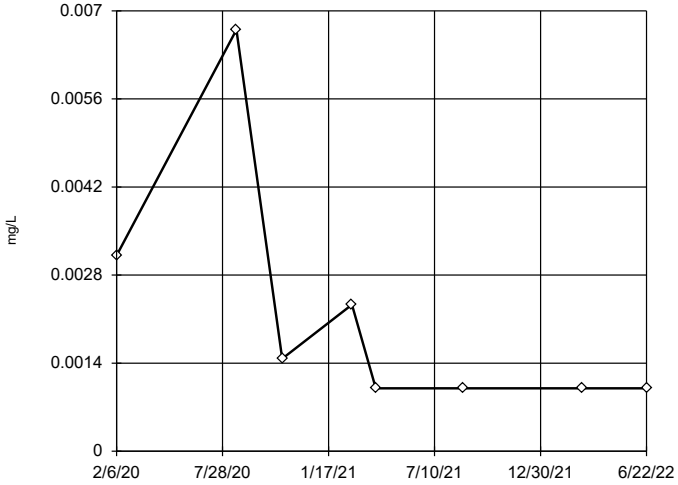
EPA Screening (suspected outliers for Dixon's Test)

GU-6



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.002201, std. dev. 0.001978, critical Tn 2.032

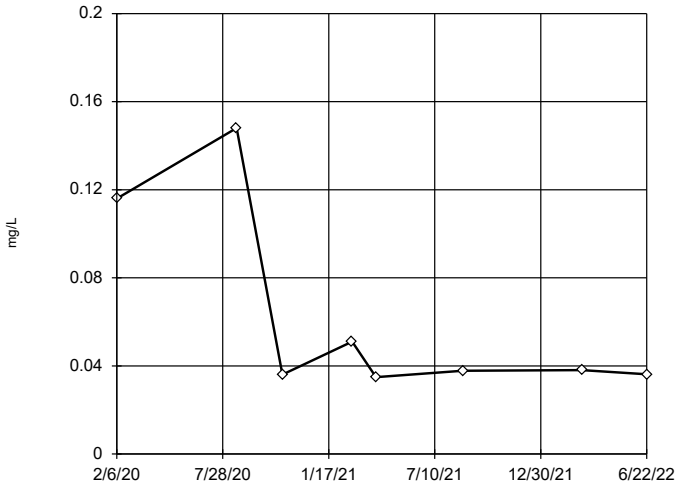
Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.8074
Critical = 0.749 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Arsenic Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.2256, low cutoff = -0.1059, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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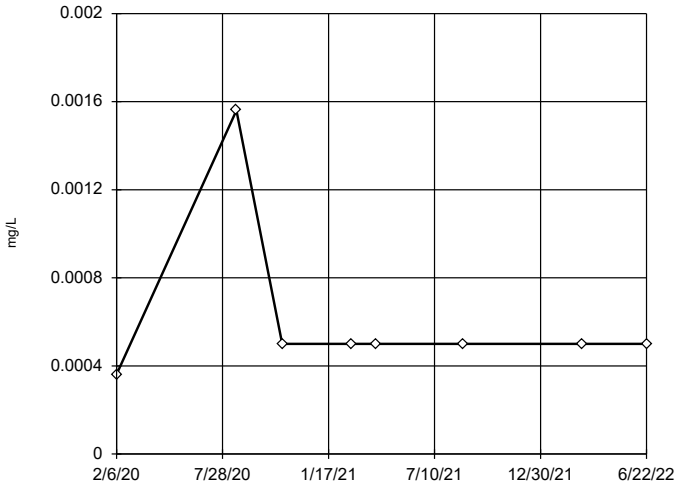
Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

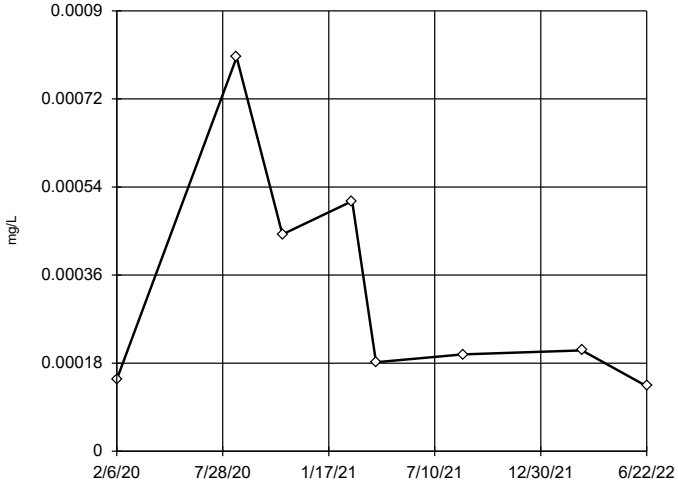
No statistical outliers.

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.7206
Critical = 0.749
The distribution was found to be normally distributed.

Constituent: Beryllium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

EPA Screening (suspected outliers for Dixon's Test)

GU-6



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.0003281, std. dev. 0.0002385, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.8098
Critical = 0.749
The distribution was found to be normally distributed.

Constituent: Cadmium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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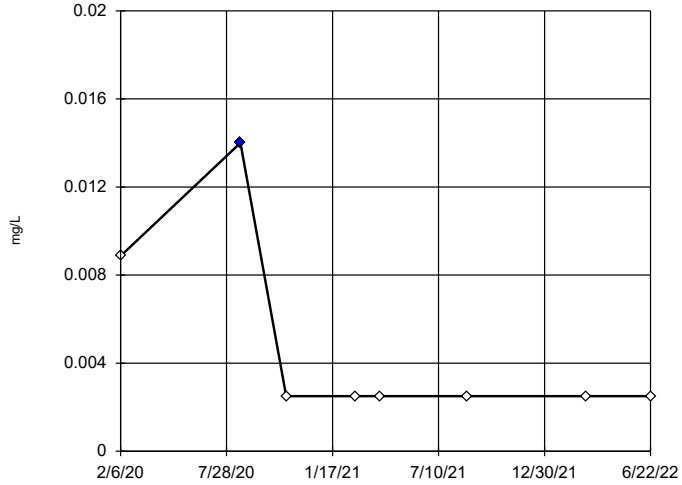
Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.8098
Critical = 0.749
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Chromium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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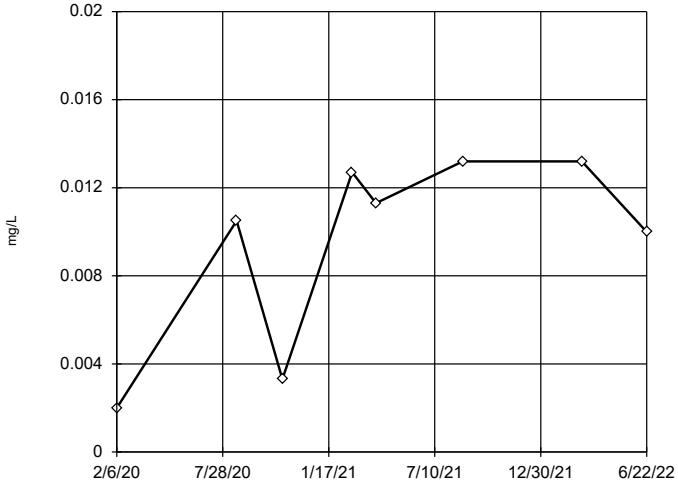
EPA Screening (suspected outliers for Dixon's Test)

GU-6



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.009525, std. dev. 0.004418, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.7952
Critical = 0.749
The distribution was found to be normally distributed.

Constituent: Cobalt Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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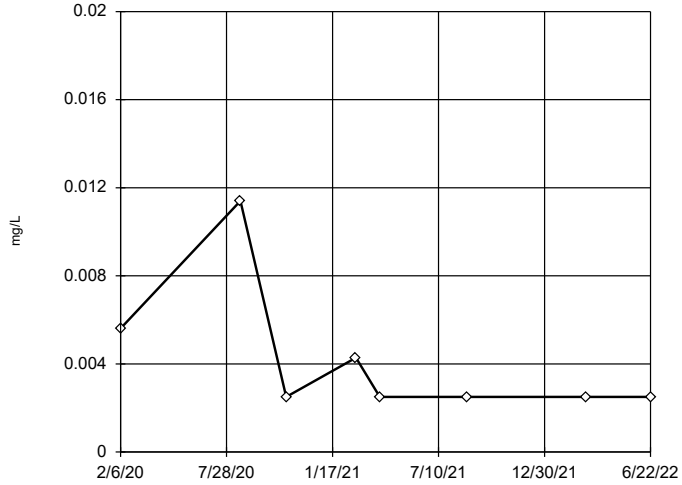
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

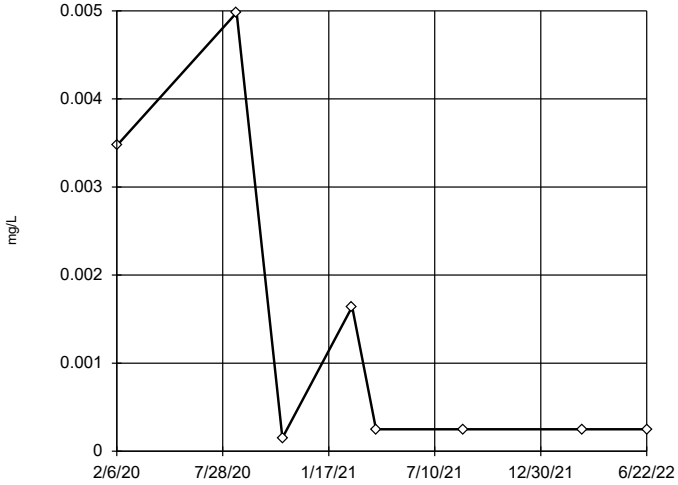
No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.01228, low cutoff = -0.004835, based on IQR multiplier of 3.

Constituent: Copper Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

EPA Screening (suspected outliers for Dixon's Test)

GU-6



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.001405, std. dev. 0.001852, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.7918
Critical = 0.749 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Lead Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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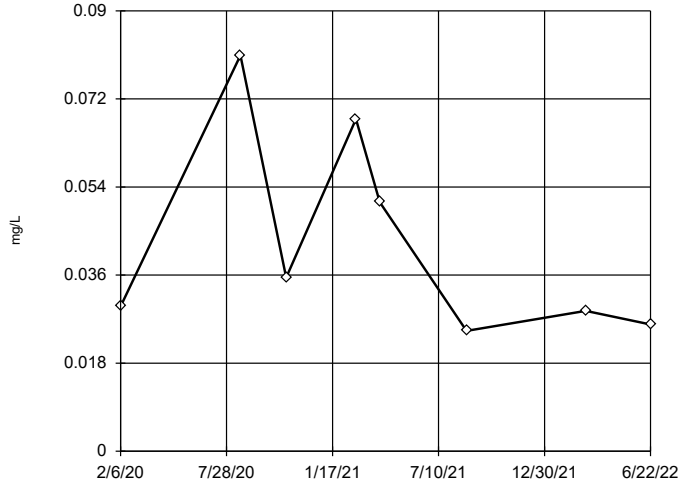
EPA Screening (suspected outliers for Dixon's Test)

GU-6



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.043, std. dev. 0.02135, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.8334
Critical = 0.749
The distribution was found to be normally distributed.

Constituent: Nickel Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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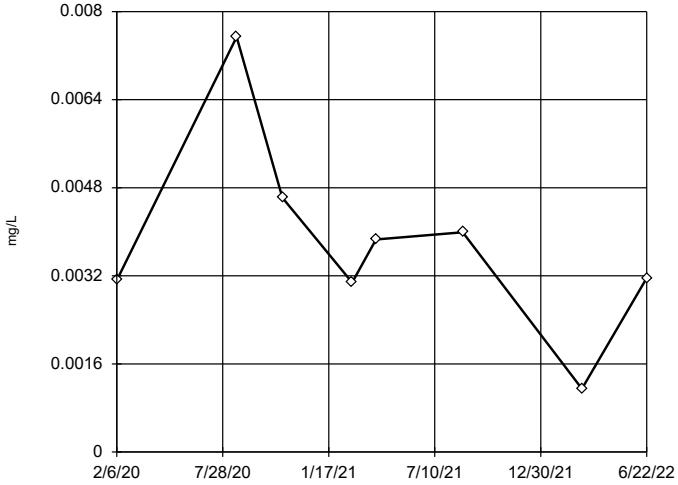
Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

No statistical outliers.
Testing for 1 high and 1 low outliers.
Mean = 0.003815.
Std. Dev. = 0.001817.
0.00754: c = 0.6547
tabl = 0.683.
0.00115 (J): c = 0.5562
tabl = 0.683.
Alpha = 0.01.

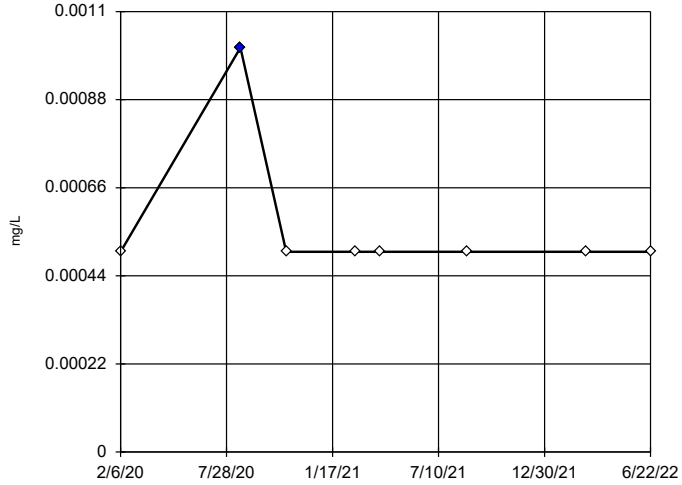
Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.8629
Critical = 0.713
The distribution was found to be normally distributed.

Constituent: Selenium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

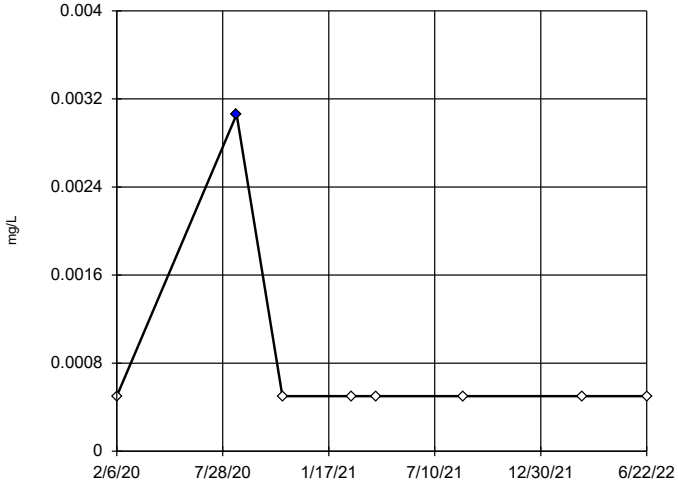
Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Silver Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

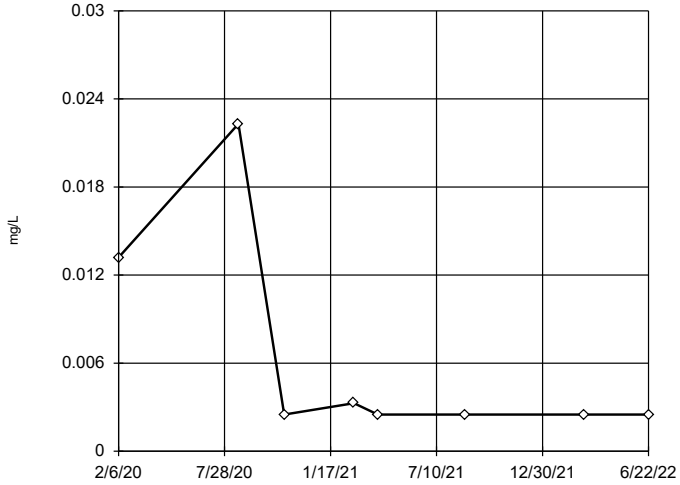
Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Thallium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm

GU-6



n = 8

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

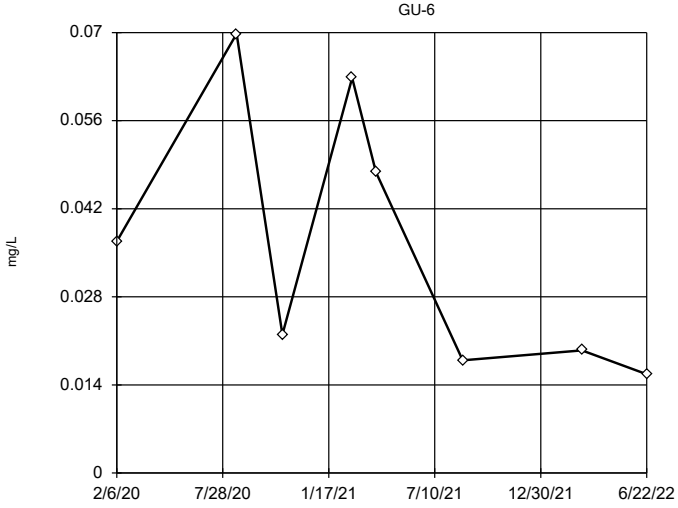
High cutoff = 0.02544, low cutoff = -0.01471, based on IQR multiplier of 3.

Constituent: Vanadium Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)

GU-6



n = 8

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.03654, std. dev. 0.0214, critical Tn 2.032

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.8666
Critical = 0.749
The distribution was found to be normally distributed.

Constituent: Zinc Analysis Run 4/11/2023 12:11 PM View: 2023SSN - Outliers GU-6
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

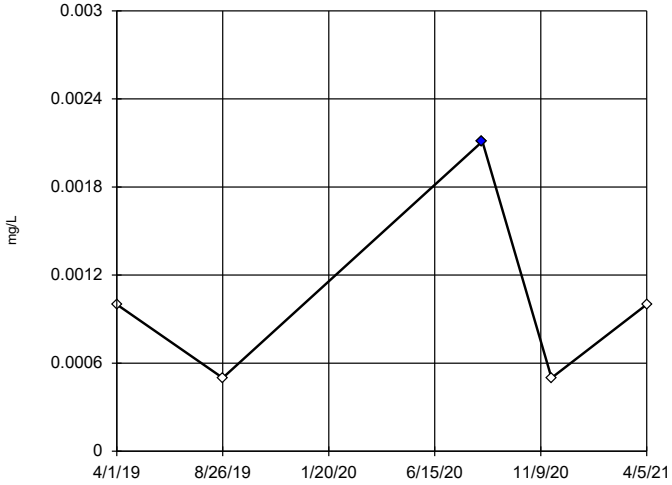
Outlier Analysis

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 12:16 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Normality...
Antimony (mg/L)	**GU-7**	**Yes**	**0.00211**	**8/20/2020**	**OH**	**NaN**	**5**	**0.001022**	**0.0006576**	**n/a**
Arsenic (mg/L)	GU-7	No	n/a	n/a	EPA/OH	0.05	5	0.002277	0.001468	ShapiroWilk
Barium (mg/L)	GU-7	No	n/a	n/a	EPA/OH	0.05	5	0.022	0.008473	ShapiroWilk
Beryllium (mg/L)	**GU-7**	**Yes**	**0.00108**	**8/20/2020**	**OH**	**NaN**	**5**	**0.000616**	**0.0002594**	**n/a**
Cadmium (mg/L)	GU-7	No	n/a	n/a	EPA/OH	0.05	5	0.0002824	0.0003229	ShapiroWilk
Chromium (mg/L)	GU-7	No	n/a	n/a	OH	NaN	5	0.00227	0.0005143	n/a
Cobalt (mg/L)	GU-7	No	n/a	n/a	EPA/OH	0.05	5	0.08554	0.0913	ShapiroWilk
Copper (mg/L)	GU-7	No	n/a	n/a	OH	NaN	5	0.002438	0.0001386	n/a
Lead (mg/L)	GU-7	No	n/a	n/a	OH	NaN	5	0.0002354	0.00003265	n/a
Nickel (mg/L)	**GU-7**	**Yes**	**0.483**	**4/1/2019**	**Dixon/OH**	**0.01**	**5**	**0.1723**	**0.1752**	**ShapiroWilk**
Selenium (mg/L)	**GU-7**	**Yes**	**0.00671**	**8/20/2020**	**OH**	**NaN**	**5**	**0.003842**	**0.001935**	**n/a**
Silver (mg/L)	**GU-7**	**Yes**	**0.00111**	**8/20/2020**	**OH**	**NaN**	**5**	**0.000722**	**0.0003065**	**n/a**
Thallium (mg/L)	**GU-7**	**Yes**	**0.00302**	**8/20/2020**	**OH**	**NaN**	**5**	**0.001004**	**0.001127**	**n/a**
Vanadium (mg/L)	**GU-7**	**Yes**	**0.005**	**4/1/2019**	**OH**	**NaN**	**5**	**0.0028**	**0.001304**	**n/a**
Zinc (mg/L)	**GU-7**	**Yes**	**0.257**	**4/1/2019**	**Dixon/OH**	**0.01**	**5**	**0.0617**	**0.1092**	**ShapiroWilk**

Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Antimony Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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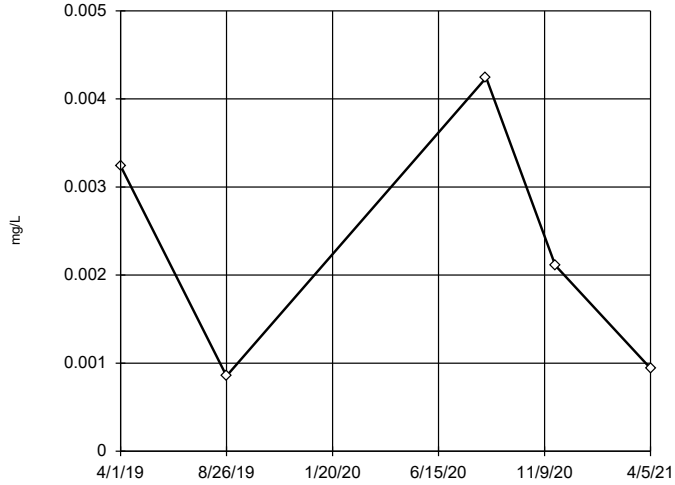
EPA Screening (suspected outliers for Dixon's Test)

GU-7



n = 5

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.002277, std. dev. 0.001468, critical Tn 1.672

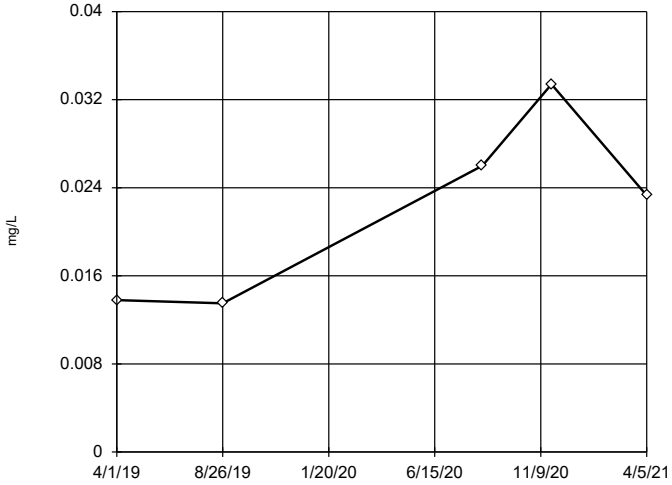
Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9131
Critical = 0.686
The distribution was found to be normally distributed.

Constituent: Arsenic Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Dixon's Test)

GU-7



n = 5

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.022, std. dev. 0.008473, critical Tn 1.672

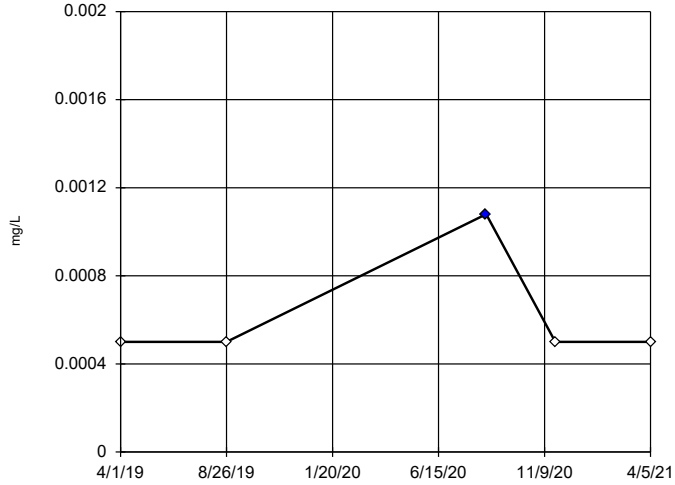
Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9105
Critical = 0.686
The distribution was found to be normally distributed.

Constituent: Barium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Beryllium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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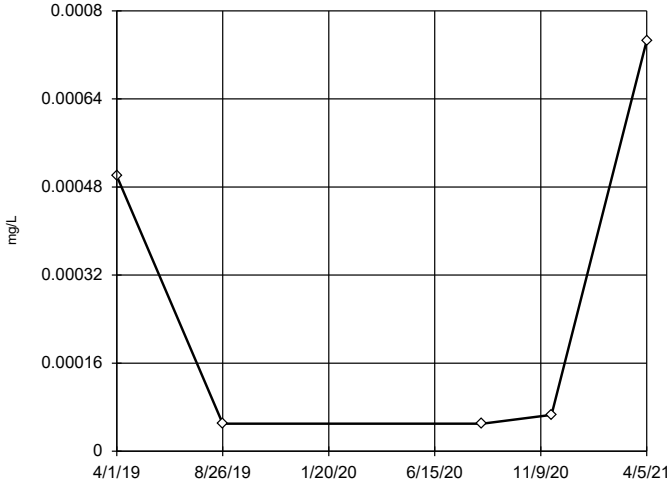
EPA Screening (suspected outliers for Dixon's Test)

GU-7



n = 5

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.0002824, std. dev. 0.0003229, critical Tn 1.672

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.782
Critical = 0.686
The distribution was found to be normally distributed.

Constituent: Cadmium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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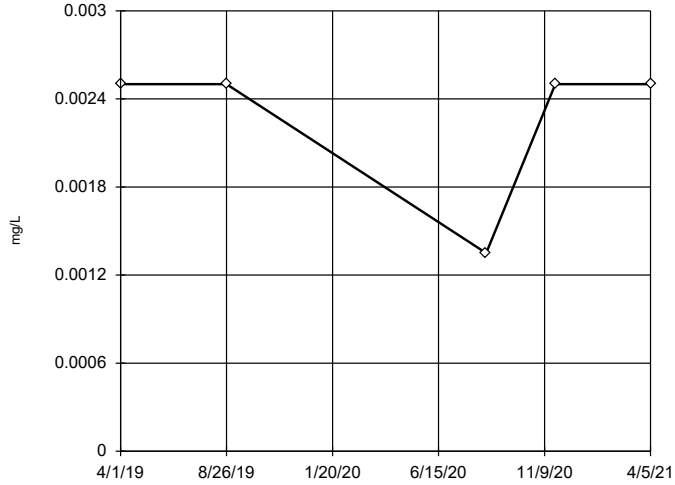
Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

No statistical outliers.

Constituent: Chromium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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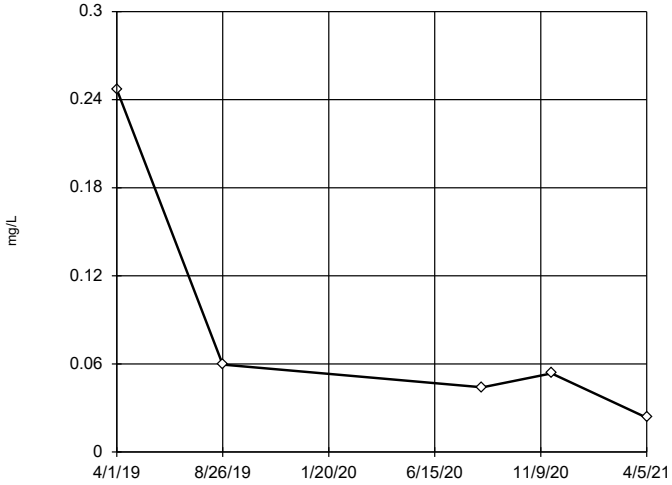
EPA Screening (suspected outliers for Dixon's Test)

GU-7



n = 5

Dixon's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.08554, std. dev. 0.0913, critical Tn 1.672

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.6961
Critical = 0.686
The distribution was found to be normally distributed.

Constituent: Cobalt Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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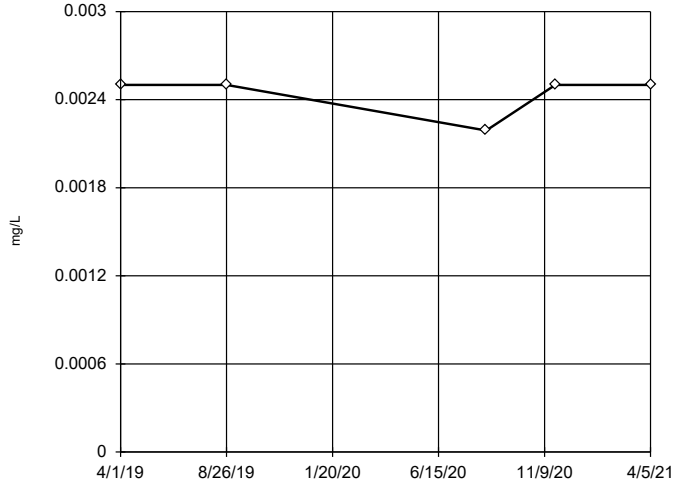
Ohio EPA 0715 Outlier Algorithm

GU-7



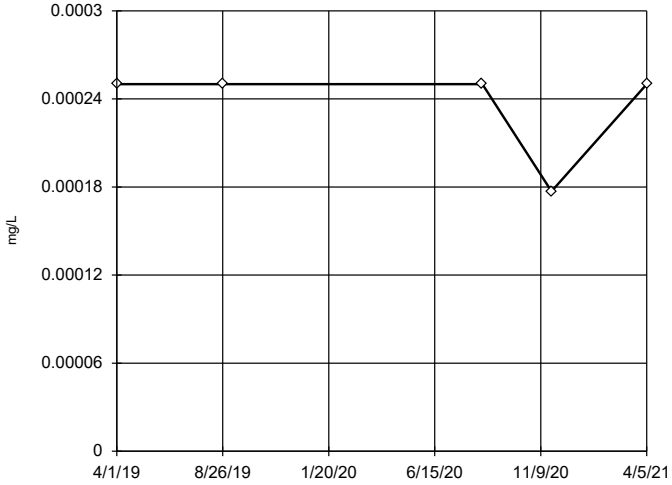
n = 5

No statistical outliers.

Constituent: Copper Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Ohio EPA 0715 Outlier Algorithm

GU-7



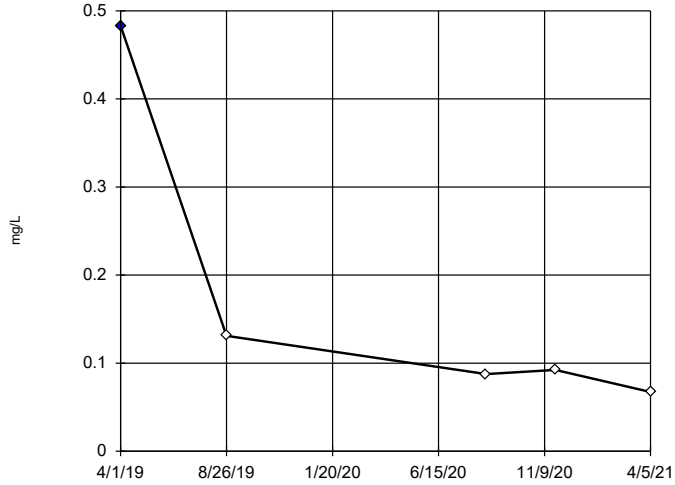
n = 5

No statistical outliers.

Constituent: Lead Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

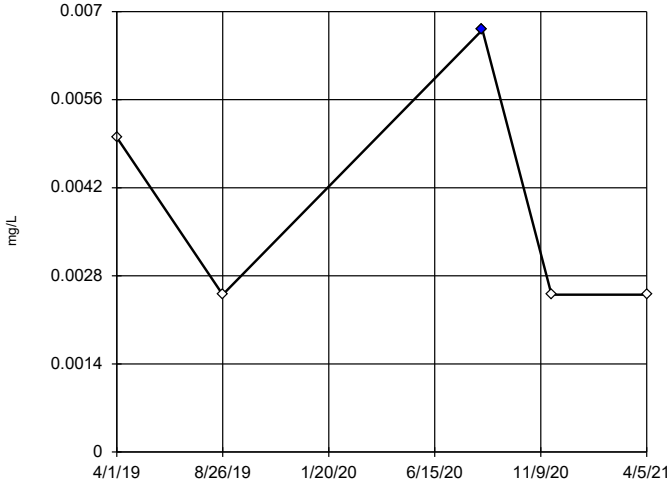
Statistical outlier is drawn as solid.
Testing for 1 high outlier.
Mean = 0.1723.
Std. Dev. = 0.1752.
0.483: c = 0.8466
tabl = 0.78.
Alpha = 0.01.

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.936
Critical = 0.687
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Nickel Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Ohio EPA 0715 Outlier Algorithm

GU-7



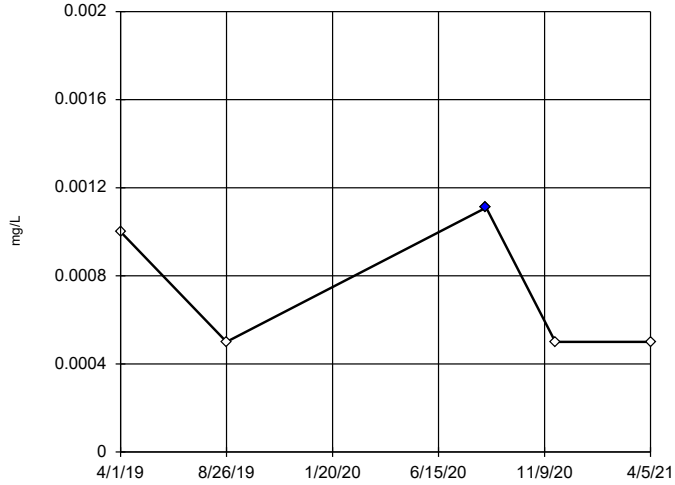
n = 5

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Selenium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Silver Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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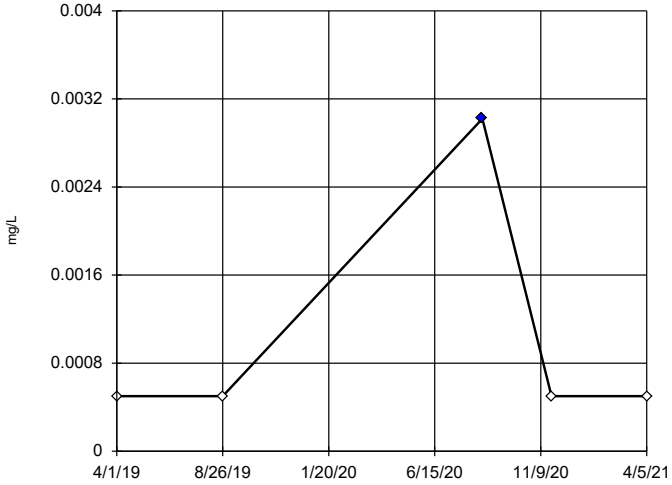
Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Thallium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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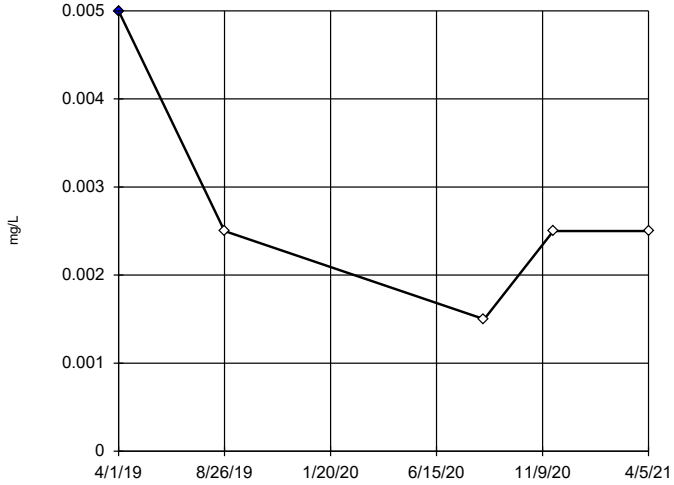
Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Vanadium Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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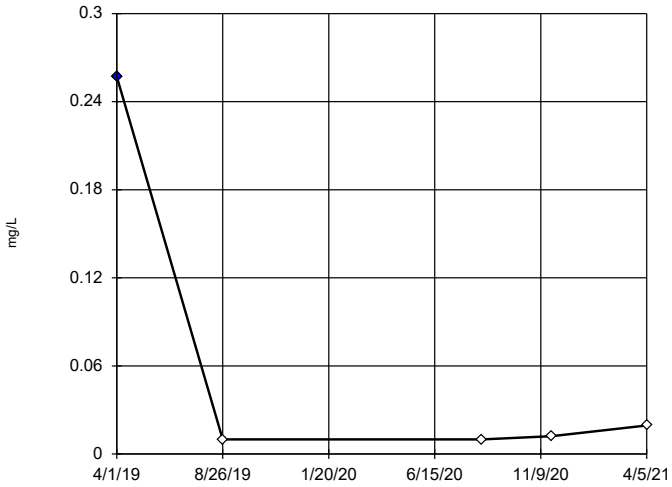
Dixon's Outlier Test / Ohio EPA 0715 Outlier Algorithm

GU-7



n = 5

Statistical outliers are drawn as solid.
Outliers per both outlier test and Ohio method.
Testing for 1 high outlier.
Mean = 0.0617.
Std. Dev. = 0.1092.
0.257: c = 0.9619
tabl = 0.78.
Alpha = 0.01.

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.7771
Critical = 0.687
The distribution, after removal of suspect values, was found to be normally distributed.

Constituent: Zinc Analysis Run 4/11/2023 12:15 PM View: 2023SSN - Outliers GU-7
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Interwell Prediction Limit Summary Table and Graphs – AMD Wells

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 5:25 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Arsenic (mg/L)	**MW-39R**	**0.00208**	**n/a**	**2/21/2023**	**0.00563**	**Yes**	**21**	**80.95**	**n/a**	**0.003351**	**NP Inter (NDs) 1 of 2**
Arsenic (mg/L)	MW-40	0.00208	n/a	2/21/2023	0.00193J	No	21	80.95	n/a	0.003351	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	**04-MW-56**	**0.00208**	**n/a**	**2/21/2023**	**0.00591**	**Yes**	**21**	**80.95**	**n/a**	**0.003351**	**NP Inter (NDs) 1 of 2**
Arsenic (mg/L)	**MW-59**	**0.00208**	**n/a**	**2/21/2023**	**0.00509**	**Yes**	**21**	**80.95**	**n/a**	**0.003351**	**NP Inter (NDs) 1 of 2**
Arsenic (mg/L)	MW-64	0.00208	n/a	2/21/2023	0.000904J	No	21	80.95	n/a	0.003351	NP Inter (NDs) 1 of 2
Barium (mg/L)	MW-39R	0.0292	n/a	2/21/2023	0.00835	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-40	0.0292	n/a	2/21/2023	0.01345	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	04-MW-56	0.0292	n/a	2/21/2023	0.0239	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-58	0.0292	n/a	2/21/2023	0.0154	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-59	0.0292	n/a	2/21/2023	0.0291	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-63R	0.0292	n/a	2/21/2023	0.0153	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	**MW-64**	**0.0292**	**n/a**	**2/21/2023**	**0.203**	**Yes**	**21**	**0**	**n/a**	**0.003351**	**NP Inter (normality) 1 of 2**
Cadmium (mg/L)	MW-40	0.0009621	n/a	2/21/2023	0.000623	No	21	38.1	sqrt(x)	0.0002508	Param Inter 1 of 2
Cadmium (mg/L)	**MW-63R**	**0.0009621**	**n/a**	**2/21/2023**	**0.001721**	**Yes**	**21**	**38.1**	**sqrt(x)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	**MW-39R**	**0.01769**	**n/a**	**2/21/2023**	**0.0417**	**Yes**	**21**	**9.524**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	**MW-40**	**0.01769**	**n/a**	**2/21/2023**	**0.07225**	**Yes**	**21**	**9.524**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	04-MW-56	0.01769	n/a	2/21/2023	0.0153	No	21	9.524	x^(1/3)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	MW-58	0.01769	n/a	2/21/2023	0.00192	No	21	9.524	x^(1/3)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	**MW-59**	**0.01769**	**n/a**	**2/21/2023**	**0.0186**	**Yes**	**21**	**9.524**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	MW-63R	0.01769	n/a	2/21/2023	0.004225	No	21	9.524	x^(1/3)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	MW-64	0.01769	n/a	2/21/2023	0.000464J	No	21	9.524	x^(1/3)	0.0002508	Param Inter 1 of 2
Lead (mg/L)	MW-40	0.00232	n/a	2/21/2023	0.00025ND	No	21	71.43	n/a	0.003351	NP Inter (NDs) 1 of 2
Nickel (mg/L)	MW-39R	0.03276	n/a	2/21/2023	0.026	No	21	4.762	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	**MW-40**	**0.03276**	**n/a**	**2/21/2023**	**0.0598**	**Yes**	**21**	**4.762**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Nickel (mg/L)	**04-MW-56**	**0.03276**	**n/a**	**2/21/2023**	**0.0652**	**Yes**	**21**	**4.762**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Nickel (mg/L)	MW-58	0.03276	n/a	2/21/2023	0.0108	No	21	4.762	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	MW-59	0.03276	n/a	2/21/2023	0.0291	No	21	4.762	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	**MW-63R**	**0.03276**	**n/a**	**2/21/2023**	**0.03395**	**Yes**	**21**	**4.762**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Nickel (mg/L)	MW-64	0.03276	n/a	2/21/2023	0.0312	No	21	4.762	x^(1/3)	0.0002508	Param Inter 1 of 2
Thallium (mg/L)	MW-40	0.00278	n/a	2/21/2023	0.0005ND	No	21	95.24	n/a	0.003351	NP Inter (NDs) 1 of 2
Zinc (mg/L)	MW-39R	0.0377	n/a	2/21/2023	0.01ND	No	21	85.71	n/a	0.003351	NP Inter (NDs) 1 of 2
Zinc (mg/L)	MW-40	0.0377	n/a	2/21/2023	0.03145	No	21	85.71	n/a	0.003351	NP Inter (NDs) 1 of 2
Zinc (mg/L)	MW-58	0.0377	n/a	2/21/2023	0.0168J	No	21	85.71	n/a	0.003351	NP Inter (NDs) 1 of 2
Zinc (mg/L)	**MW-63R**	**0.0377**	**n/a**	**2/21/2023**	**0.1061**	**Yes**	**21**	**85.71**	**n/a**	**0.003351**	**NP Inter (NDs) 1 of 2**

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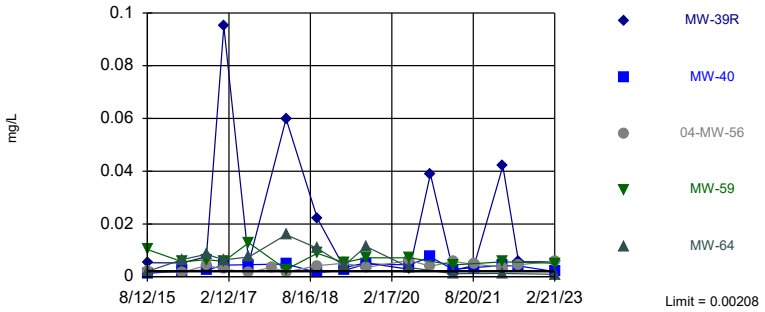
Exceeds Limit: MW-39R, 04-MW-56, MW-59

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 80.95% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Comparing 5 points to limit. Assumes 9 future values.

Constituent: Arsenic Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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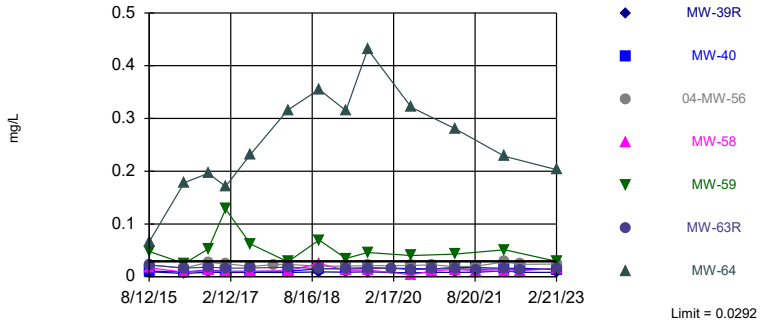
Exceeds Limit: MW-64

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 21 background values. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Comparing 7 points to limit. Assumes 7 future values.

Constituent: Barium Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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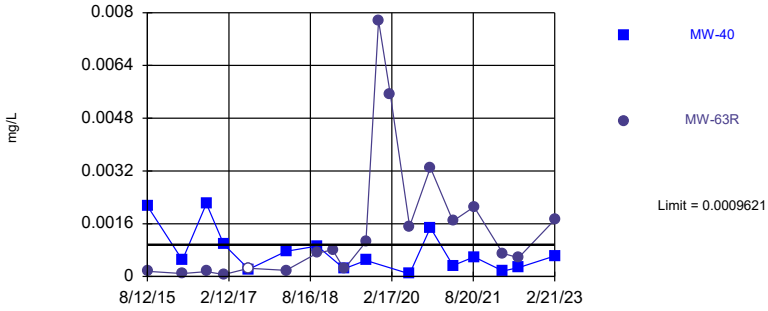
Hollow symbols indicate censored values.

Exceeds Limit: MW-63R

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.01296, Std. Dev.=0.006988, n=21, 38.1% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9012, critical = 0.873. Kappa = 2.584 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 2 points to limit. Assumes 12 future values.

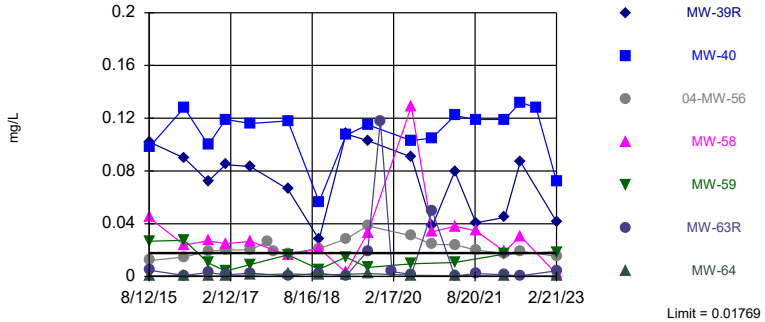
Constituent: Cadmium Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Exceeds Limit: MW-39R, MW-40, MW-59

Prediction Limit

Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=0.1085, Std. Dev.=0.05882, n=21, 9.524% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9085, critical = 0.873. Kappa = 2.584 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 7 points to limit. Assumes 7 future values.

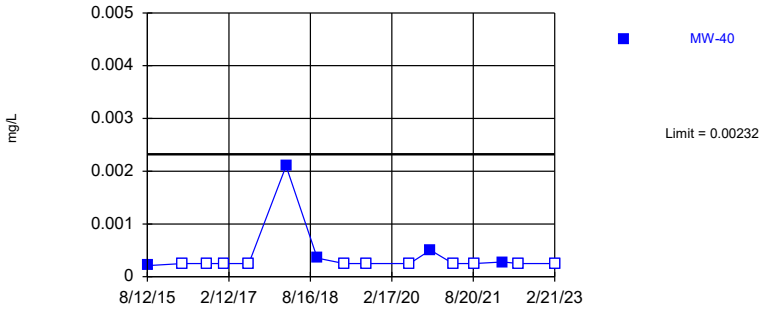
Constituent: Cobalt Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 71.43% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Assumes 13 future values.

Constituent: Lead Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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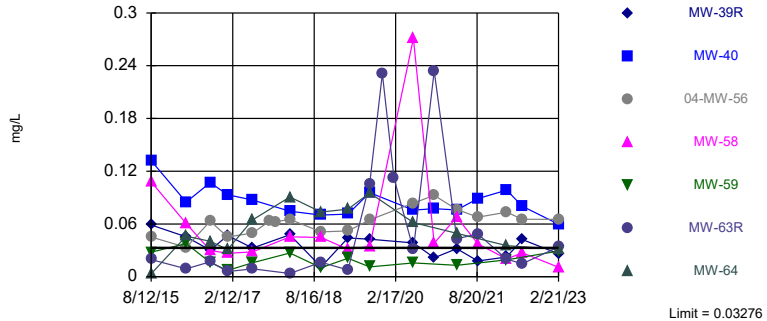
Exceeds Limit: MW-40, 04-MW-56, MW-63R

Prediction Limit

Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=0.1854, Std. Dev.=0.05207, n=21, 4.762% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9027, critical = 0.873. Kappa = 2.584 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 7 points to limit. Assumes 7 future values.

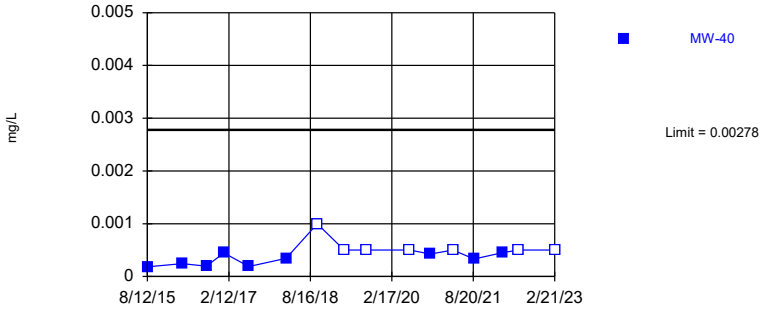
Constituent: Nickel Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 95.24% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Assumes 13 future values.

Constituent: Thallium Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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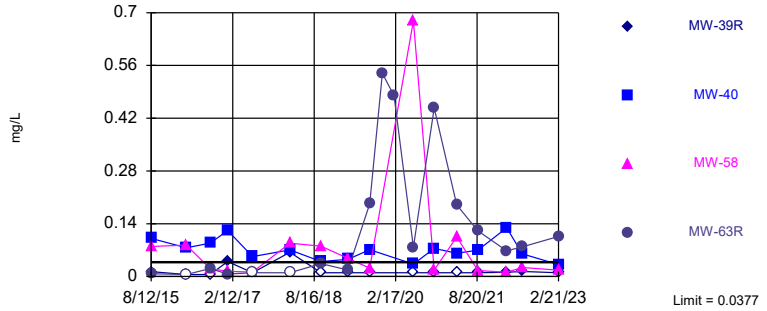
Hollow symbols indicate censored values.

Exceeds Limit: MW-63R

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 85.71% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Comparing 4 points to limit. Assumes 10 future values.

Constituent: Zinc Analysis Run 4/11/2023 5:25 PM View: 2022SSN PL Inter AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Intrawell Prediction Limit Summary Table and Graphs – AMD Wells

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 5:28 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Antimony (mg/L)	MW-39R	0.0015	n/a	2/21/2023	0.001ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Antimony (mg/L)	MW-40	0.0015	n/a	2/21/2023	0.001ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Antimony (mg/L)	MW-58	0.002	n/a	2/21/2023	0.001ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Arsenic (mg/L)	MW-39R	0.2999	n/a	2/21/2023	0.00563	No	15	0	ln(x)	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	MW-40	0.008248	n/a	2/21/2023	0.00193J	No	15	0	No	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	04-MW-56	0.007652	n/a	2/21/2023	0.00591	No	16	0	No	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	MW-58	0.004	n/a	2/21/2023	0.001ND	No	15	86.67	n/a	0.007533	NP Intra (NDs) 1 of 2
Arsenic (mg/L)	MW-59	0.01524	n/a	2/21/2023	0.00509	No	12	0	No	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	MW-63R	0.01	n/a	2/21/2023	0.001ND	No	16	81.25	n/a	0.006456	NP Intra (NDs) 1 of 2
Arsenic (mg/L)	MW-64	0.02055	n/a	2/21/2023	0.000904J	No	12	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-39R	0.01142	n/a	2/21/2023	0.00835	No	15	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-40	0.02237	n/a	2/21/2023	0.01345	No	15	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	04-MW-56	0.03026	n/a	2/21/2023	0.0239	No	16	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-58	0.02746	n/a	2/21/2023	0.0154	No	15	0	sqrt(x)	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-59	0.1468	n/a	2/21/2023	0.0291	No	12	0	sqrt(x)	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-63R	0.02202	n/a	2/21/2023	0.0153	No	16	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-64	0.5596	n/a	2/21/2023	0.203	No	12	0	No	0.0002508	Param Intra 1 of 2
Beryllium (mg/L)	MW-39R	0.0005	n/a	2/21/2023	0.0005ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Beryllium (mg/L)	MW-40	0.0005	n/a	2/21/2023	0.0005ND	No	15	80	n/a	0.007533	NP Intra (NDs) 1 of 2
Beryllium (mg/L)	MW-58	0.0054	n/a	2/21/2023	0.0005ND	No	15	46.67	n/a	0.007533	NP Intra (normality) 1 of 2
Beryllium (mg/L)	MW-63R	0.002	n/a	2/21/2023	0.0004085J	No	16	75	n/a	0.006456	NP Intra (NDs) 1 of 2
Cadmium (mg/L)	MW-39R	0.000319	n/a	2/21/2023	0.00005ND	No	15	60	n/a	0.007533	NP Intra (NDs) 1 of 2
Cadmium (mg/L)	MW-40	0.00342	n/a	2/21/2023	0.000623	No	15	0	sqrt(x)	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	04-MW-56	0.0005227	n/a	2/21/2023	0.00005ND	No	16	43.75	No	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	MW-58	0.02042	n/a	2/21/2023	0.000216	No	15	13.33	ln(x)	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	MW-59	0.000295	n/a	2/21/2023	0.000151	No	12	75	n/a	0.01077	NP Intra (NDs) 1 of 2
Cadmium (mg/L)	MW-63R	0.008662	n/a	2/21/2023	0.001721	No	18	5.556	sqrt(x)	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	MW-64	0.00025	n/a	2/21/2023	0.00005ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-39R	0.0025	n/a	2/21/2023	0.0025ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-58	0.0025	n/a	2/21/2023	0.0025ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-63R	0.025	n/a	2/21/2023	0.0025ND	No	16	93.75	n/a	0.006456	NP Intra (NDs) 1 of 2
Cobalt (mg/L)	MW-39R	0.1472	n/a	2/21/2023	0.0417	No	15	0	No	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-40	0.1494	n/a	2/21/2023	0.07225	No	16	0	x^2	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	04-MW-56	0.0393	n/a	2/21/2023	0.0153	No	17	0	No	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-58	0.137	n/a	2/21/2023	0.00192	No	15	0	x^(1/3)	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-59	0.03658	n/a	2/21/2023	0.0186	No	12	0	No	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-63R	0.279	n/a	2/21/2023	0.004225	No	17	0	ln(x)	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-64	0.002934	n/a	2/21/2023	0.000464J	No	12	0	No	0.0002508	Param Intra 1 of 2
Copper (mg/L)	MW-39R	0.0136	n/a	2/21/2023	0.0025ND	No	15	80	n/a	0.007533	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-40	0.00326	n/a	2/21/2023	0.00228J	No	15	86.67	n/a	0.007533	NP Intra (NDs) 1 of 2
Copper (mg/L)	04-MW-56	0.01	n/a	2/21/2023	0.0025ND	No	16	87.5	n/a	0.006456	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-58	0.01	n/a	2/21/2023	0.00203J	No	15	73.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-59	0.0025	n/a	2/21/2023	0.00224J	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-63R	0.025	n/a	2/21/2023	0.002335J	No	16	81.25	n/a	0.006456	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-64	0.0025	n/a	2/21/2023	0.0025ND	No	12	75	n/a	0.01077	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-39R	0.00362	n/a	2/21/2023	0.00025ND	No	15	73.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-40	0.0021	n/a	2/21/2023	0.00025ND	No	15	66.67	n/a	0.007533	NP Intra (NDs) 1 of 2
Lead (mg/L)	04-MW-56	0.001	n/a	2/21/2023	0.00025ND	No	16	56.25	n/a	0.006456	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-58	0.00335	n/a	2/21/2023	0.00025ND	No	15	53.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-59	0.000491	n/a	2/21/2023	0.00025ND	No	12	58.33	n/a	0.01077	NP Intra (NDs) 1 of 2

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 5:28 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Lead (mg/L)	MW-63R	0.00528	n/a	2/21/2023	0.000273J	No	17	64.71	n/a	0.005914	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-64	0.000771	n/a	2/21/2023	0.00025ND	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Nickel (mg/L)	MW-39R	0.07297	n/a	2/21/2023	0.026	No	15	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-40	0.1341	n/a	2/21/2023	0.0598	No	15	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	04-MW-56	0.1028	n/a	2/21/2023	0.0652	No	17	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-58	0.2867	n/a	2/21/2023	0.0108	No	15	0	ln(x)	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-59	0.04523	n/a	2/21/2023	0.0291	No	12	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-63R	0.3659	n/a	2/21/2023	0.03395	No	17	0	x^(1/3)	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-64	0.1374	n/a	2/21/2023	0.0312	No	12	0	No	0.0002508	Param Intra 1 of 2
Selenium (mg/L)	MW-39R	0.0025	n/a	2/21/2023	0.0025ND	No	15	80	n/a	0.007533	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-40	0.0025	n/a	2/21/2023	0.0025ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-58	0.01	n/a	2/21/2023	0.00104J	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-63R	0.025	n/a	2/21/2023	0.00211J	No	16	87.5	n/a	0.006456	NP Intra (NDs) 1 of 2
Silver (mg/L)	MW-39R	0.0005	n/a	2/21/2023	0.0005ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Silver (mg/L)	MW-58	0.002	n/a	2/21/2023	0.0005ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Silver (mg/L)	MW-63R	0.005	n/a	2/21/2023	0.0005ND	No	16	93.75	n/a	0.006456	NP Intra (NDs) 1 of 2
Thallium (mg/L)	MW-39R	0.00103	n/a	2/21/2023	0.0005ND	No	15	66.67	n/a	0.007533	NP Intra (NDs) 1 of 2
Thallium (mg/L)	MW-40	0.0006845	n/a	2/21/2023	0.0005ND	No	15	40	sqrt(x)	0.0002508	Param Intra 1 of 2
Thallium (mg/L)	MW-58	0.001	n/a	2/21/2023	0.0005ND	No	15	80	n/a	0.007533	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-39R	0.0025	n/a	2/21/2023	0.0025ND	No	15	93.33	n/a	0.007533	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-40	0.0025	n/a	2/21/2023	0.0025ND	No	15	86.67	n/a	0.007533	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-63R	0.025	n/a	2/21/2023	0.0025ND	No	16	93.75	n/a	0.006456	NP Intra (NDs) 1 of 2
Zinc (mg/L)	MW-39R	0.0644	n/a	2/21/2023	0.01ND	No	15	66.67	n/a	0.007533	NP Intra (NDs) 1 of 2
Zinc (mg/L)	MW-40	0.152	n/a	2/21/2023	0.03145	No	15	0	No	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	04-MW-56	0.04758	n/a	2/21/2023	0.01ND	No	17	29.41	No	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	MW-58	0.9996	n/a	2/21/2023	0.0168J	No	15	0	ln(x)	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	MW-59	0.0827	n/a	2/21/2023	0.01ND	No	12	66.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Zinc (mg/L)	MW-63R	0.7998	n/a	2/21/2023	0.1061	No	17	17.65	sqrt(x)	0.0002508	Param Intra 1 of 2

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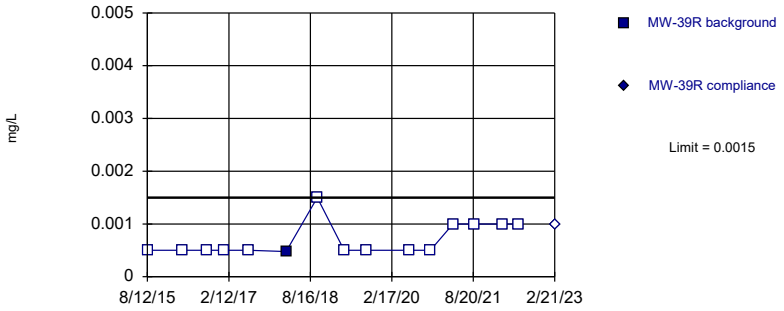
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Antimony Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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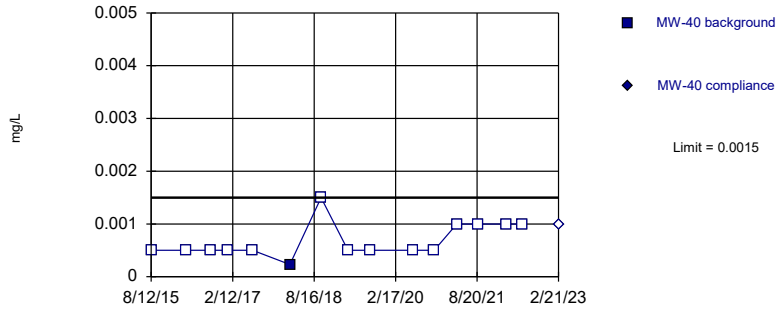
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Antimony Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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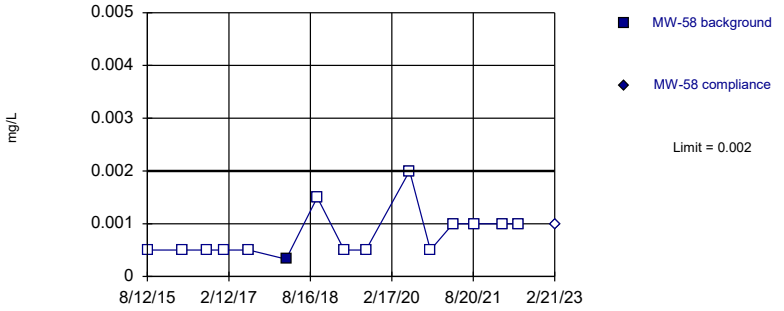
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Antimony Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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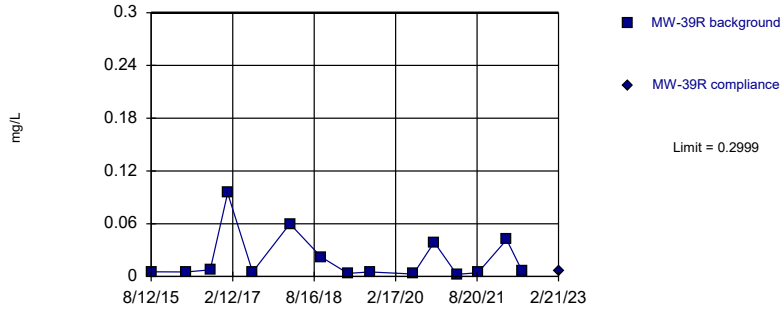
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-4.631, Std. Dev.=1.204, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8531, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Antimony Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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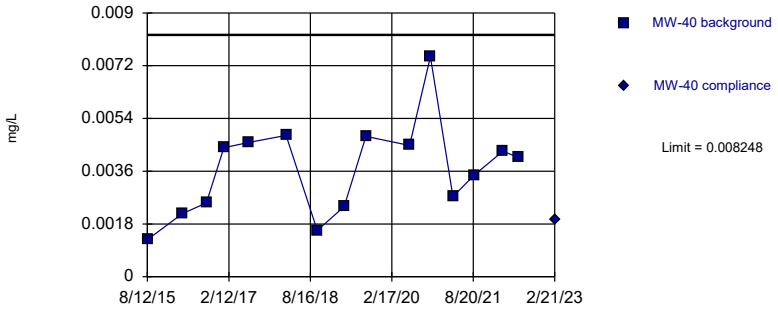
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.003668, Std. Dev.=0.001609, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9305, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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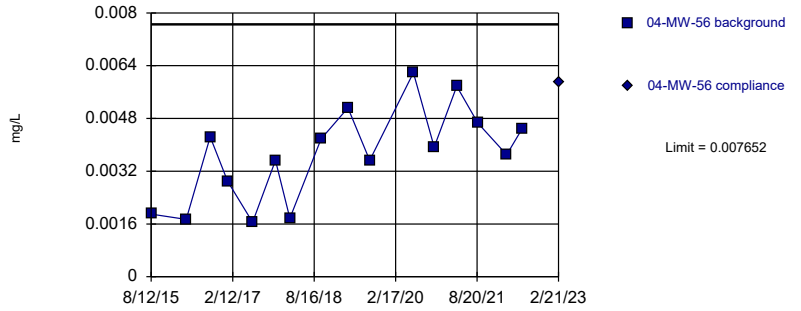
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.003707, Std. Dev.=0.001423, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9421, critical = 0.844. Kappa = 2.773 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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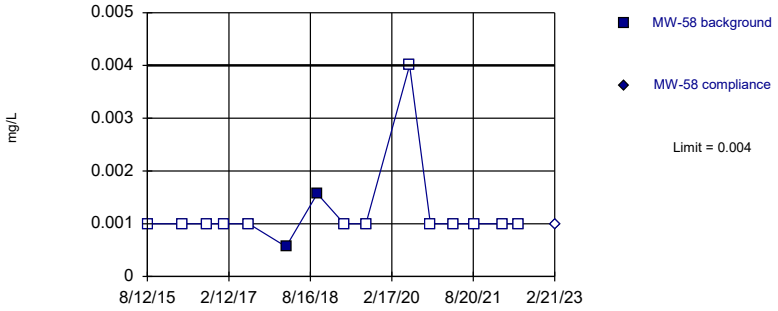
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 86.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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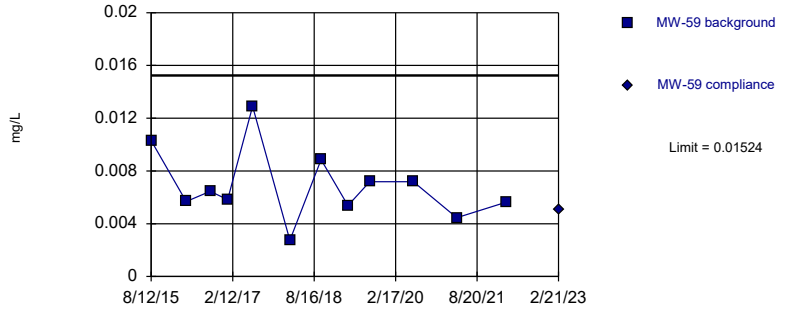
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.006886, Std. Dev.=0.002722, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9333, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

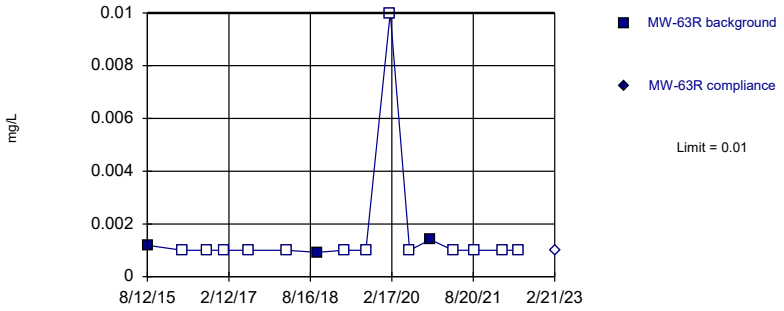
Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 81.25% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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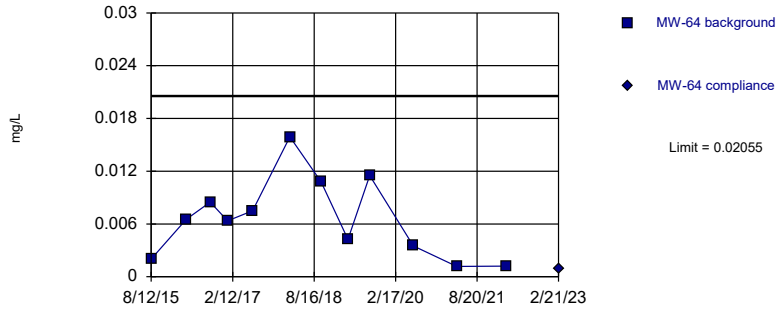
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.006599, Std. Dev.=0.004547, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9434, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

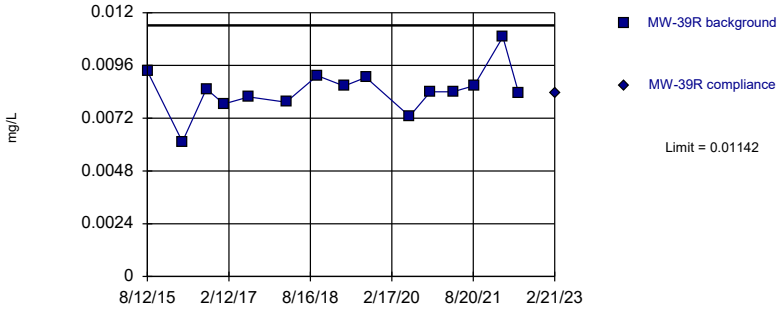
Constituent: Arsenic Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.008456, Std. Dev.=0.001042, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9351, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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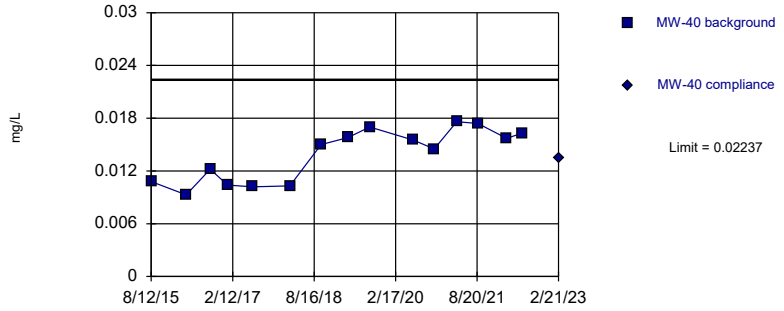
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01387, Std. Dev.=0.002987, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8771, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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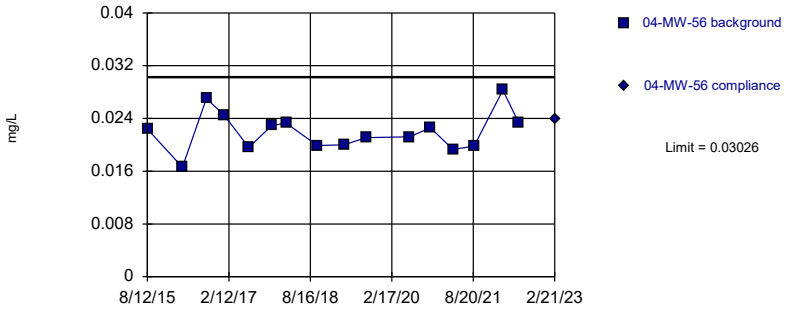
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.022, Std. Dev.=0.002979, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9579, critical = 0.844. Kappa = 2.773 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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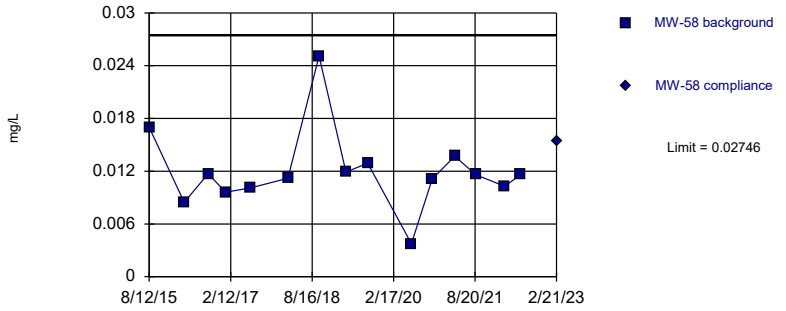
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.1078, Std. Dev.=0.02036, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8749, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

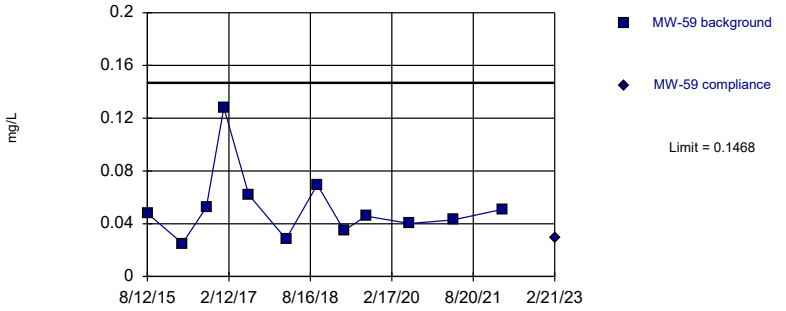
Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.2232, Std. Dev.=0.05213, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8776, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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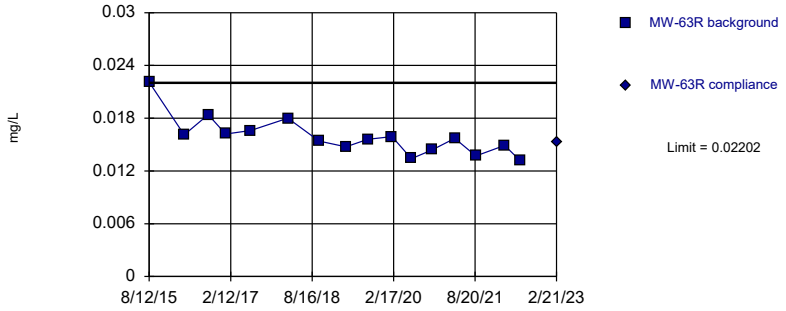
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01589, Std. Dev.=0.002211, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8822, critical = 0.844. Kappa = 2.773 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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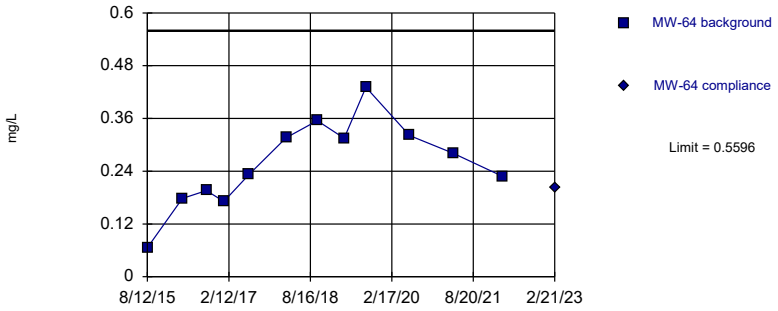
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.2575, Std. Dev.=0.09849, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9785, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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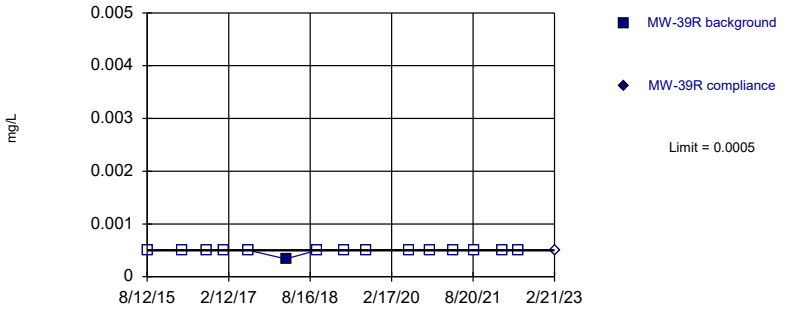
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Beryllium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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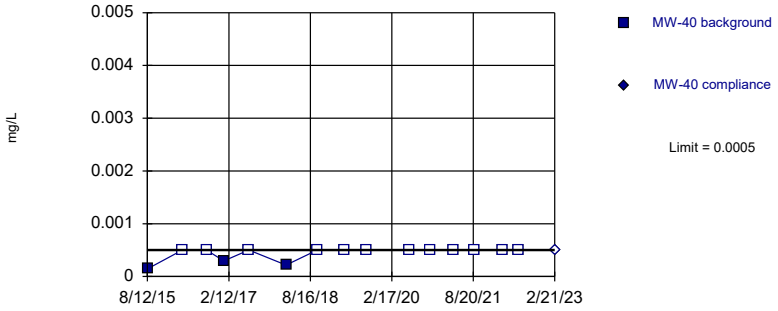
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 80% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Beryllium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

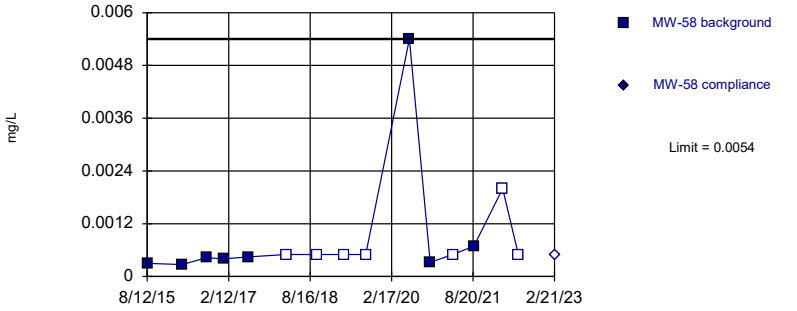
Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 15 background values. 46.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

Constituent: Beryllium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD

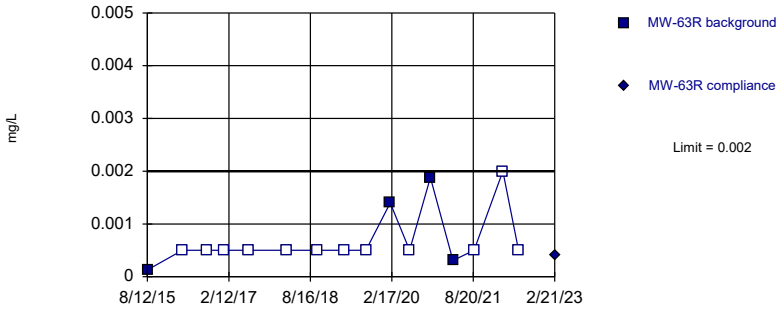
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

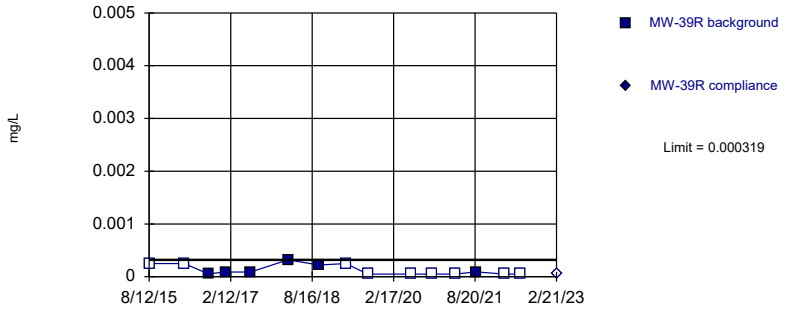
Constituent: Beryllium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 60% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

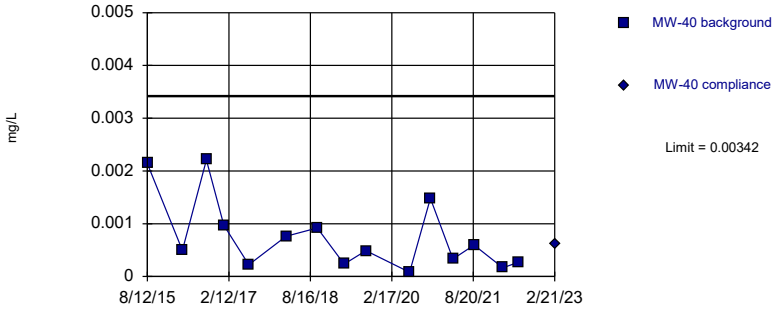
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.02508, Std. Dev.=0.01173, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9284, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

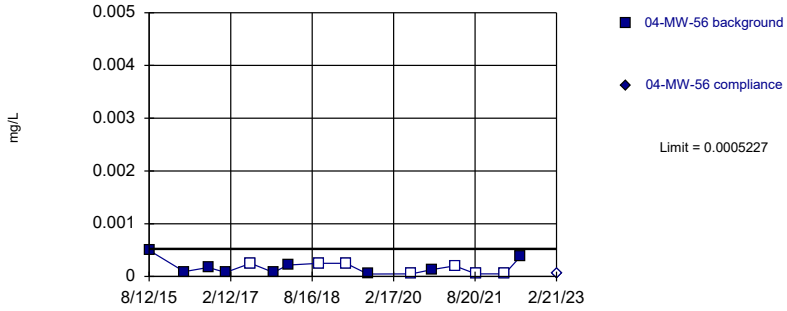
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0001564, Std. Dev.=0.0001321, n=16, 43.75% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8694, critical = 0.844. Kappa = 2.773 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

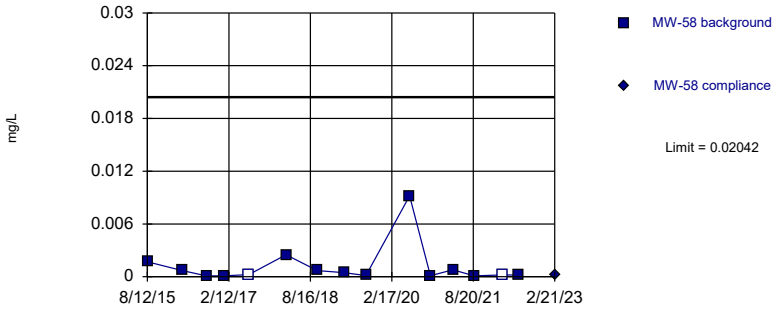
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-7.852, Std. Dev.=1.392, n=15, 13.33% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9085, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

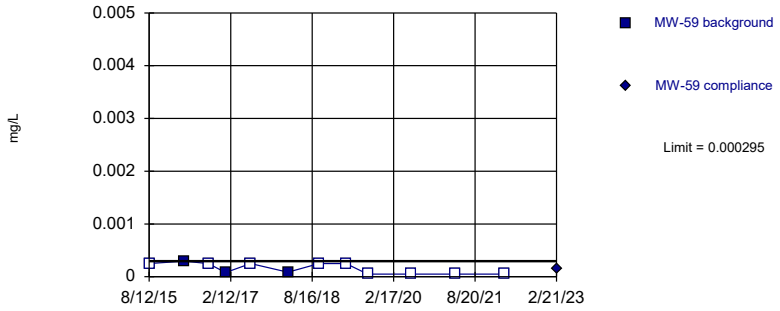
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

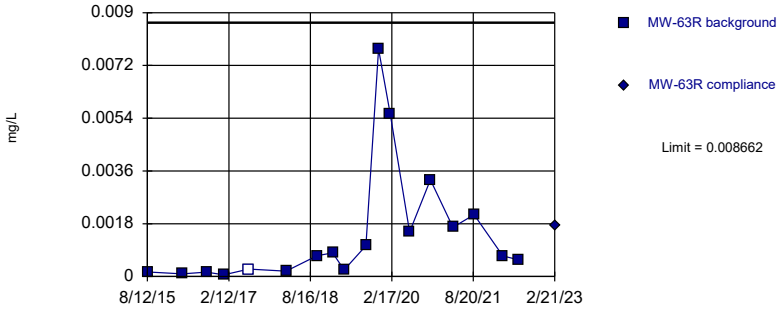
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.03166, Std. Dev.=0.02278, n=18, 5.556% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8706, critical = 0.858. Kappa = 2.696 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

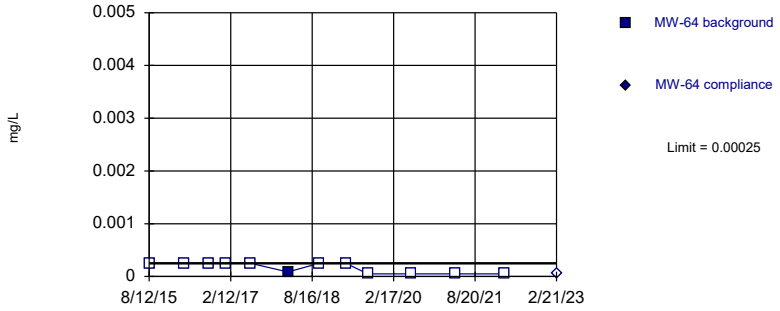
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

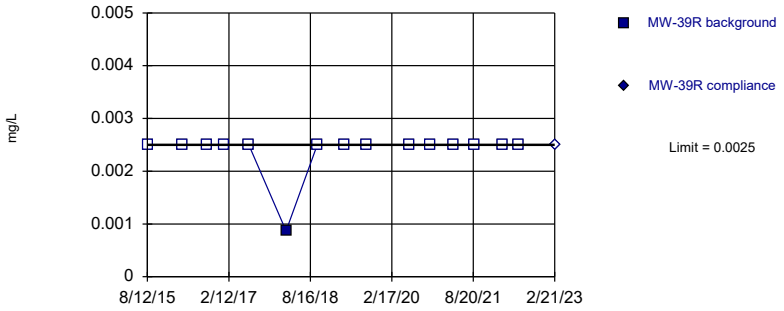
Constituent: Cadmium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

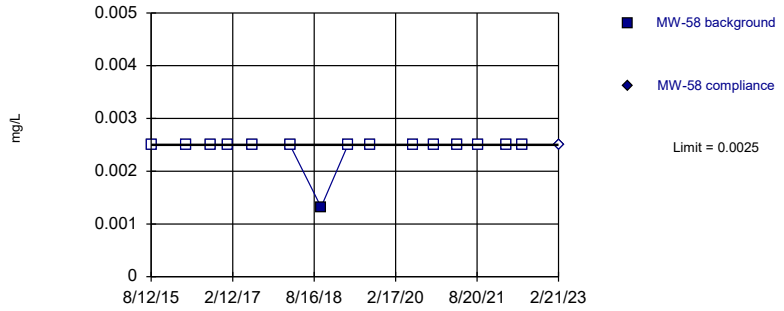
Constituent: Chromium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

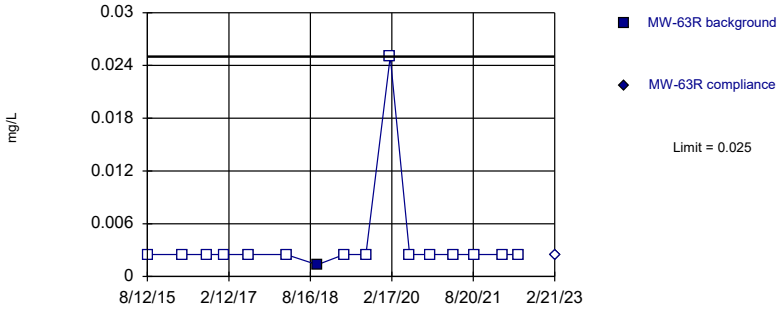
Constituent: Chromium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

Constituent: Chromium Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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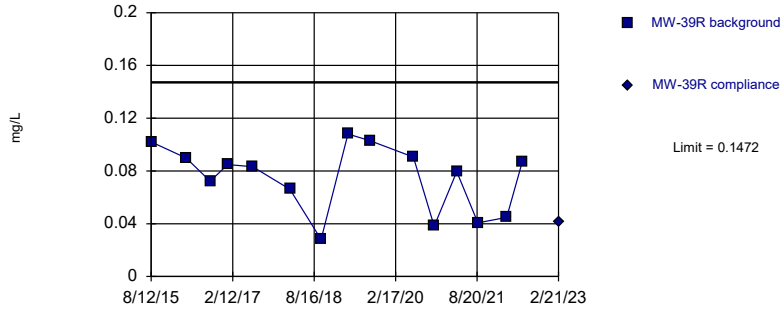
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.07454, Std. Dev.=0.02552, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9119, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Cobalt Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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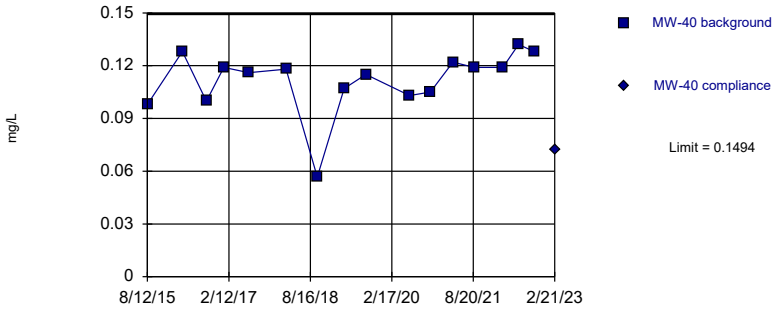
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square transformation): Mean=0.01275, Std. Dev.=0.003453, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8962, critical = 0.844. Kappa = 2.773 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Cobalt Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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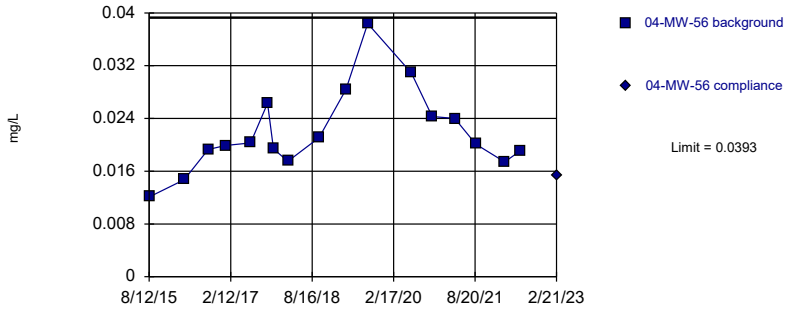
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.02195, Std. Dev.=0.006343, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.922, critical = 0.851. Kappa = 2.734 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

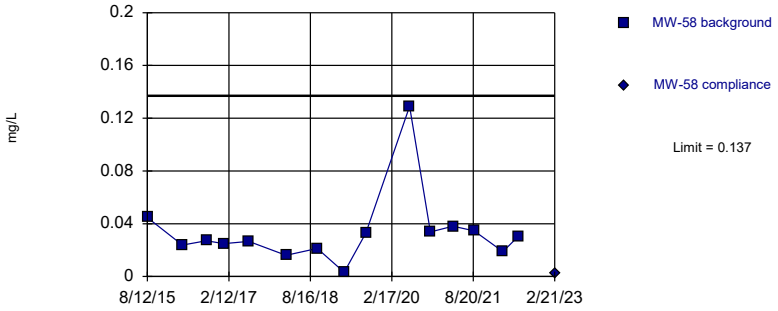
Constituent: Cobalt Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation): Mean=0.3066, Std. Dev.=0.0734, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8524, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

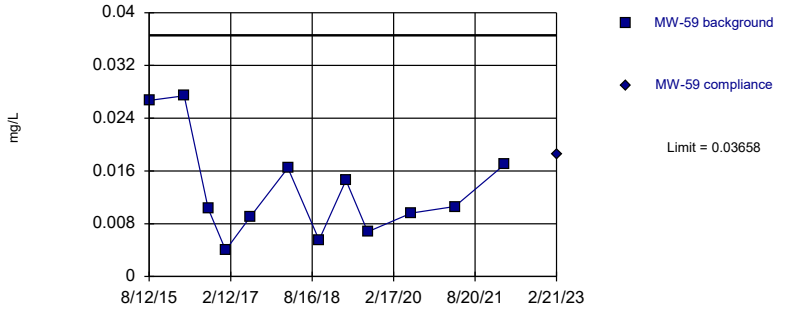
Constituent: Cobalt Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01317, Std. Dev.=0.007629, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8909, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

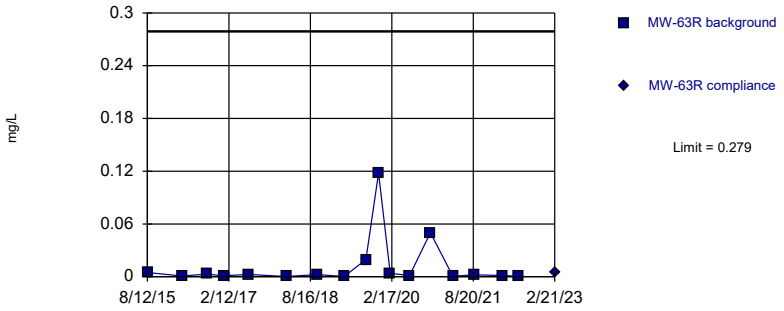
Constituent: Cobalt Analysis Run 4/11/2023 5:26 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-6.088, Std. Dev.=1.76, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9296, critical = 0.851. Kappa = 2.734 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Cobalt Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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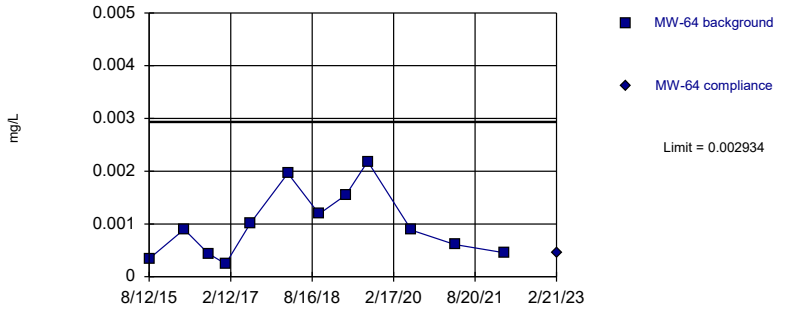
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.0009811, Std. Dev.=0.0006367, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9133, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

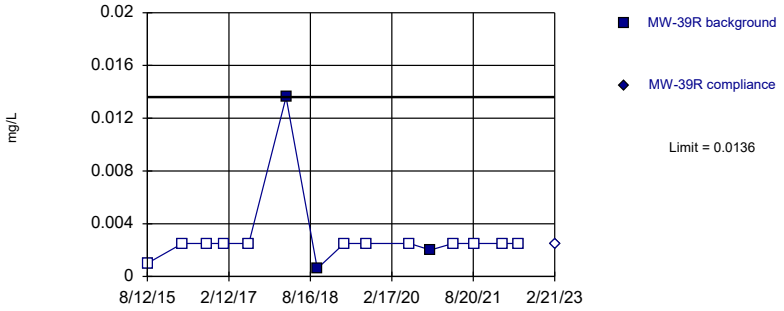
Constituent: Cobalt Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 80% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

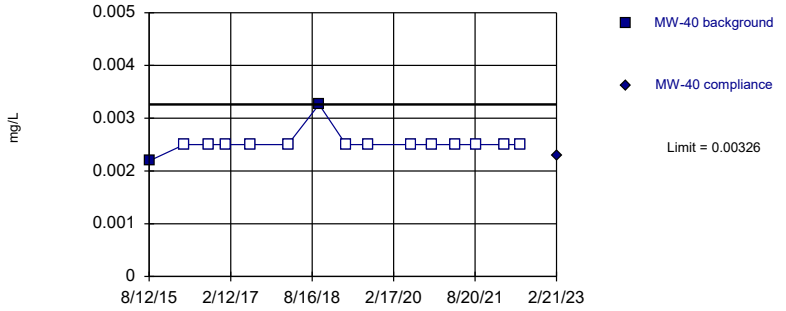
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 86.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

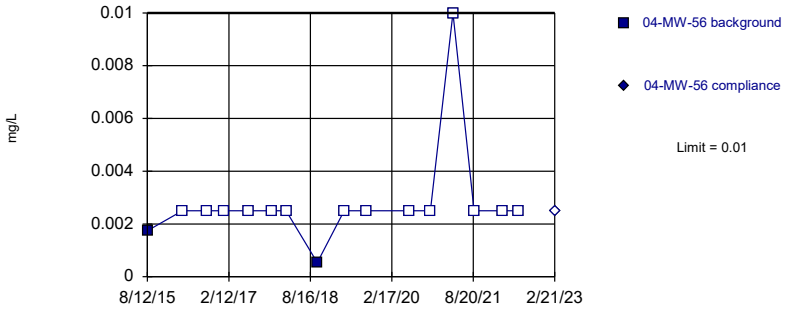
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

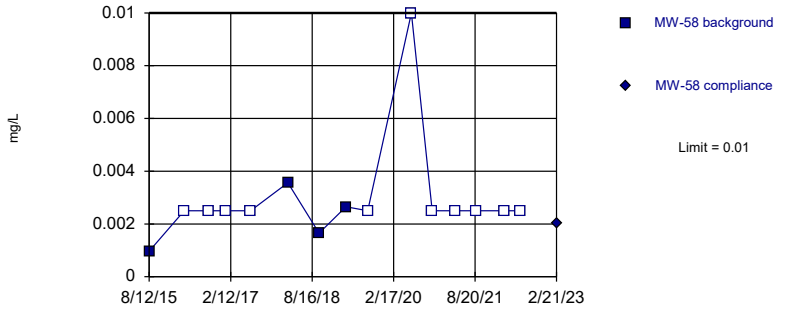
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 73.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

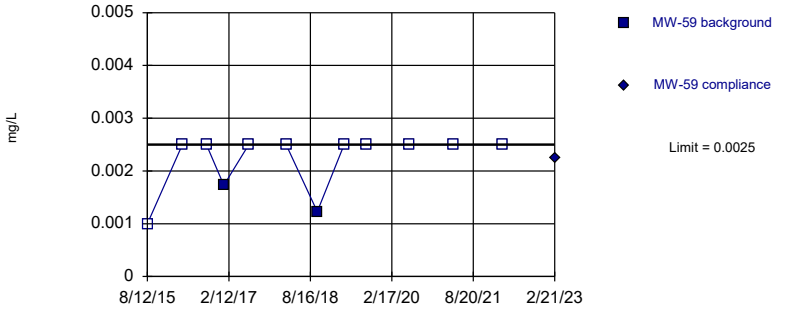
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

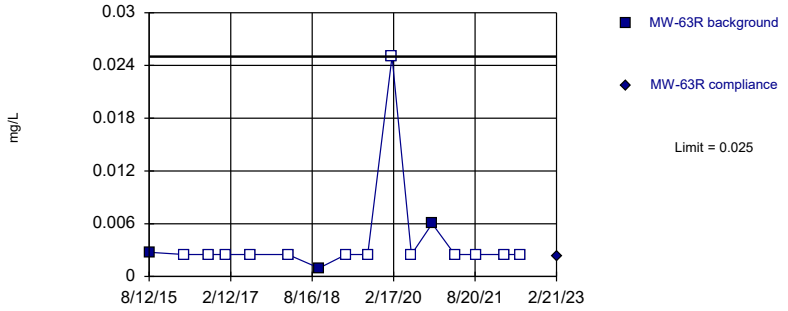
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 81.25% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

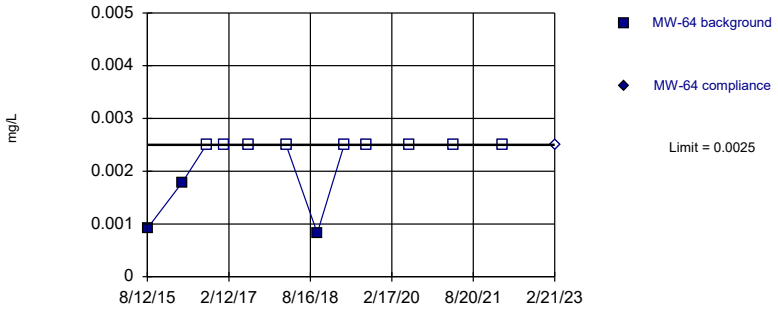
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

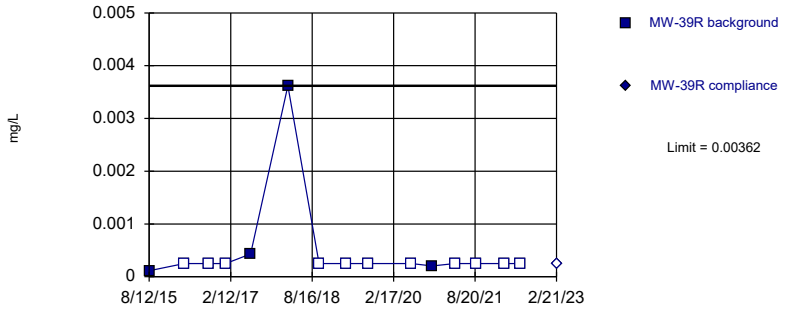
Constituent: Copper Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 73.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

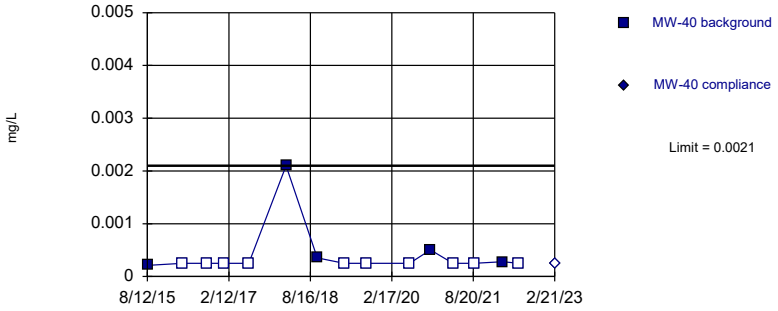
Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

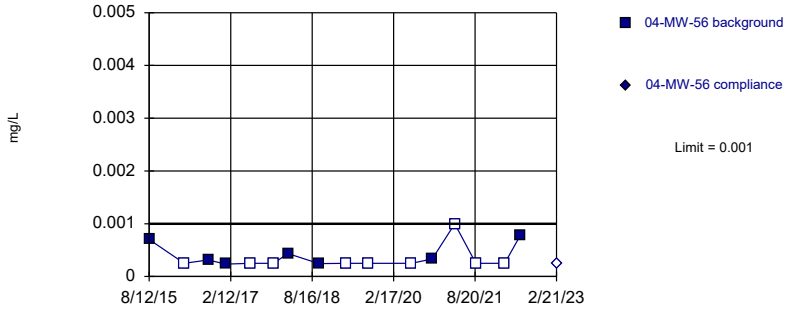
Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 56.25% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

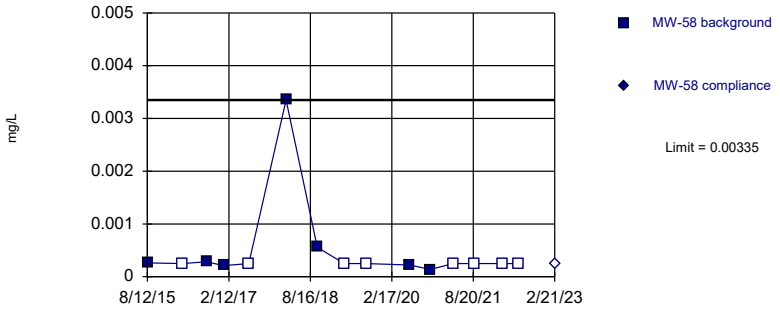
Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 53.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

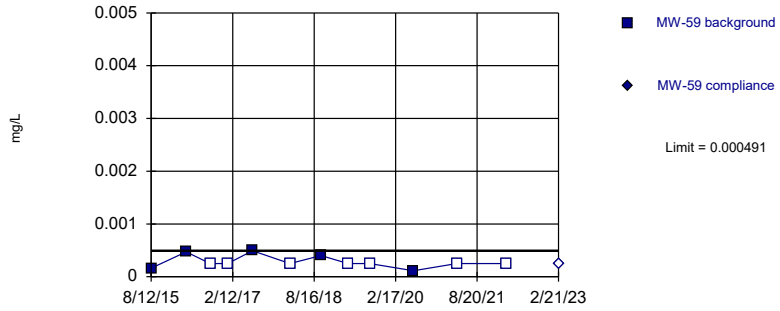
Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

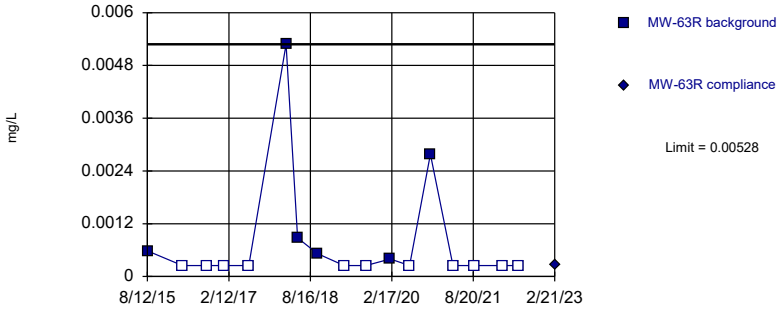
Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 17 background values. 64.71% NDs. Well-constituent pair annual alpha = 0.01179. Individual comparison alpha = 0.005914 (1 of 2).

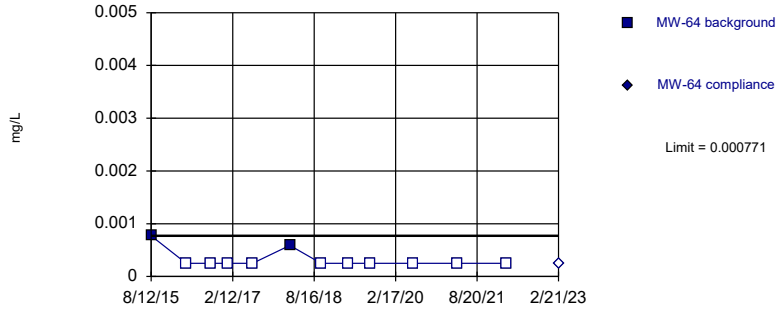
Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Lead Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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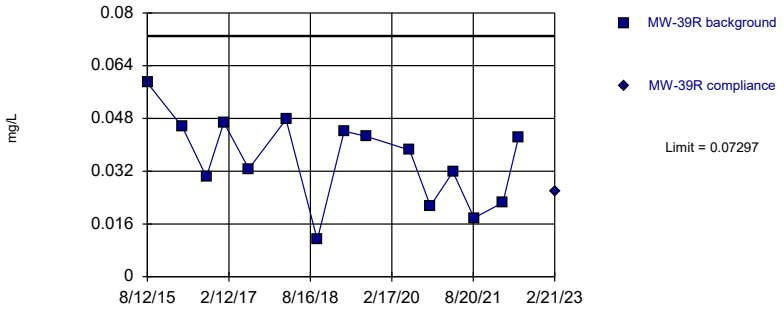
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.03559, Std. Dev.=0.01313, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9643, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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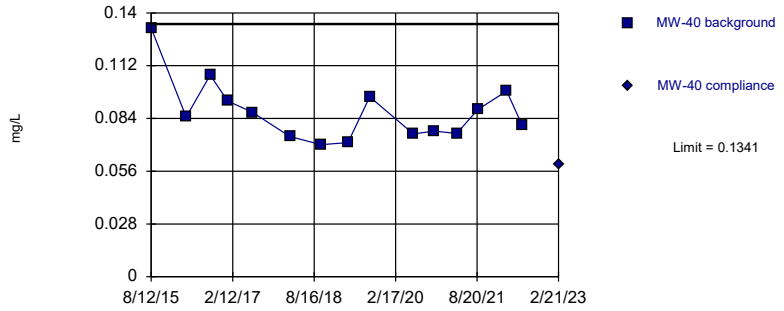
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.08747, Std. Dev.=0.01638, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8678, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

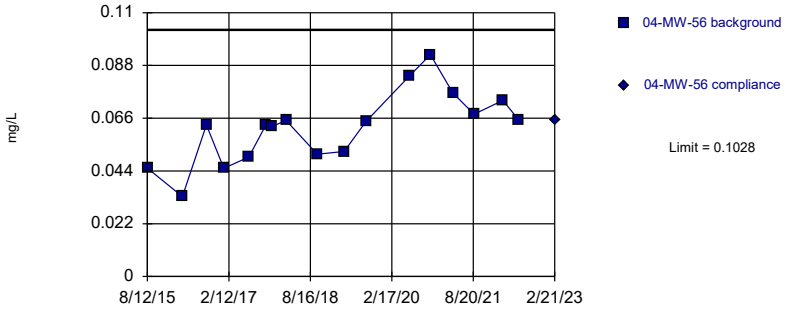
Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.06201, Std. Dev.=0.01492, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.975, critical = 0.851. Kappa = 2.734 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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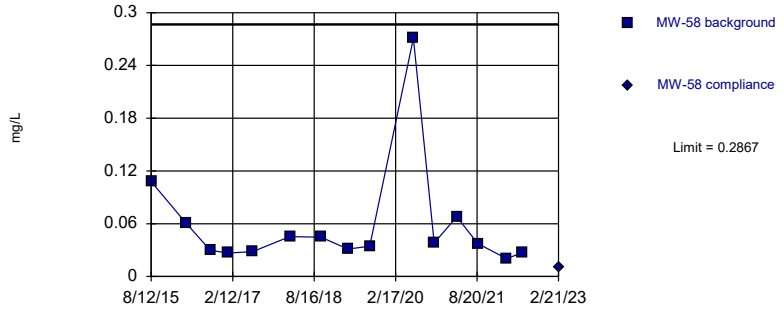
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-3.122, Std. Dev.=0.6578, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8444, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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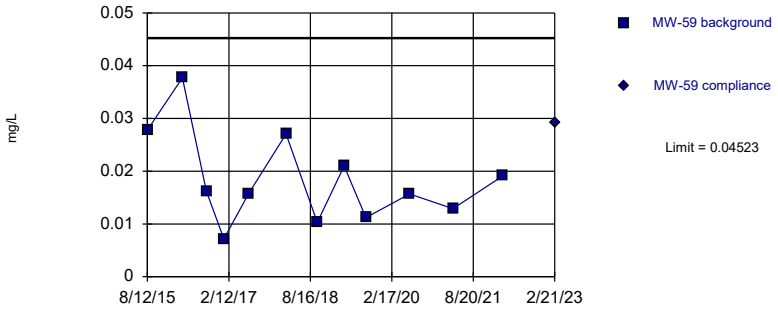
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01849, Std. Dev.=0.008716, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9294, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

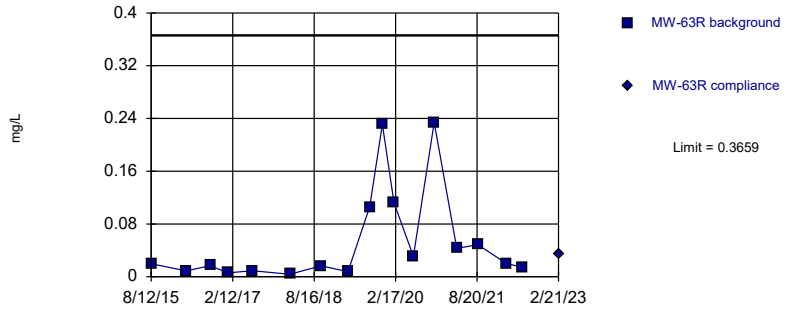
Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation): Mean=0.3211, Std. Dev.=0.1442, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8649, critical = 0.851. Kappa = 2.734 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

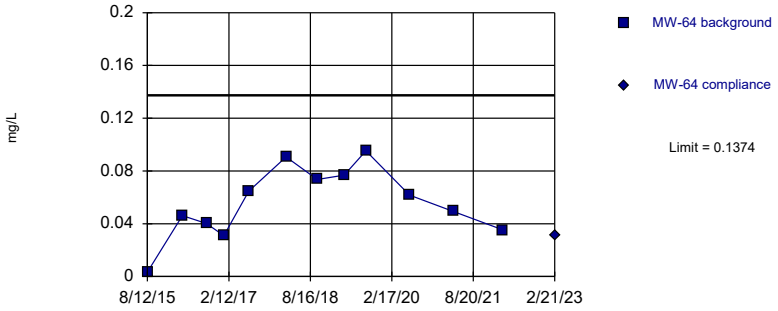
Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.05564, Std. Dev.=0.02664, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9758, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

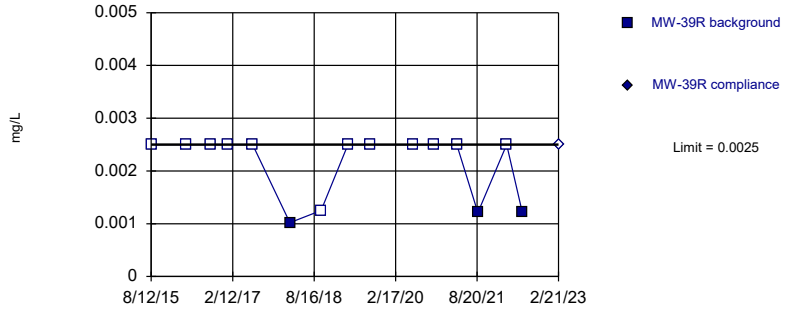
Constituent: Nickel Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 80% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

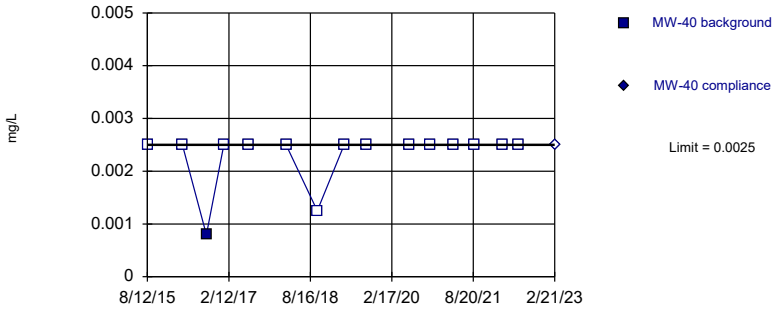
Constituent: Selenium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

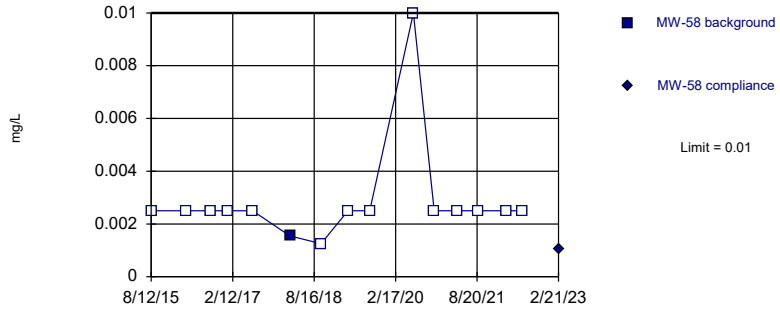
Constituent: Selenium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

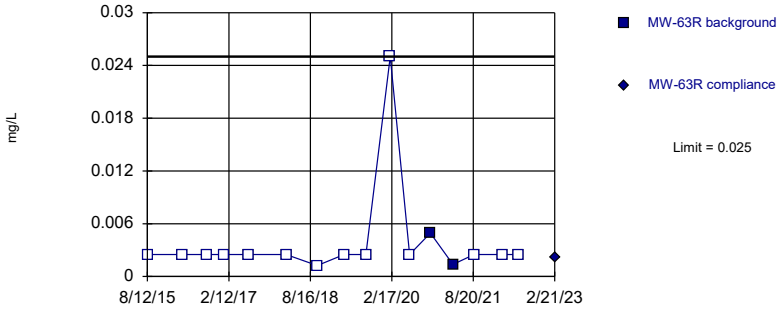
Constituent: Selenium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 87.5% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

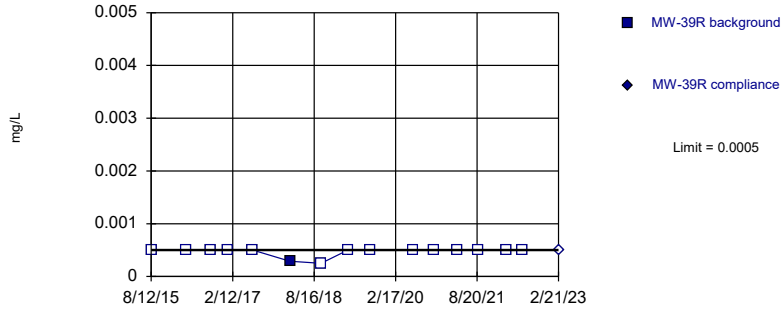
Constituent: Selenium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

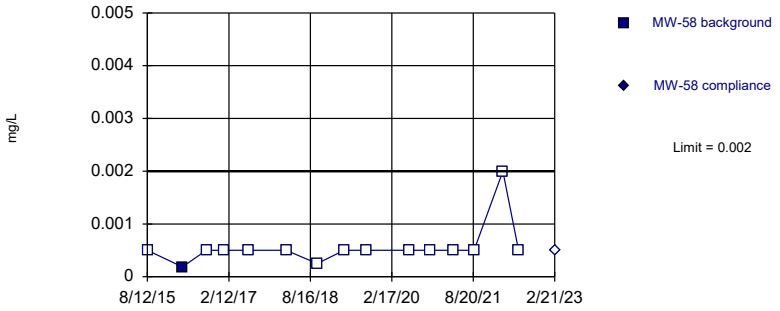
Constituent: Silver Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

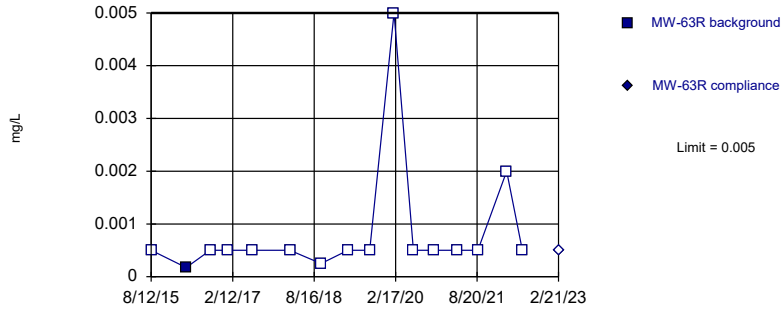
Constituent: Silver Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

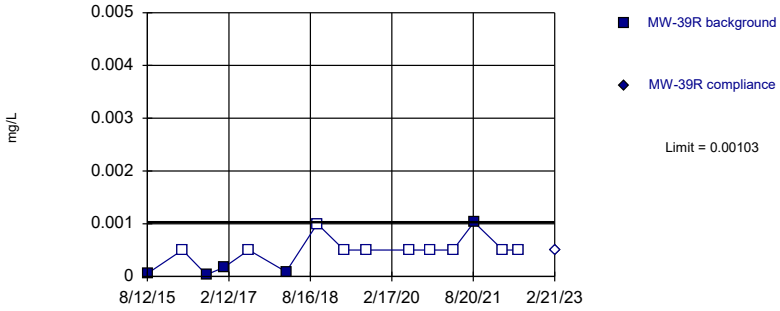
Constituent: Silver Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

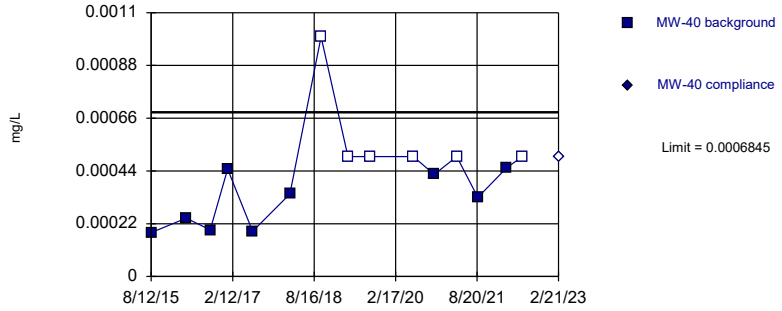
Constituent: Thallium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.01739, Std. Dev.=0.003081, n=15, 40% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.878, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

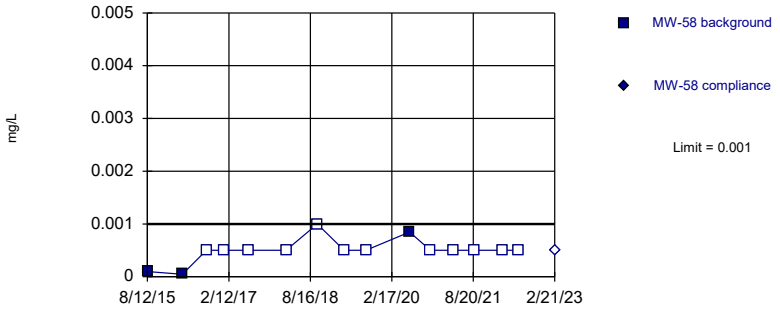
Constituent: Thallium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 80% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

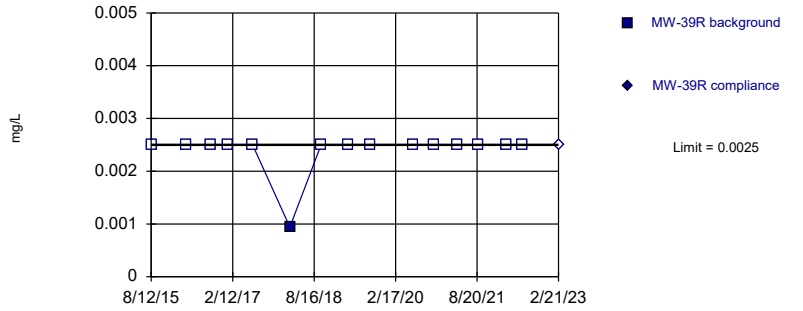
Constituent: Thallium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 93.33% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

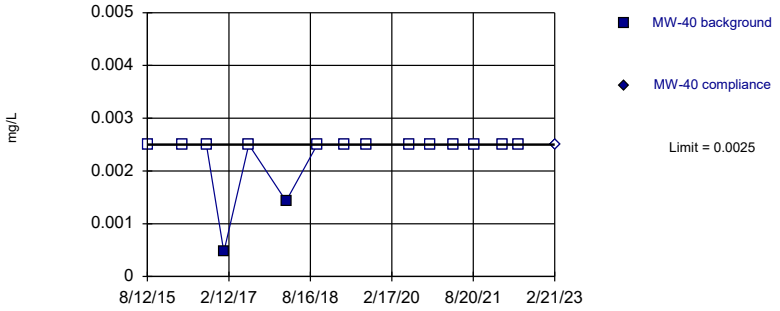
Constituent: Vanadium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 86.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

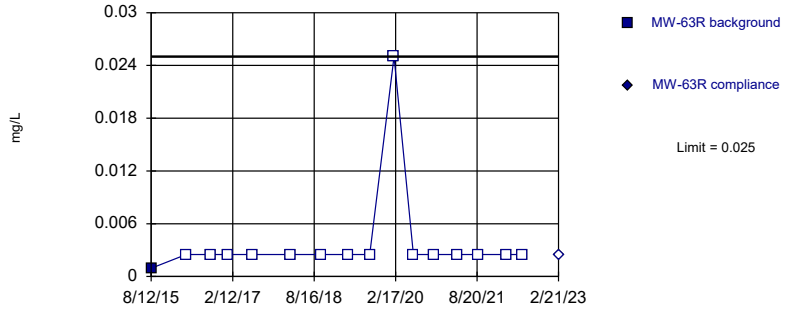
Constituent: Vanadium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 16 background values. 93.75% NDs. Well-constituent pair annual alpha = 0.01287. Individual comparison alpha = 0.006456 (1 of 2).

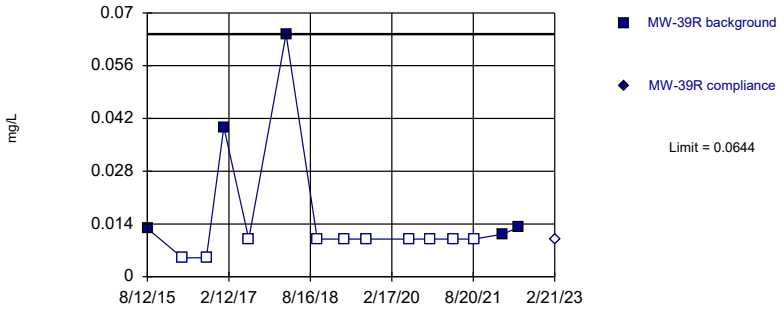
Constituent: Vanadium Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 15 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.01501. Individual comparison alpha = 0.007533 (1 of 2).

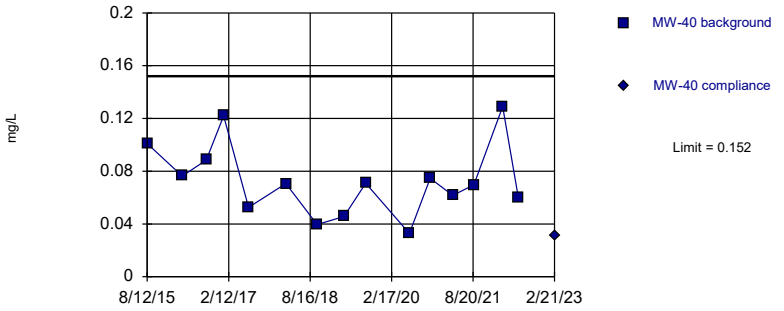
Constituent: Zinc Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.07298, Std. Dev.=0.02776, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9404, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

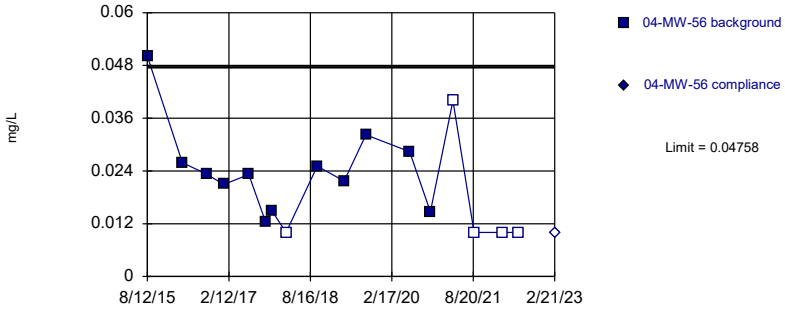
Constituent: Zinc Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0218, Std. Dev.=0.009425, n=17, 29.41% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8953, critical = 0.851. Kappa = 2.734 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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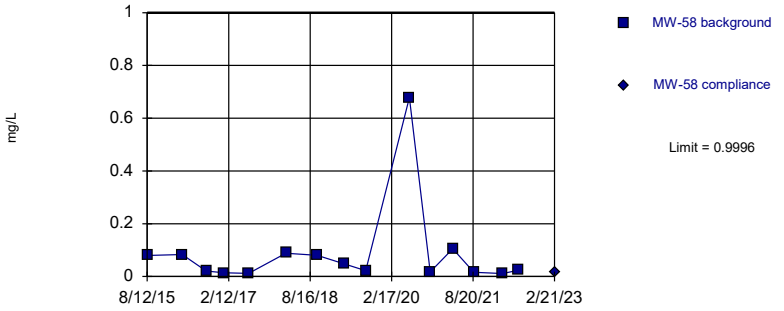
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-3.235, Std. Dev.=1.137, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8808, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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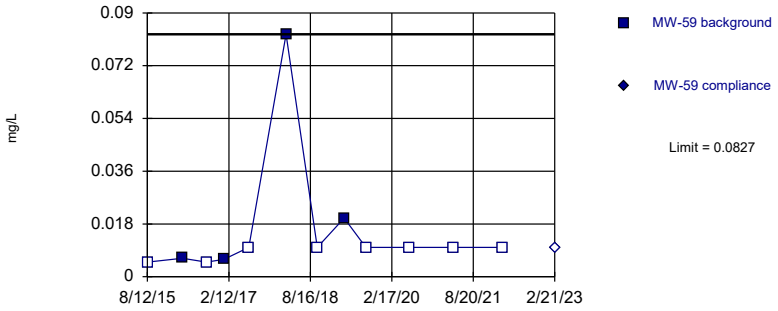
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Zinc Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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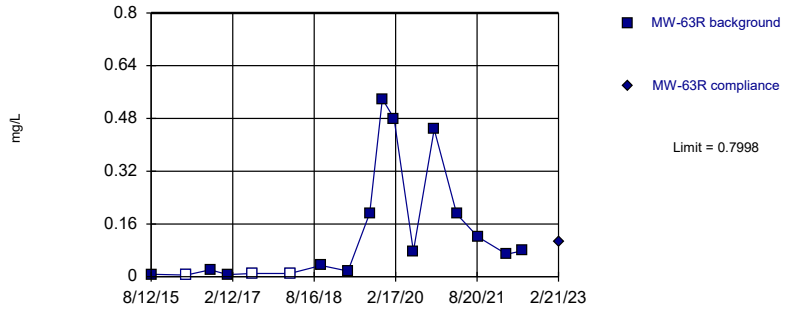
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.2963, Std. Dev.=0.2187, n=17, 17.65% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8549, critical = 0.851. Kappa = 2.734 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 4/11/2023 5:27 PM View: 2022SSN PL Intra AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Interwell Prediction Limit Summary Table and Graphs – Detection & Assessment Monitoring Wells

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 4/11/2023, 5:24 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Arsenic (mg/L)	**93-MW-32**	**0.00208**	**n/a**	**2/21/2023**	**0.00886**	**Yes**	**21**	**80.95**	**n/a**	**0.003351**	**NP Inter (NDs) 1 of 2**
Barium (mg/L)	91-MW-14	0.0292	n/a	2/21/2023	0.0188	No	21	0	n/a	0.003351	NP Inter (normality) 1 of 2
Barium (mg/L)	**93-MW-32**	**0.0292**	**n/a**	**2/21/2023**	**0.136**	**Yes**	**21**	**0**	**n/a**	**0.003351**	**NP Inter (normality) 1 of 2**
Barium (mg/L)	**MW-62**	**0.0292**	**n/a**	**2/21/2023**	**0.0305**	**Yes**	**21**	**0**	**n/a**	**0.003351**	**NP Inter (normality) 1 of 2**
Barium (mg/L)	**MW-81**	**0.0292**	**n/a**	**2/21/2023**	**0.0671**	**Yes**	**21**	**0**	**n/a**	**0.003351**	**NP Inter (normality) 1 of 2**
Cadmium (mg/L)	91-MW-14	0.0009621	n/a	2/21/2023	0.000216	No	21	38.1	sqrt(x)	0.0002508	Param Inter 1 of 2
Cadmium (mg/L)	93-MW-32	0.0009621	n/a	2/21/2023	0.000463	No	21	38.1	sqrt(x)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	**93-MW-32**	**0.01769**	**n/a**	**2/21/2023**	**0.0402**	**Yes**	**21**	**9.524**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	MW-62	0.01769	n/a	2/21/2023	0.000604	No	21	9.524	x^(1/3)	0.0002508	Param Inter 1 of 2
Lead (mg/L)	93-MW-32	0.00232	n/a	2/21/2023	0.000979	No	21	71.43	n/a	0.003351	NP Inter (NDs) 1 of 2
Nickel (mg/L)	**93-MW-32**	**0.03276**	**n/a**	**2/21/2023**	**0.0451**	**Yes**	**21**	**4.762**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Nickel (mg/L)	MW-62	0.03276	n/a	2/21/2023	0.00861	No	21	4.762	x^(1/3)	0.0002508	Param Inter 1 of 2
Zinc (mg/L)	93-MW-32	0.0377	n/a	2/21/2023	0.0301	No	21	85.71	n/a	0.003351	NP Inter (NDs) 1 of 2

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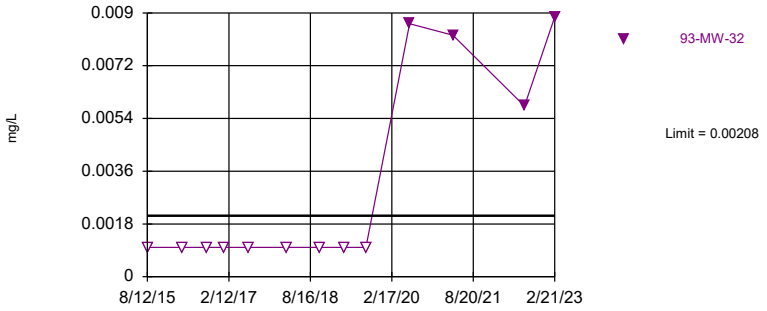
Hollow symbols indicate censored values.

Exceeds Limit: 93-MW-32

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 80.95% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Assumes 13 future values.

Constituent: Arsenic Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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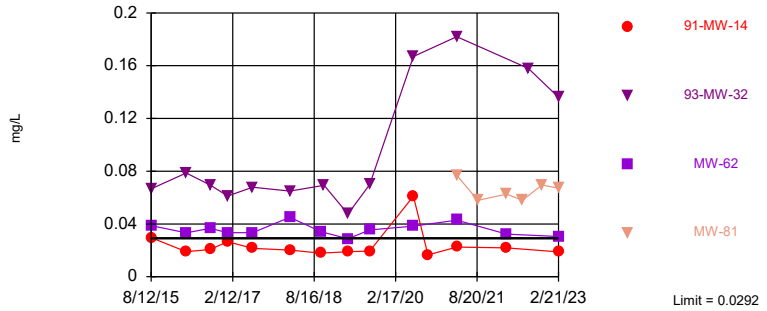
Exceeds Limit: 93-MW-32, MW-62, MW-81

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 21 background values. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Comparing 4 points to limit. Assumes 10 future values.

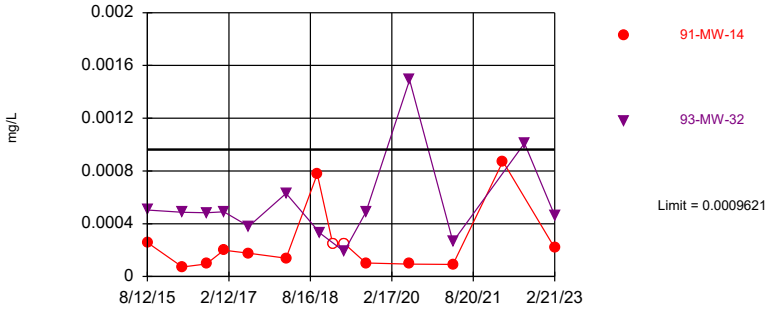
Constituent: Barium Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.01296, Std. Dev.=0.006988, n=21, 38.1% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9012, critical = 0.873. Kappa = 2.584 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 2 points to limit. Assumes 12 future values.

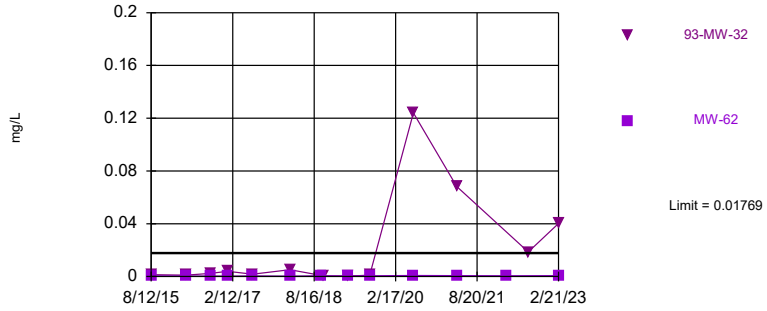
Constituent: Cadmium Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Exceeds Limit: 93-MW-32

Prediction Limit

Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=0.1085, Std. Dev.=0.05882, n=21, 9.524% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9085, critical = 0.873. Kappa = 2.584 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 2 points to limit. Assumes 12 future values.

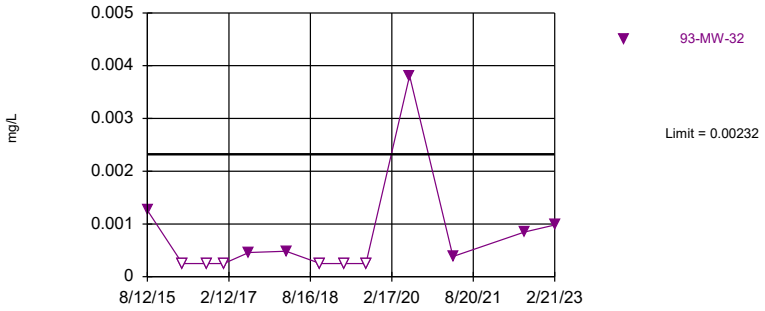
Constituent: Cobalt Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 71.43% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Assumes 13 future values.

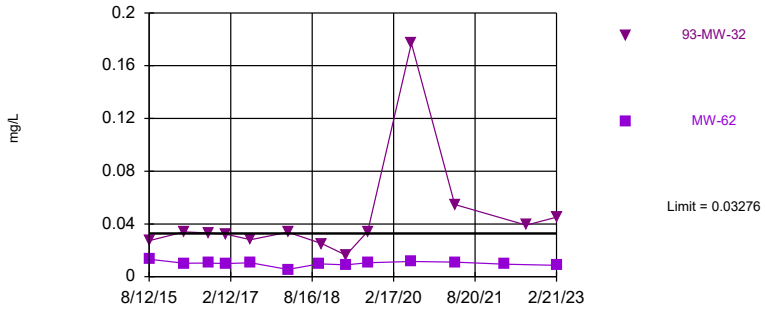
Constituent: Lead Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Exceeds Limit: 93-MW-32

Prediction Limit

Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=0.1854, Std. Dev.=0.05207, n=21, 4.762% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9027, critical = 0.873. Kappa = 2.584 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 2 points to limit. Assumes 12 future values.

Constituent: Nickel Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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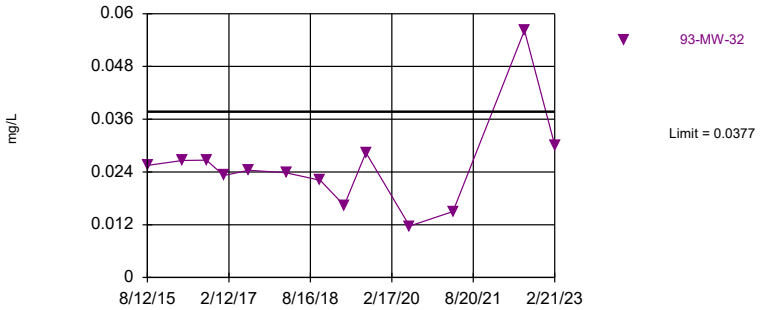
Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 21 background values. 85.71% NDs. Annual per-constituent alpha = 0.0897. Individual comparison alpha = 0.003351 (1 of 2). Assumes 13 future values.

Constituent: Zinc Analysis Run 4/11/2023 5:23 PM View: 2022SSN PL Det and AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Mann-Kendall/Sen's Slope Trend Test Summary Table and Graphs – Assessment Monitoring Wells

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN Printed 4/11/2023, 4:40 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
2-Butanone (ug/L)	93-MW-32	0	5	21	No	8	87.5	0.01	NP
Acetone (ug/L)	93-MW-32	0	9	21	No	8	75	0.01	NP
Antimony (mg/L)	93-MW-32	0	11	21	No	8	87.5	0.01	NP
Arsenic (mg/L)	93-MW-32	0.001513	16	21	No	8	50	0.01	NP
Barium (mg/L)	93-MW-32	0.02001	14	21	No	8	0	0.01	NP
Barium (mg/L)	MW-62	-0.001041	-6	-21	No	8	0	0.01	NP
Barium (mg/L)	MW-81	0	0	14	No	6	0	0.01	NP
Cadmium (mg/L)	93-MW-32	0.00003405	2	21	No	8	0	0.01	NP
Cadmium (mg/L)	MW-81	-0.00009574	-9	-14	No	6	0	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-81	0.2522	5	14	No	6	0	0.01	NP
Cobalt (mg/L)	93-MW-32	0.00576	10	21	No	8	0	0.01	NP
Cobalt (mg/L)	MW-62	0.00007343	16	21	No	8	0	0.01	NP
Copper (mg/L)	93-MW-32	0	1	21	No	8	87.5	0.01	NP
Copper (mg/L)	MW-62	0	5	21	No	8	87.5	0.01	NP
Lead (mg/L)	93-MW-32	0.00009127	11	21	No	8	37.5	0.01	NP
Lead (mg/L)	MW-62	0	-2	-21	No	8	50	0.01	NP
Nickel (mg/L)	93-MW-32	0.004183	12	21	No	8	0	0.01	NP
Nickel (mg/L)	MW-62	0.0004311	4	21	No	8	0	0.01	NP
Selenium (mg/L)	MW-62	0	4	21	No	8	75	0.01	NP
Tetrachloroethene (ug/L)	MW-81	-0.195	-7	-14	No	6	16.67	0.01	NP
Toluene (ug/L)	93-MW-32	0	3	21	No	8	87.5	0.01	NP
Zinc (mg/L)	93-MW-32	0.001556	4	21	No	8	0	0.01	NP

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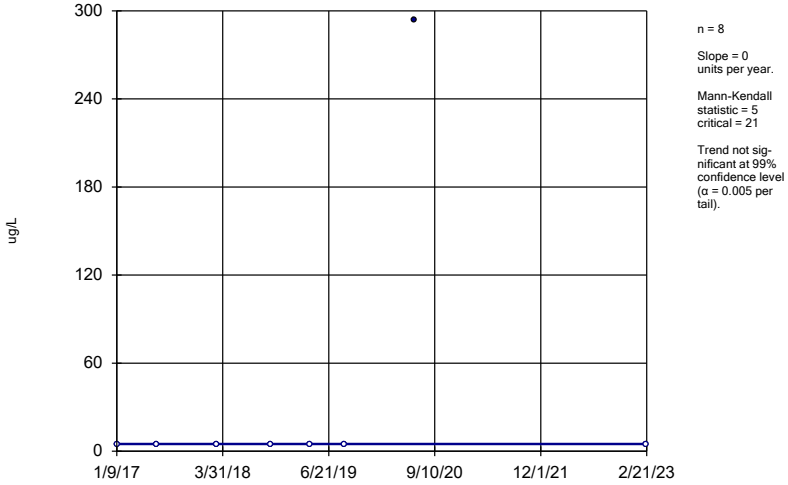
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32

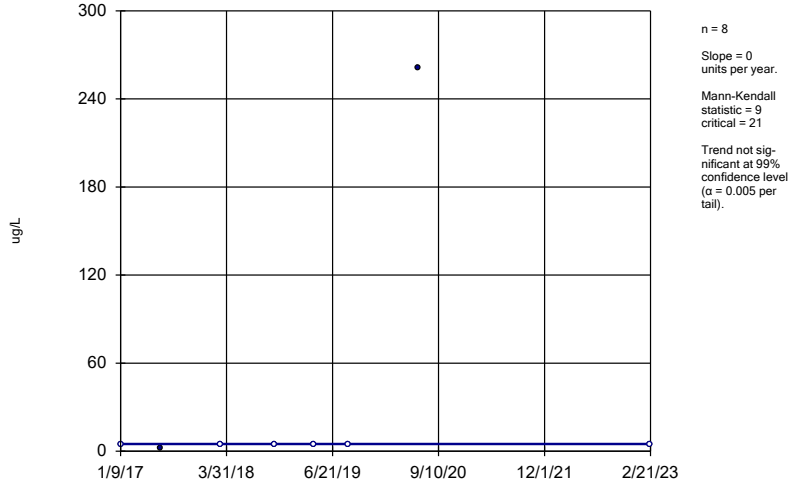


Constituent: 2-Butanone Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32

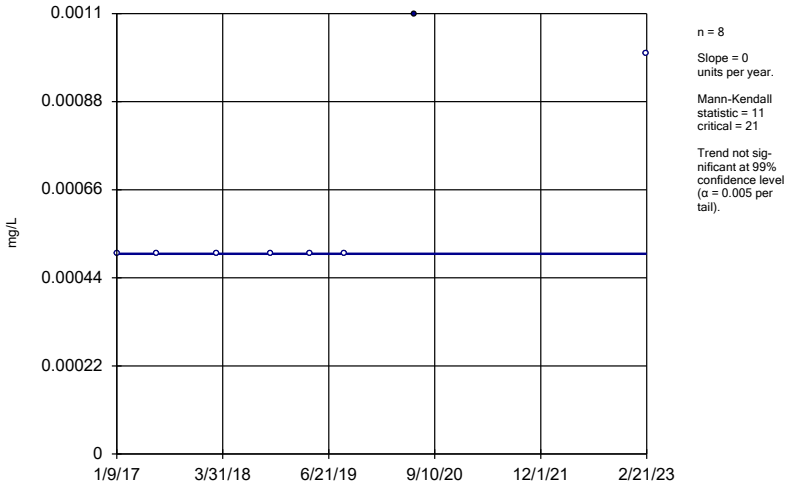


Constituent: Acetone Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32

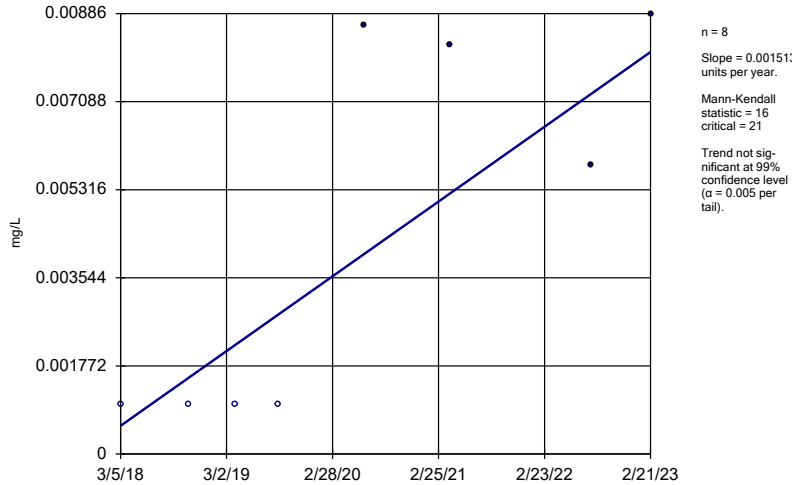


Constituent: Antimony Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32

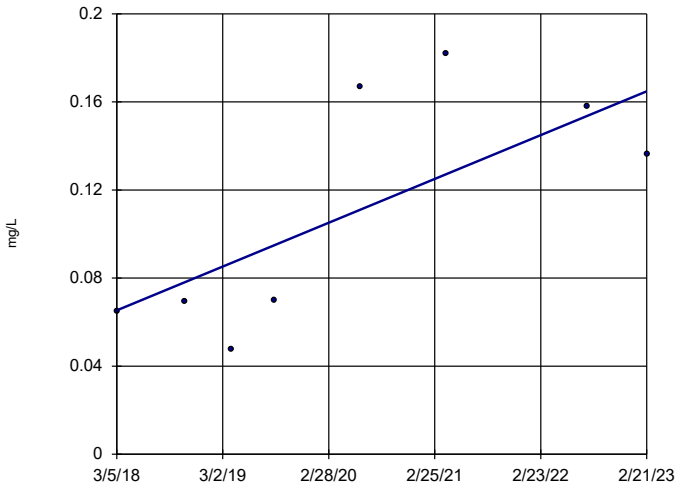


Constituent: Arsenic Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.02001 units per year.

Mann-Kendall statistic = 14
critical = 21

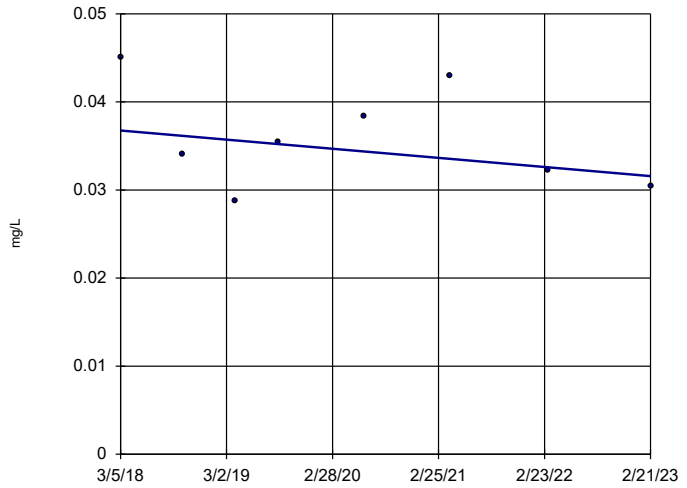
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-62



n = 8

Slope = -0.001041 units per year.

Mann-Kendall statistic = -6
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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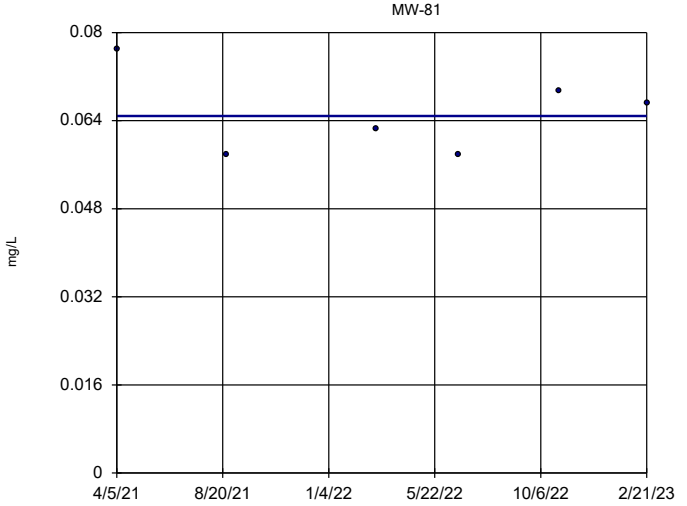
Sen's Slope Estimator

MW-81



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 0
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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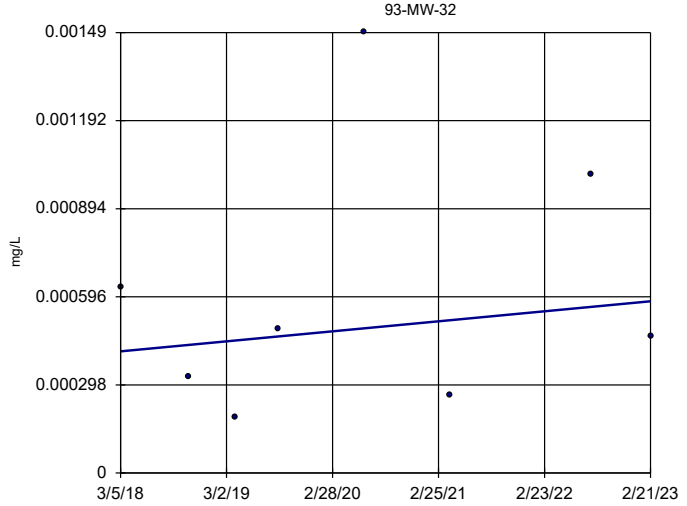
Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.00003405 units per year.

Mann-Kendall statistic = 2
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cadmium Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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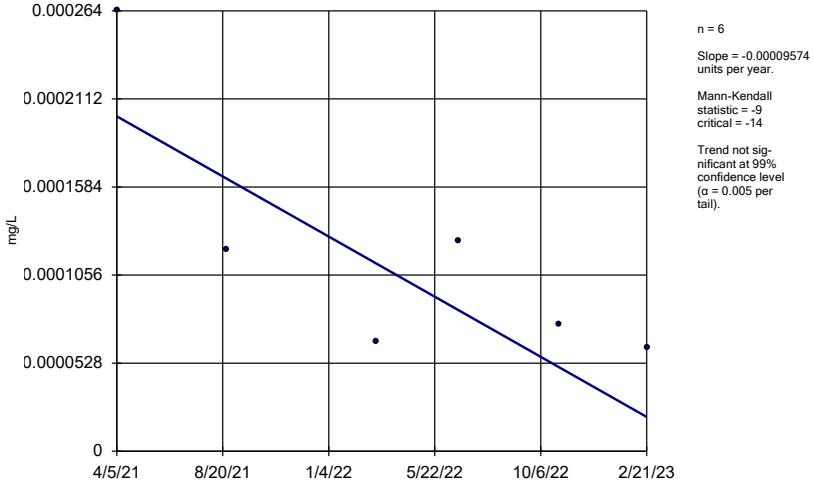
Sen's Slope Estimator

MW-81



Constituent: Cadmium Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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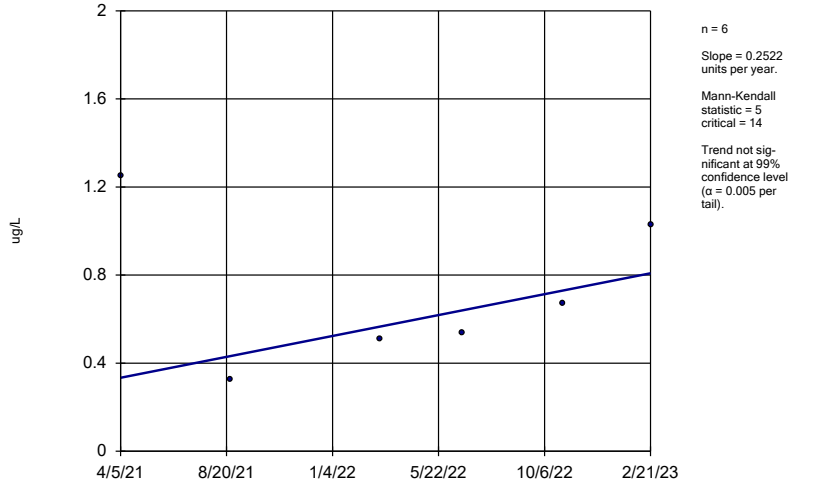
Sen's Slope Estimator

MW-81

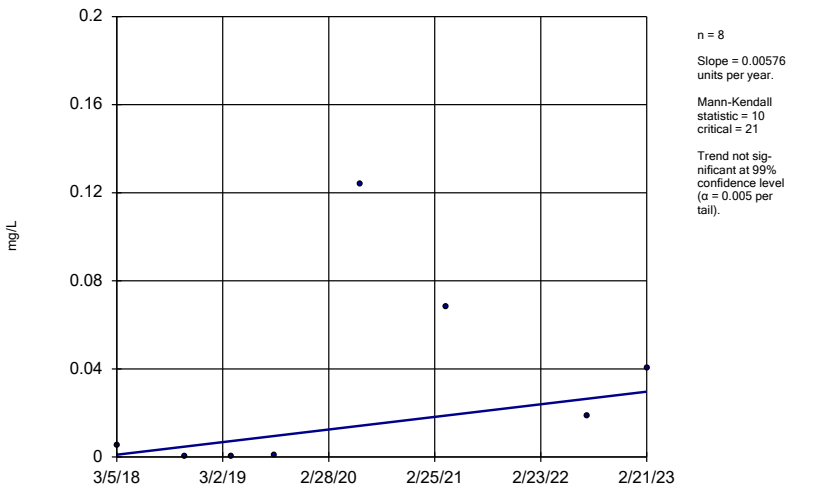


Constituent: cis-1,2-Dichloroethene Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

93-MW-32

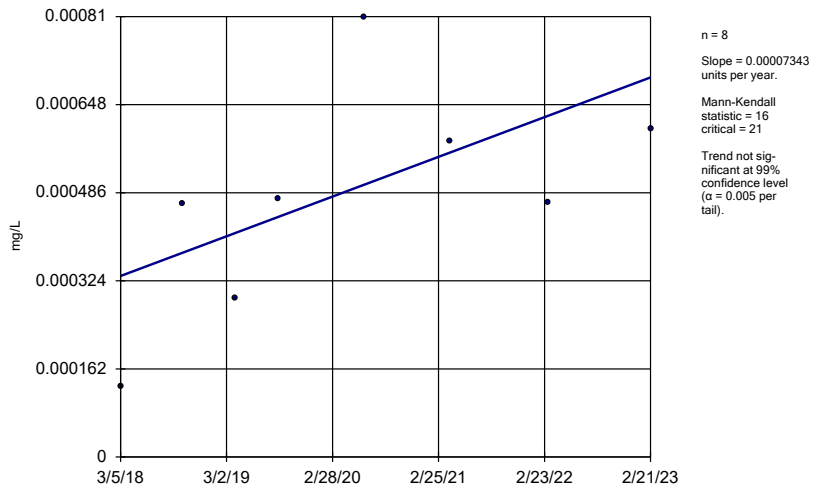


Constituent: Cobalt Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-62

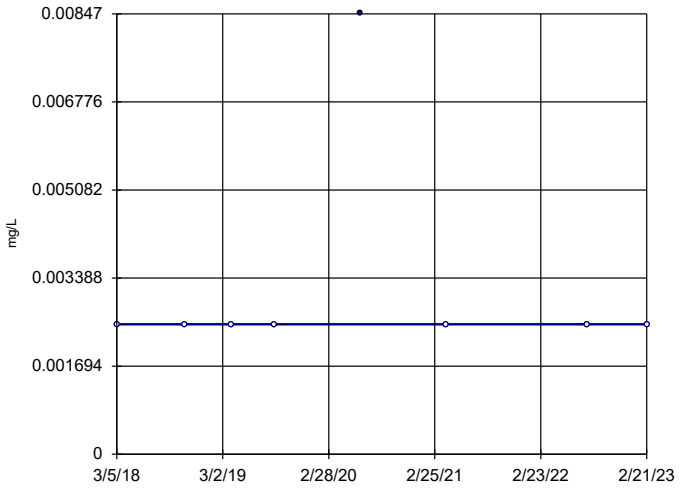


Constituent: Cobalt Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = 1
critical = 21

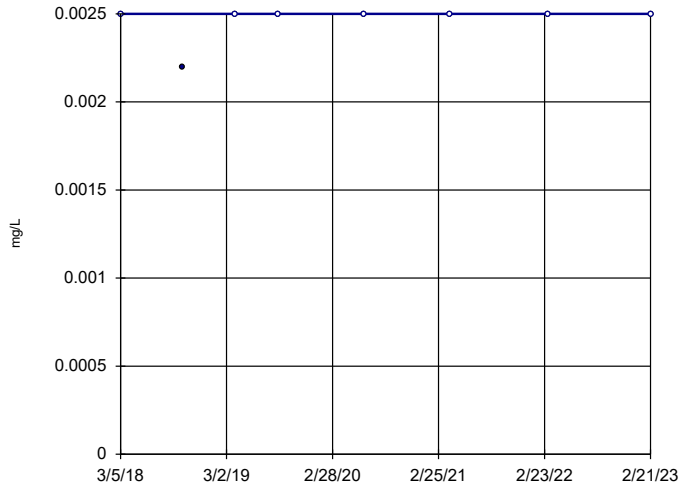
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Copper Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-62



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = 5
critical = 21

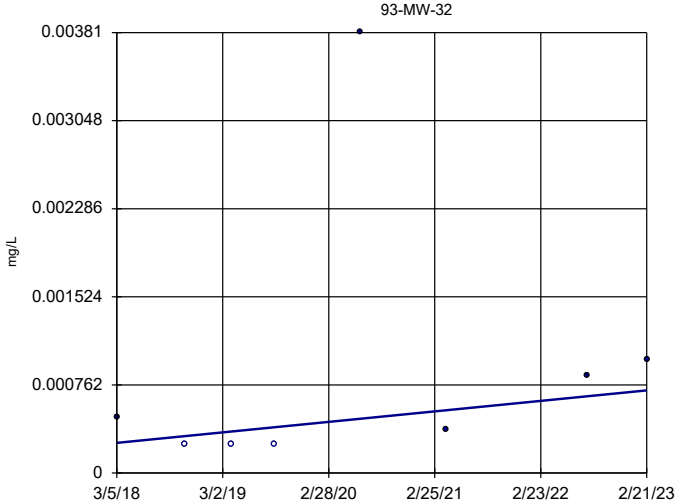
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Copper Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.00009127
units per year.

Mann-Kendall
statistic = 11
critical = 21

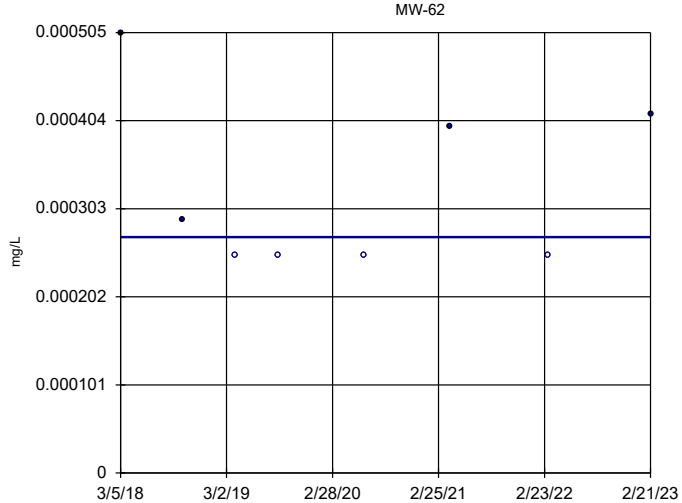
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Lead Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-62



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = -2
critical = -21

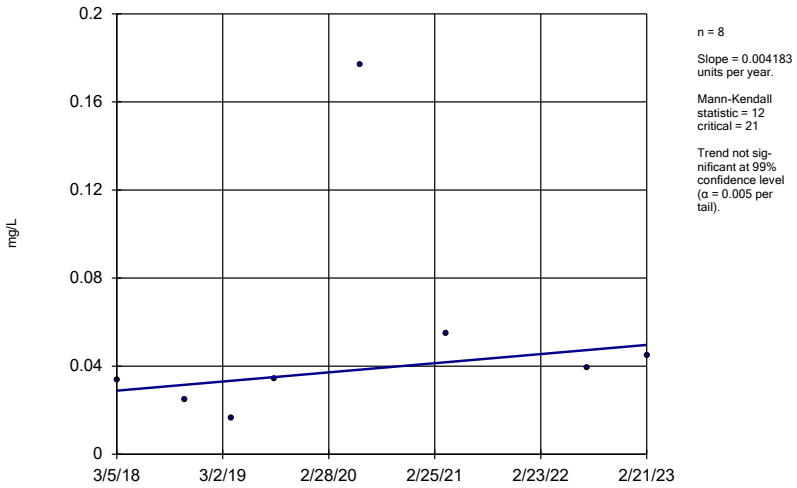
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Lead Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

93-MW-32

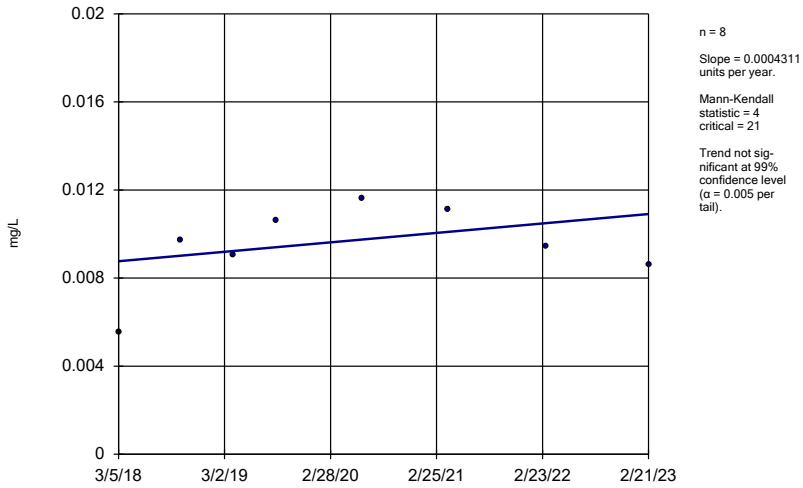


Constituent: Nickel Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-62

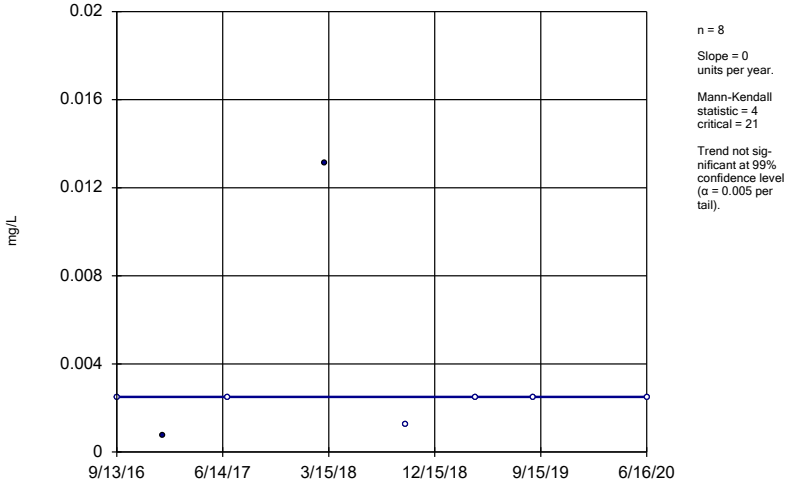


Constituent: Nickel Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-62

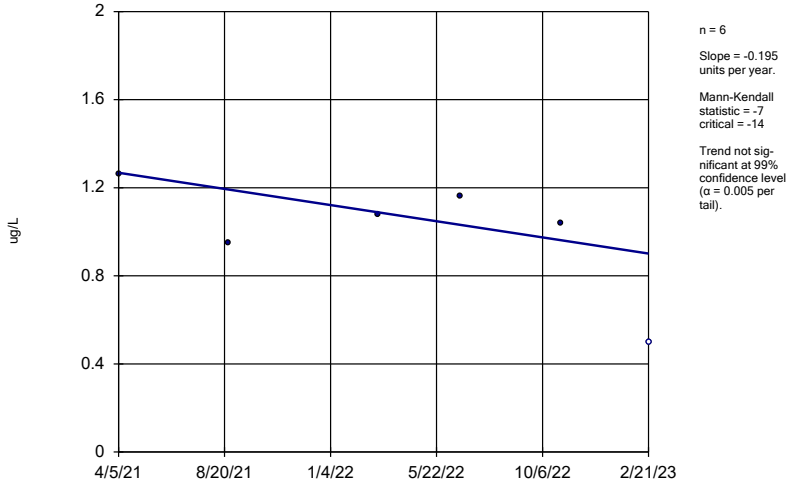


Constituent: Selenium Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-81

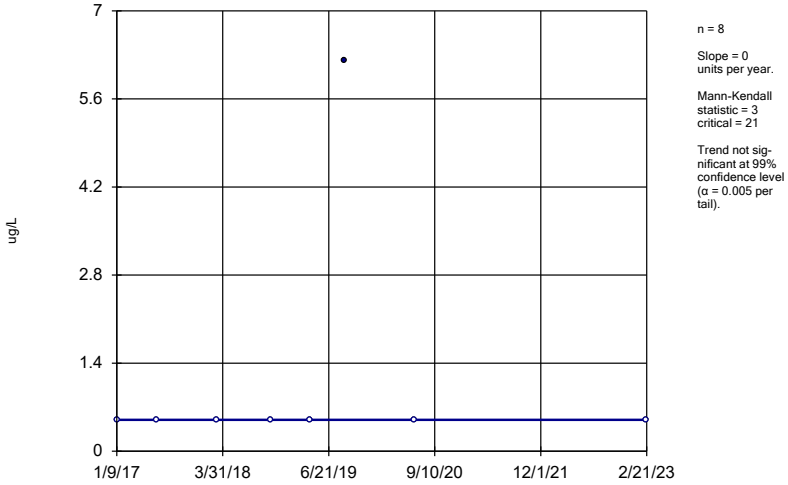


Constituent: Tetrachloroethene Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



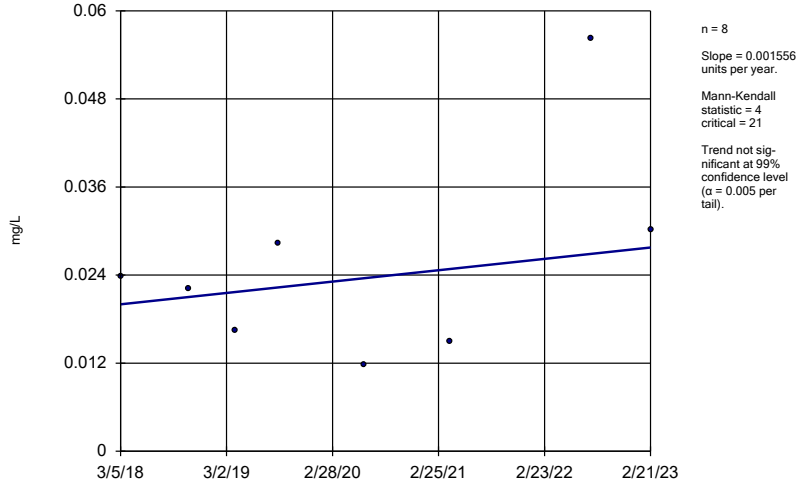
Constituent: Toluene Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

93-MW-32



Constituent: Zinc Analysis Run 4/11/2023 4:38 PM View: 2023SSN - Mann Kendall

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Mann-Kendall/Sen's Slope Trend Test Summary Table and Graphs – AMD Wells Organics and Sulfide

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN Printed 4/12/2023, 12:53 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
1,1-Dichloroethane (ug/L)	MW-40	-0.06843	-10	-21	No	8	0	0.01	NP
1,1-Dichloroethane (ug/L)	MW-59	0	-7	-21	No	8	75	0.01	NP
1,1-Dichloroethane (ug/L)	MW-64	0	-1	-21	No	8	37.5	0.01	NP
1,1-Dichloroethane (ug/L)	MW-65	-0.1387	-12	-21	No	8	0	0.01	NP
2-Methylnaphthalene (ug/L)	MW-39R	0.4111	4	8	No	4	75	0.01	NP
2-Methylnaphthalene (ug/L)	MW-58	1.167	4	8	No	4	75	0.01	NP
2-Methylnaphthalene (ug/L)	MW-65	22.7	6	8	No	4	75	0.01	NP
Acetone (ug/L)	MW-59	0.8269	9	21	No	8	25	0.01	NP
Benzene (ug/L)	MW-40	-0.207	-14	-21	No	8	0	0.01	NP
Benzene (ug/L)	MW-59	-0.2066	-6	-21	No	8	12.5	0.01	NP
Benzene (ug/L)	MW-65	0.06435	2	21	No	8	12.5	0.01	NP
Chloroethane (ug/L)	MW-65	0.7722	12	21	No	8	0	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-40	0.05607	2	21	No	8	0	0.01	NP
Naphthalene (ug/L)	MW-40	0	3	14	No	6	83.33	0.01	NP
Sulfide (mg/L)	MW-59	0	-3	-14	No	6	83.33	0.01	NP
Sulfide (mg/L)	MW-63R	-0.9304	-3	-8	No	4	75	0.01	NP
Sulfide (mg/L)	MW-65	0	-4	-12	No	5	80	0.01	NP
Vinyl chloride (ug/L)	MW-40	-0.1102	-6	-21	No	8	0	0.01	NP

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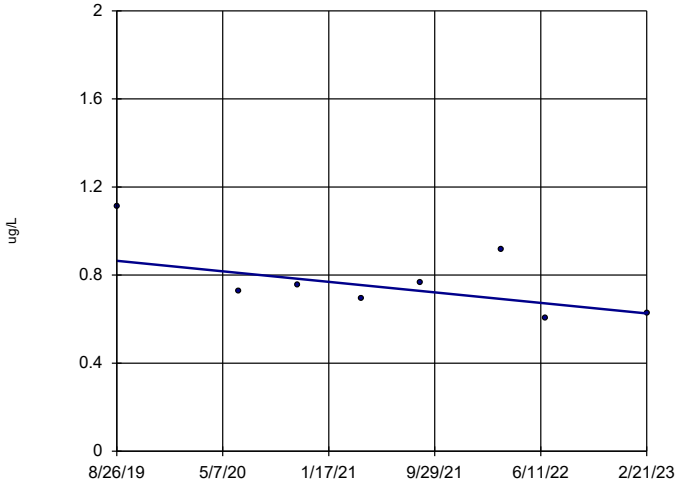
Sen's Slope Estimator

MW-40



n = 8

Slope = -0.06843 units per year.

Mann-Kendall statistic = -10
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,1-Dichloroethane Analysis Run 4/12/2023 12:51 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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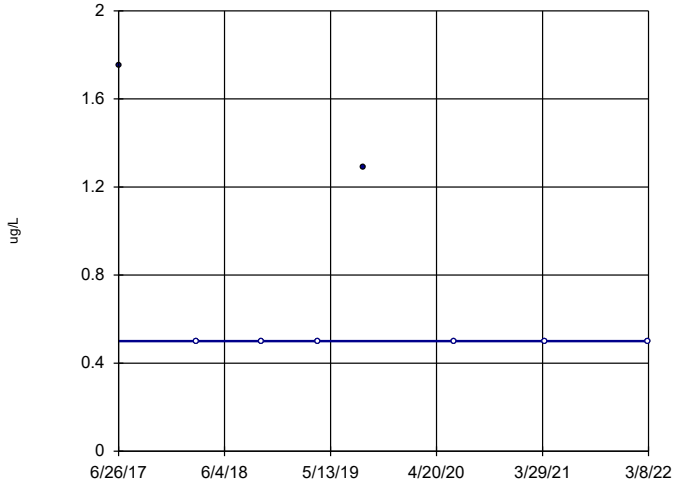
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = -7
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,1-Dichloroethane Analysis Run 4/12/2023 12:51 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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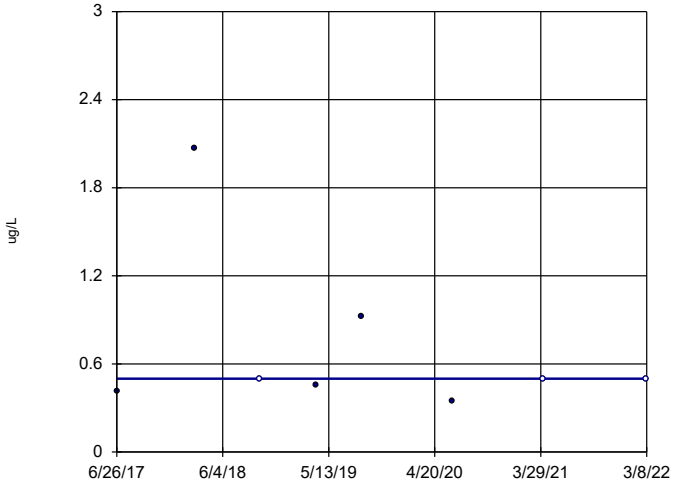
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-64



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = -1
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,1-Dichloroethane Analysis Run 4/12/2023 12:51 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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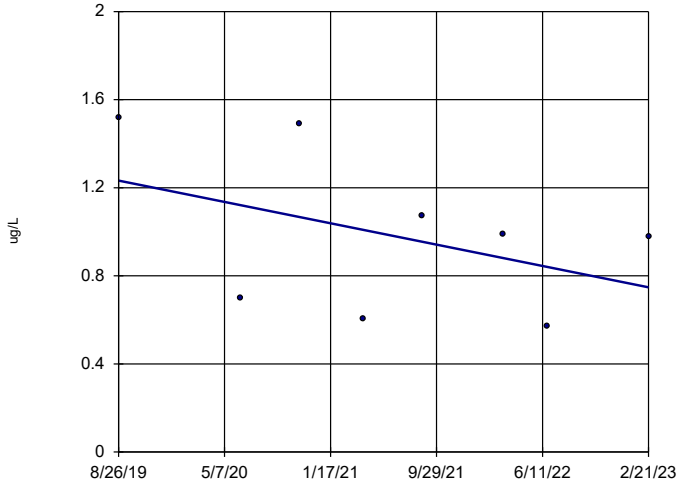
Sen's Slope Estimator

MW-65



n = 8

Slope = -0.1387 units per year.

Mann-Kendall statistic = -12
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,1-Dichloroethane Analysis Run 4/12/2023 12:51 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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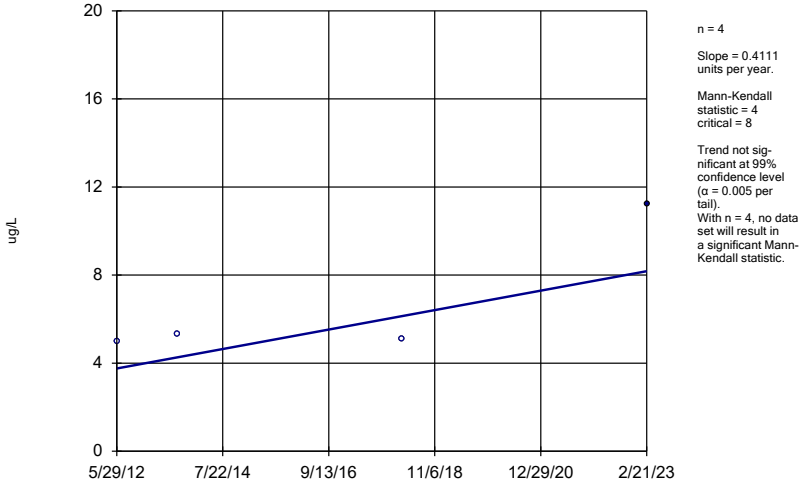
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-39R



n = 4

Slope = 0.4111 units per year.

Mann-Kendall statistic = 4
critical = 8

Trend not significant at 99% confidence level (α = 0.005 per tail).
With n = 4, no data set will result in a significant Mann-Kendall statistic.

Constituent: 2-Methylnaphthalene Analysis Run 4/12/2023 12:51 PM View: 2023SSN - Mann Kendall AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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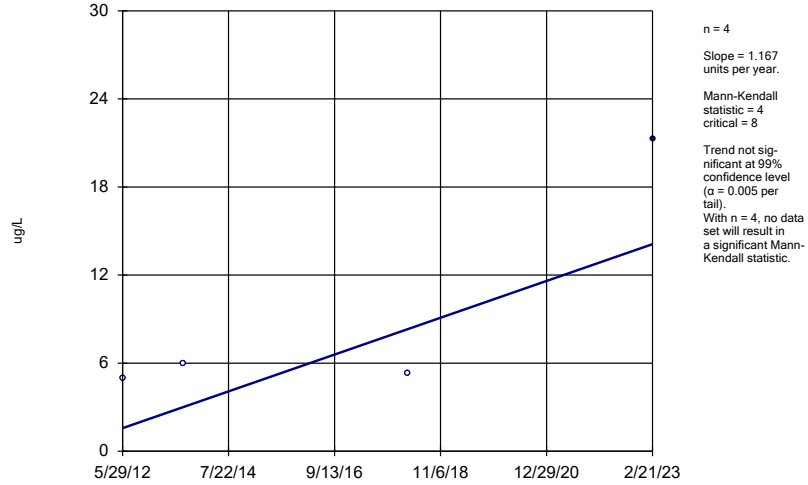
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-58



n = 4

Slope = 1.167 units per year.

Mann-Kendall statistic = 4
critical = 8

Trend not significant at 99% confidence level (α = 0.005 per tail).
With n = 4, no data set will result in a significant Mann-Kendall statistic.

Constituent: 2-Methylnaphthalene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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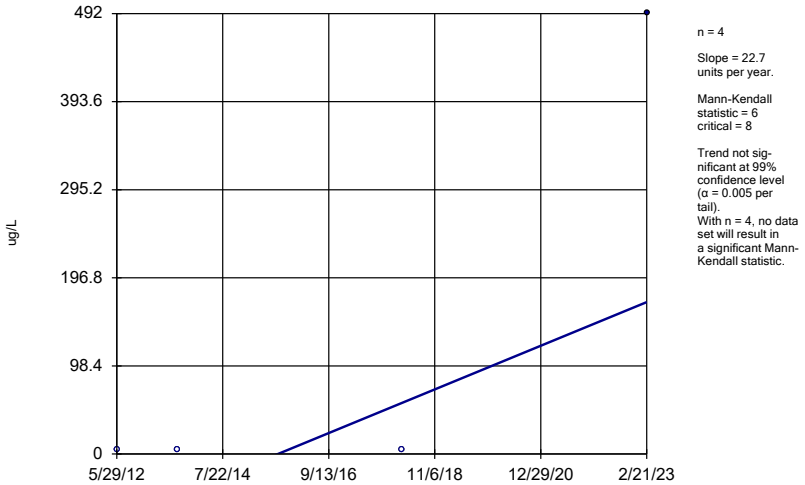
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



n = 4

Slope = 22.7 units per year.

Mann-Kendall statistic = 6
critical = 8

Trend not significant at 99% confidence level (α = 0.005 per tail).
With n = 4, no data set will result in a significant Mann-Kendall statistic.

Constituent: 2-Methylnaphthalene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AM
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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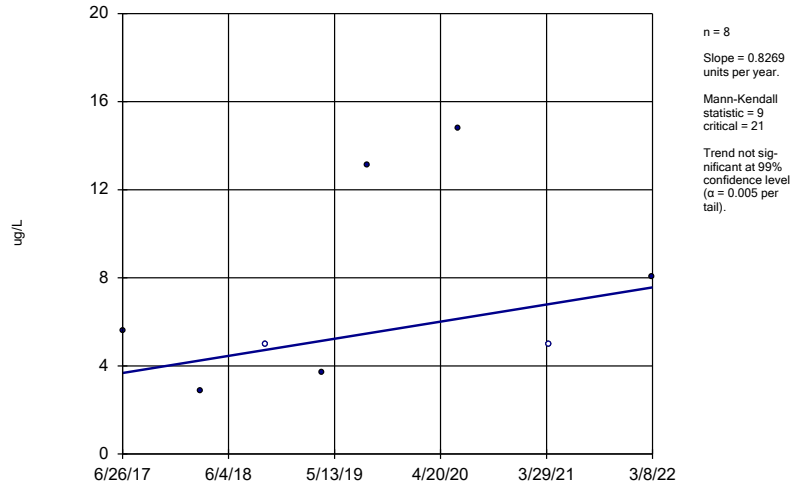
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



n = 8

Slope = 0.8269 units per year.

Mann-Kendall statistic = 9
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Acetone Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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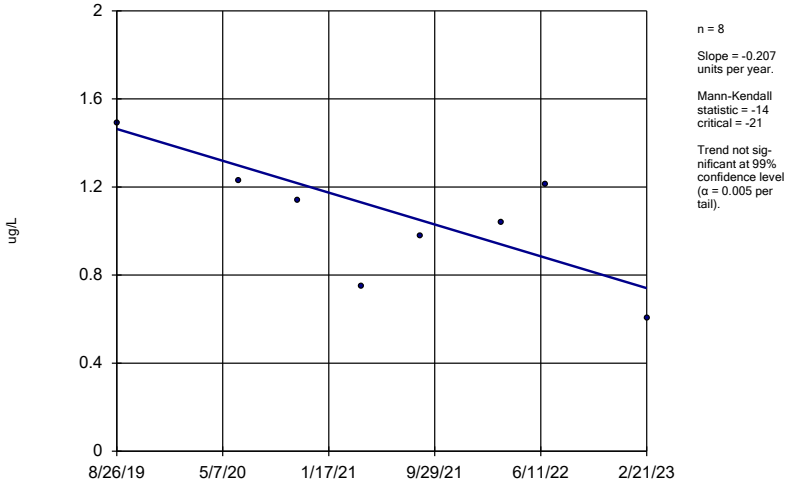
Sen's Slope Estimator

MW-40



Constituent: Benzene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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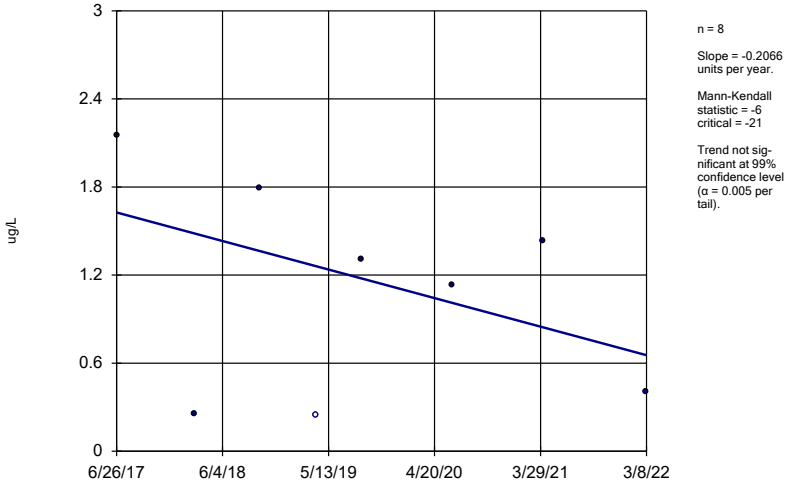
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



Constituent: Benzene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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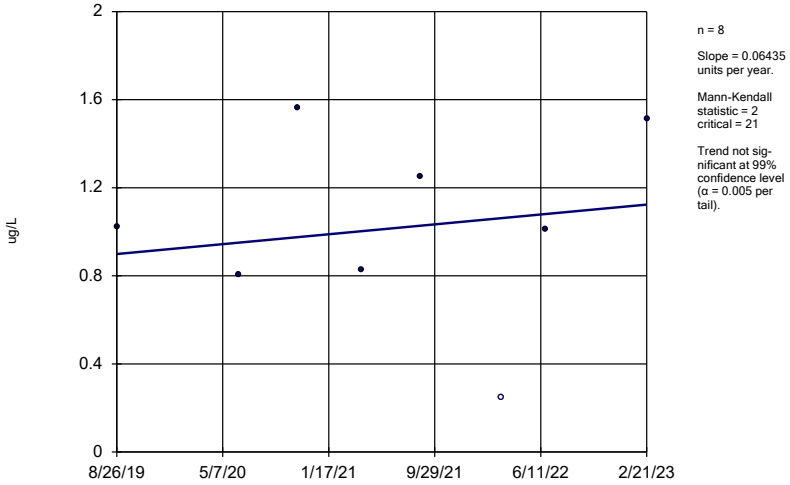
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



Constituent: Benzene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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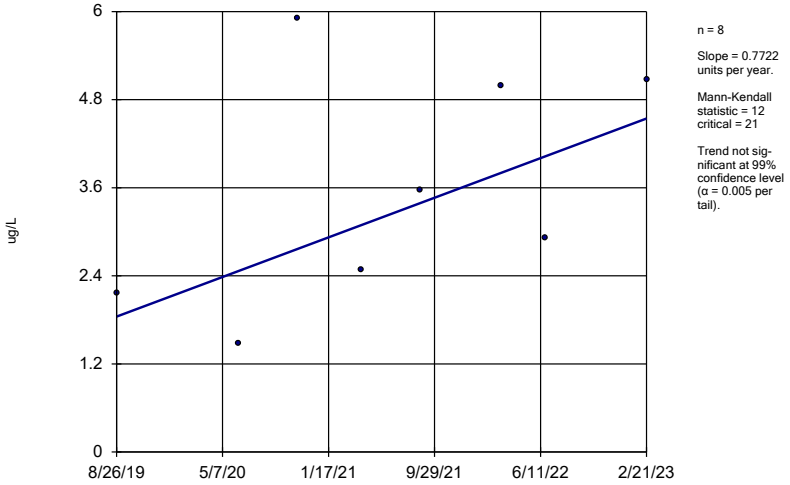
Sen's Slope Estimator

MW-65



Constituent: Chloroethane Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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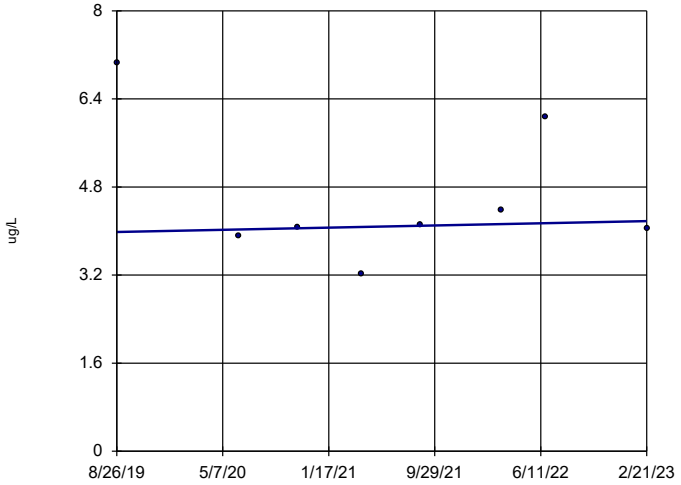
Sen's Slope Estimator

MW-40



n = 8

Slope = 0.05607 units per year.

Mann-Kendall statistic = 2
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: cis-1,2-Dichloroethene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall A
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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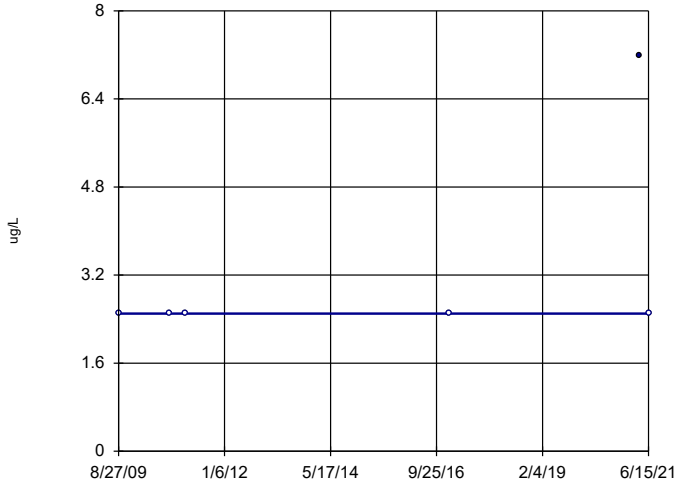
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-40



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 3
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Naphthalene Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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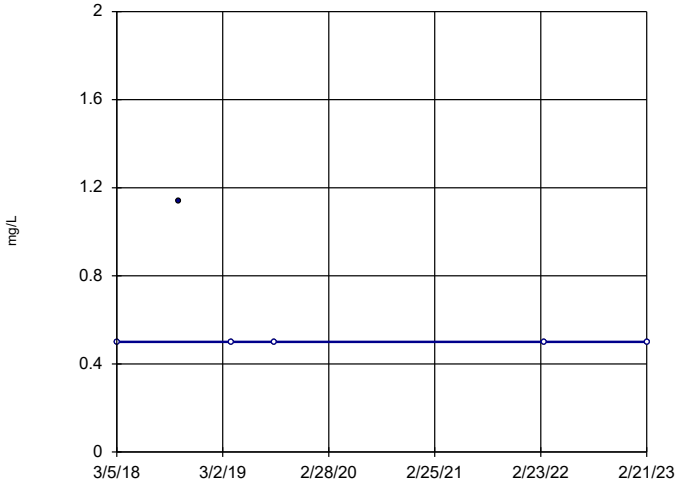
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = -3
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfide Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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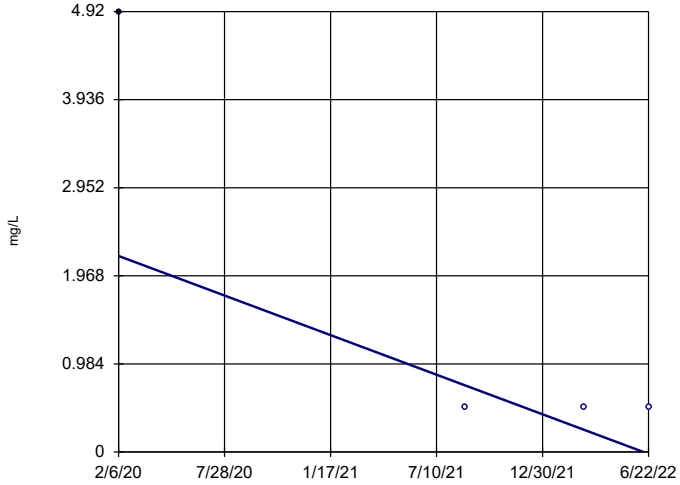
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-63R



n = 4

Slope = -0.9304 units per year.

Mann-Kendall statistic = -3
critical = -8

Trend not significant at 99% confidence level (α = 0.005 per tail).
With n = 4, no data set will result in a significant Mann-Kendall statistic.

Constituent: Sulfide Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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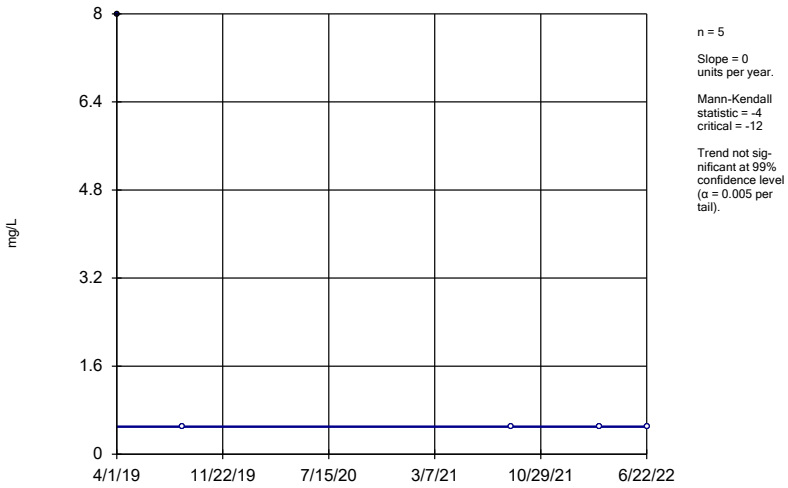
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



Constituent: Sulfide Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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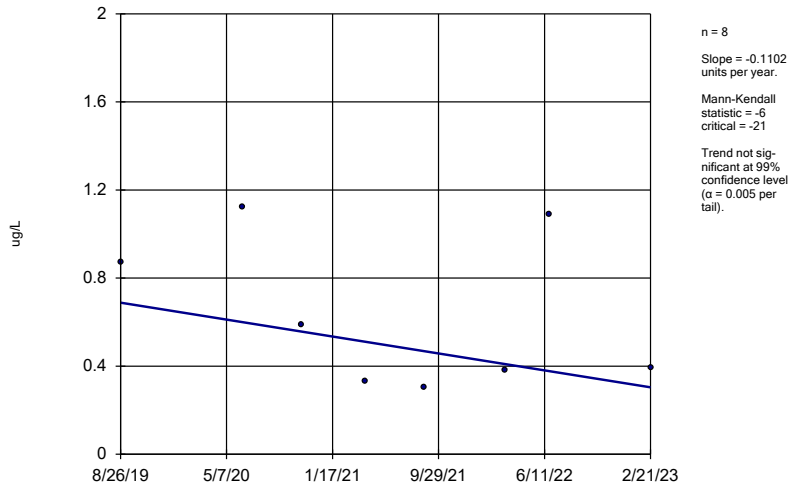
Sen's Slope Estimator

MW-40



Constituent: Vinyl chloride Analysis Run 4/12/2023 12:52 PM View: 2023SSN - Mann Kendall AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

Confidence Interval Summary Table and Graphs – Assessment Monitoring Wells

Confidence Interval

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN Printed 4/11/2023, 5:35 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
2-Butanone (ug/L)	93-MW-32	294	5	4000	No	8	87.5	No	0.004	NP (NDs)
Acetone (ug/L)	93-MW-32	261	1.91	6300	No	8	75	No	0.004	NP (NDs)
Antimony (mg/L)	93-MW-32	0.0011	0.0005	0.006	No	8	87.5	No	0.004	NP (NDs)
Arsenic (mg/L)	93-MW-32	0.008194	0.001694	0.01	No	8	50	No	0.01	Param.
Barium (mg/L)	93-MW-32	0.1693	0.05437	2	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-62	0.04207	0.02981	2	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-81	0.07545	0.05518	2	No	6	0	No	0.01	Param.
Cadmium (mg/L)	93-MW-32	0.001073	0.0001422	0.005	No	8	0	No	0.01	Param.
Cadmium (mg/L)	MW-81	0.0002238	0.00001457	0.005	No	6	0	No	0.01	Param.
cis-1,2-Dichloroethene (ug/L)	MW-81	1.201	0.2402	70	No	6	0	No	0.01	Param.
Cobalt (mg/L)	93-MW-32	0.07913	-0.01468	0.01769	No	8	0	No	0.01	Param.
Cobalt (mg/L)	MW-62	0.0006951	0.0002613	0.01769	No	8	0	No	0.01	Param.
Copper (mg/L)	93-MW-32	0.00847	0.0025	1.3	No	8	87.5	No	0.004	NP (NDs)
Copper (mg/L)	MW-62	0.0025	0.002195	1.3	No	8	87.5	No	0.004	NP (NDs)
Lead (mg/L)	93-MW-32	0.00381	0.00025	0.015	No	8	37.5	No	0.004	NP (normality)
Lead (mg/L)	MW-62	0.0004557	0.0003117	0.015	No	8	50	No	0.01	Param.
Nickel (mg/L)	93-MW-32	0.177	0.0163	0.1	No	8	0	No	0.004	NP (normality)
Nickel (mg/L)	MW-62	0.01146	0.00745	0.1	No	8	0	No	0.01	Param.
Selenium (mg/L)	MW-62	0.0131	0.000753	0.05	No	8	75	No	0.004	NP (NDs)
Tetrachloroethene (ug/L)	MW-81	1.226	0.9217	5	No	6	16.67	No	0.01	Param.
Toluene (ug/L)	93-MW-32	6.22	0.5	1000	No	8	87.5	No	0.004	NP (NDs)
Zinc (mg/L)	93-MW-32	0.04029	0.01063	2	No	8	0	No	0.01	Param.

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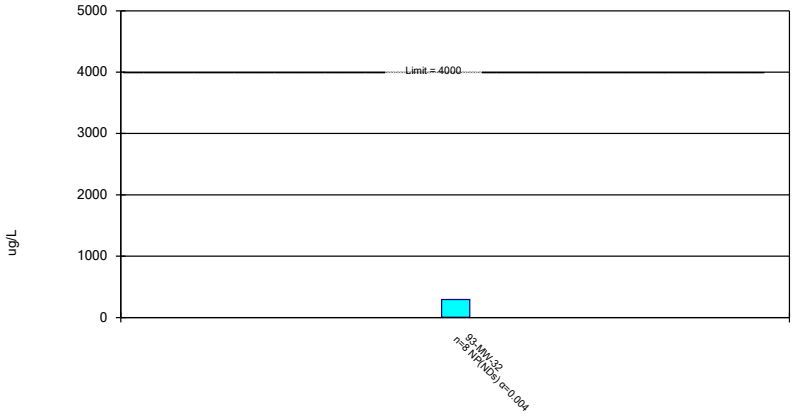
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: 2-Butanone Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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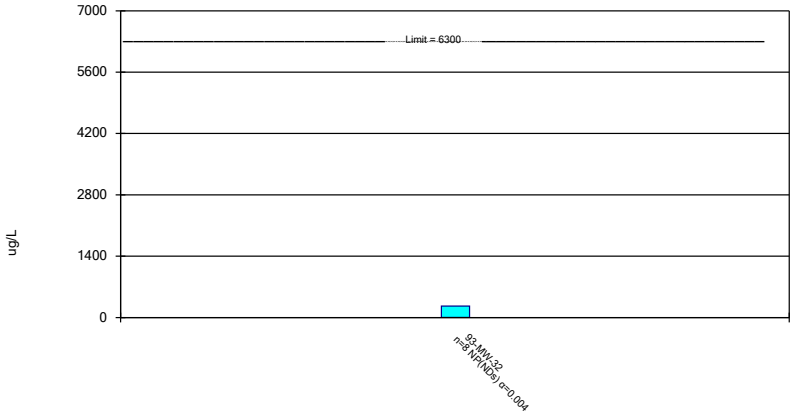
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Acetone Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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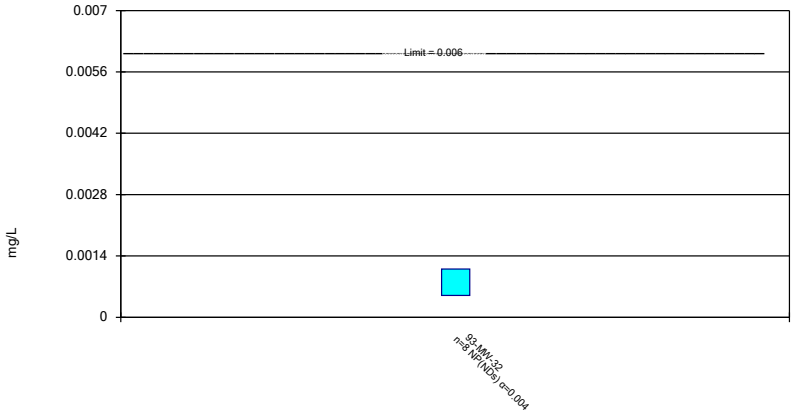
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Antimony Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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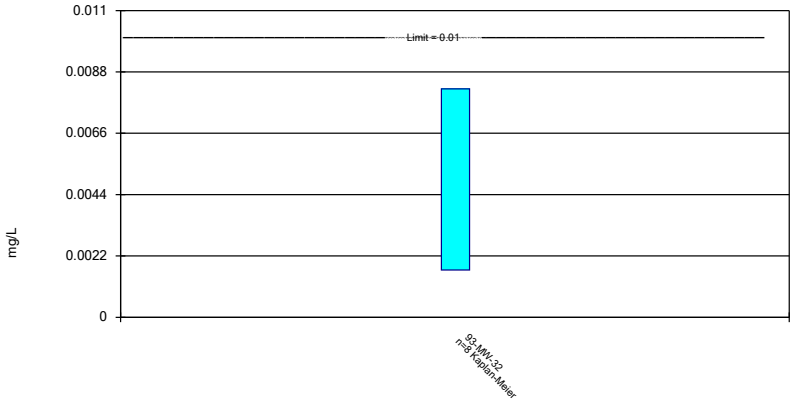
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Arsenic Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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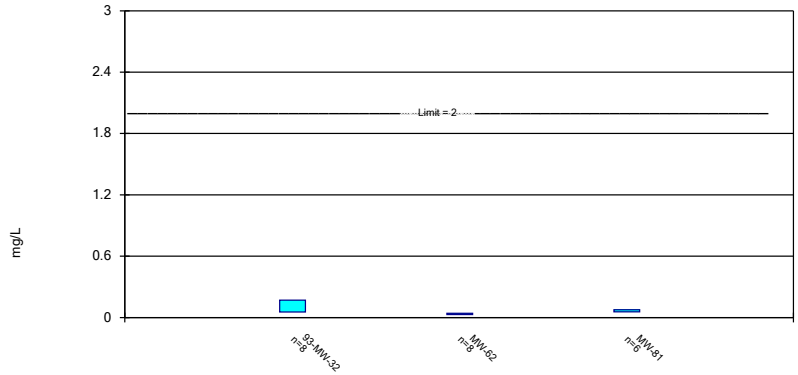
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Barium Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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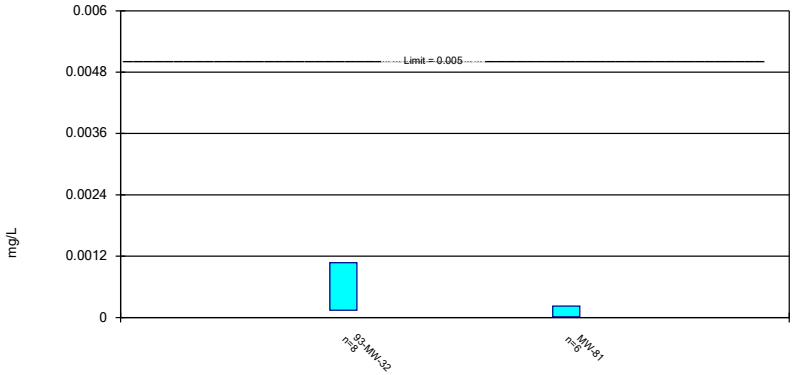
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cadmium Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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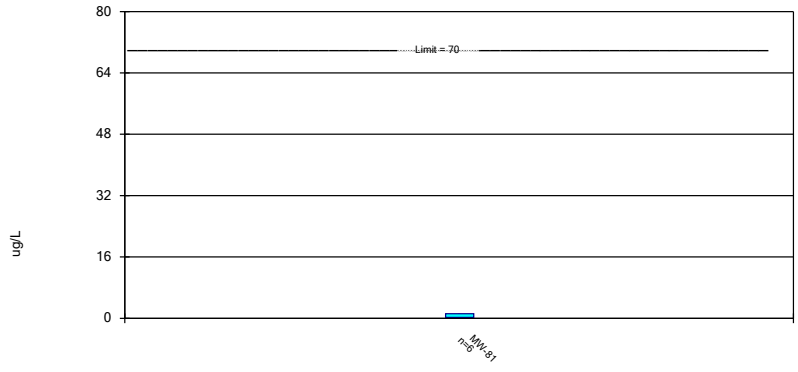
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: cis-1,2-Dichloroethene Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interva
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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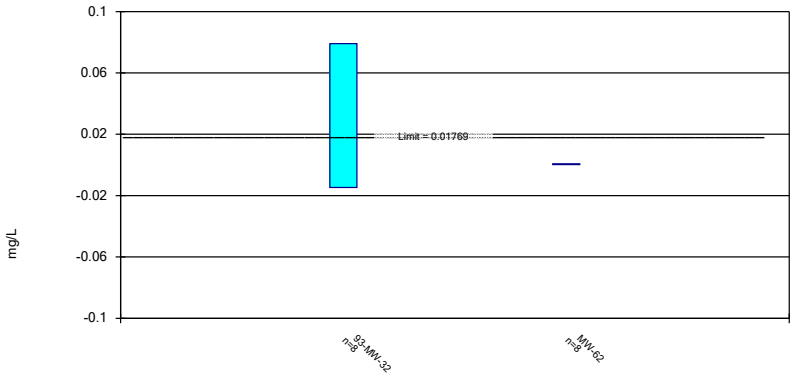
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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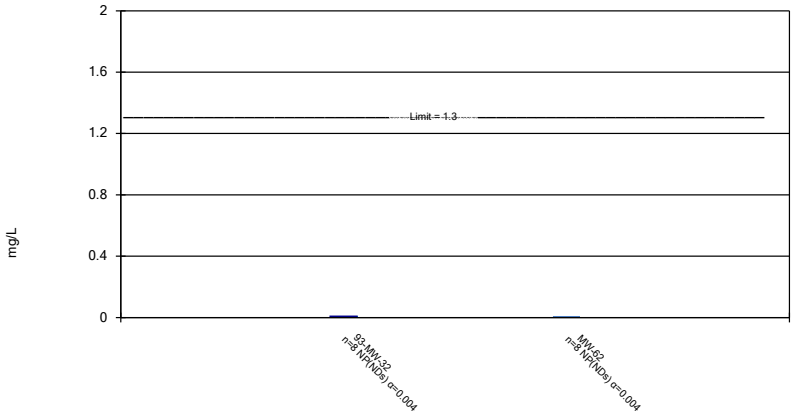
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Copper Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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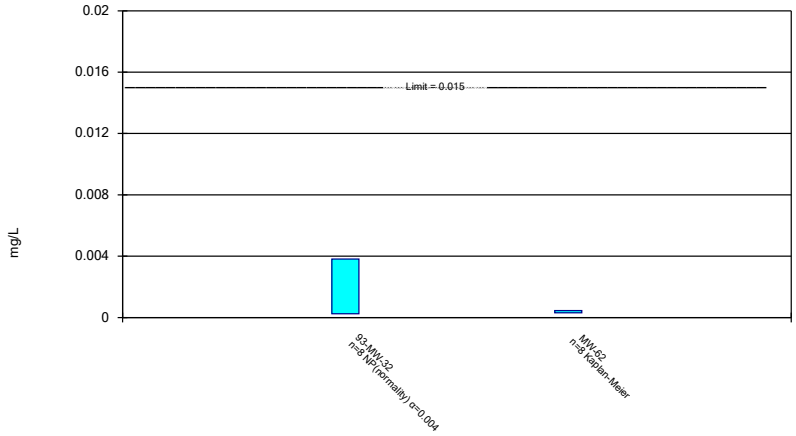
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Lead Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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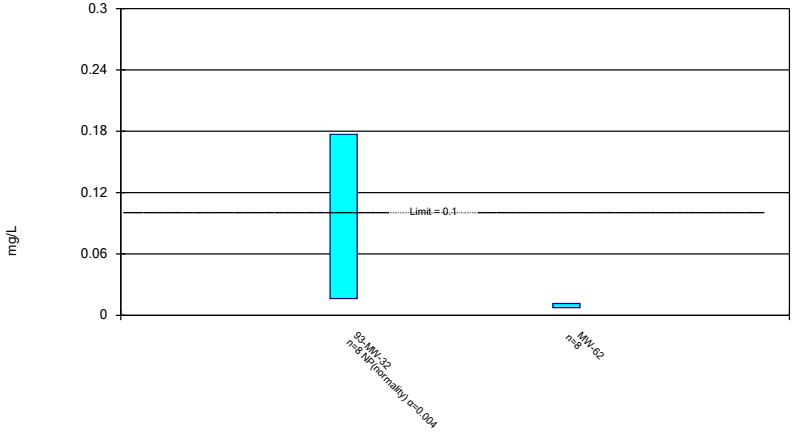
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Nickel Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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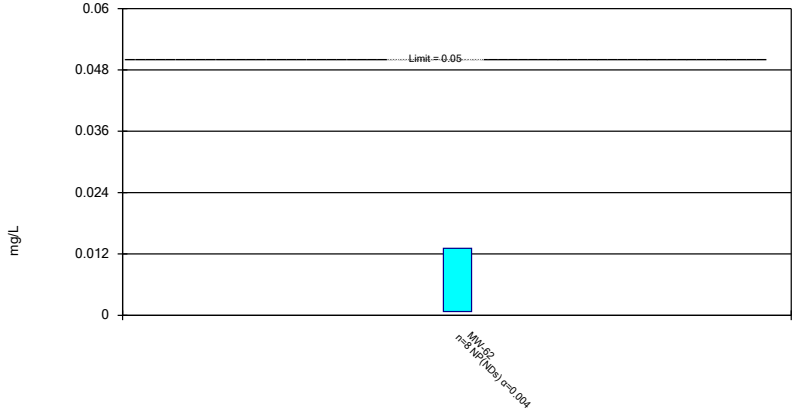
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Selenium Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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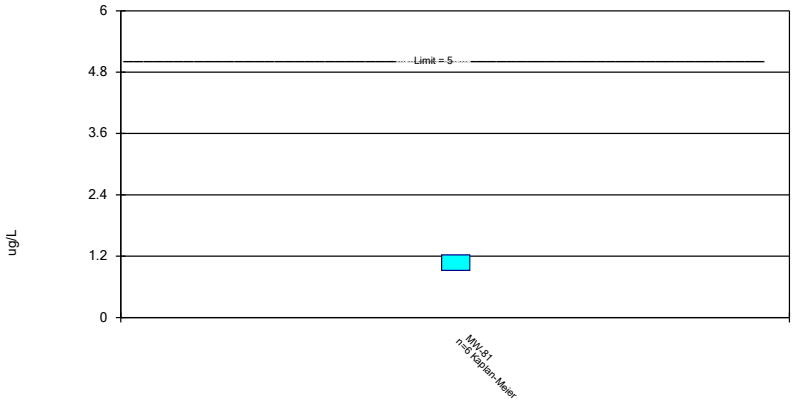
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Tetrachloroethene Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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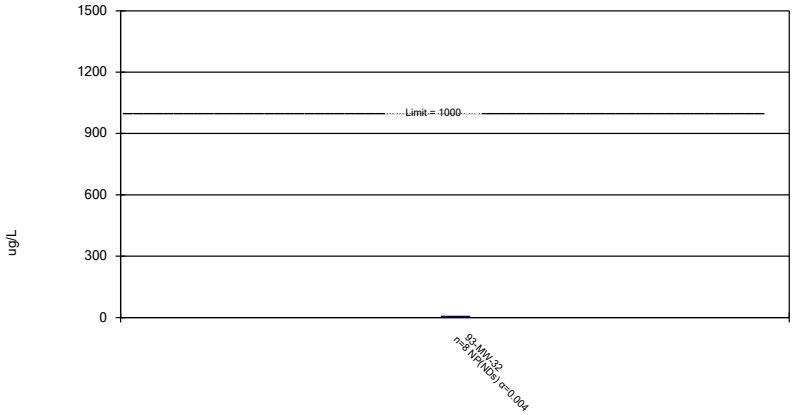
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Toluene Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

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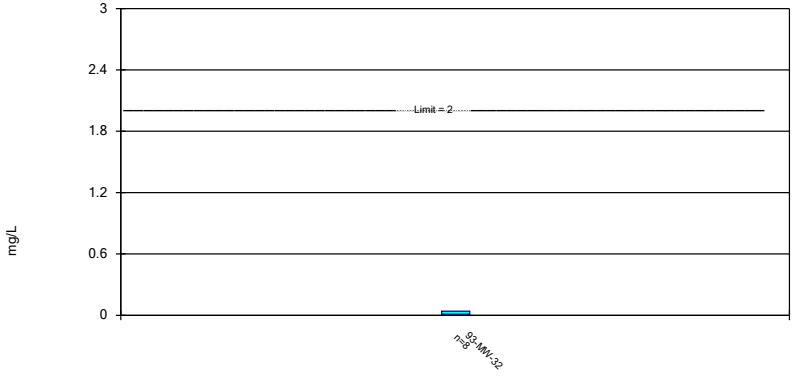
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Zinc Analysis Run 4/11/2023 5:34 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AM Wells 2023SSN

Confidence Interval Summary Table and Graphs – AMD Wells Organics and Sulfide

Confidence Interval

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN Printed 4/12/2023, 1:03 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
1,1-Dichloroethane (ug/L)	MW-40	0.9513	0.5982	140	No	8	0	No	0.01	Param.
1,1-Dichloroethane (ug/L)	MW-59	1.75	0.5	140	No	8	75	No	0.004	NP (NDs)
1,1-Dichloroethane (ug/L)	MW-64	2.07	0.344	140	No	8	37.5	No	0.004	NP (normality)
1,1-Dichloroethane (ug/L)	MW-65	1.38	0.6002	140	No	8	0	No	0.01	Param.
2-Methylnaphthalene (ug/L)	MW-39R	11.2	5	28	No	4	75	No	0.0625	NP (NDs)
2-Methylnaphthalene (ug/L)	MW-58	21.3	5	28	No	4	75	No	0.0625	NP (NDs)
2-Methylnaphthalene (ug/L)	MW-65	492	5	28	No	4	75	No	0.0625	NP (NDs)
Acetone (ug/L)	MW-59	11.77	2.798	6300	No	8	25	No	0.01	Param.
Benzene (ug/L)	MW-40	1.353	0.7573	5	No	8	0	No	0.01	Param.
Benzene (ug/L)	MW-59	1.856	0.3235	5	No	8	12.5	No	0.01	Param.
Benzene (ug/L)	MW-65	1.479	0.5789	5	No	8	12.5	No	0.01	Param.
Chloroethane (ug/L)	MW-65	5.254	1.891	2800	No	8	0	No	0.01	Param.
cis-1,2-Dichloroethene (ug/L)	MW-40	5.964	3.248	70	No	8	0	No	0.01	Param.
Naphthalene (ug/L)	MW-40	7.18	2.5	100	No	6	83.33	No	0.0155	NP (NDs)
Sulfide (mg/L)	MW-59	1.14	0.5	1	No	6	83.33	No	0.0155	NP (NDs)
Sulfide (mg/L)	MW-63R	4.92	0.5	1	No	4	75	No	0.0625	NP (NDs)
Sulfide (mg/L)	MW-65	7.98	0.5	1	No	5	80	No	0.031	NP (NDs)
Vinyl chloride (ug/L)	MW-40	0.9985	0.2714	2	No	8	0	No	0.01	Param.

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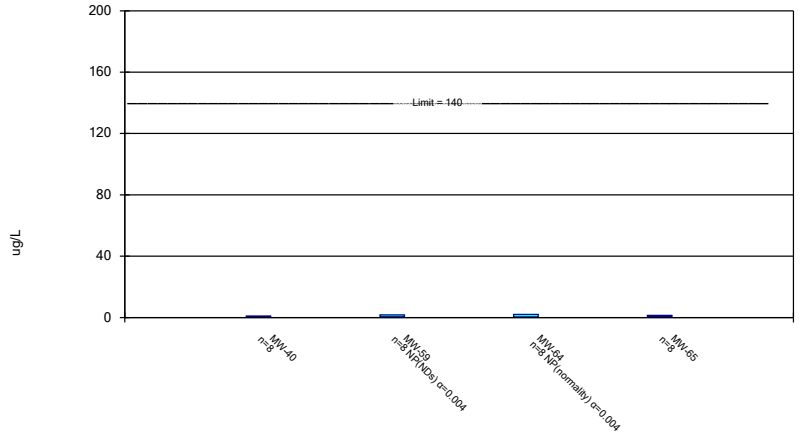
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: 1,1-Dichloroethane Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval A
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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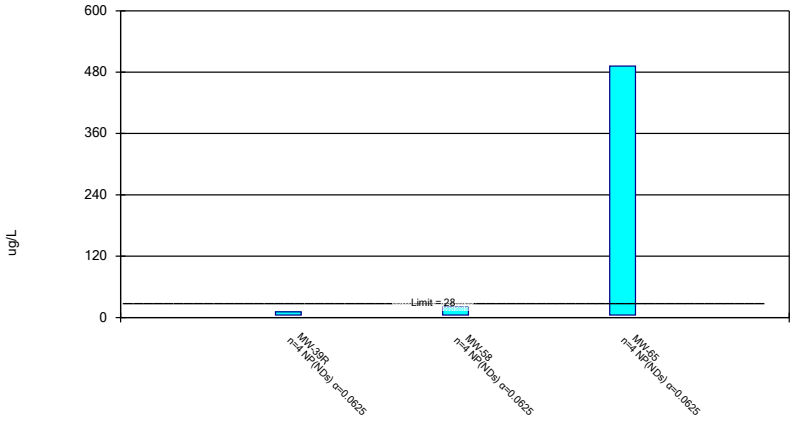
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: 2-Methylnaphthalene Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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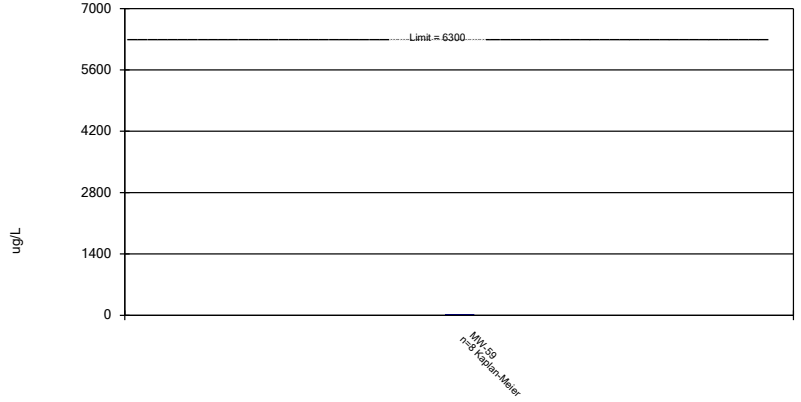
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Acetone Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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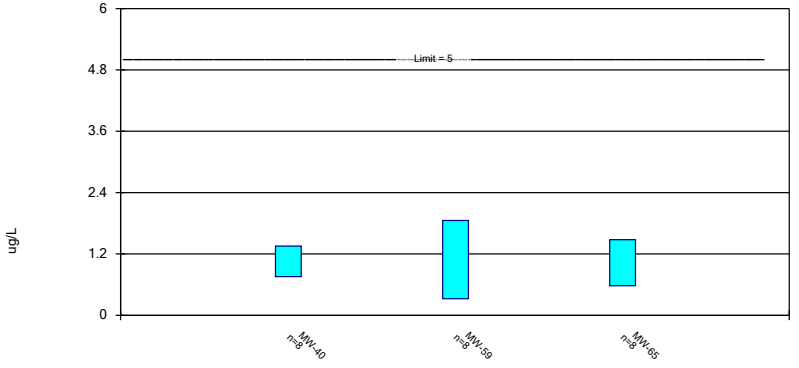
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Benzene Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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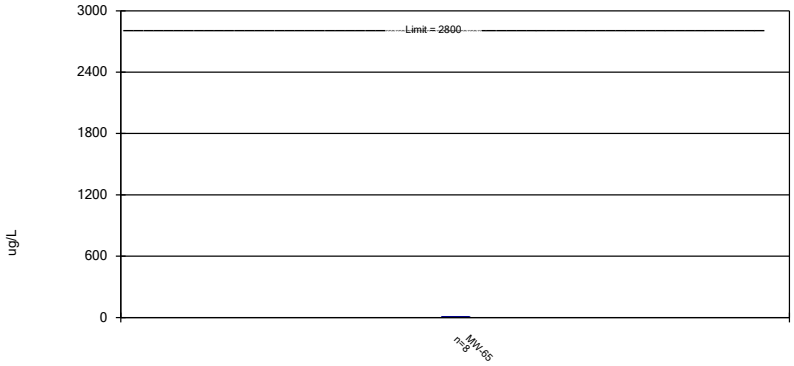
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Chloroethane Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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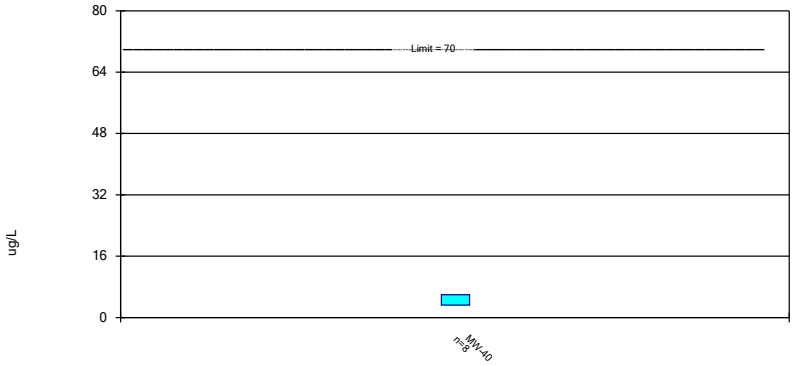
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: cis-1,2-Dichloroethene Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interva
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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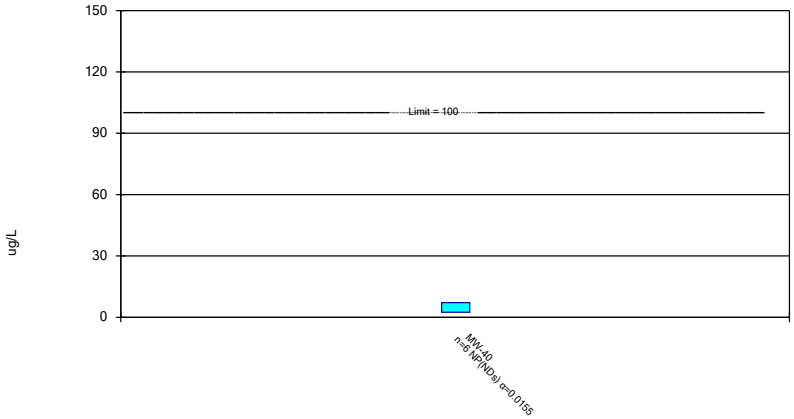
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Naphthalene Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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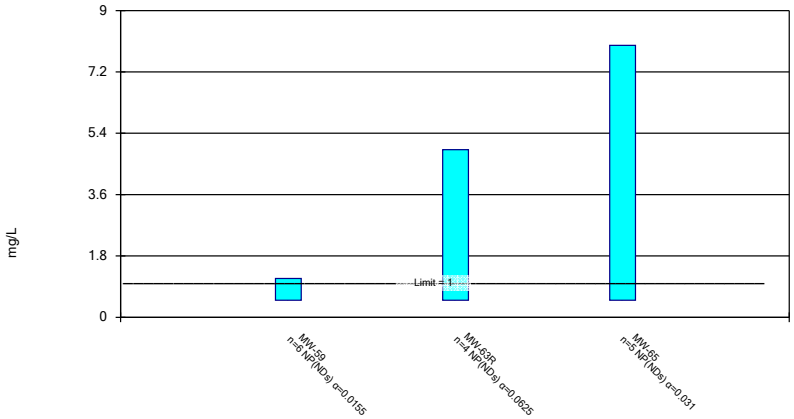
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Sulfide Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval AMD
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

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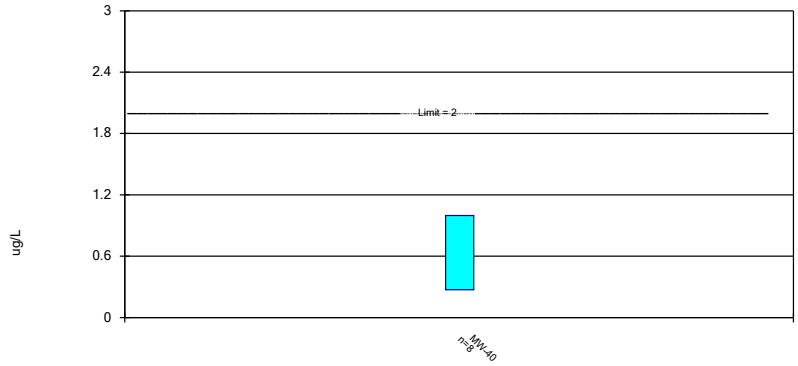
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Vinyl chloride Analysis Run 4/12/2023 1:02 PM View: 2023SSN - Confidence Interval AMD

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC-AMD Wells 2023SSN

Attachment B

2nd 2023 Statistical Evaluation Output

Time Series Plots

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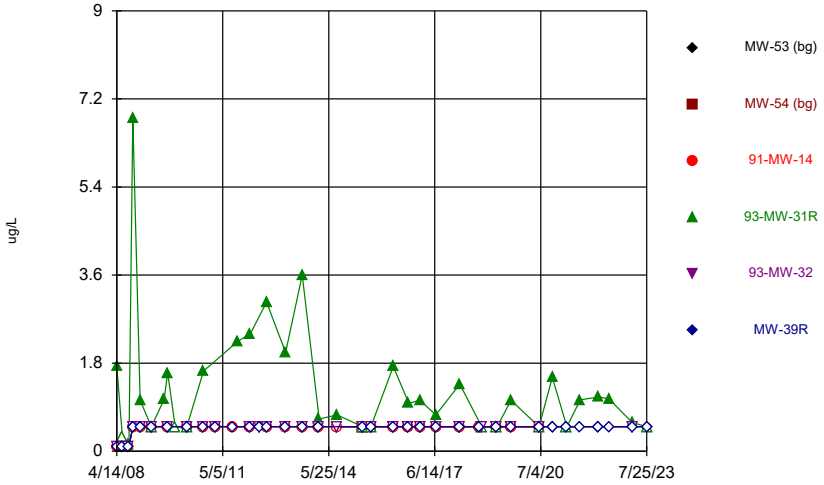
Hollow symbols indicate censored values.

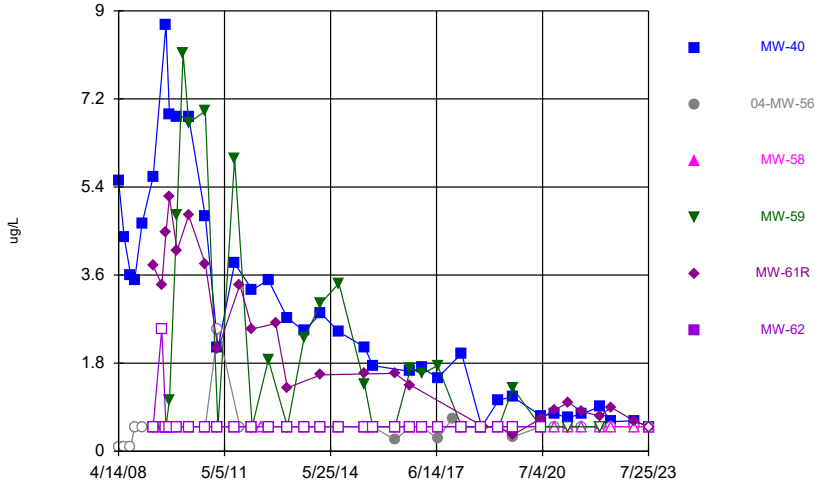
Time Series



Constituent: 1,1-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

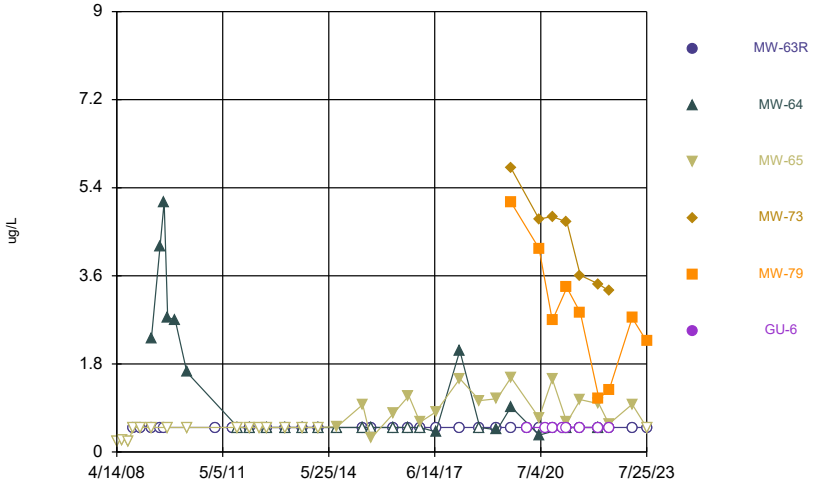
Time Series



Constituent: 1,1-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

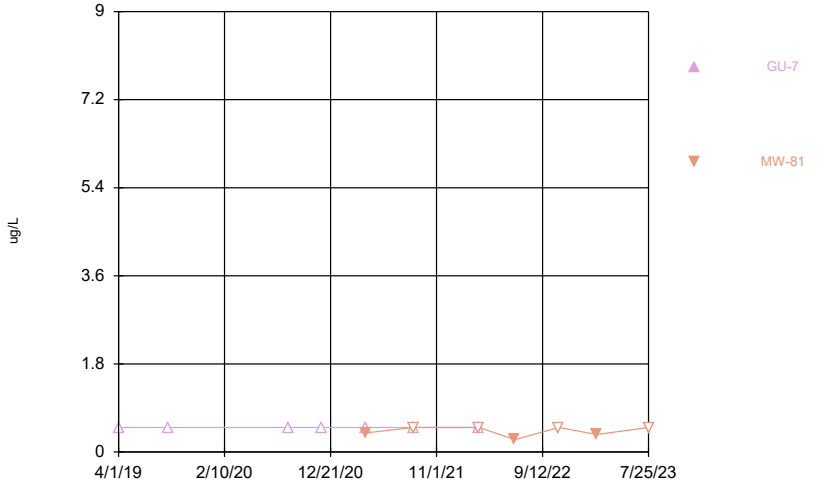
Time Series



Constituent: 1,1-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

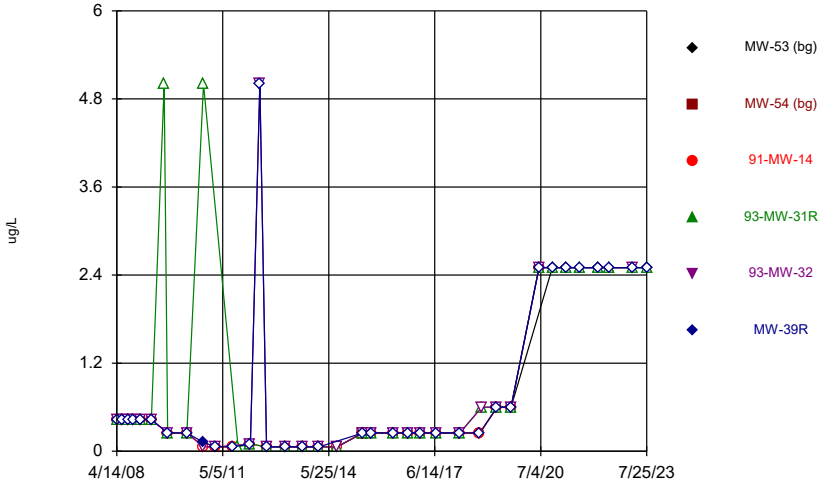
Time Series



Constituent: 1,1-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

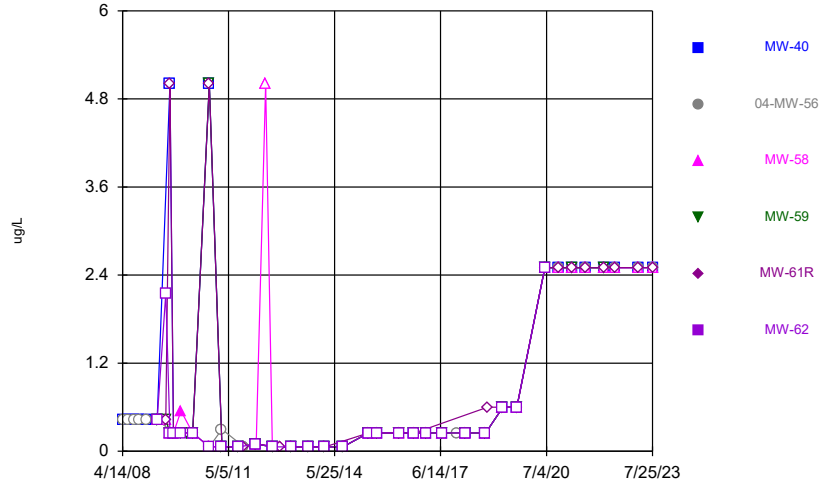
Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Ser
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

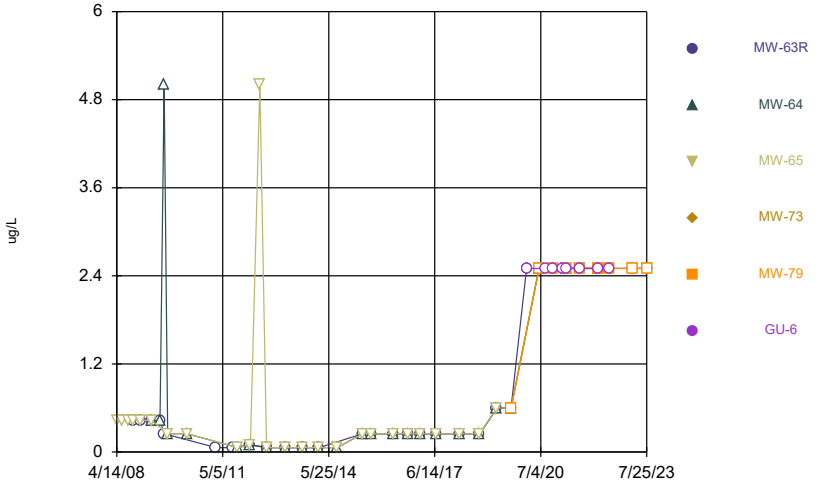
Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Ser
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Ser
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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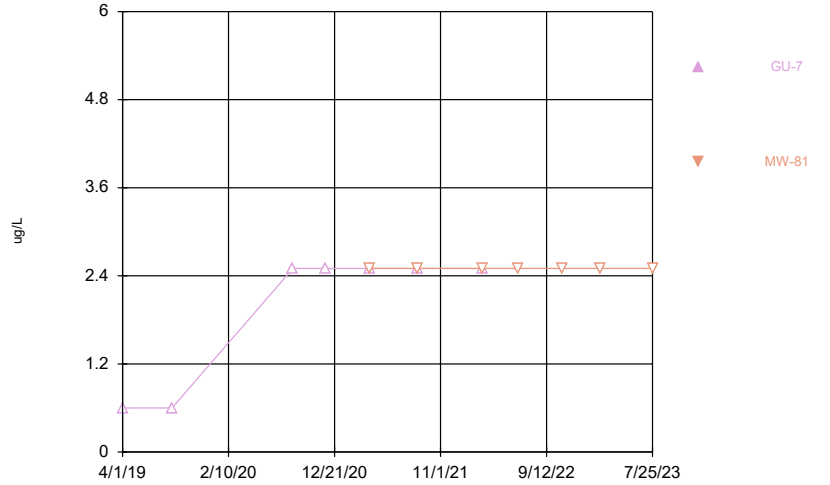
Hollow symbols indicate censored values.

Time Series



Constituent: 1,2-Dibromo-3-chloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Ser
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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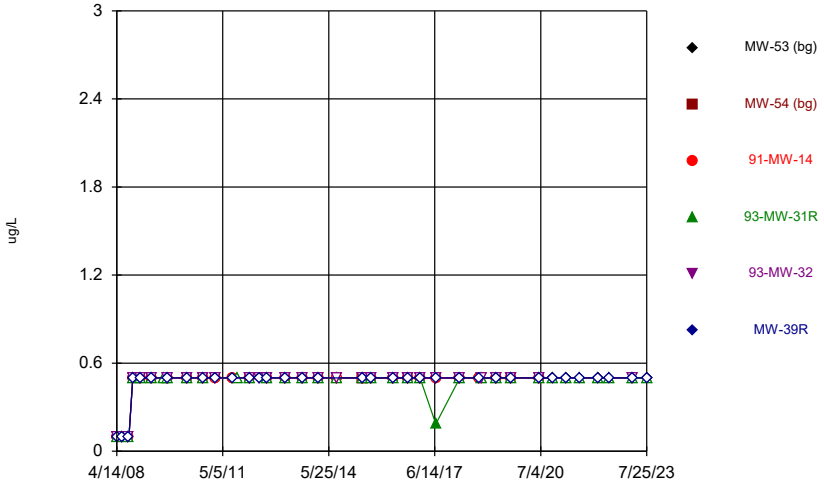
Hollow symbols indicate censored values.

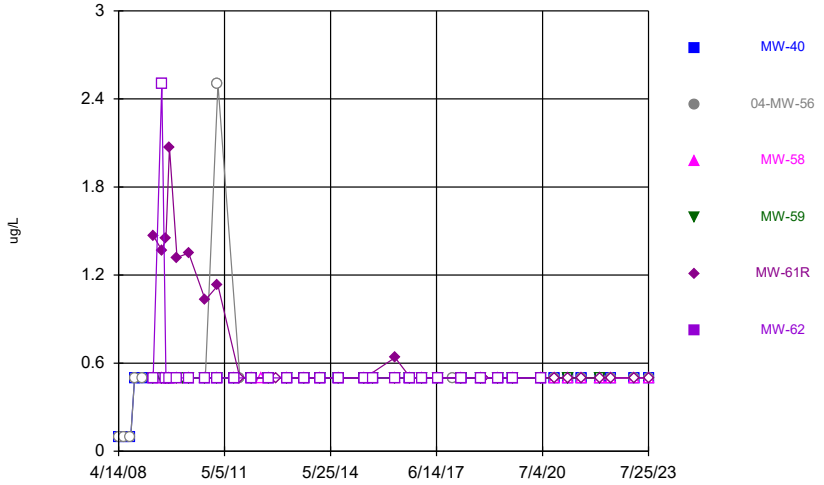
Time Series



Constituent: 1,2-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

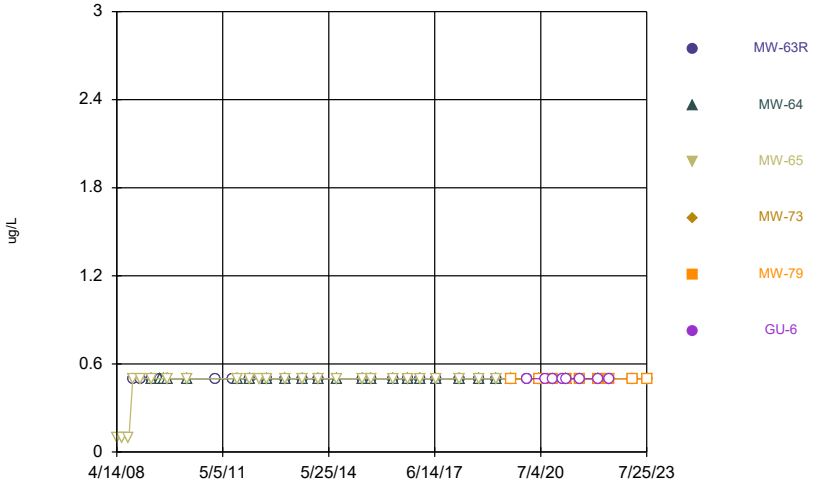
Time Series



Constituent: 1,2-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

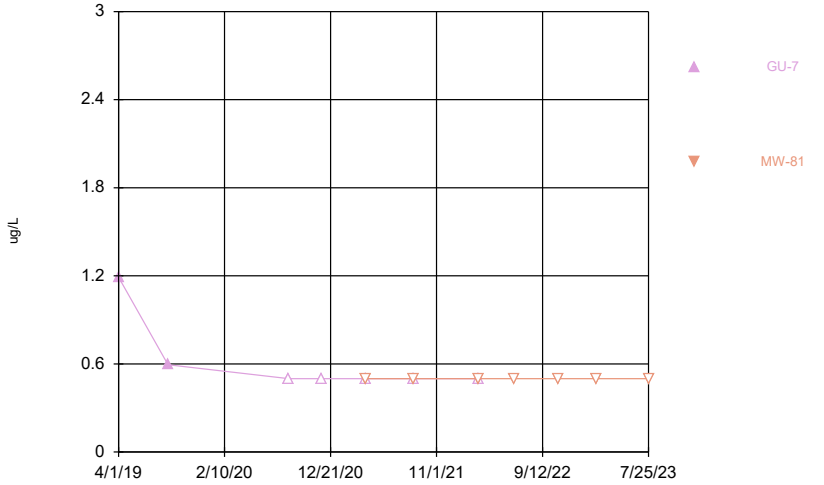
Time Series



Constituent: 1,2-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 1,2-Dichloroethane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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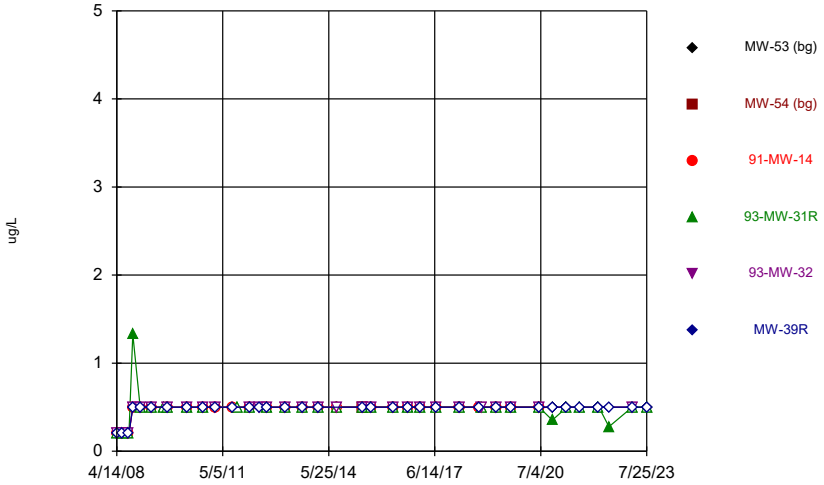
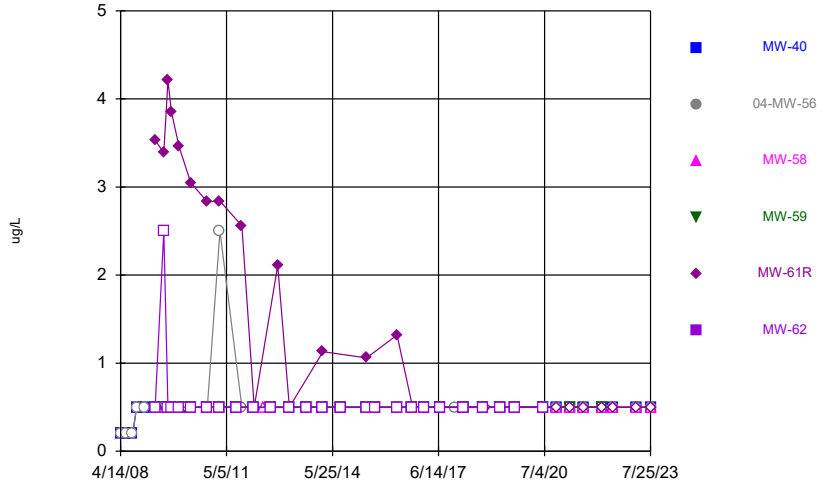
Time Series



Constituent: 1,2-Dichloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 1,2-Dichloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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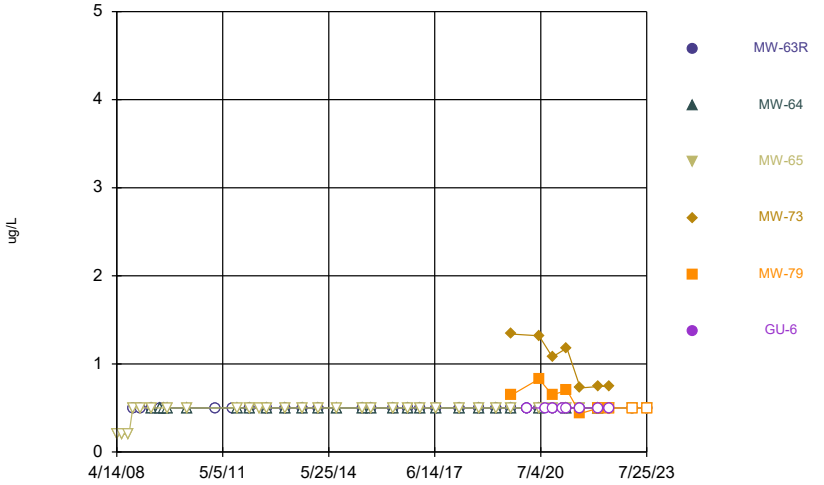

Constituent: 1,2-Dichloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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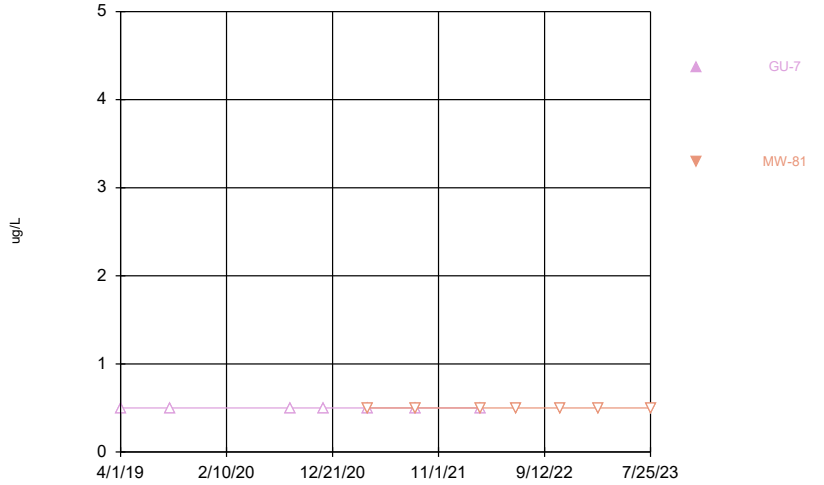

Constituent: 1,2-Dichloropropane Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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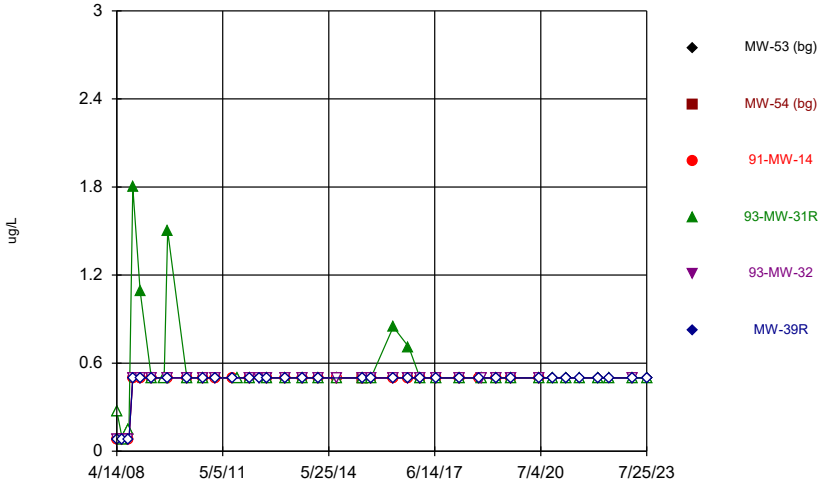
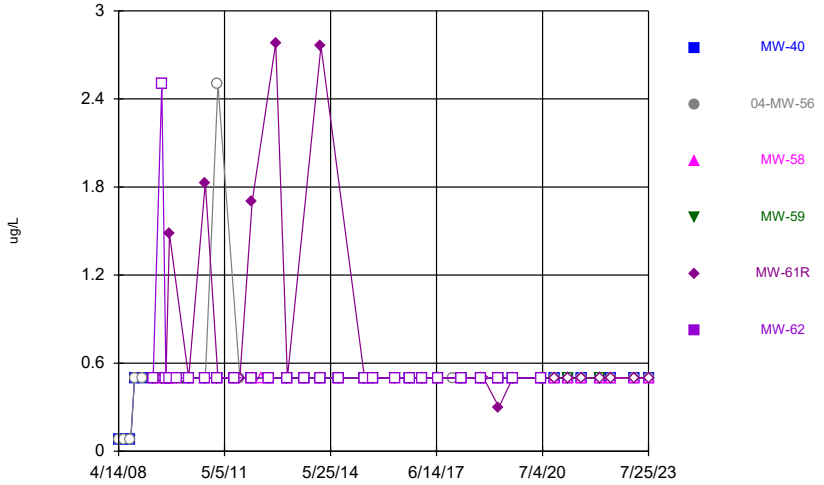


Constituent: 1,4-Dichlorobenzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 1,4-Dichlorobenzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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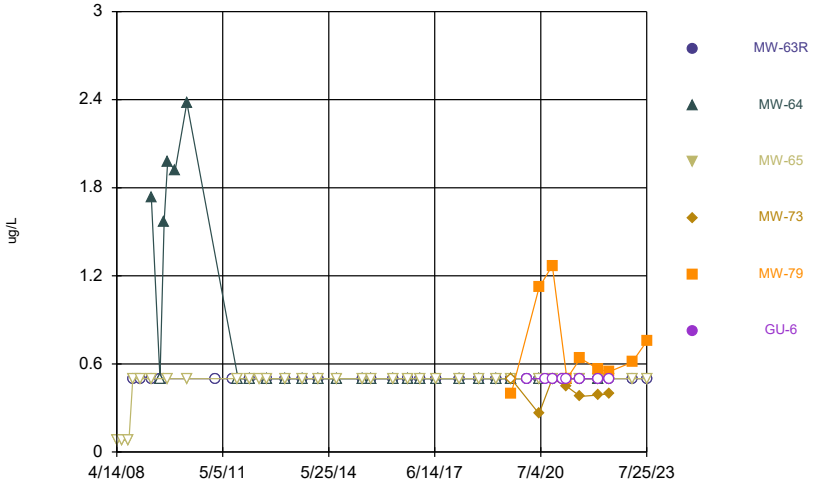

Constituent: 1,4-Dichlorobenzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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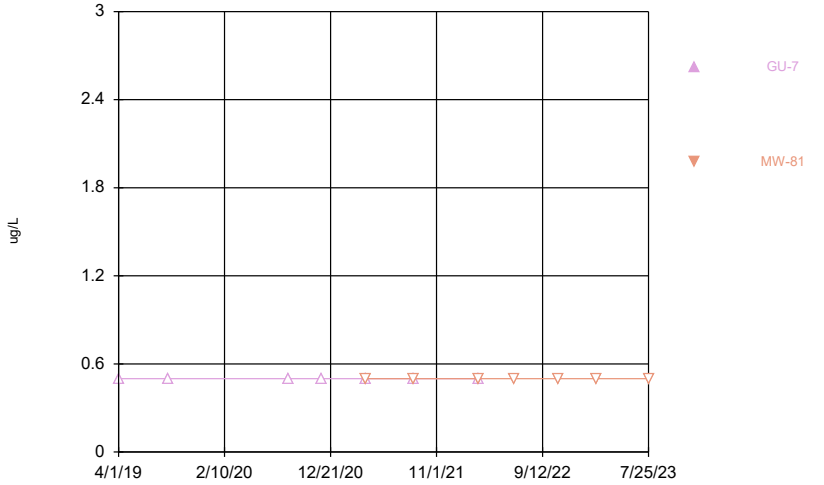

Constituent: 1,4-Dichlorobenzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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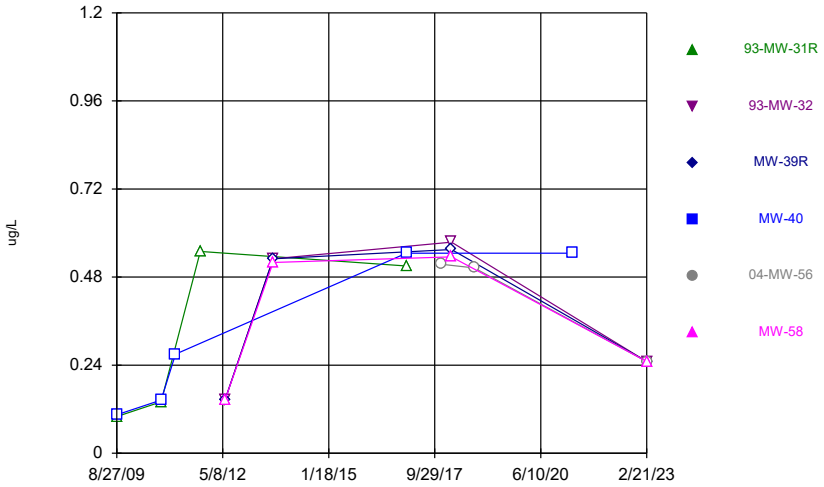
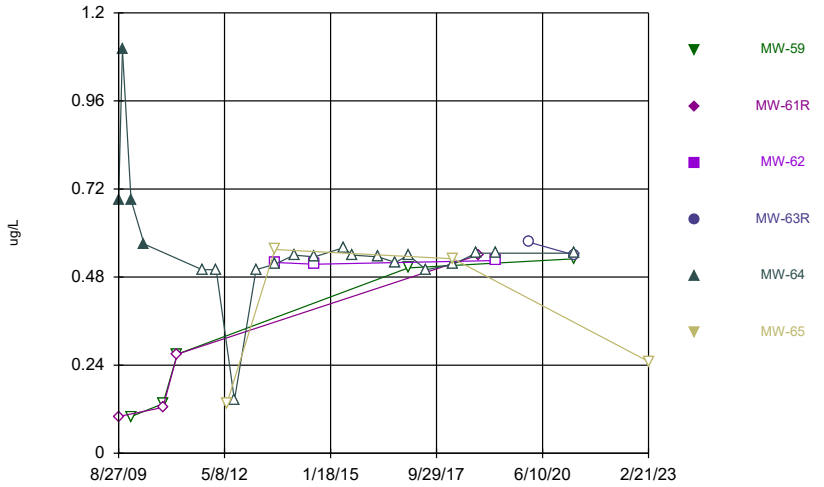


Constituent: 2,4,5-TP [Silvex] [2C] Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 2,4,5-TP [Silvex] [2C] Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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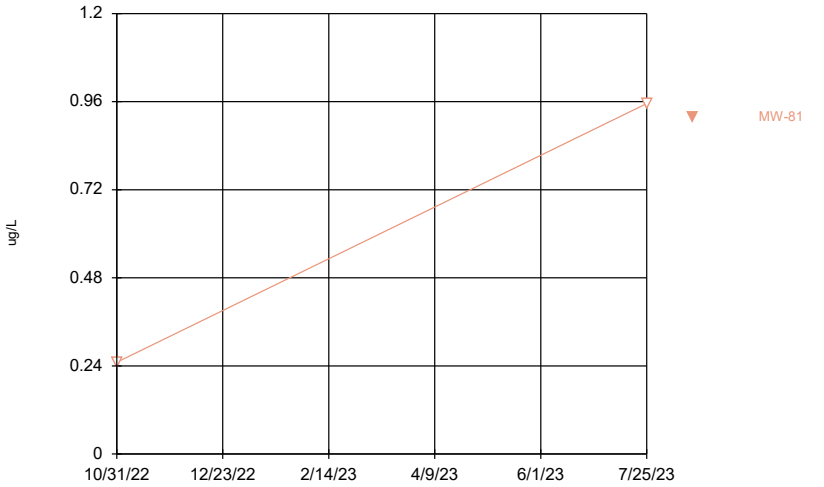
Time Series



Constituent: 2,4,5-TP [Silvex] [2C] Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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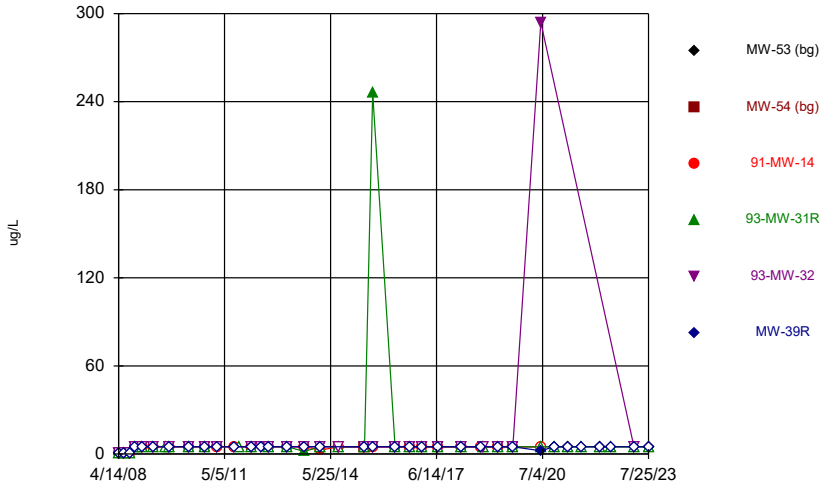
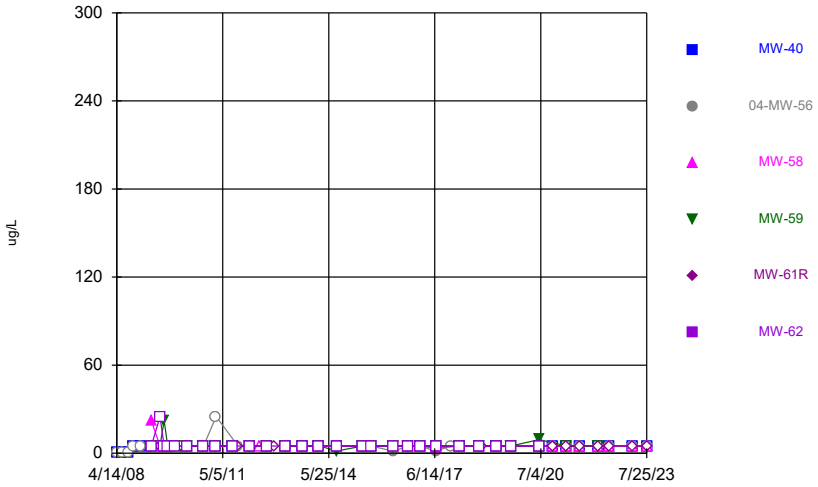


Constituent: 2-Butanone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: 2-Butanone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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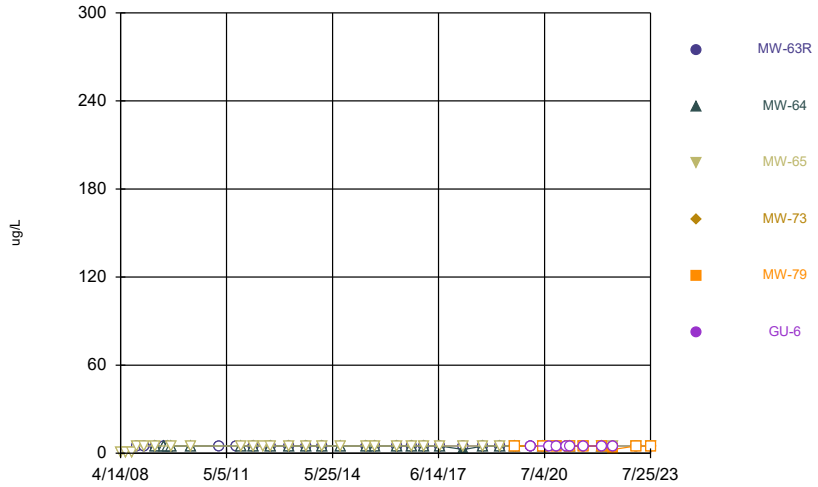
Time Series



Constituent: 2-Butanone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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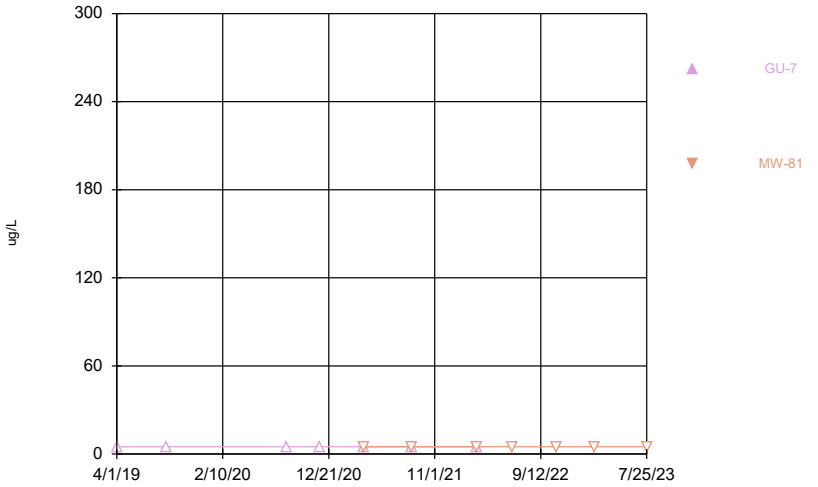

Constituent: 2-Butanone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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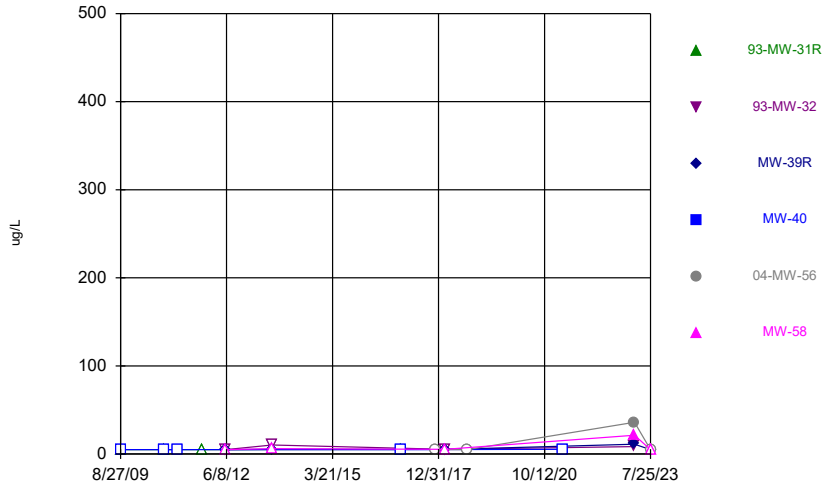
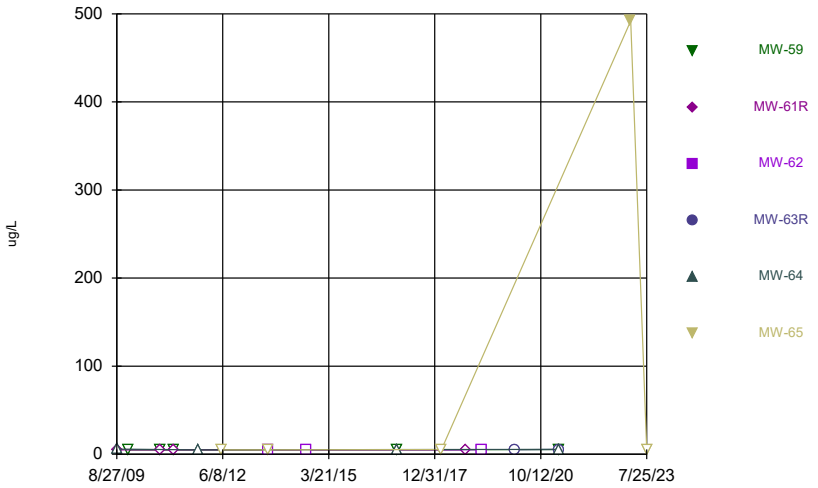


Constituent: 2-Methylnaphthalene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

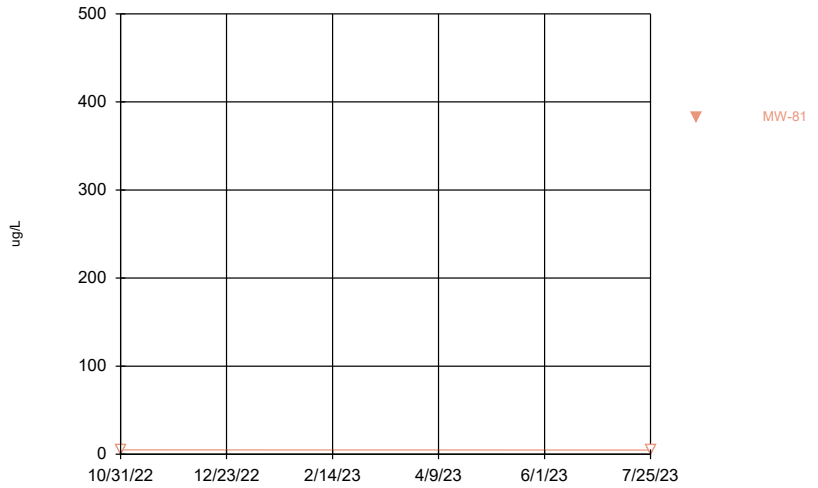
Time Series



Constituent: 2-Methylnaphthalene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

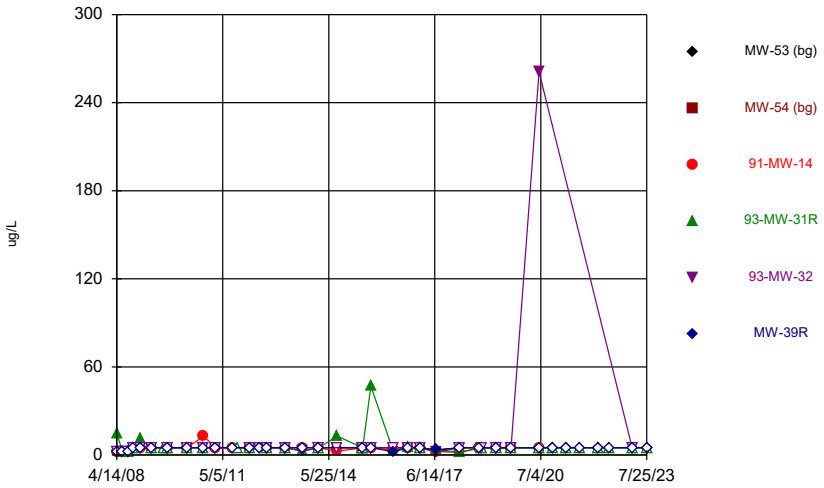
Time Series



Constituent: 2-Methylnaphthalene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

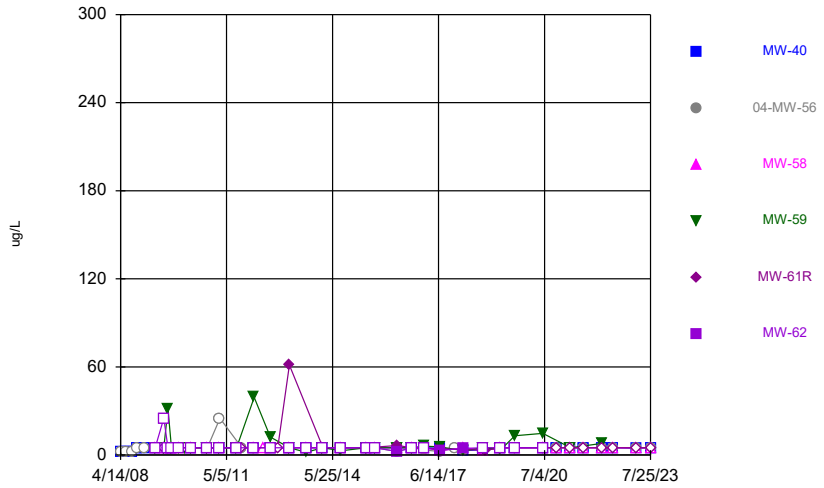
Time Series



Constituent: Acetone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

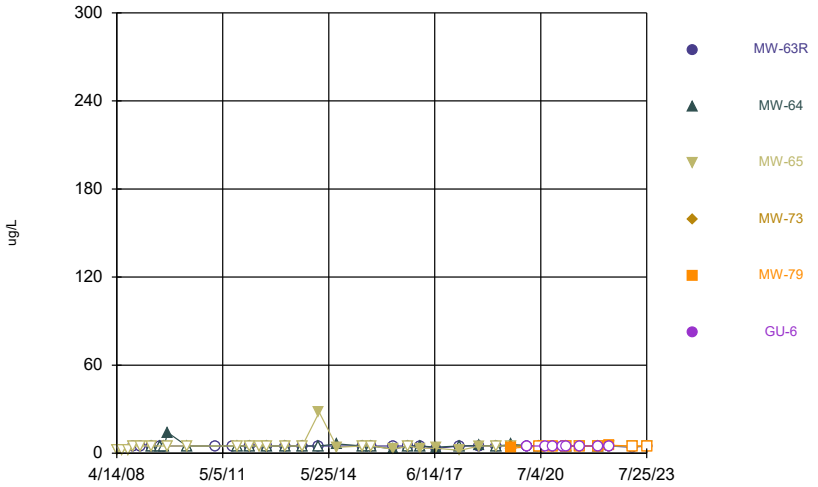
Time Series



Constituent: Acetone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Acetone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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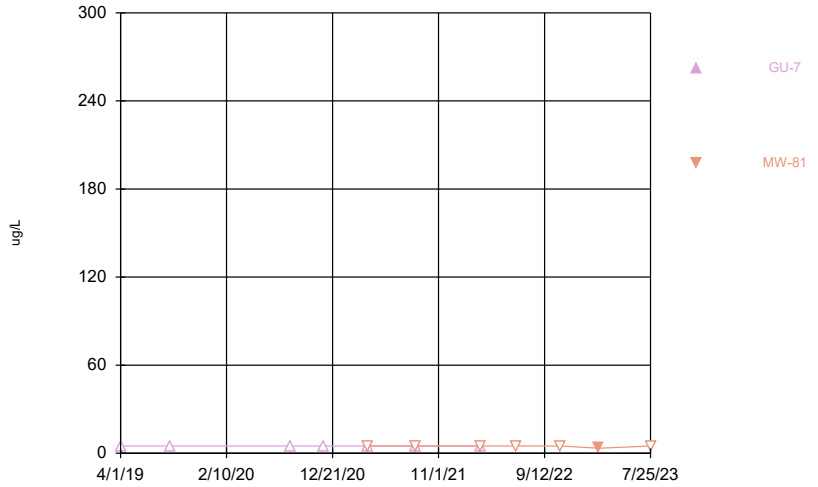
Time Series



Constituent: Acetone Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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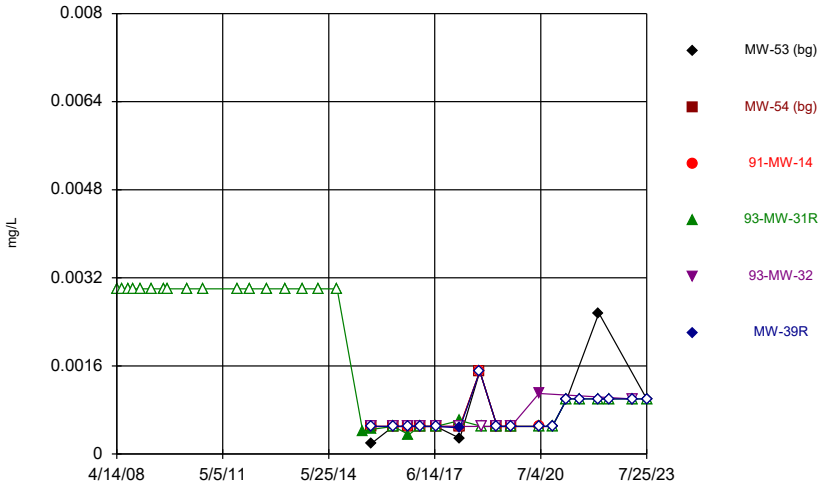
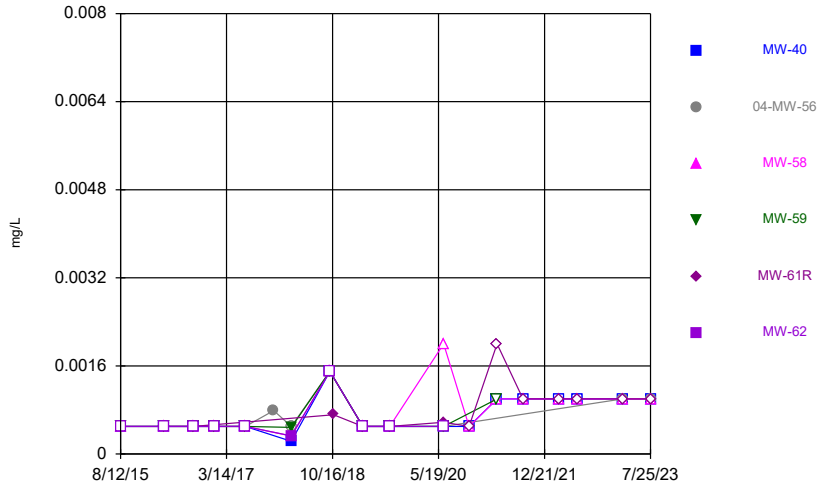


Constituent: Antimony Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Antimony Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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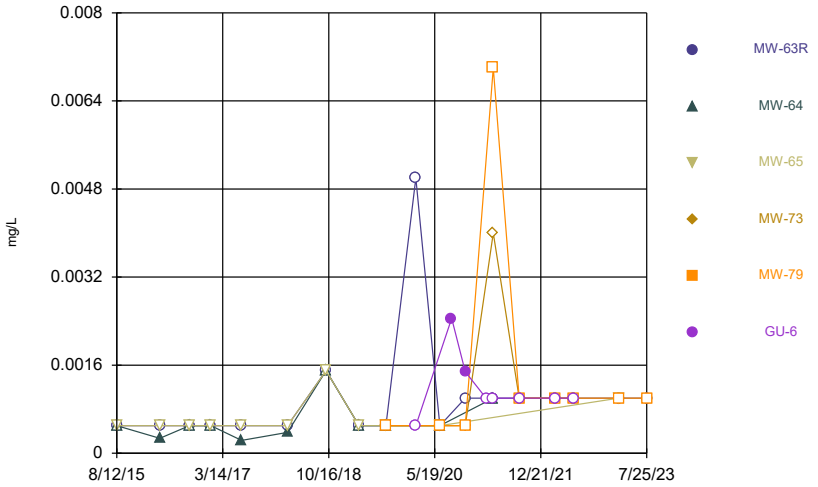

Constituent: Antimony Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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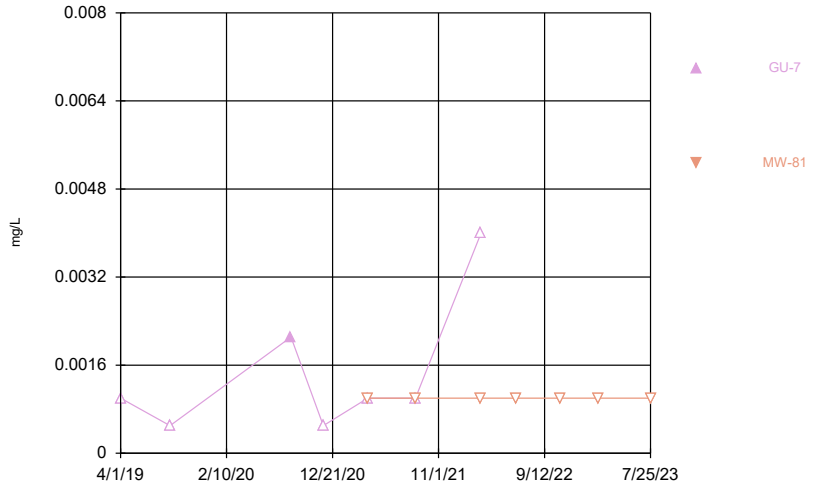

Constituent: Antimony Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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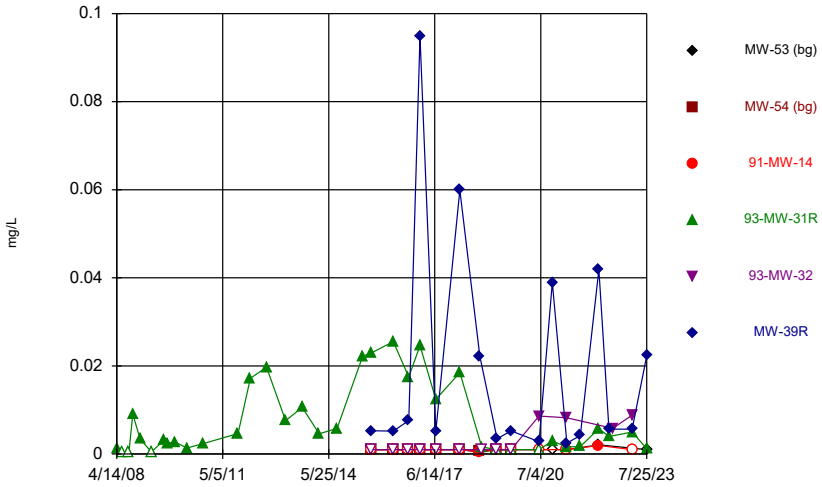
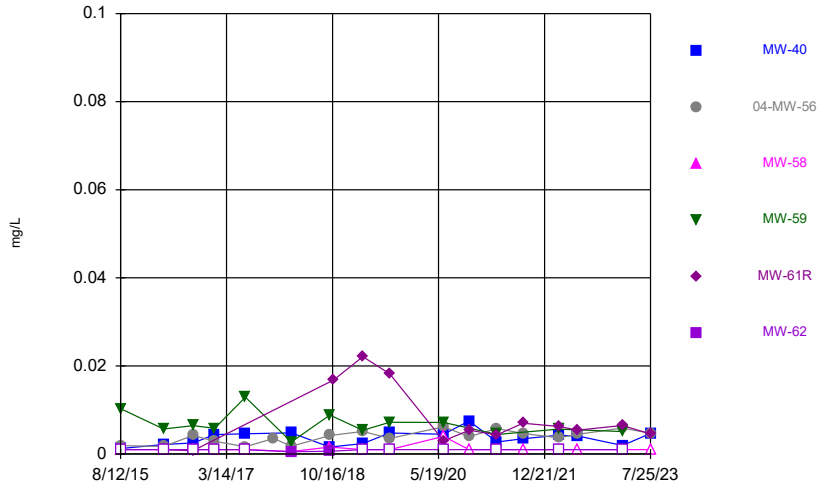


Constituent: Arsenic Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Arsenic Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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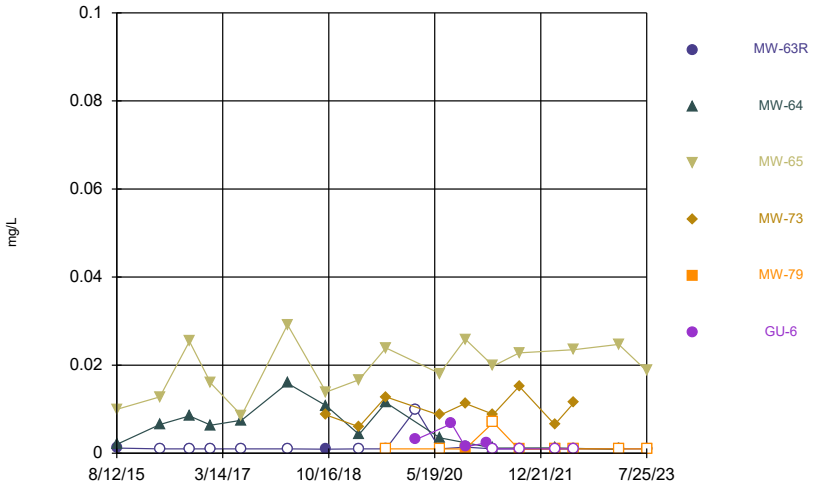

Constituent: Arsenic Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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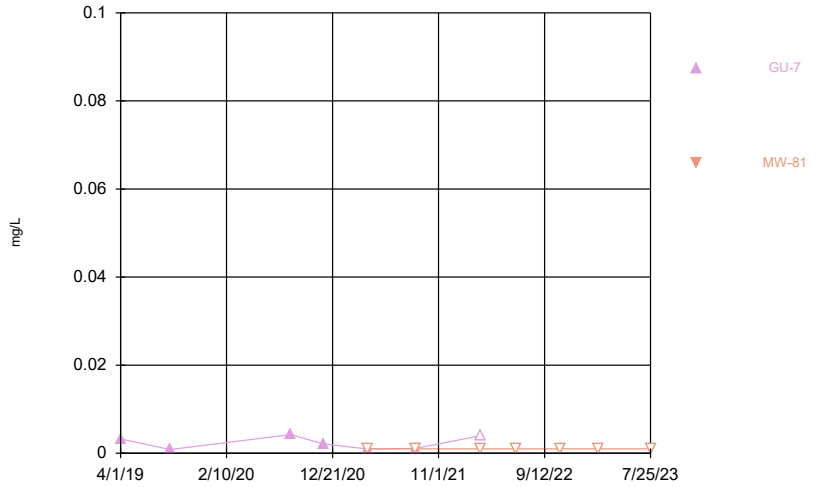
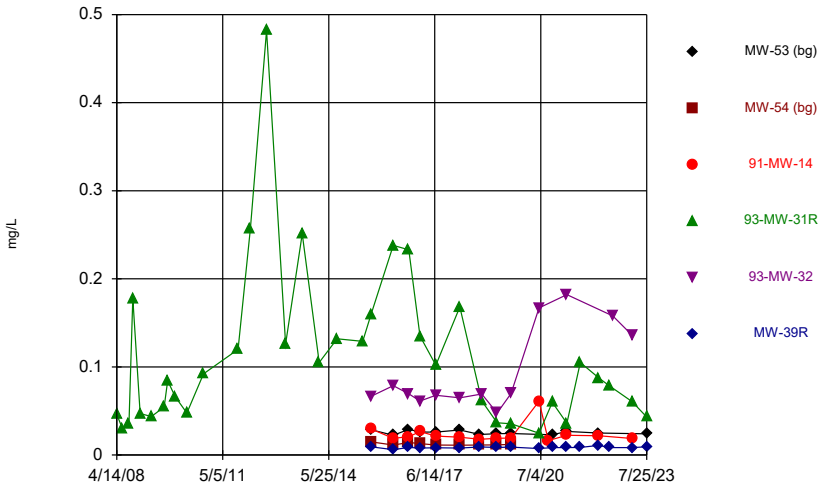


Constituent: Arsenic Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

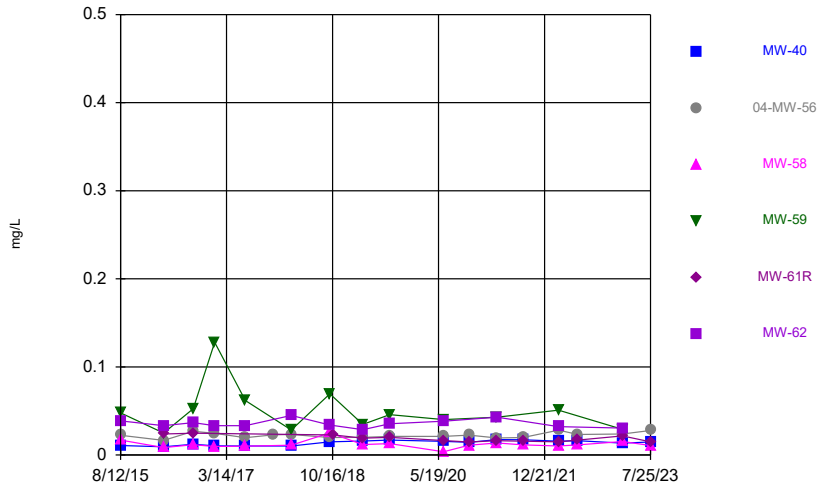
Time Series



Constituent: Barium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

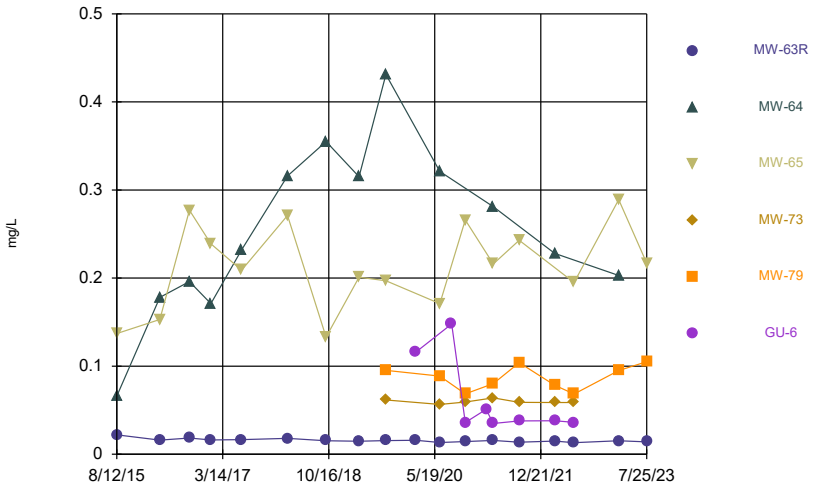
Time Series



Constituent: Barium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Barium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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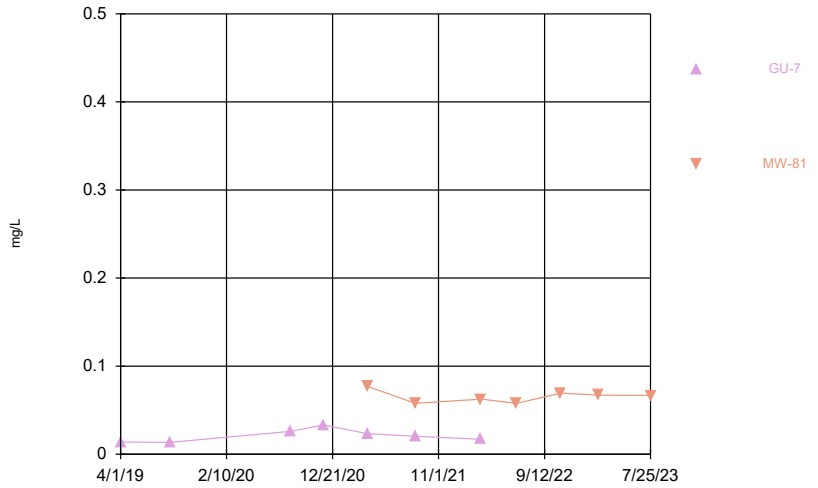
Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Barium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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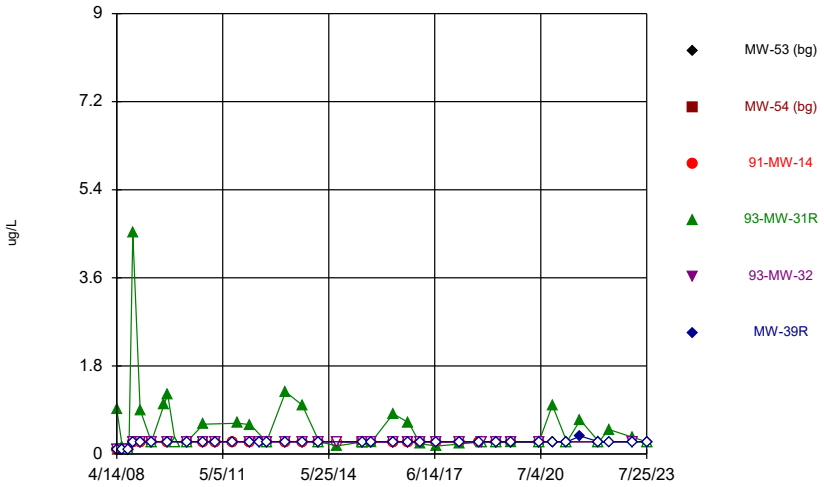
Hollow symbols indicate censored values.

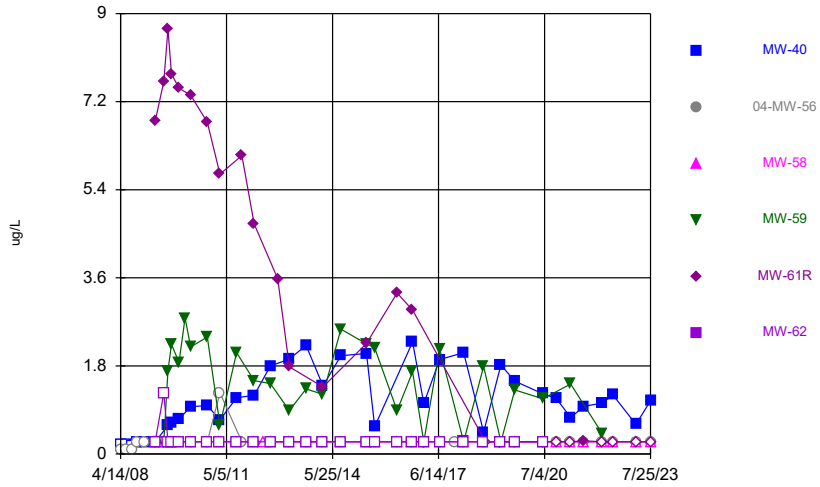
Time Series



Constituent: Benzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Benzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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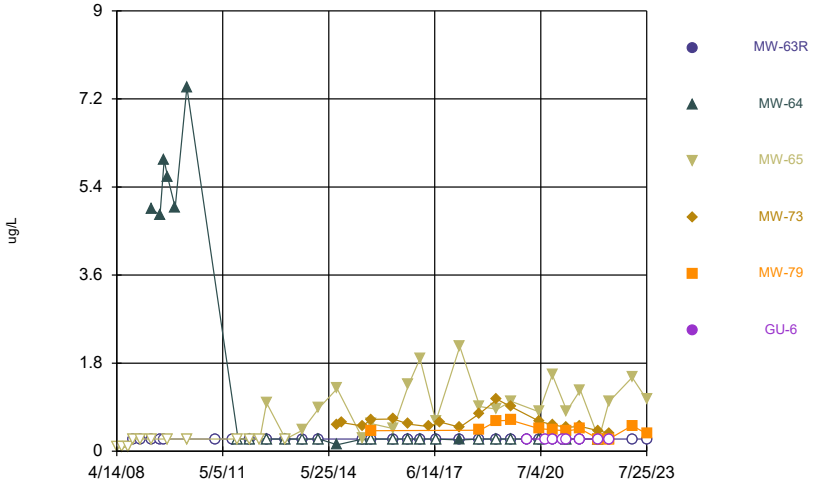
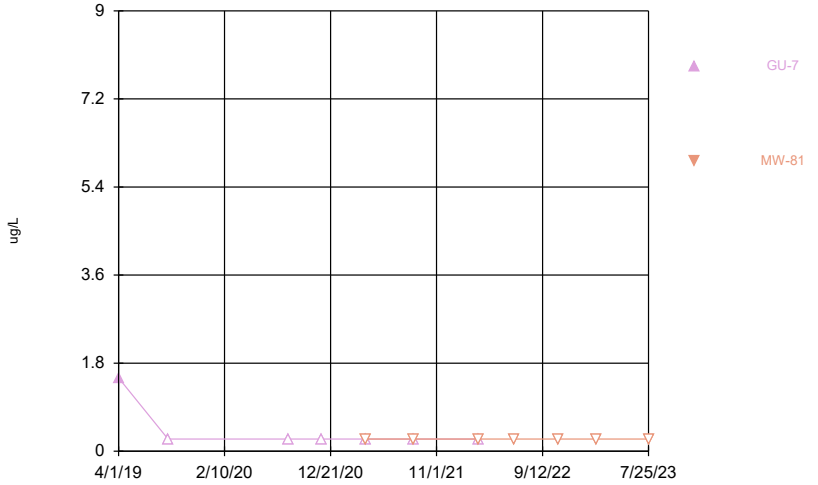
Time Series



Constituent: Benzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Benzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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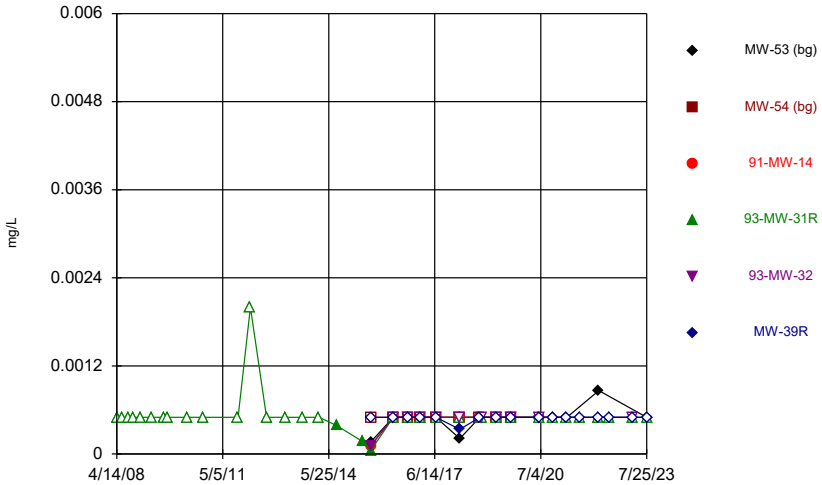
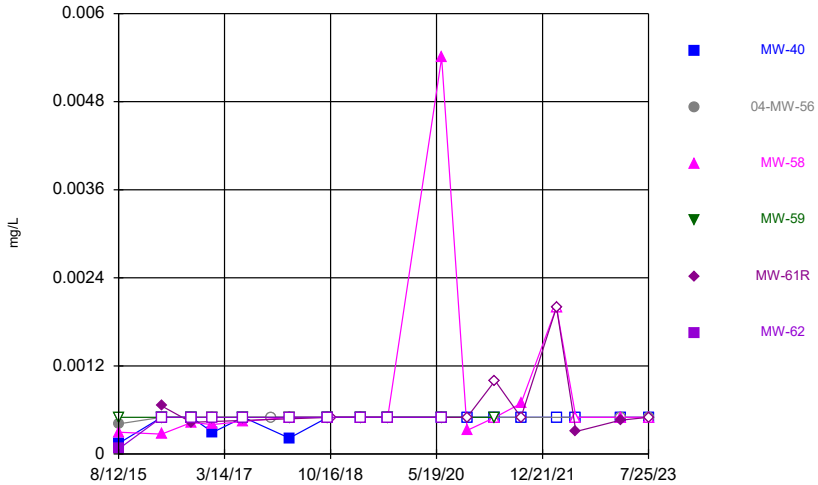
Time Series



Constituent: Beryllium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

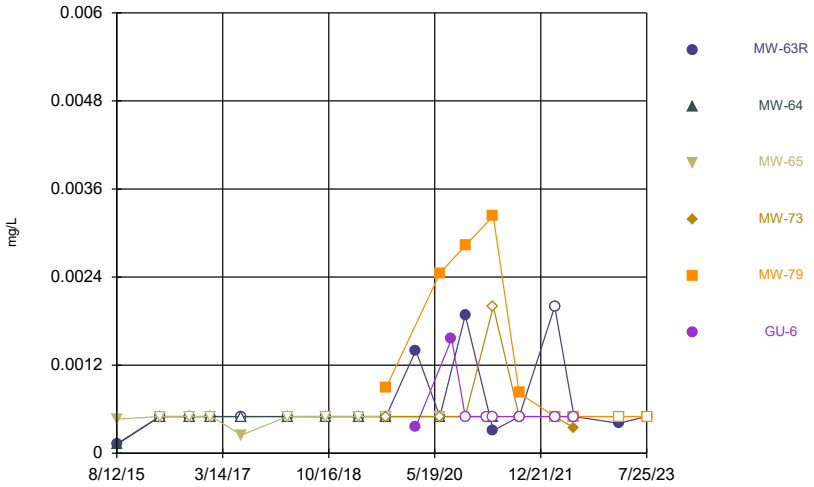
Time Series



Constituent: Beryllium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

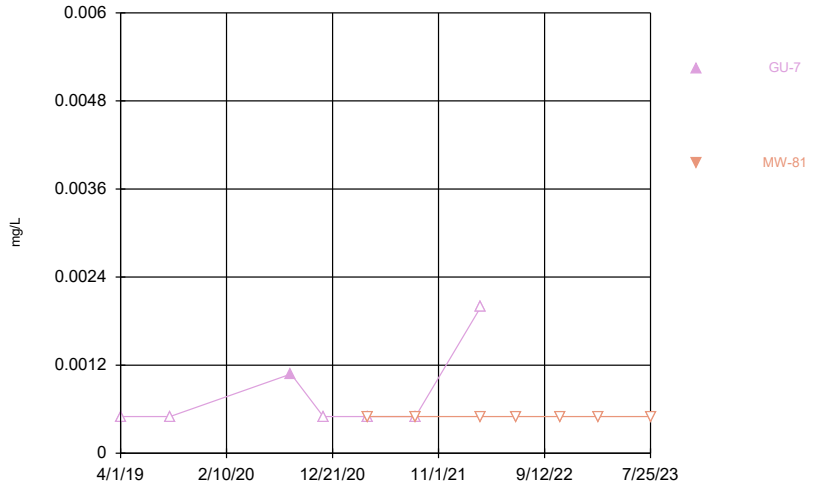
Time Series



Constituent: Beryllium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Beryllium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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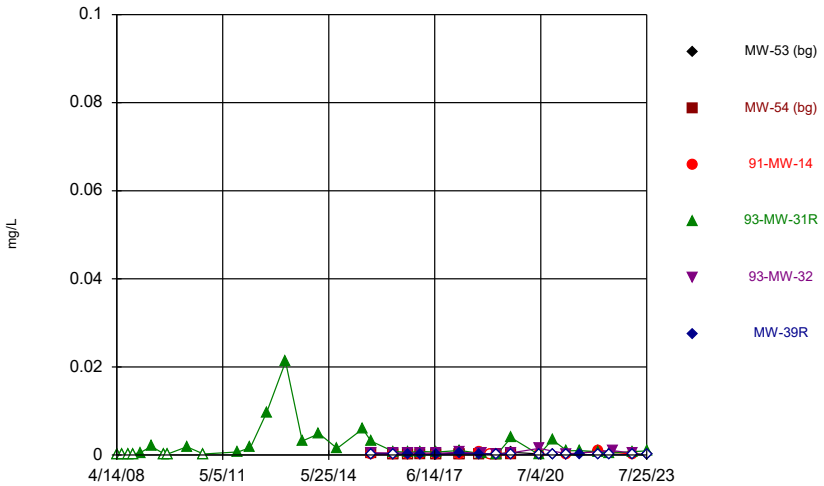

Constituent: Cadmium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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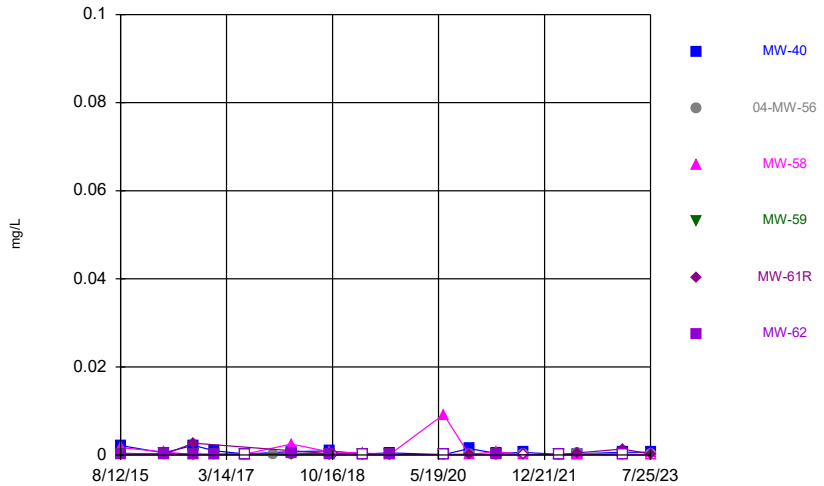
Hollow symbols indicate censored values.

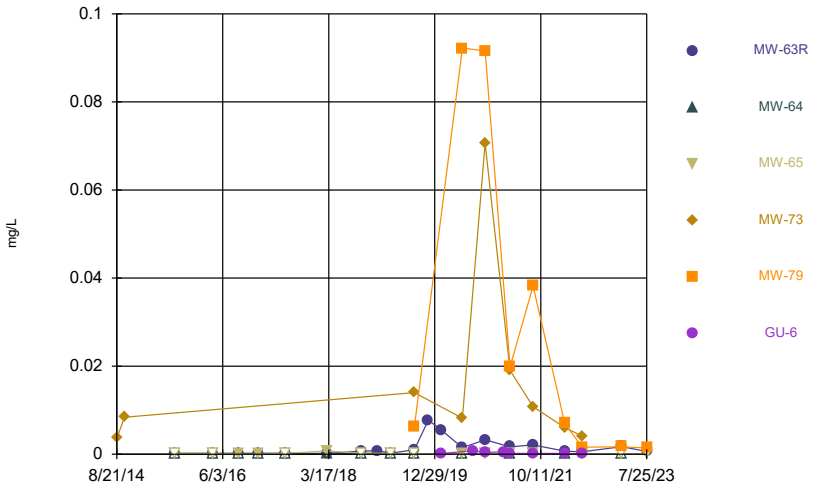
Time Series



Constituent: Cadmium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



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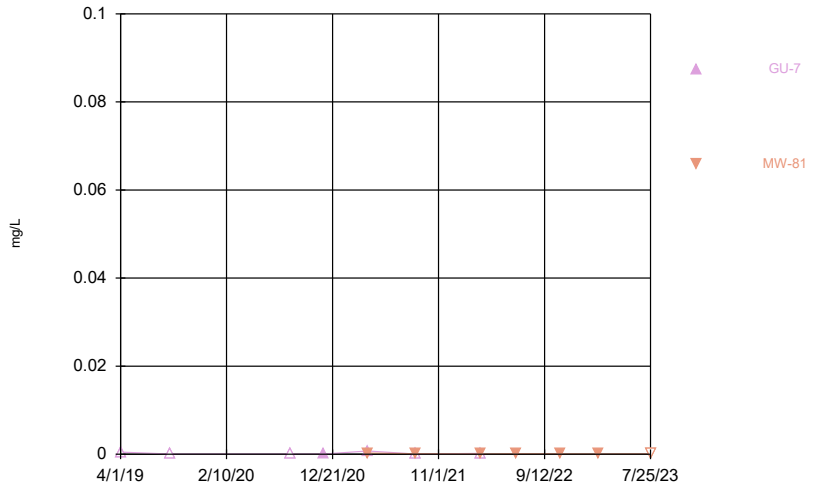
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Cadmium Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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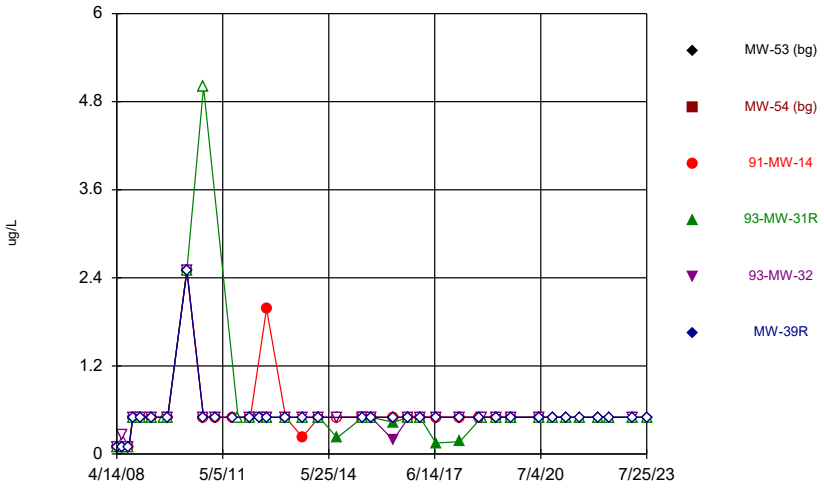
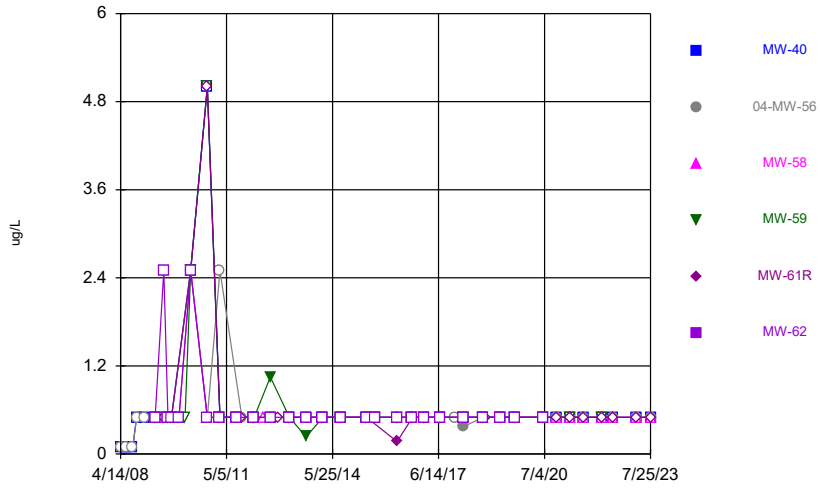


Constituent: Carbon disulfide Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

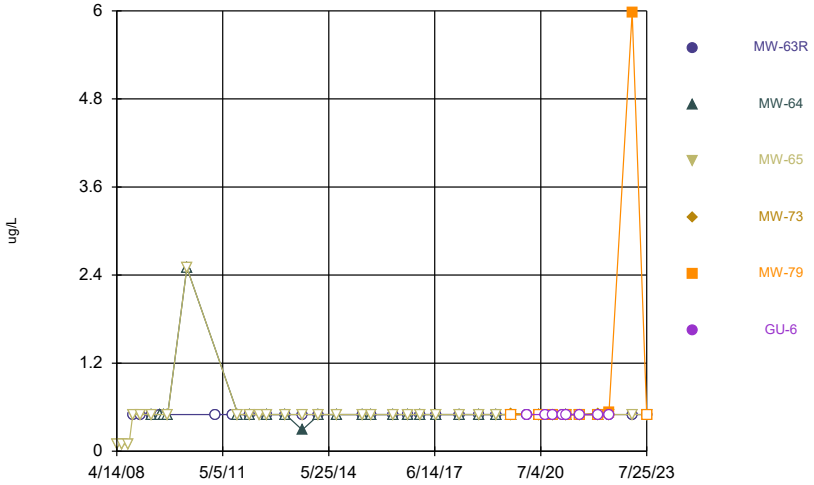
Time Series



Constituent: Carbon disulfide Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Carbon disulfide Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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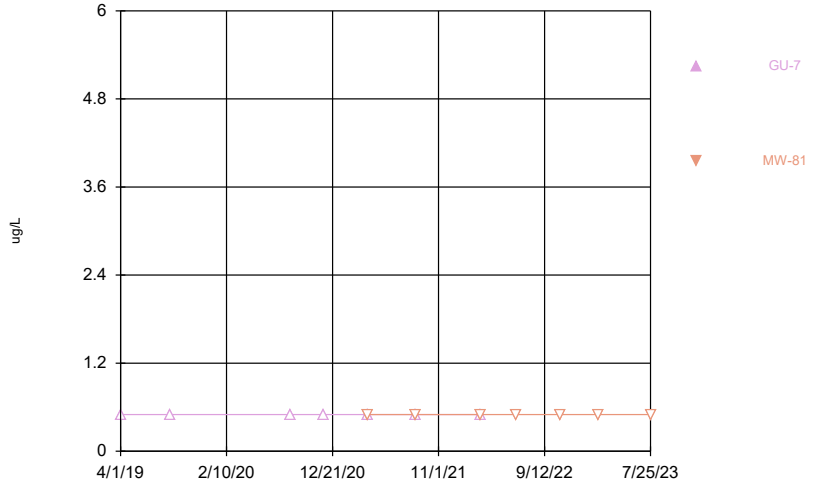

Constituent: Carbon disulfide Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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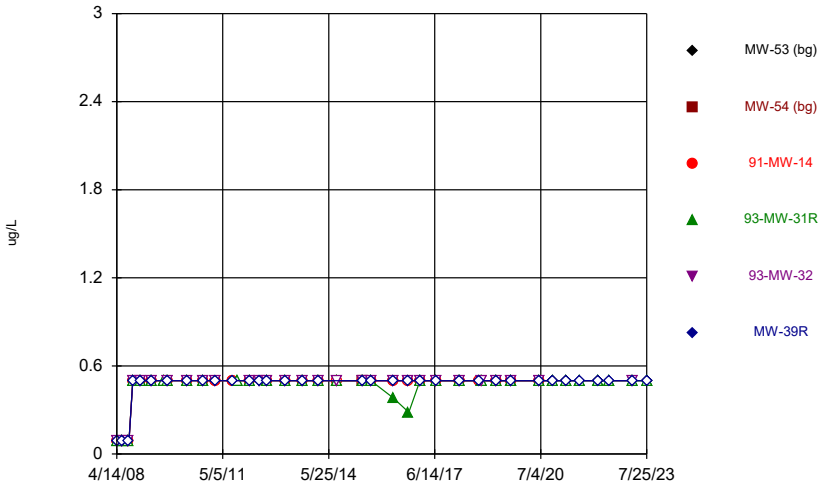

Constituent: Chlorobenzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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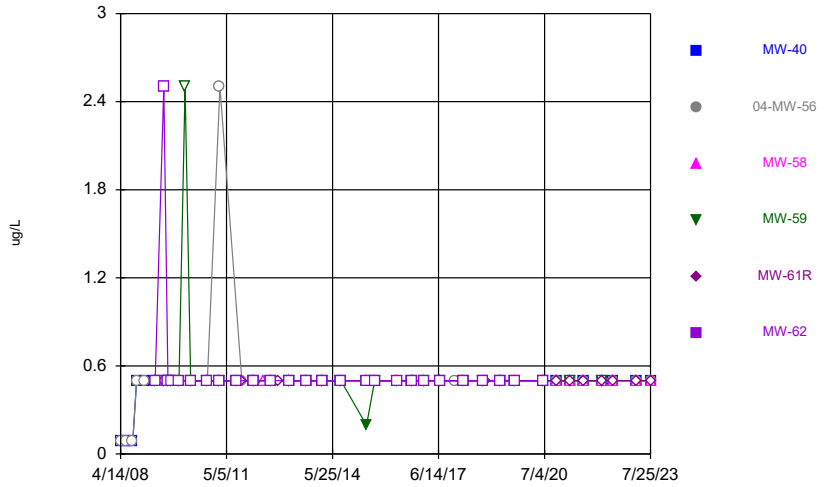

Constituent: Chlorobenzene Analysis Run 9/14/2023 6:33 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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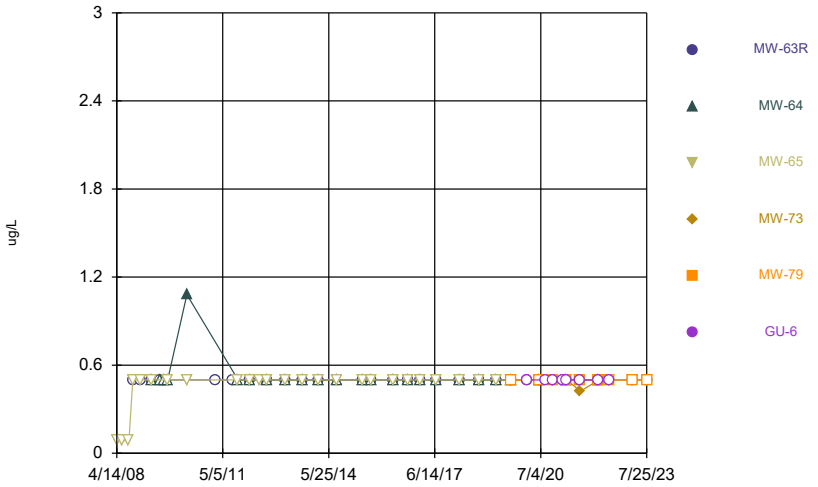
Time Series



Constituent: Chlorobenzene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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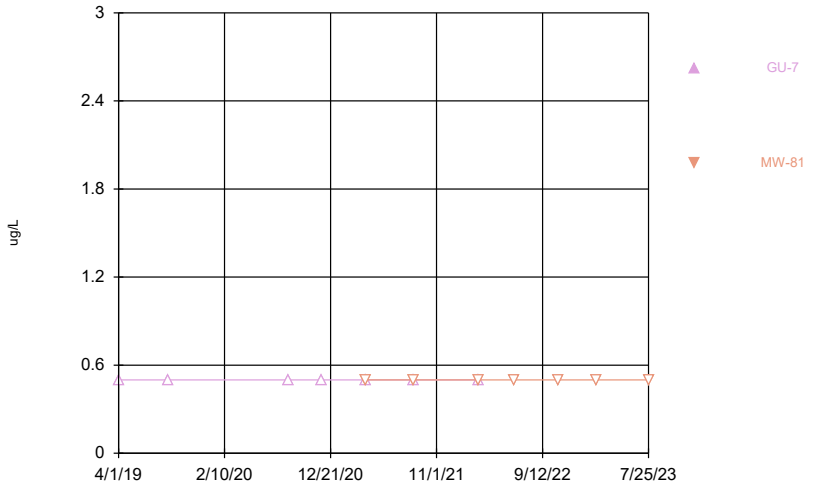
Time Series



Constituent: Chlorobenzene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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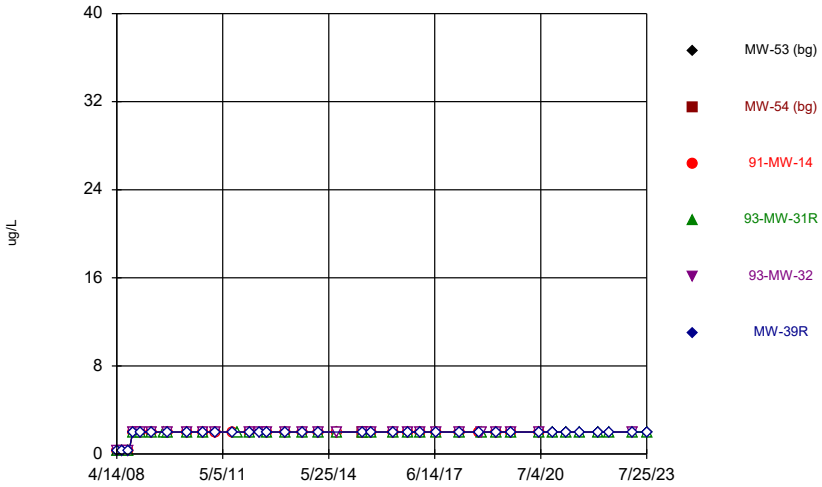
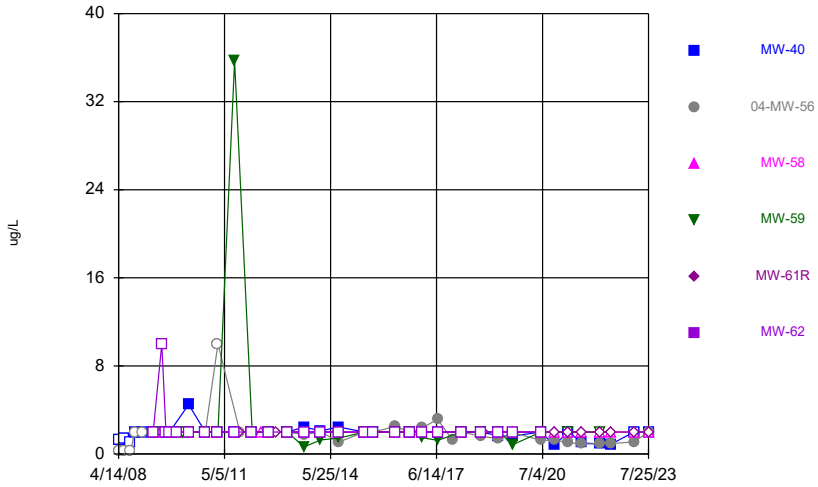


Constituent: Chloroethane Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Chloroethane Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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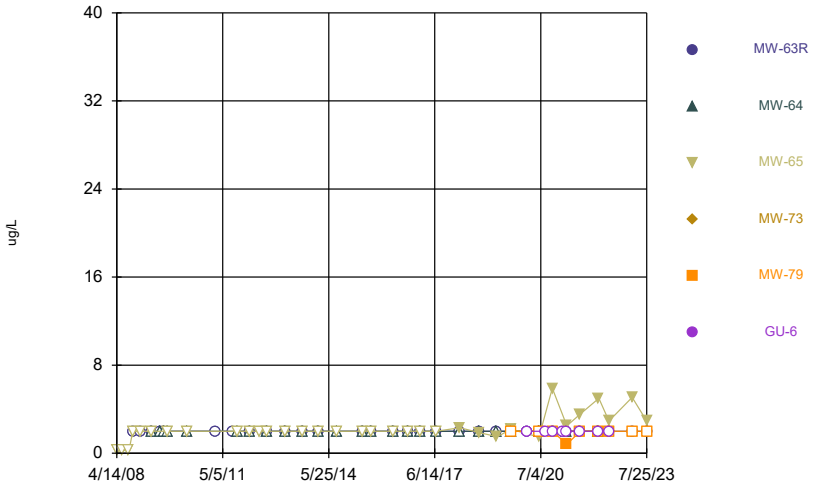

Constituent: Chloroethane Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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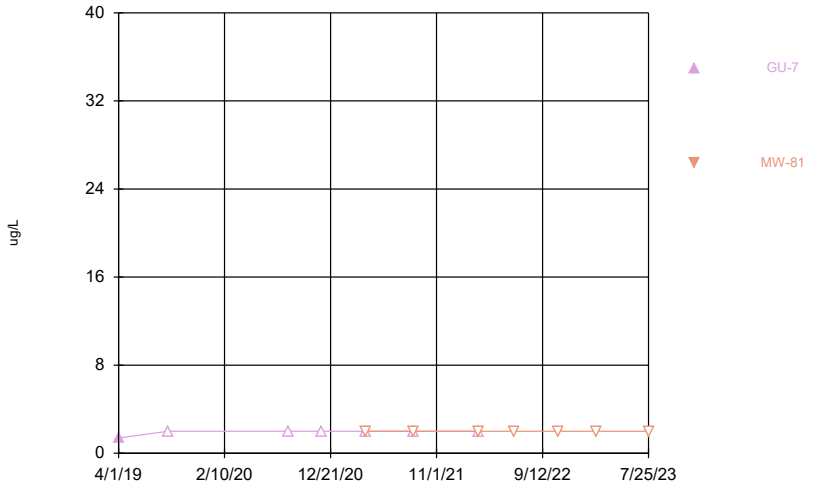

Constituent: Chloroethane Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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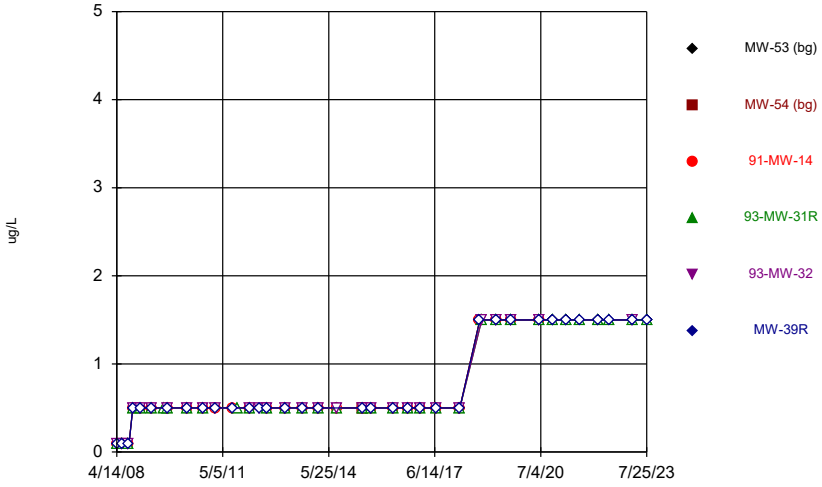
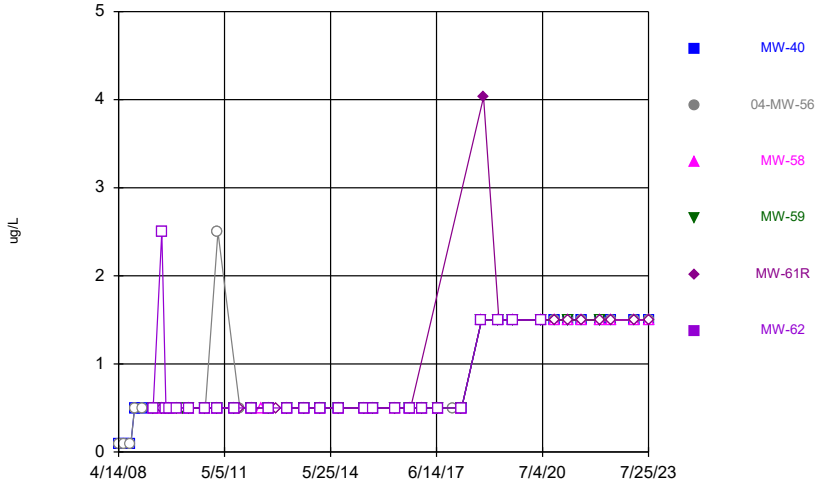


Constituent: Chloroform Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

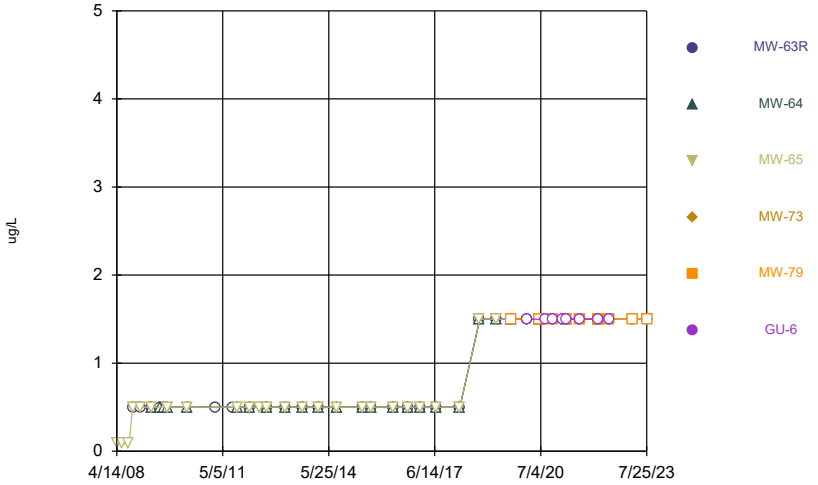
Time Series



Constituent: Chloroform Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Chloroform Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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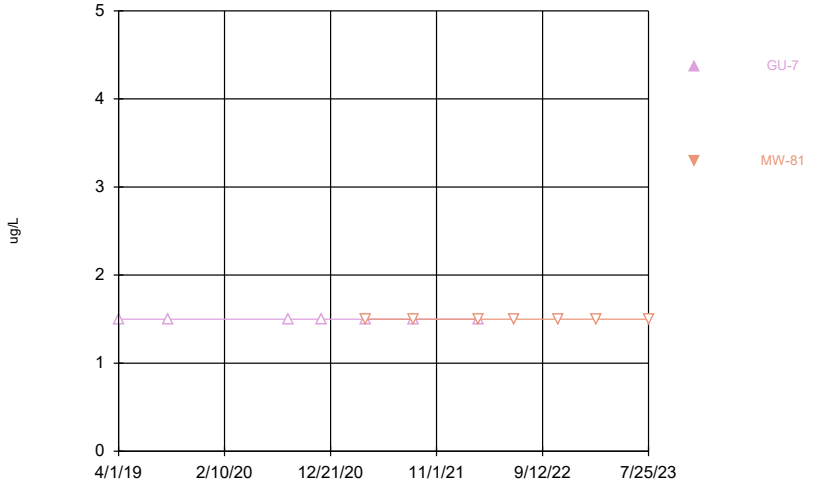
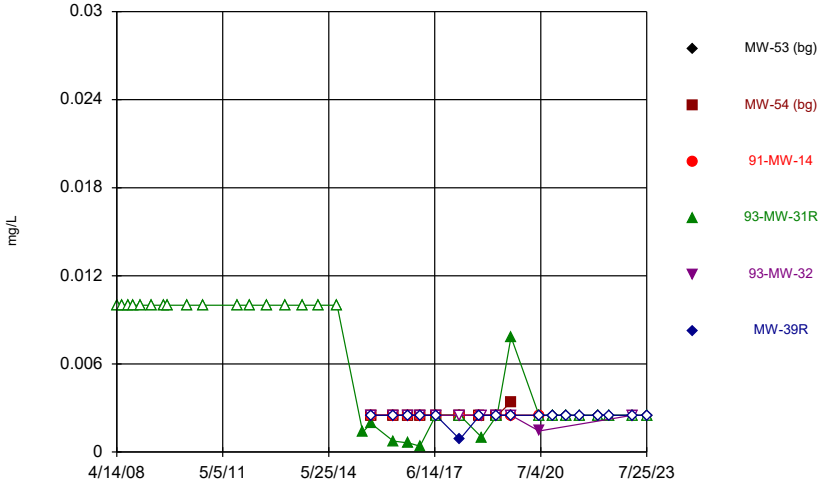


Constituent: Chloroform Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

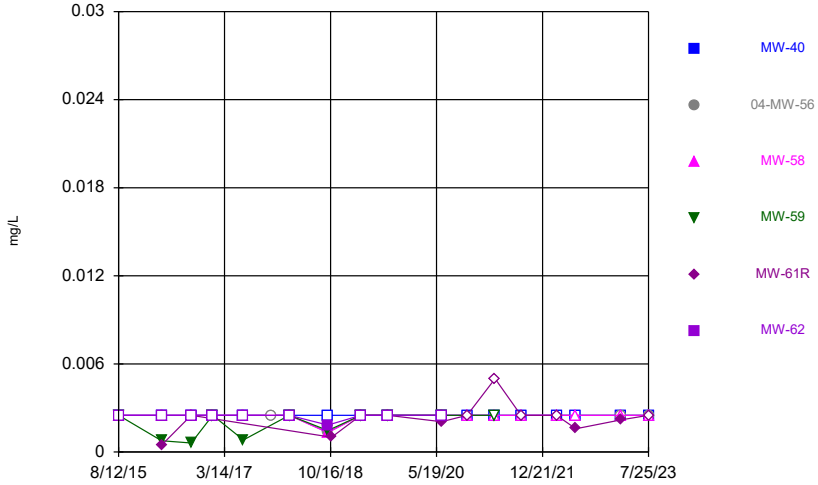
Time Series



Constituent: Chromium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

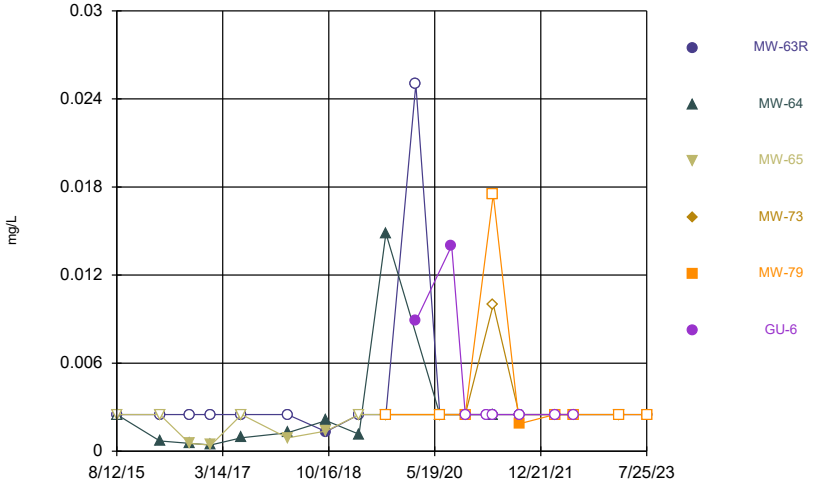
Time Series



Constituent: Chromium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Chromium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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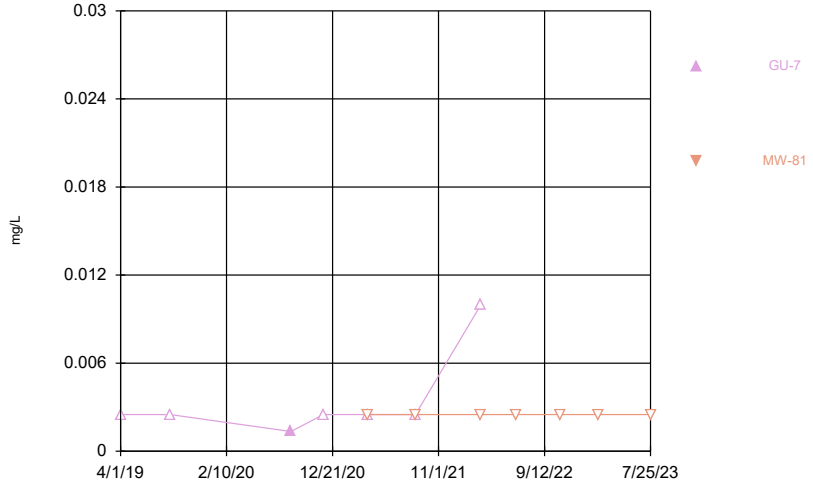
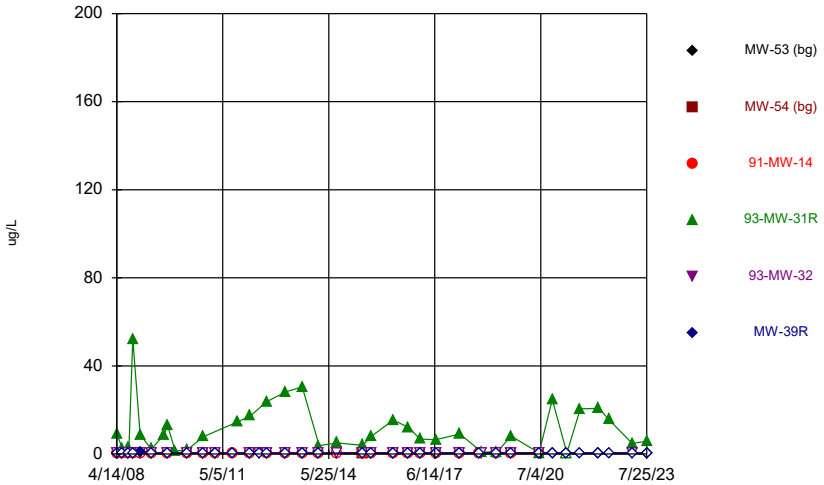
Time Series



Constituent: Chromium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

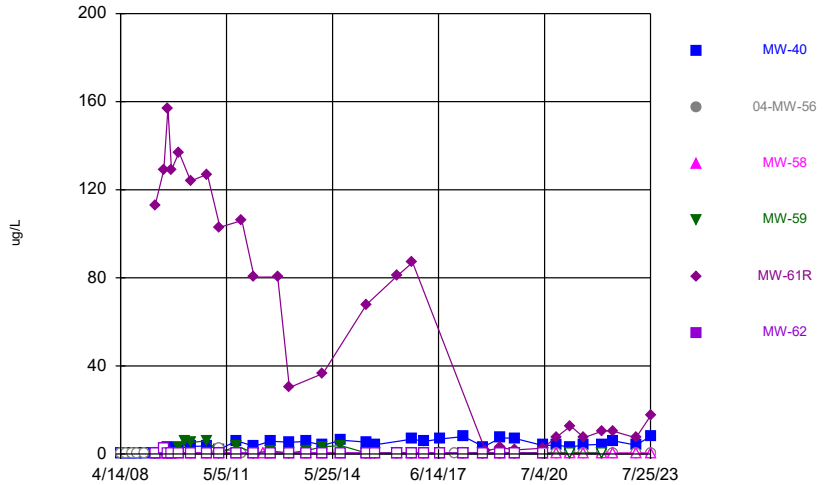
Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

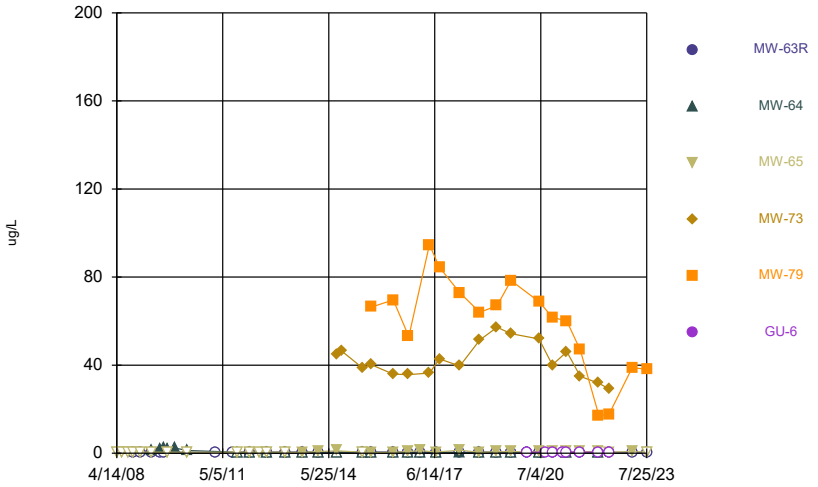
Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

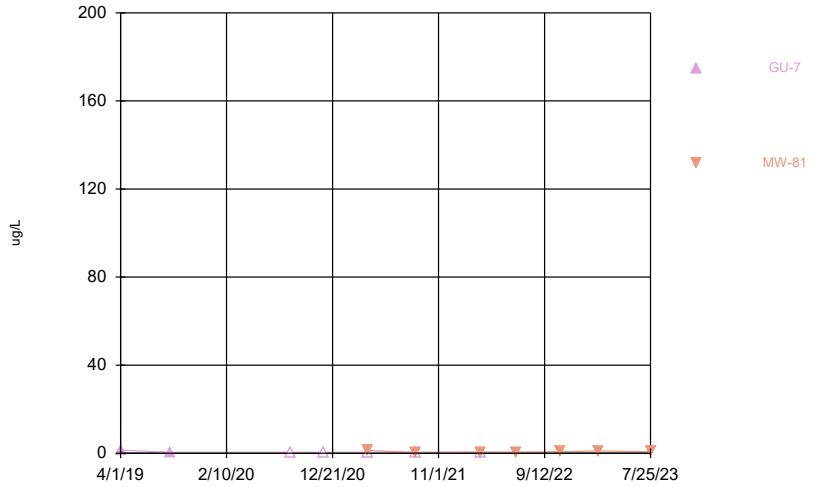
Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: cis-1,2-Dichloroethene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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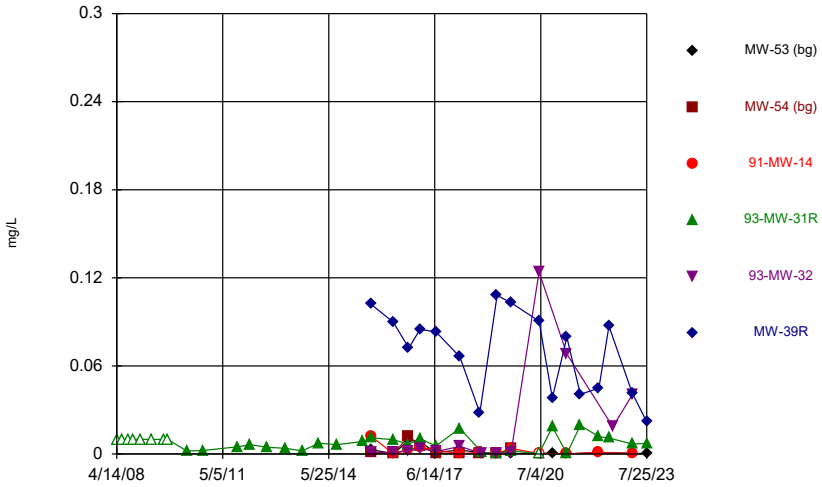
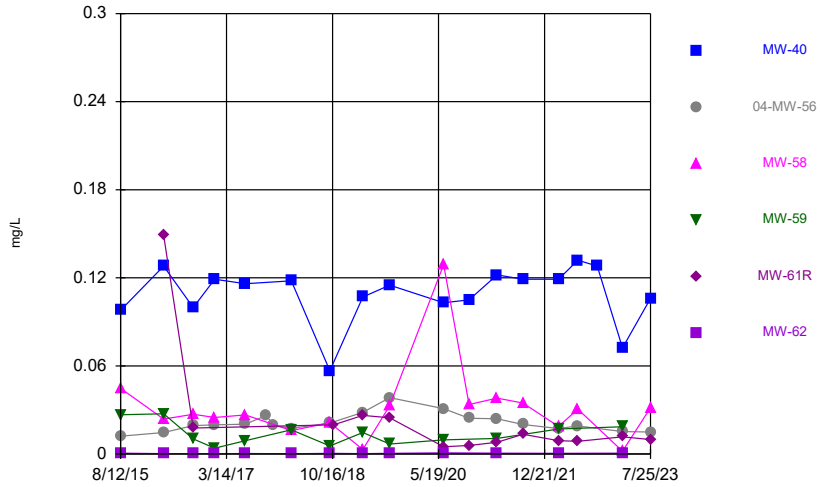
Time Series



Constituent: Cobalt Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

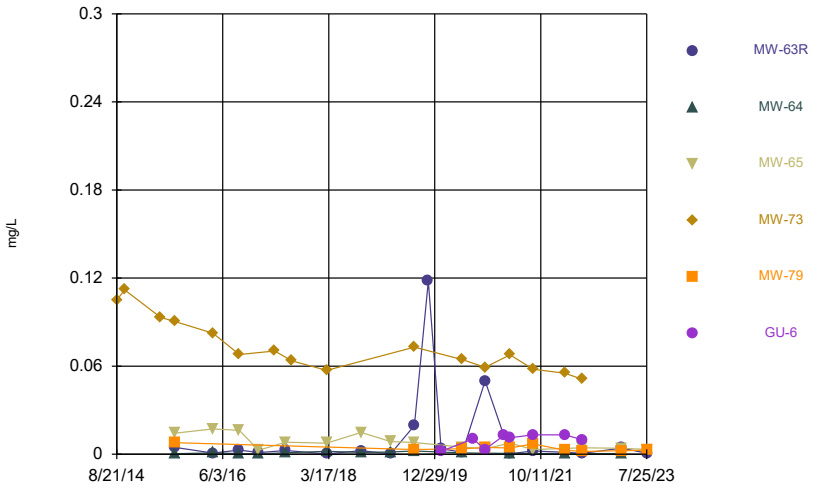
Time Series



Constituent: Cobalt Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Cobalt Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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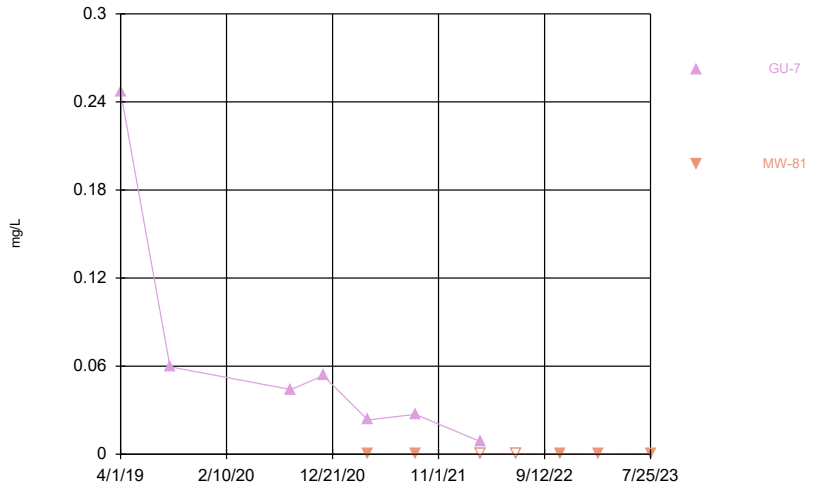
Time Series



Constituent: Cobalt Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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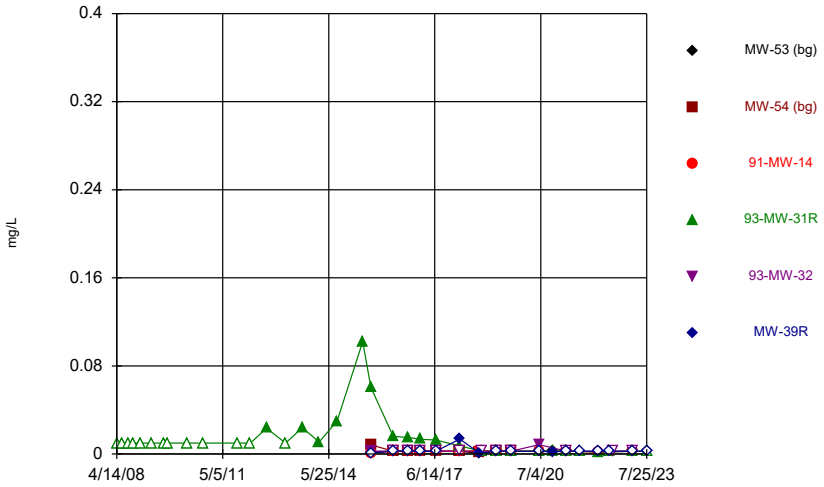
Time Series



Constituent: Copper Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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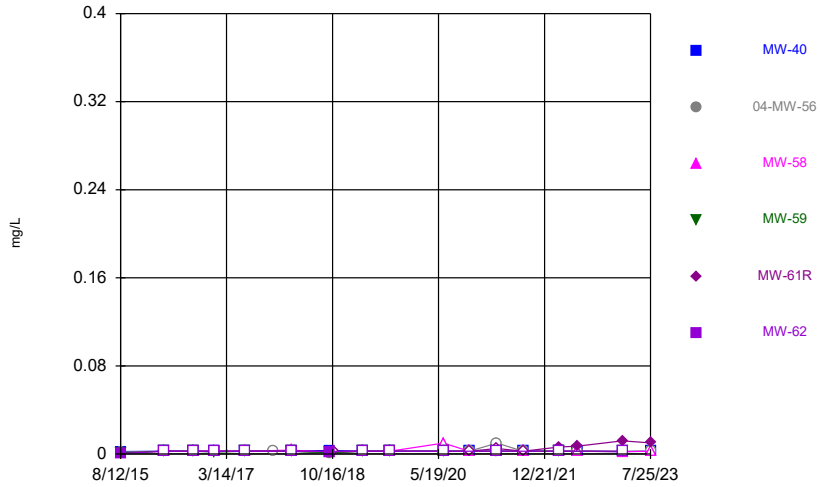
Time Series



Constituent: Copper Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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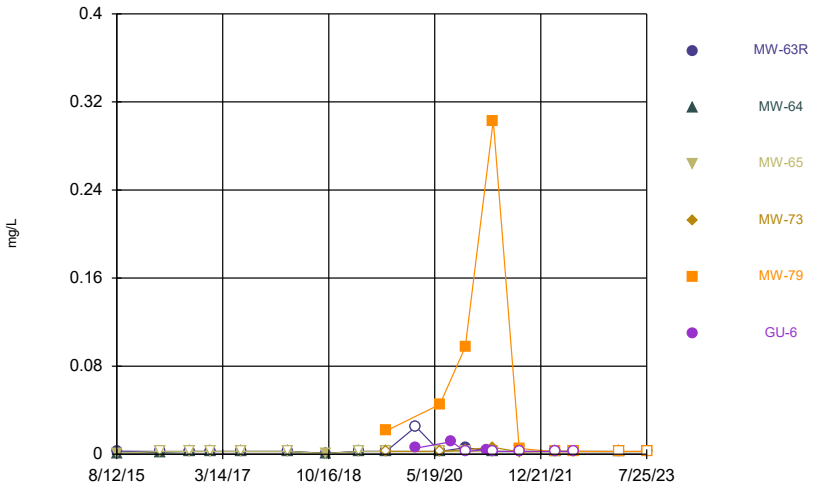

Constituent: Copper Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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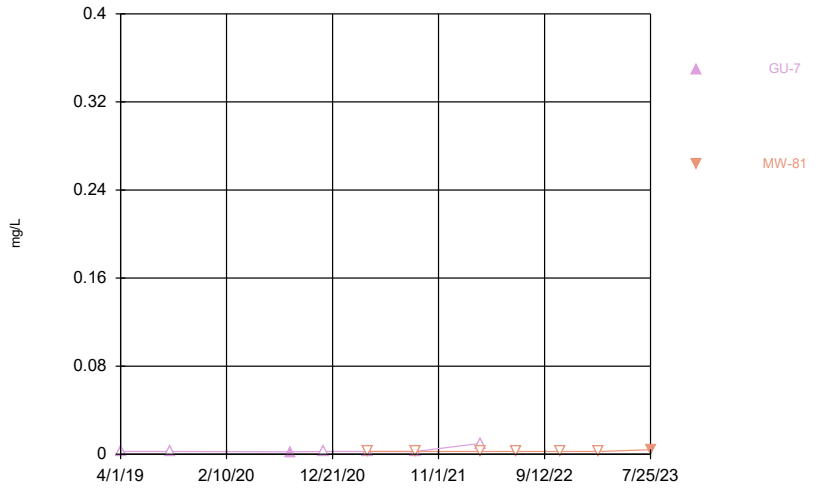

Constituent: Copper Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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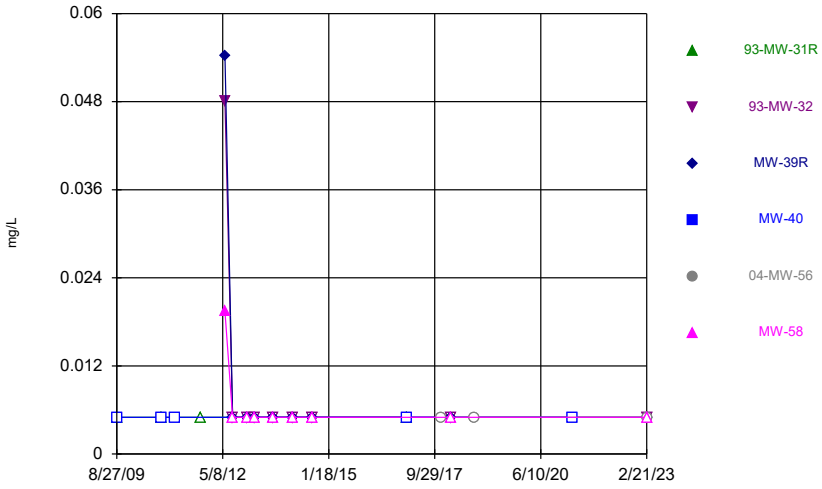
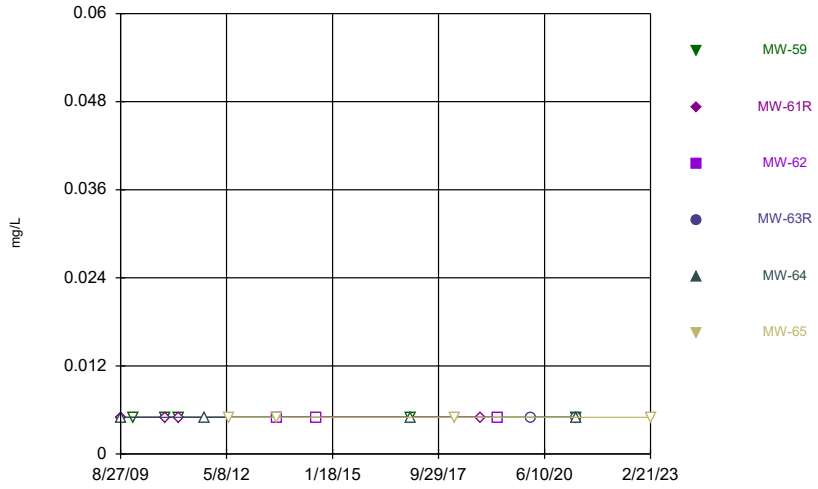


Constituent: Cyanide Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



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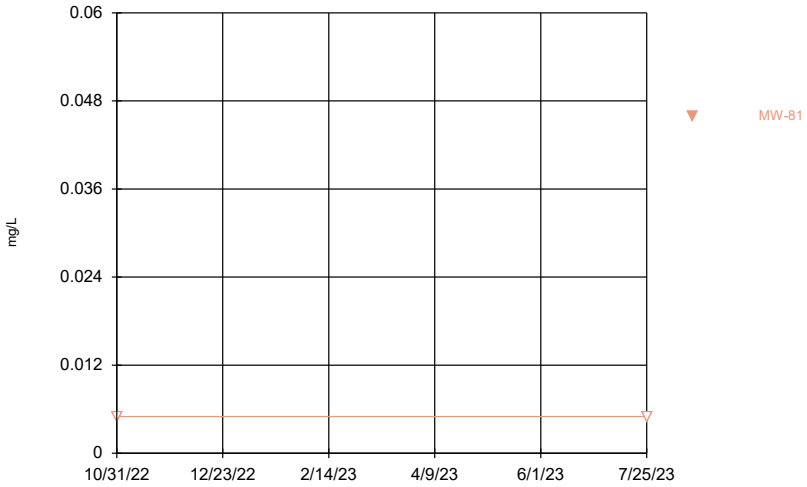

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Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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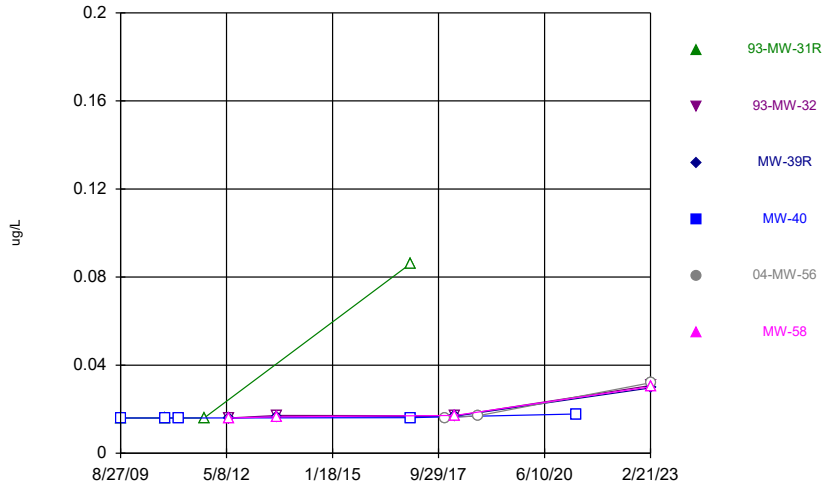

Constituent: Endosulfan I Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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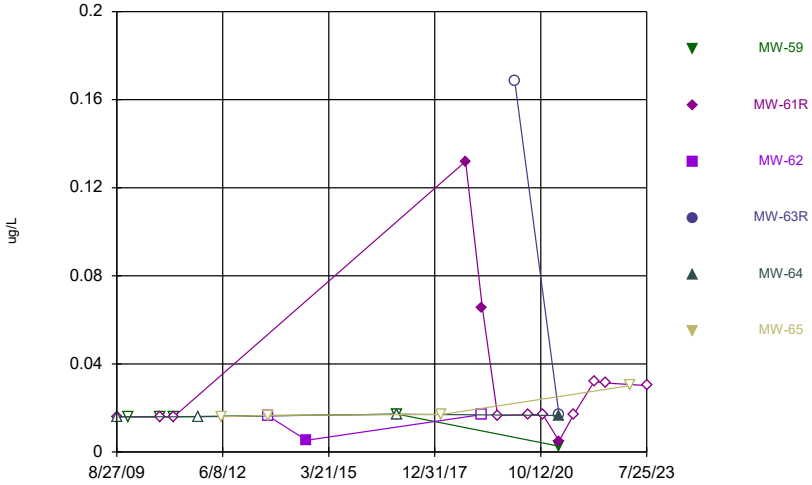

Constituent: Endosulfan I Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
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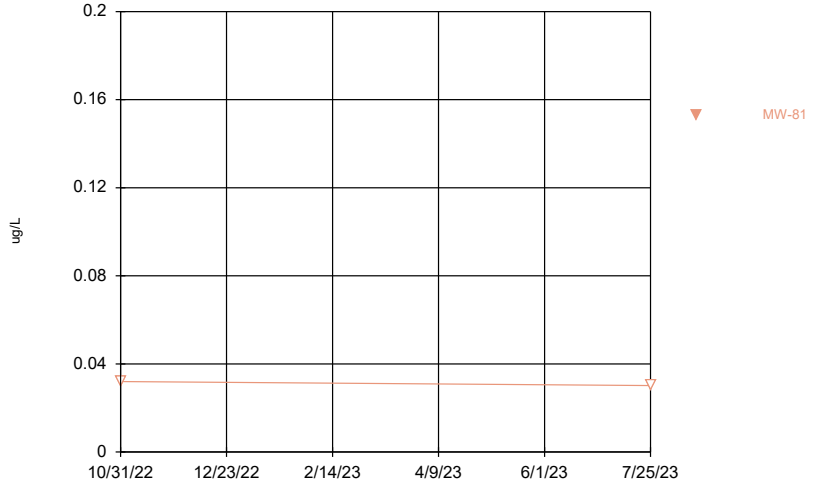

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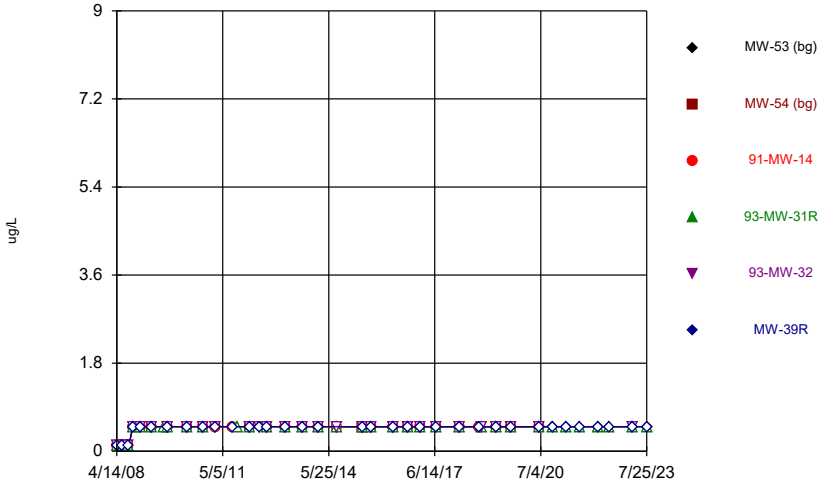

Constituent: Ethylbenzene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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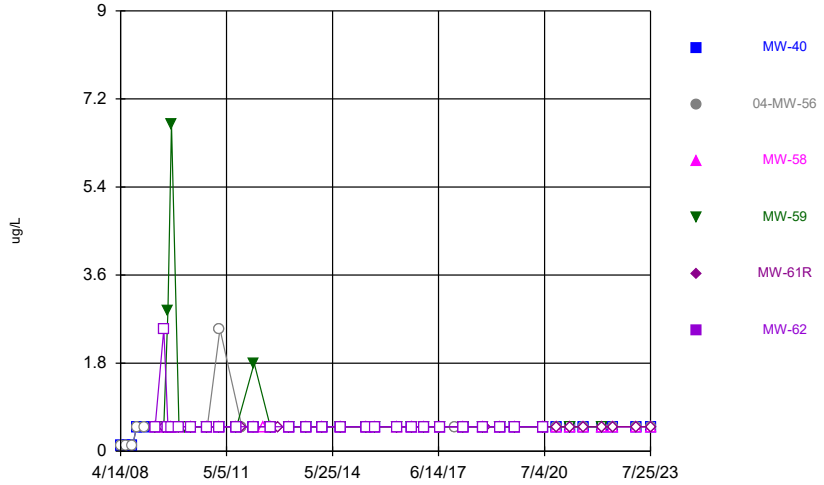

Constituent: Ethylbenzene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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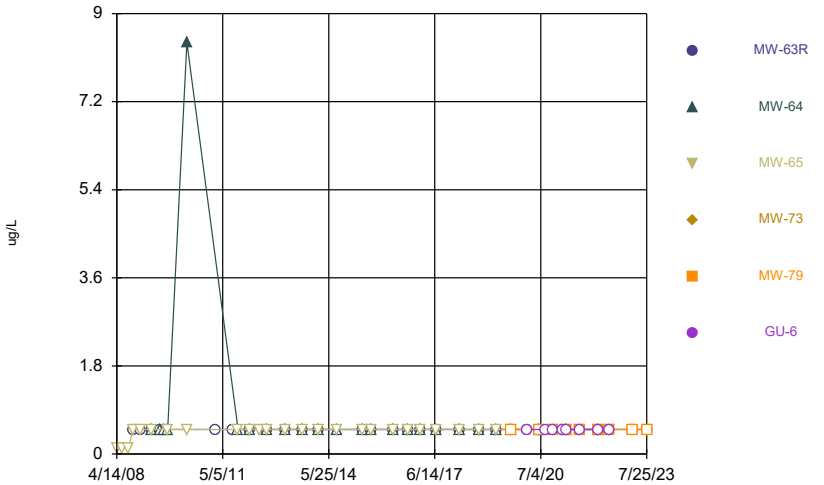

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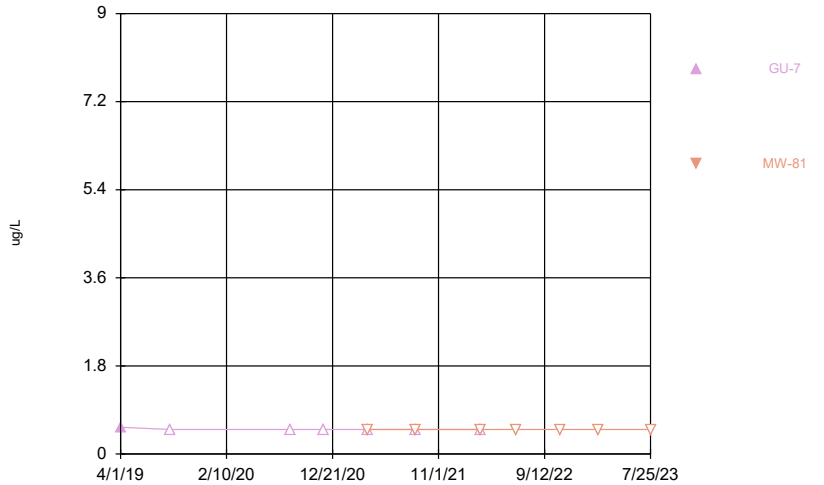

Constituent: Ethylbenzene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
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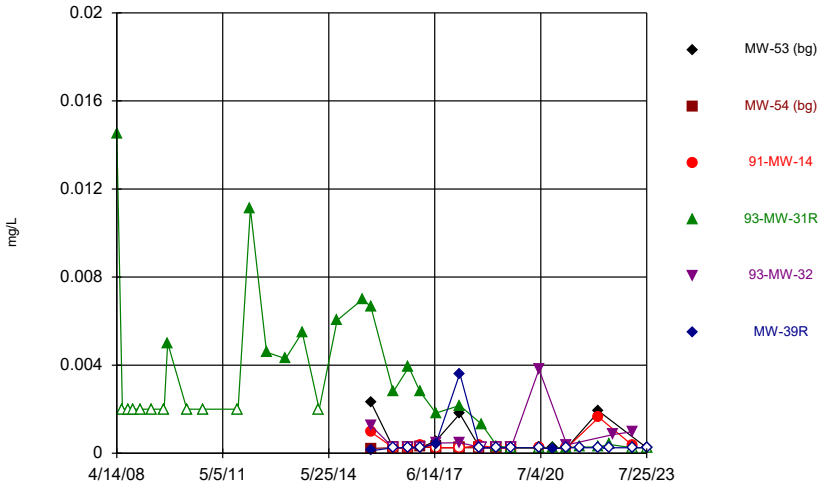
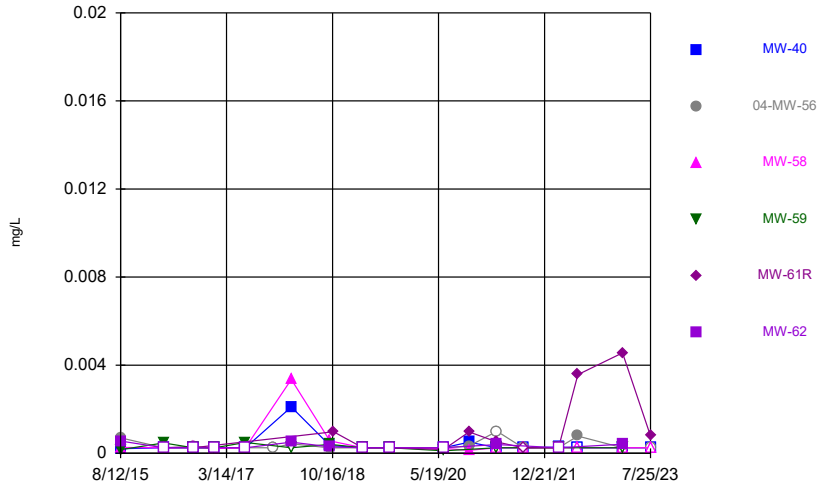


Constituent: Lead Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



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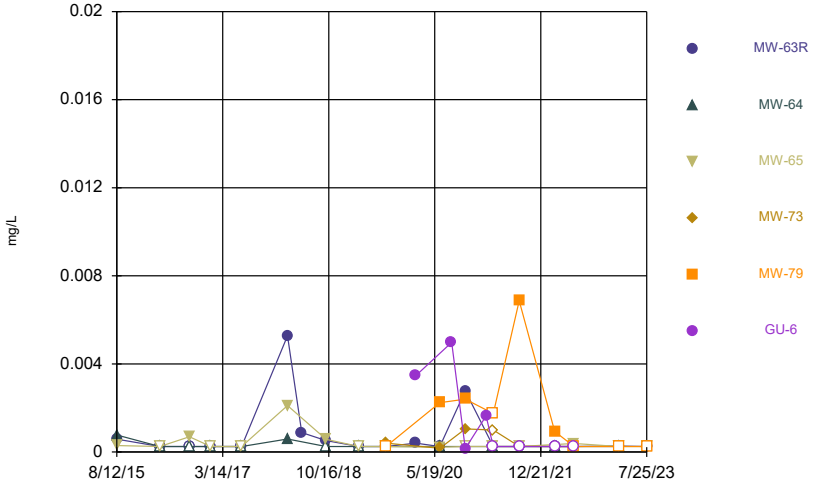

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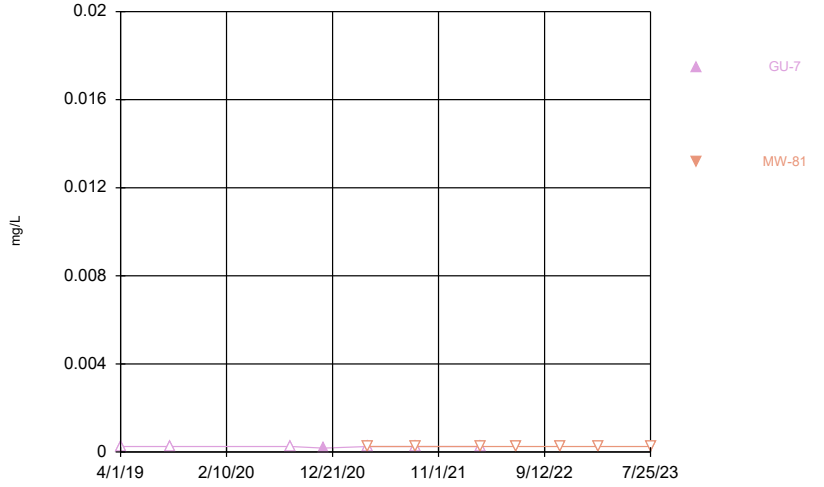

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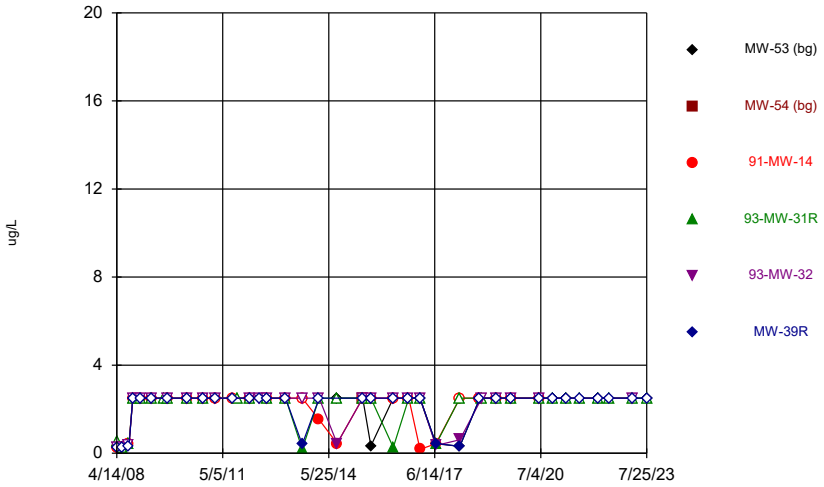
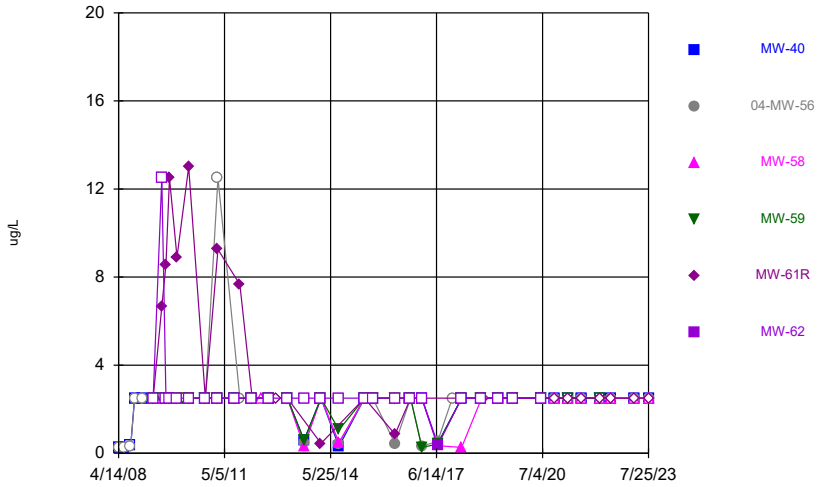


Constituent: Methylene Chloride Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Methylene Chloride Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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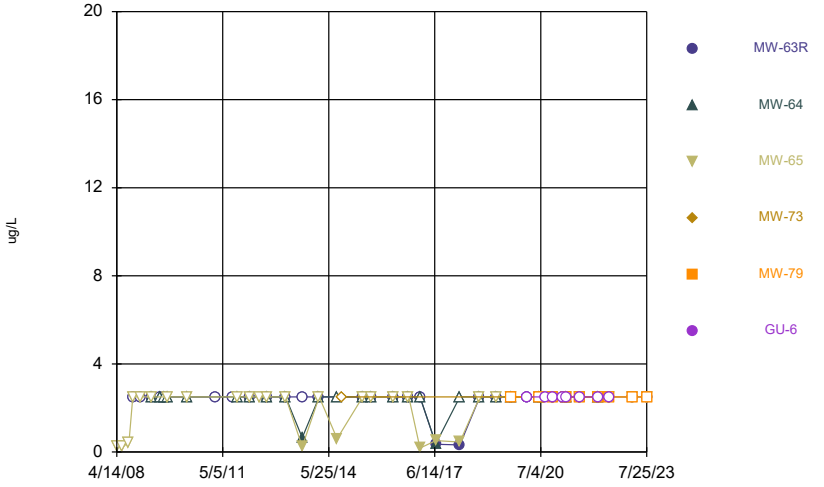

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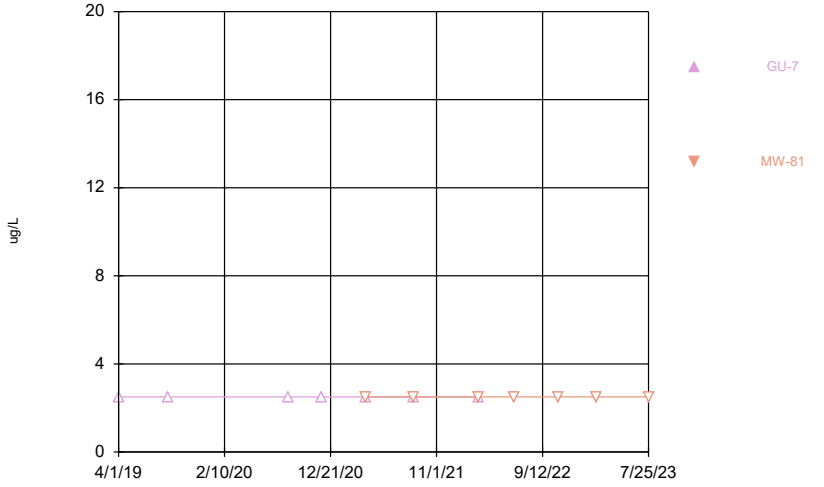

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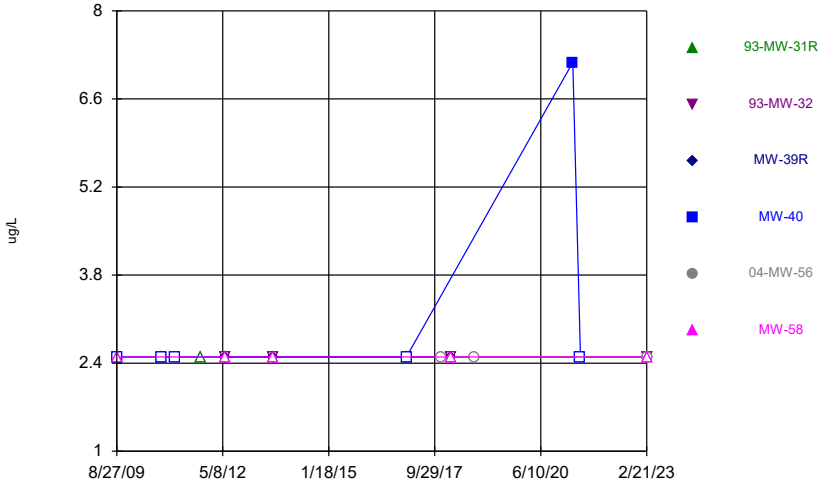
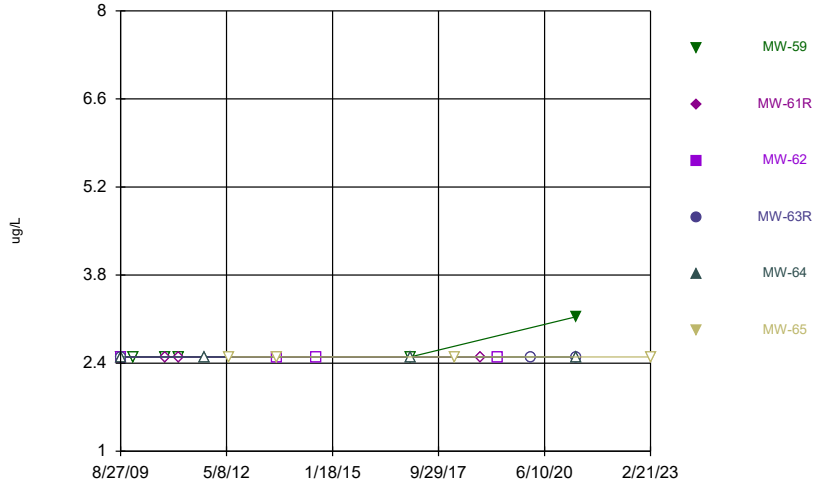


Constituent: Naphthalene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Naphthalene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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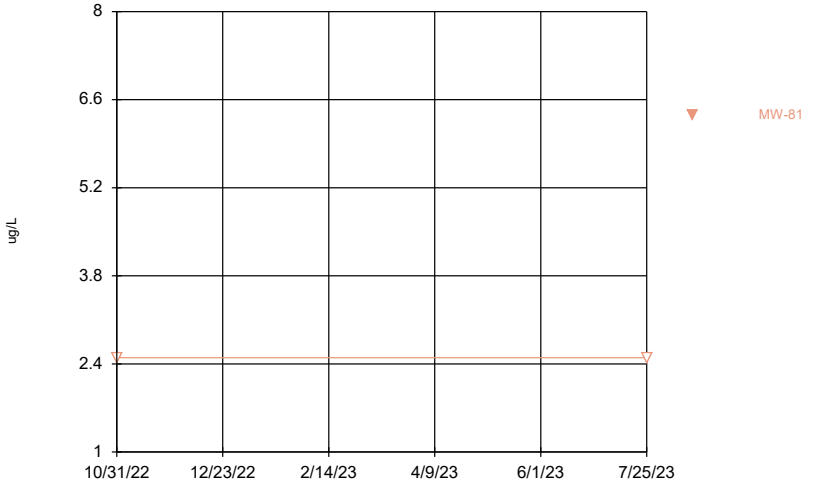

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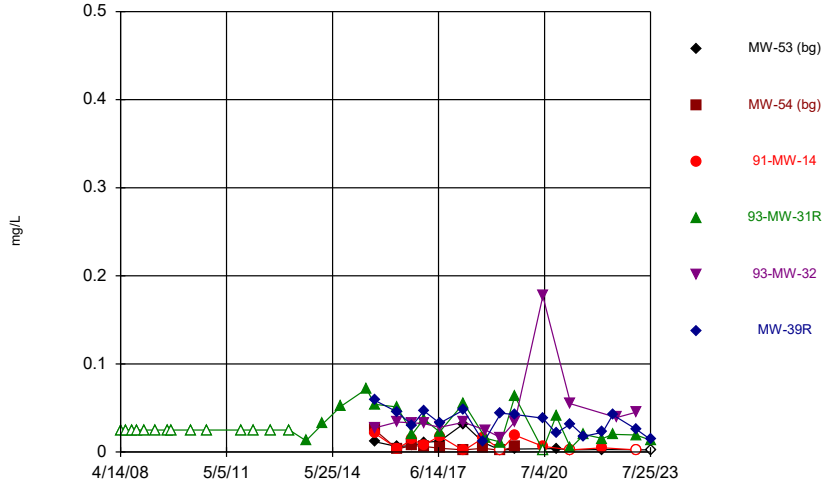
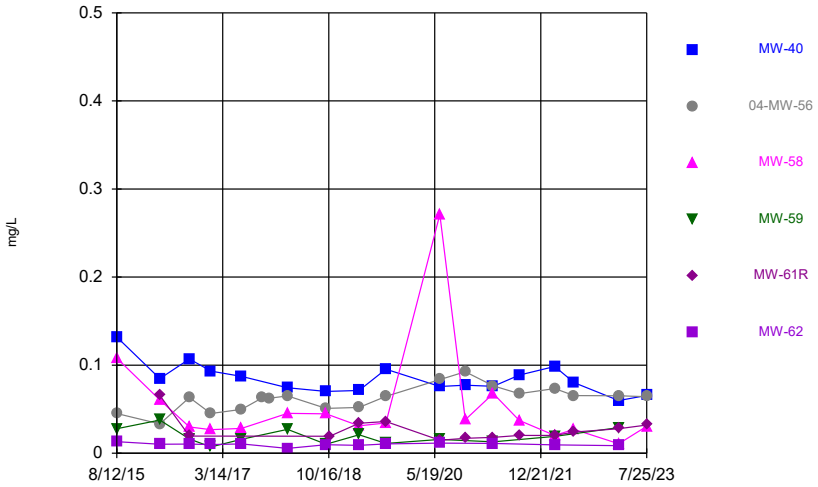


Constituent: Nickel Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

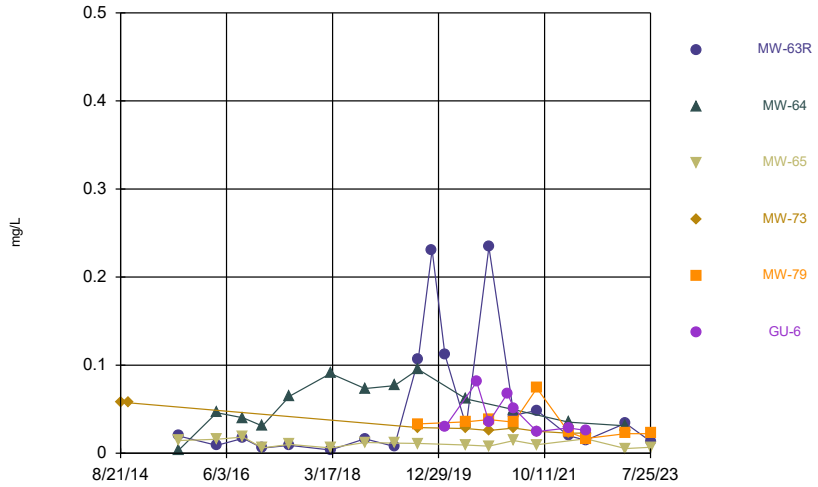
Time Series



Constituent: Nickel Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Nickel Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
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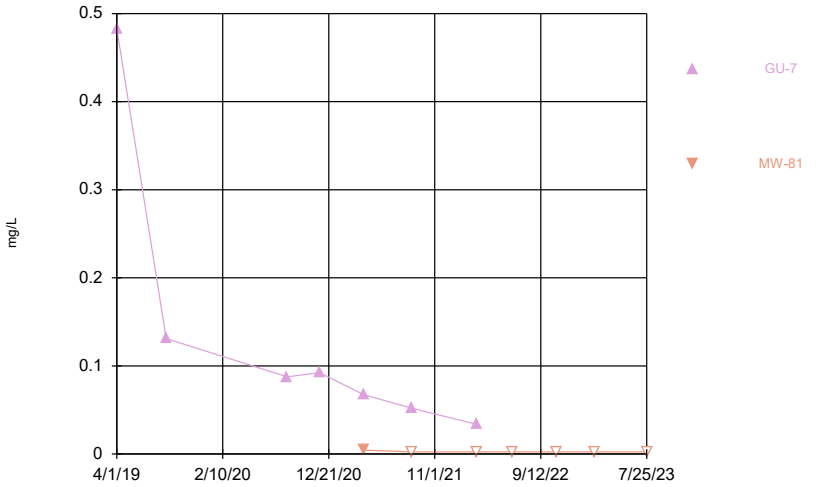

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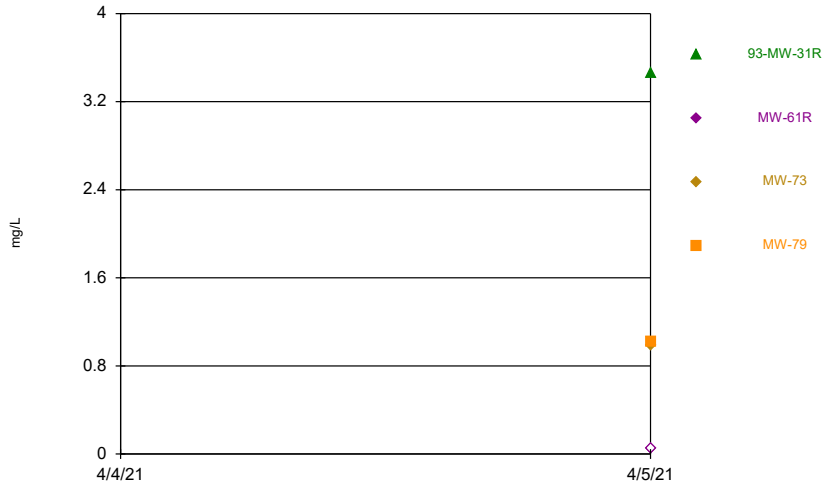
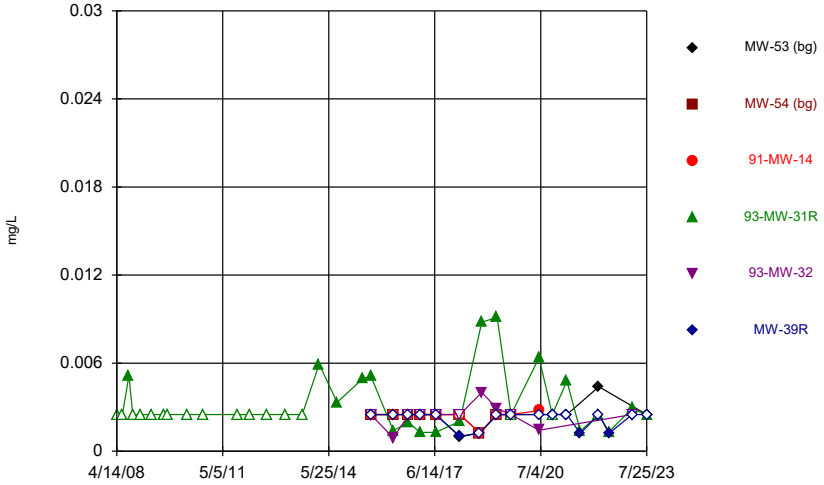
Time Series



Constituent: Nitrate as N Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

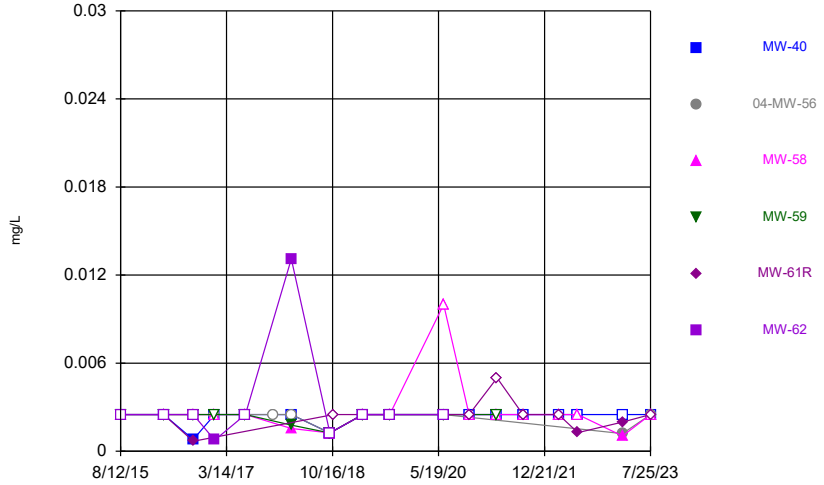
Time Series



Constituent: Selenium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Selenium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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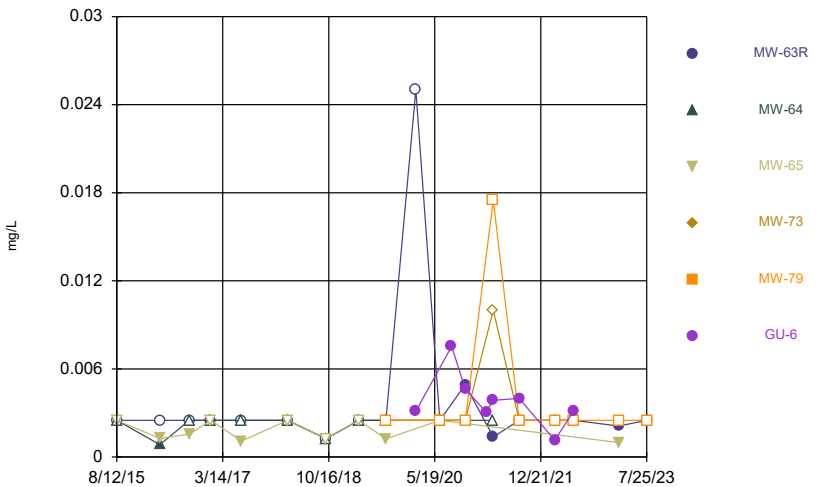
Time Series



Constituent: Selenium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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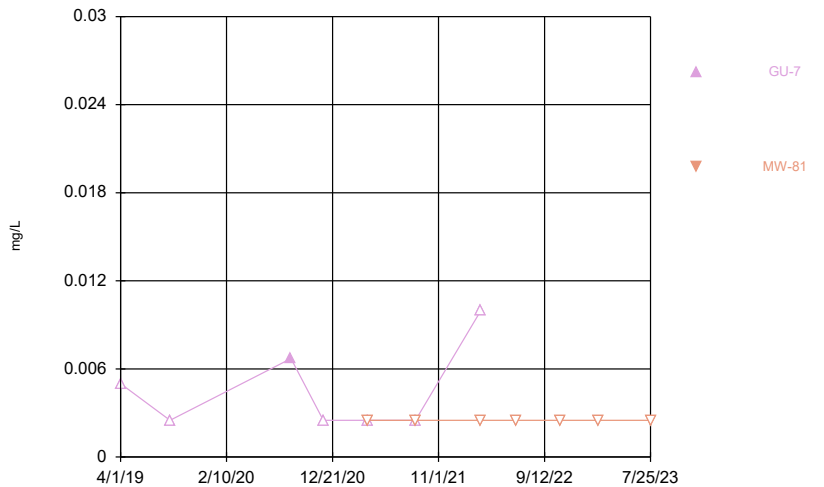
Time Series



Constituent: Selenium Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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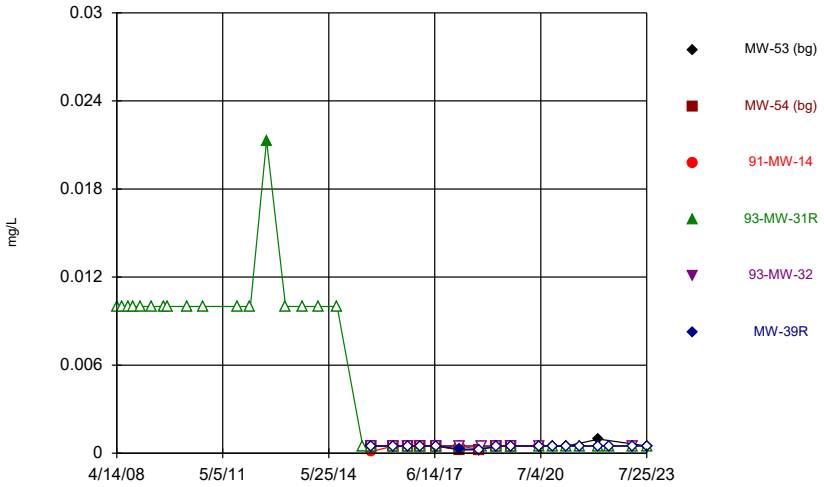
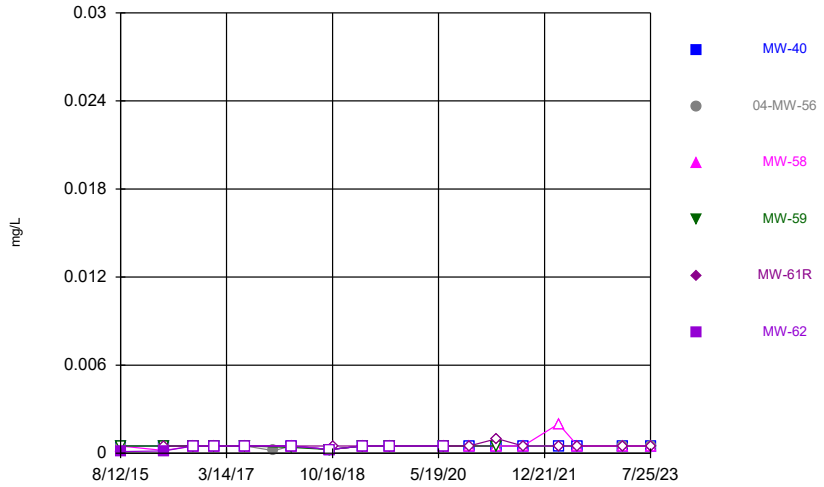
Time Series



Constituent: Silver Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Silver Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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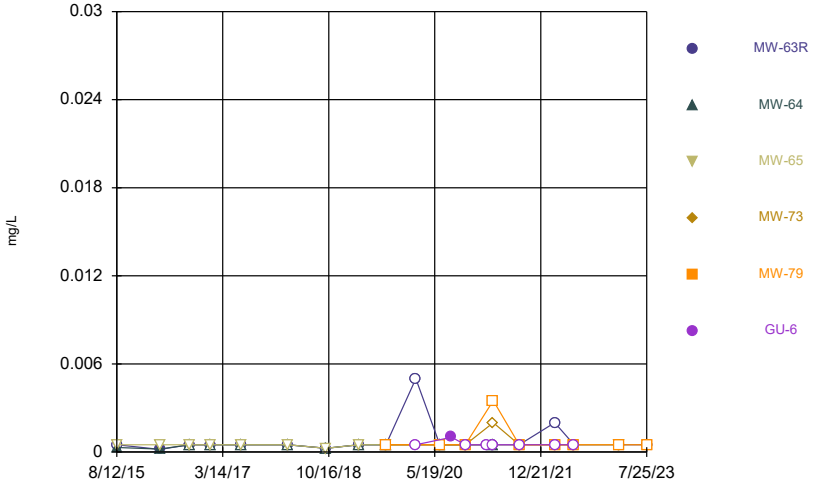

Constituent: Silver Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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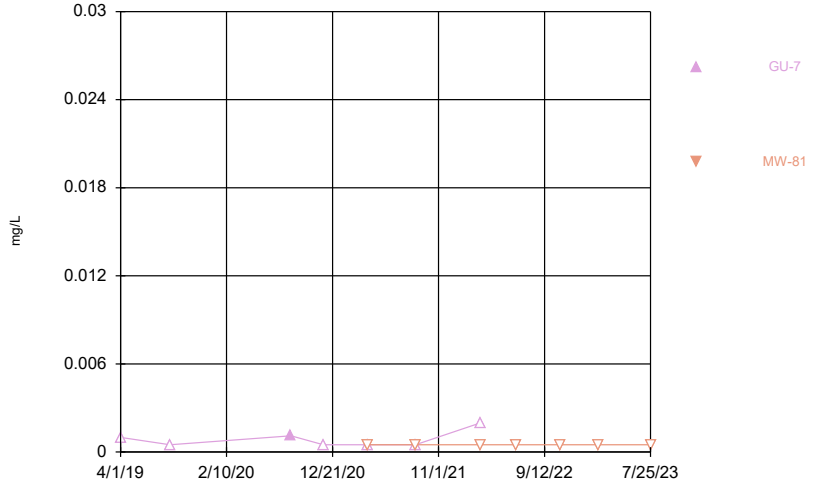

Constituent: Silver Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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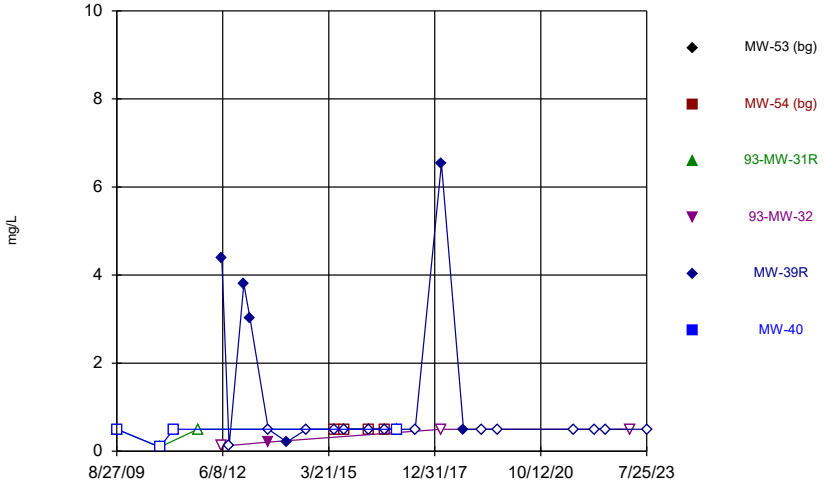

Constituent: Sulfide Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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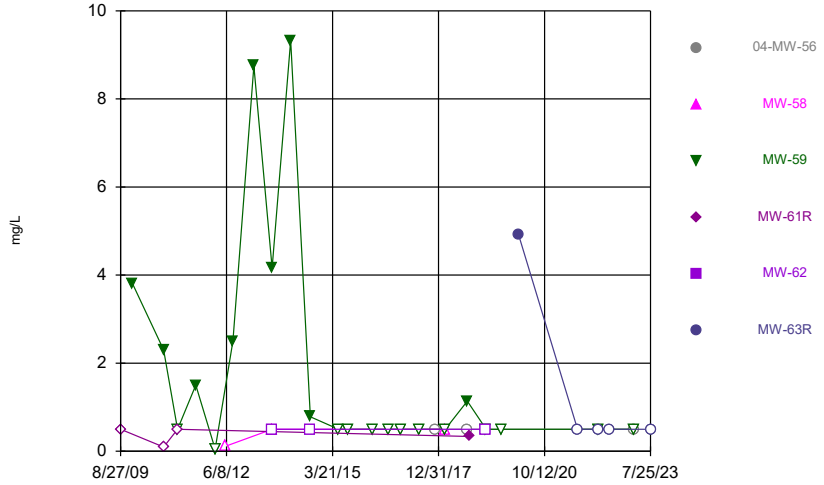

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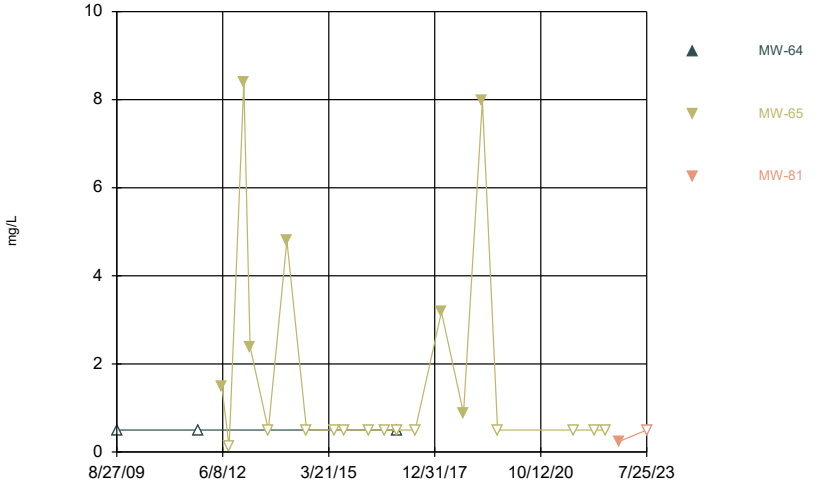

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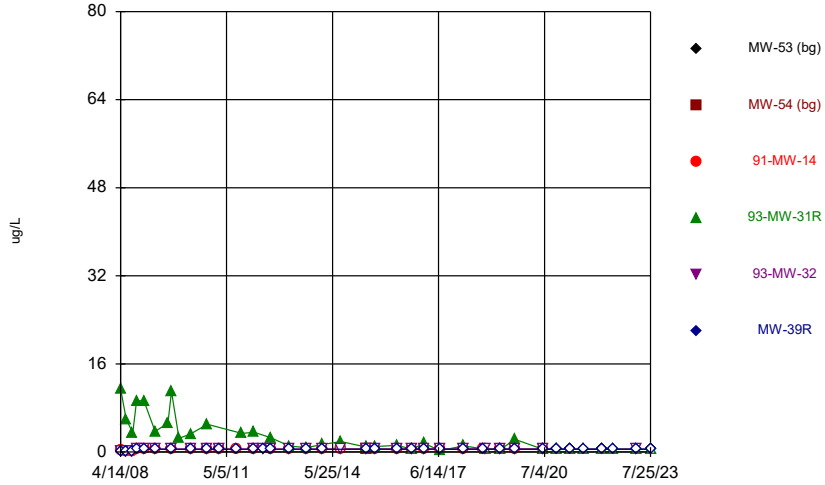
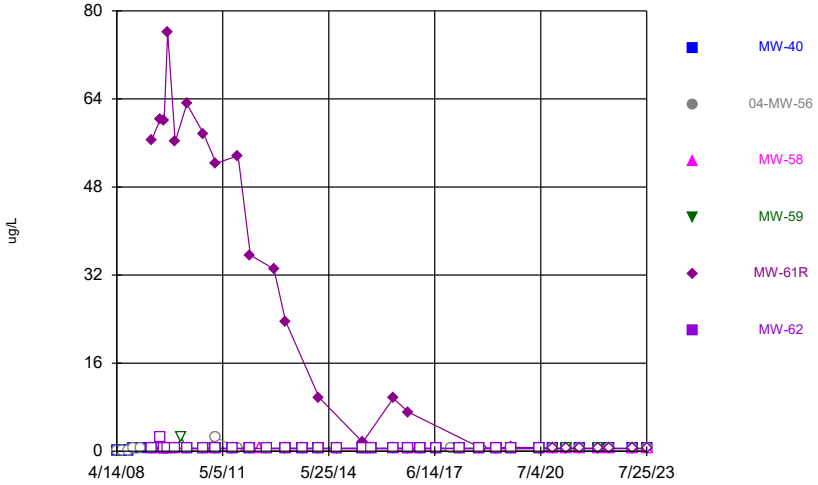


Constituent: Tetrachloroethene Analysis Run 9/14/2023 6:34 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Tetrachloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

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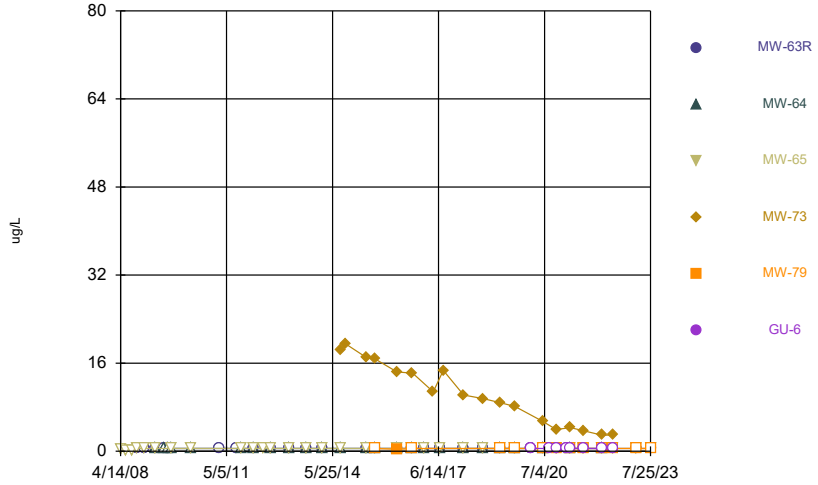

Constituent: Tetrachloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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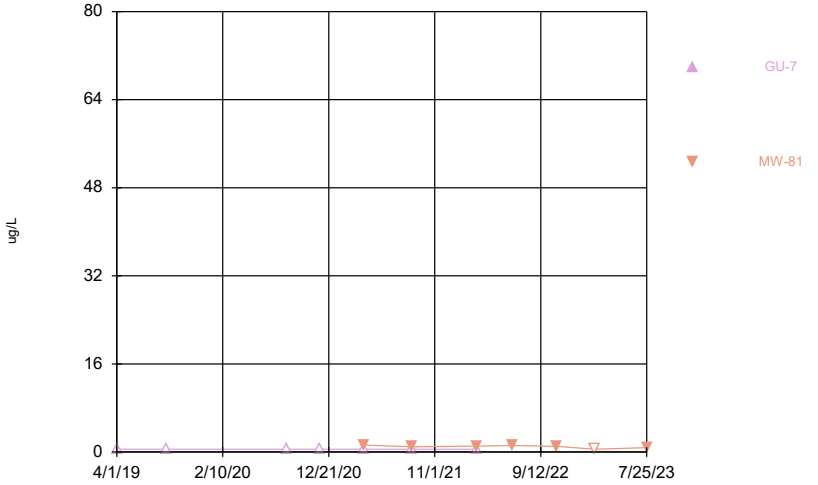

Constituent: Tetrachloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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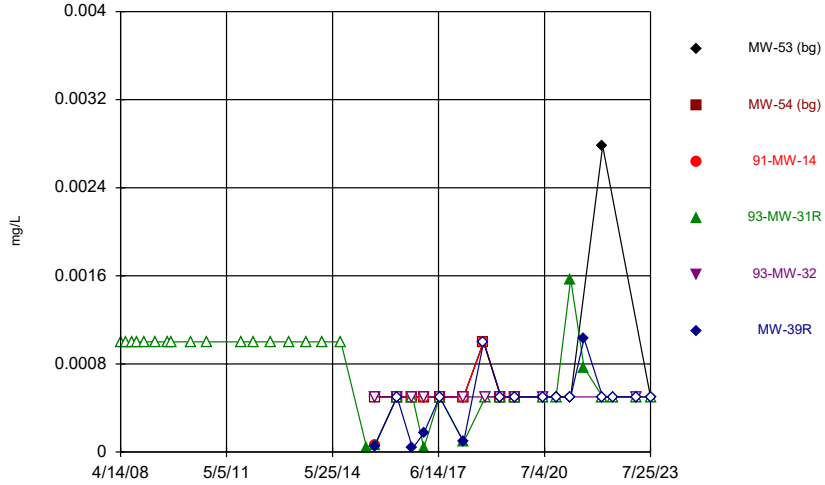

Constituent: Thallium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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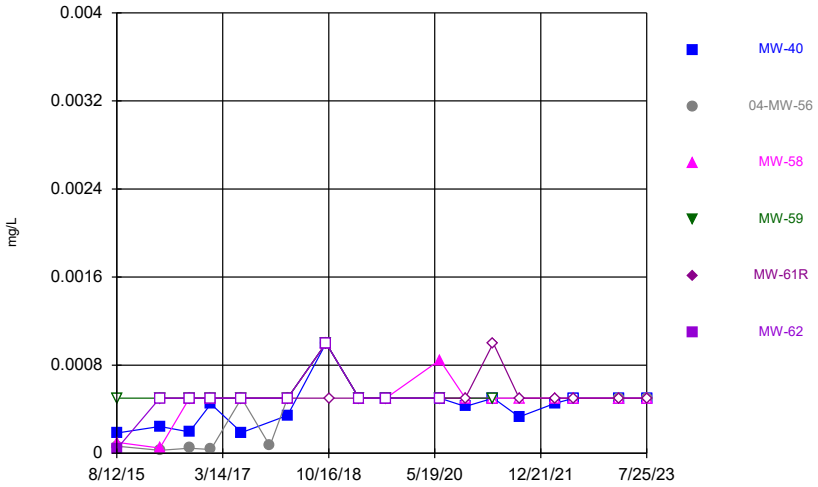

Constituent: Thallium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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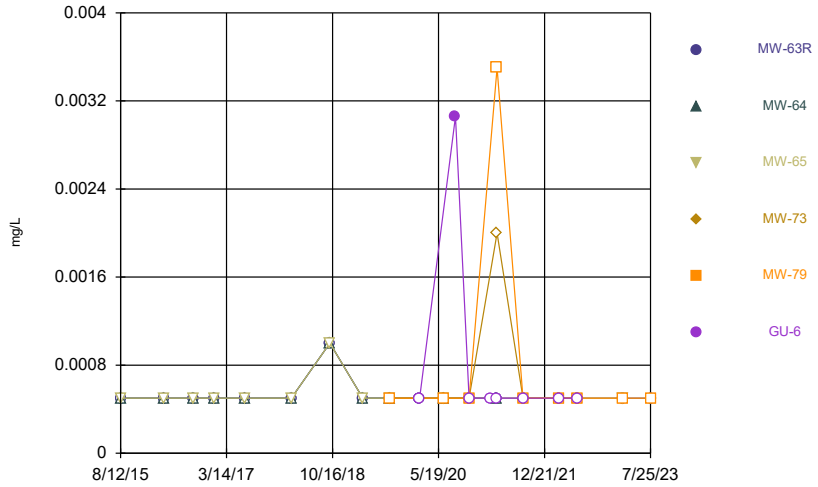

Constituent: Thallium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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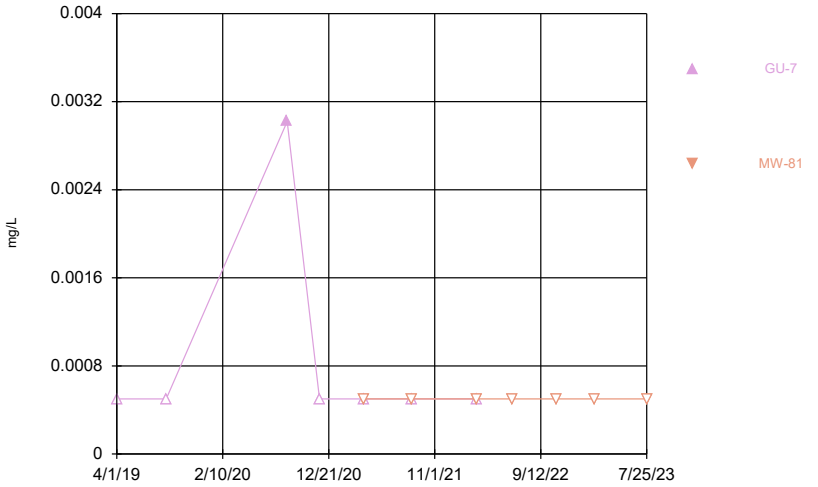

Constituent: Thallium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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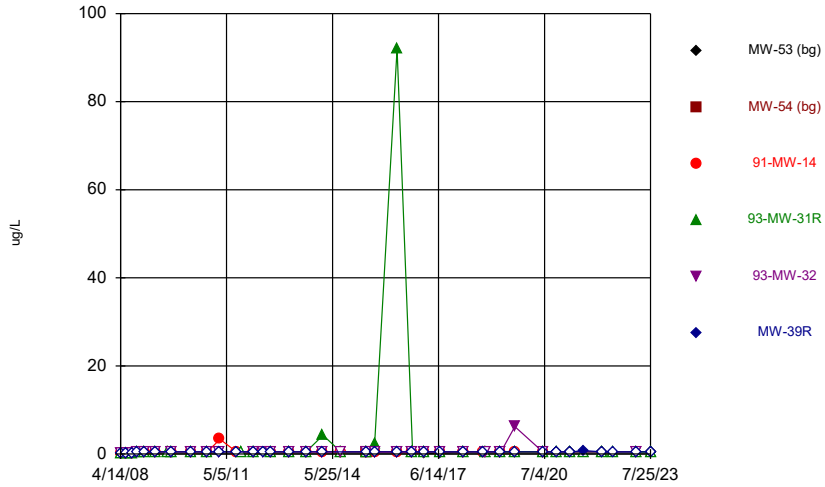
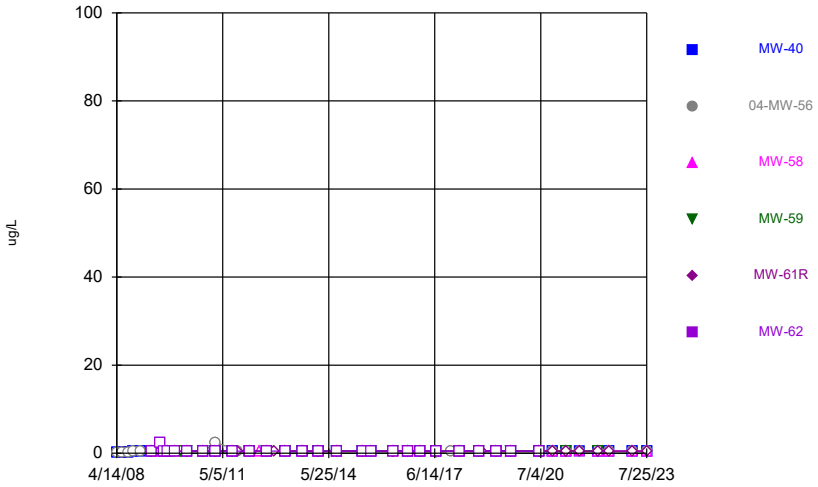


Constituent: Toluene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Toluene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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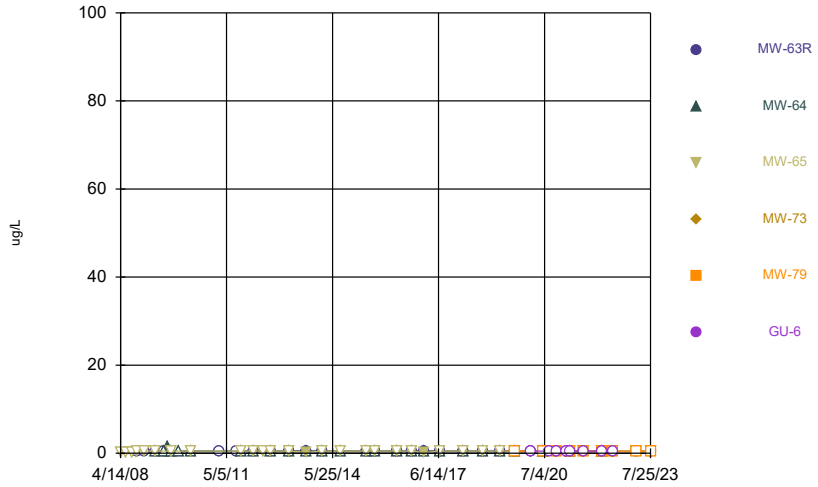
Time Series



Constituent: Toluene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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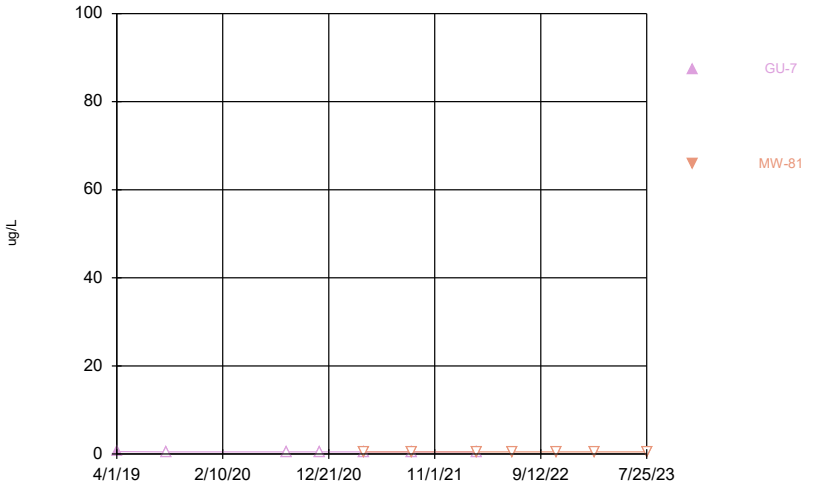

Constituent: Toluene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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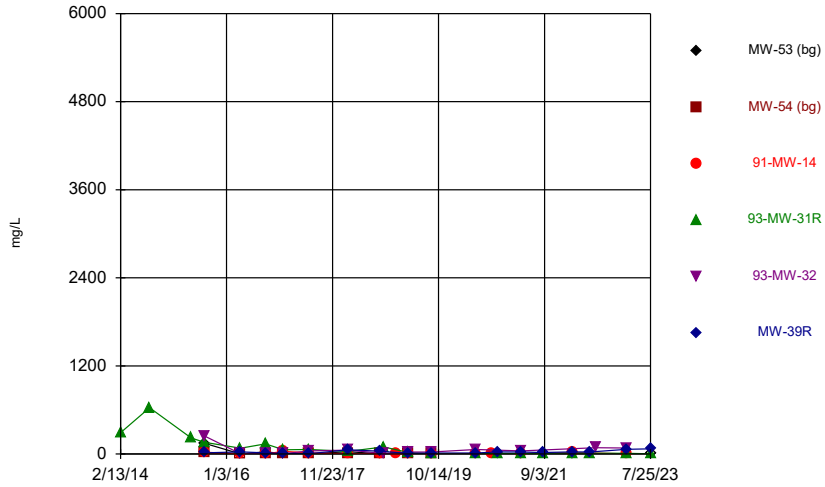
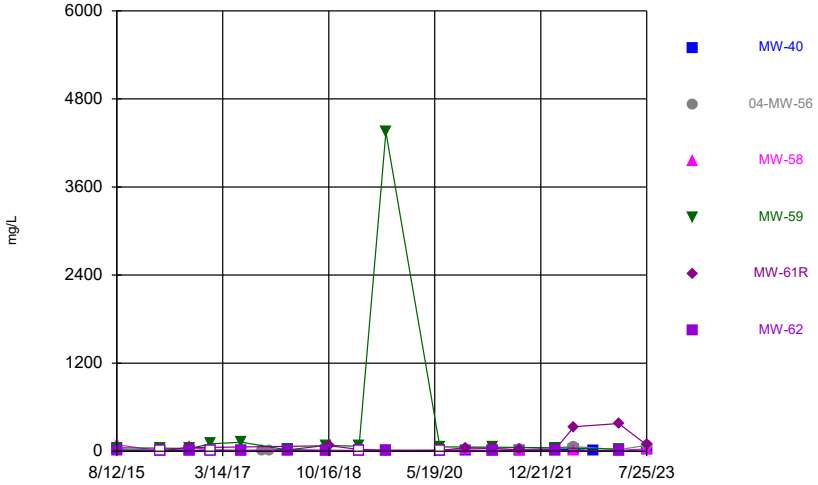


Constituent: Total Suspended Solids Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

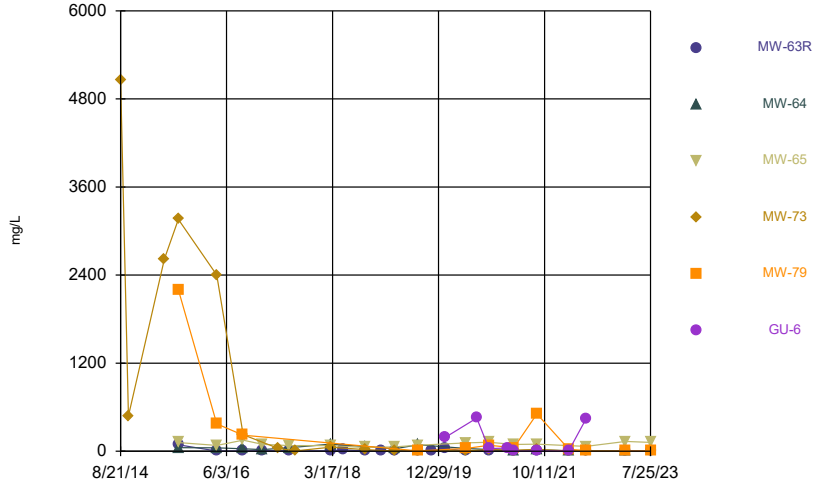
Time Series



Constituent: Total Suspended Solids Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Total Suspended Solids Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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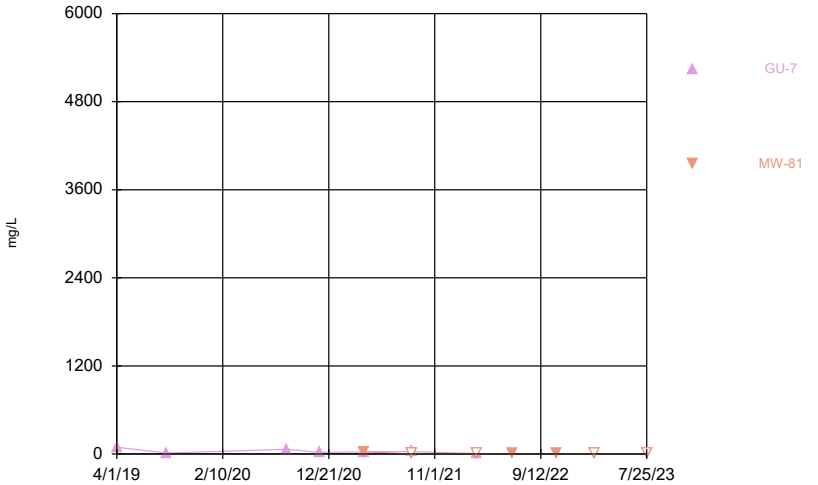

Constituent: Total Suspended Solids Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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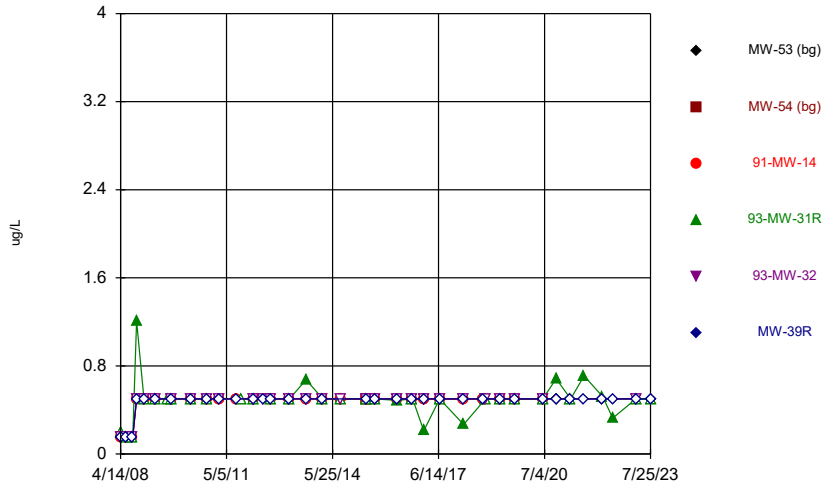

Constituent: trans-1,2-Dichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
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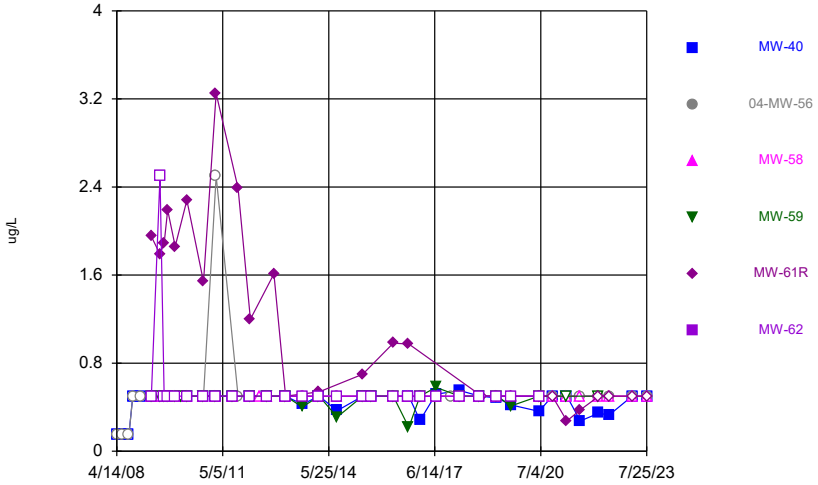

Constituent: trans-1,2-Dichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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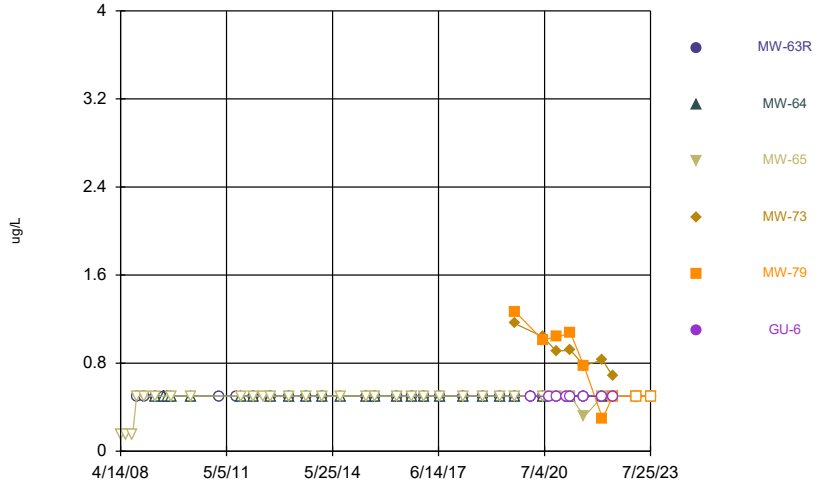

Constituent: trans-1,2-Dichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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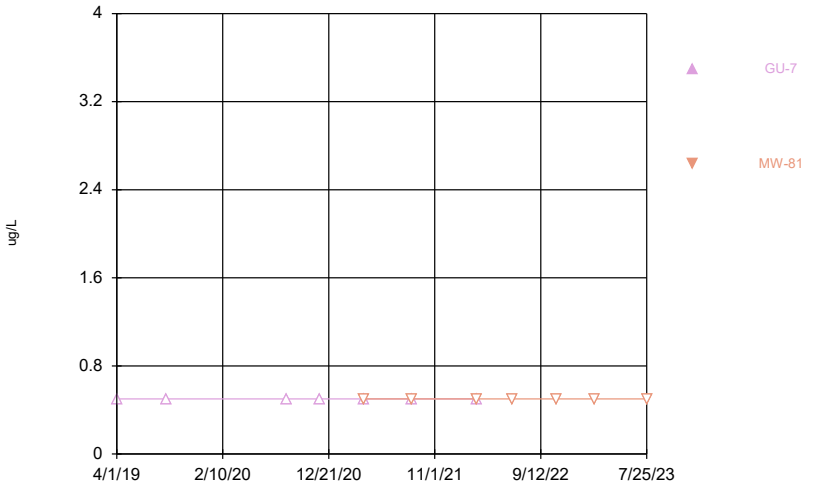

Constituent: trans-1,2-Dichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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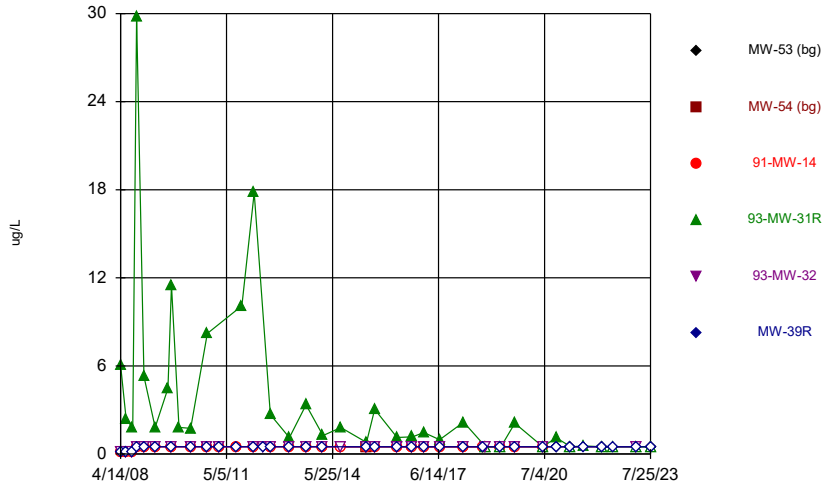

Constituent: Trichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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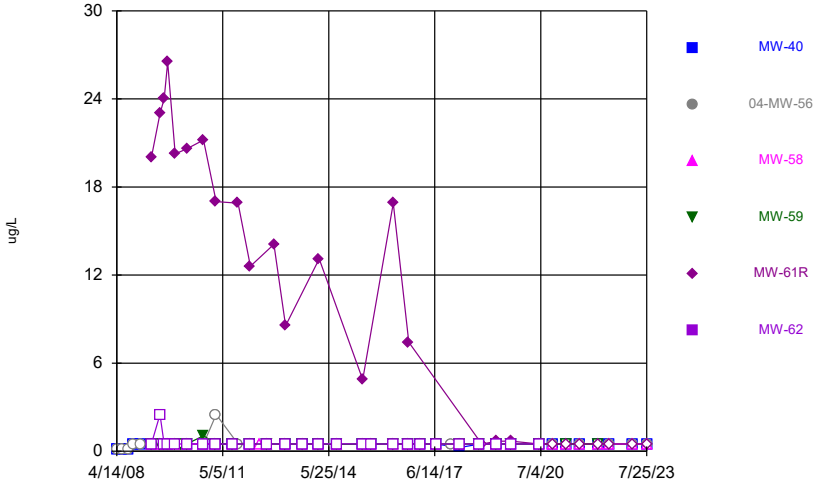

Constituent: Trichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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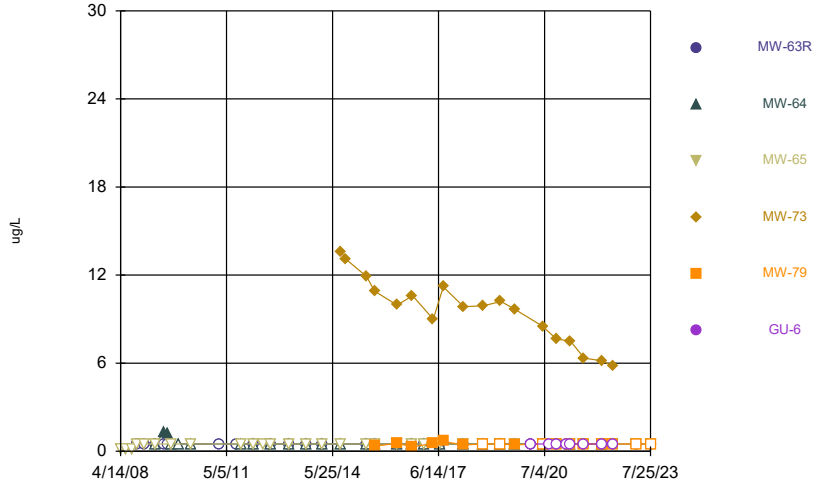

Constituent: Trichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
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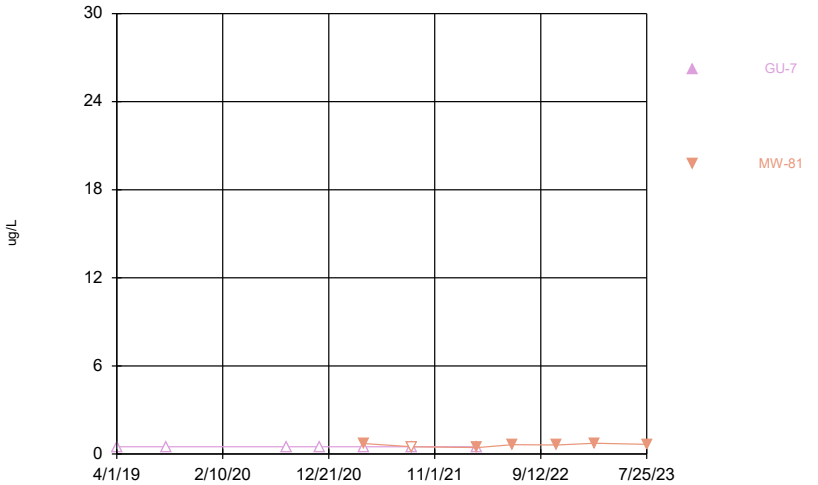

Constituent: Trichloroethene Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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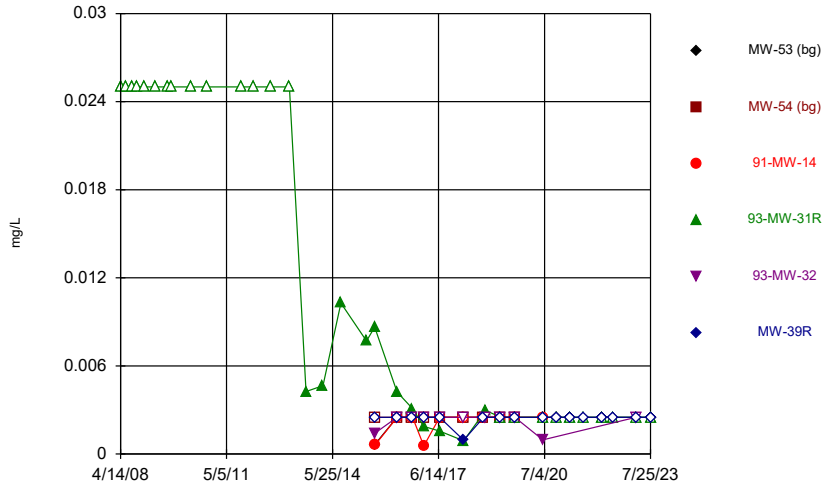
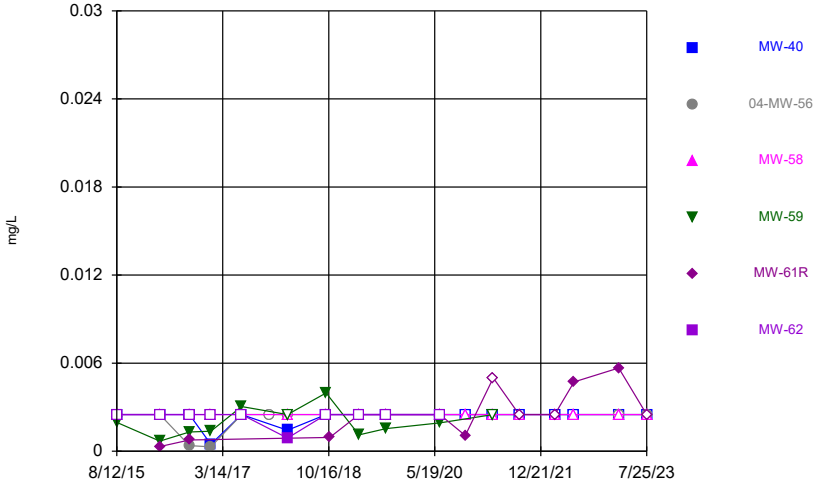


Constituent: Vanadium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

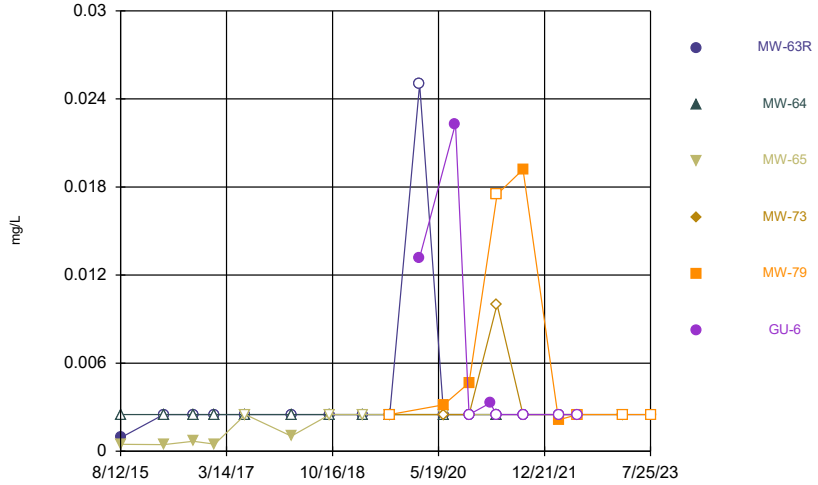
Time Series



Constituent: Vanadium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

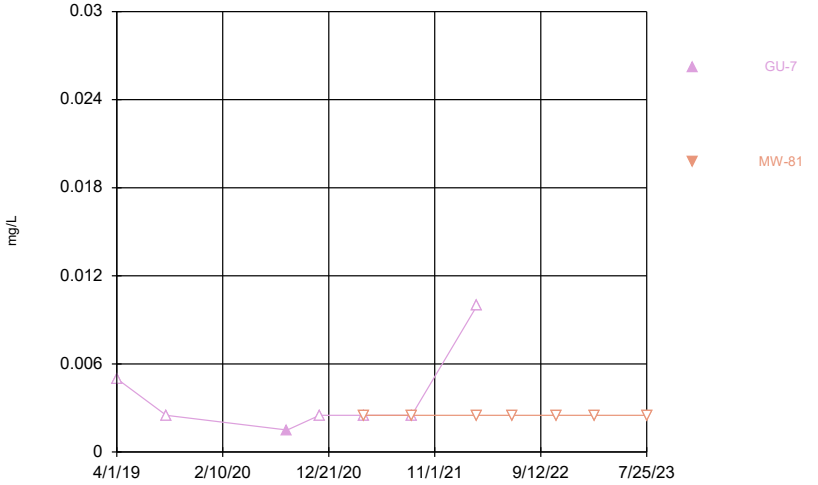
Time Series



Constituent: Vanadium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

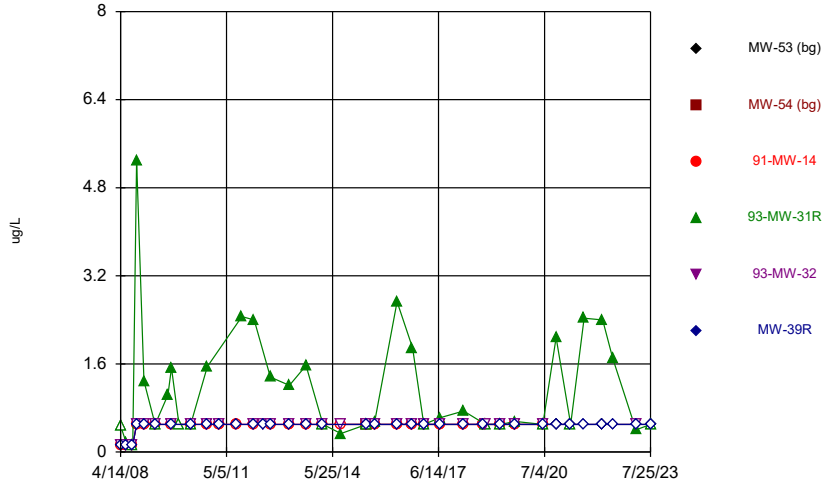
Time Series



Constituent: Vanadium Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

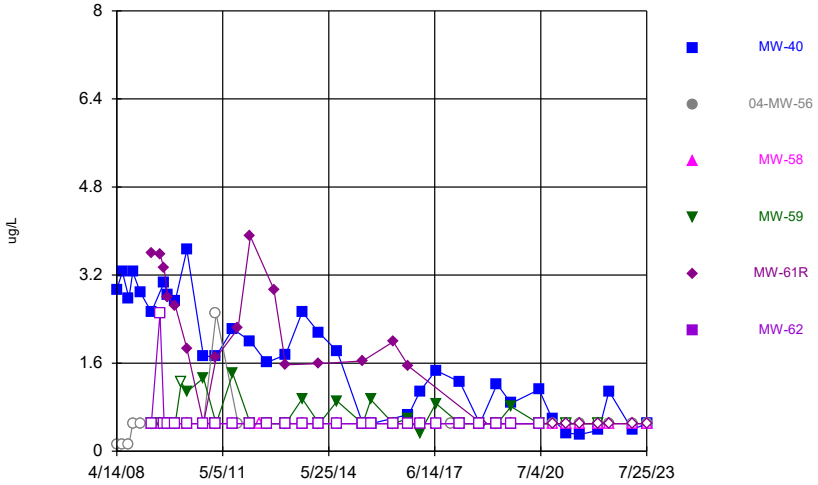
Time Series



Constituent: Vinyl chloride Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

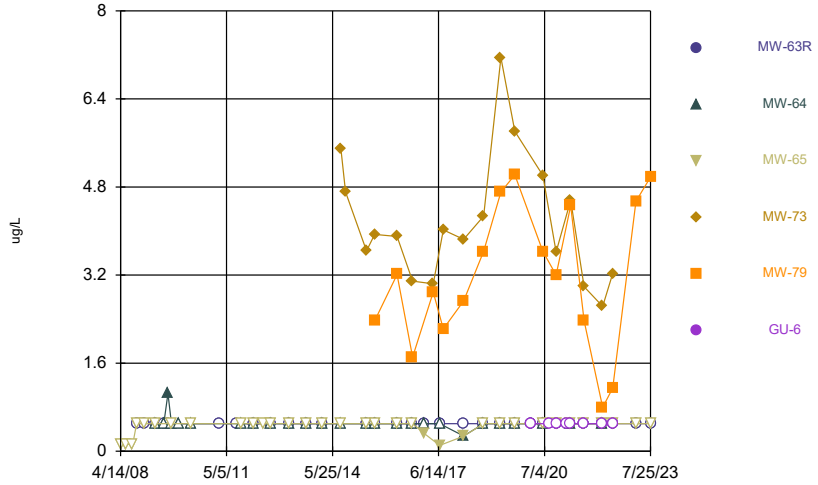
Time Series



Constituent: Vinyl chloride Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

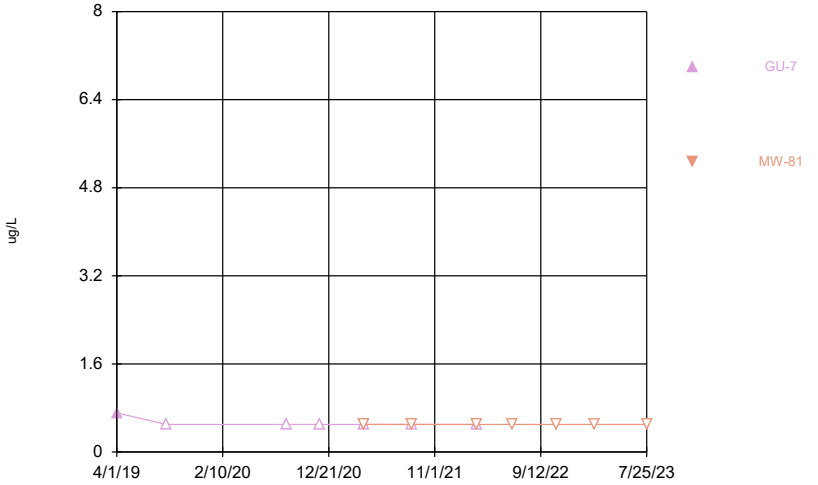
Time Series



Constituent: Vinyl chloride Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

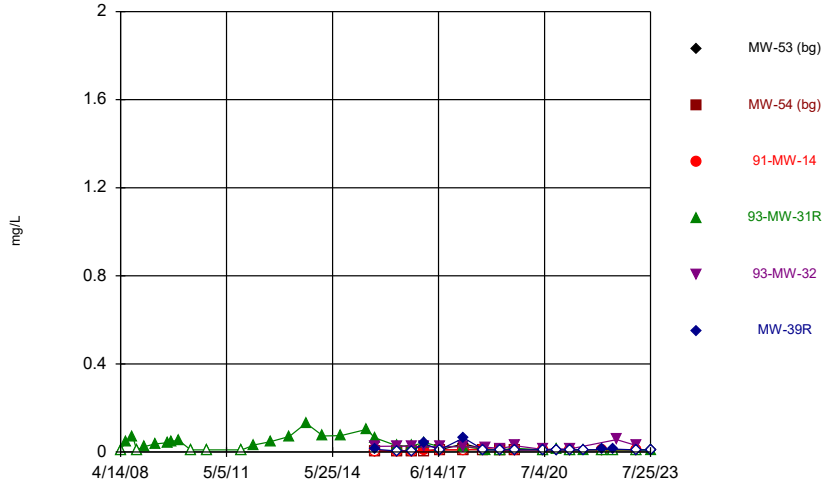
Time Series



Constituent: Vinyl chloride Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

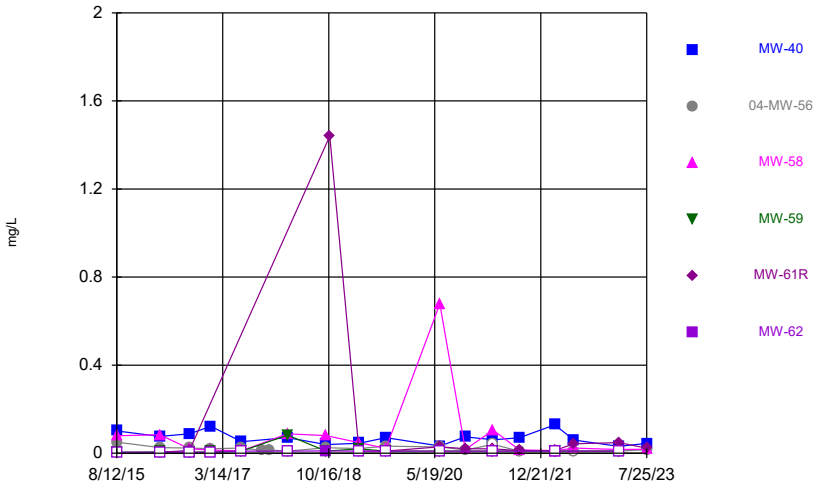
Time Series



Constituent: Zinc Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

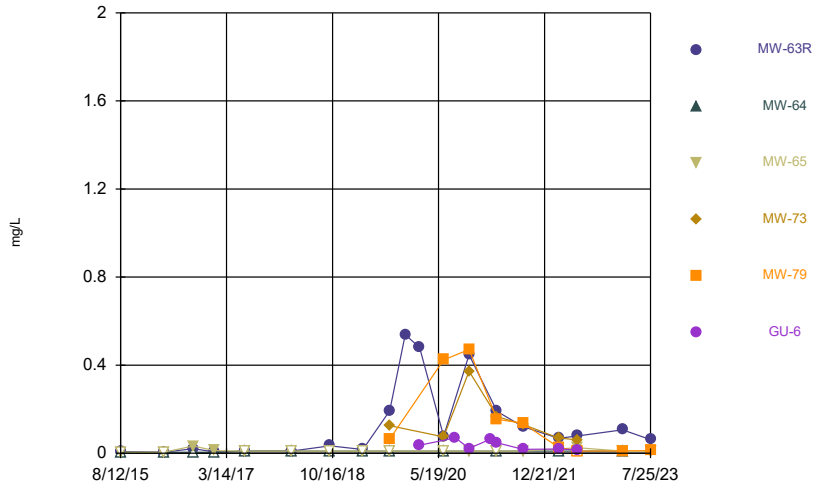
Time Series



Constituent: Zinc Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

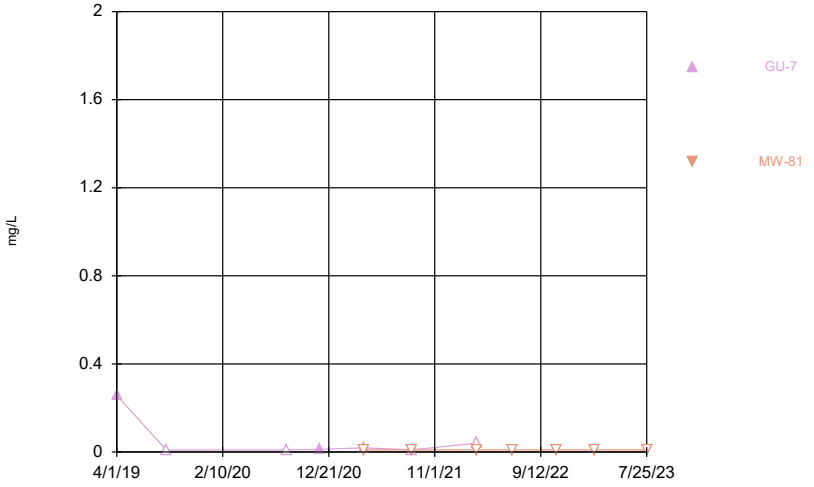
Time Series



Constituent: Zinc Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Zinc Analysis Run 9/14/2023 6:35 PM View: 2023AWQR - Time Series
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Outlier Tests Summary Table and Graphs

Outlier Analysis

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 9/15/2023, 4:36 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Normality Test
Antimony (mg/L)	**MW-53,MW-54**	**Yes**	**0.00256**	**n/a w/combined bg**	**OH**	**NaN**	**22**	**0.0007059**	**0.0005326**	**n/a**
Arsenic (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.0009986	0.0002807	n/a
Barium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	NP (nrm)/OH	NaN	22	0.02011	0.00691	ShapiroWilk
Beryllium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.0004882	0.0001243	n/a
Cadmium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	EPA/OH	0.05	22	0.0002483	0.0002316	ShapiroWilk
Chromium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.00254	0.0001897	n/a
Cobalt (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	EPA/OH	0.05	22	0.002378	0.003421	ShapiroWilk
Copper (mg/L)	**MW-53,MW-54**	**Yes**	**0.000562,0.00837,0.00163**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**22**	**0.002574**	**0.001372**	**ShapiroWilk**
Lead (mg/L)	**MW-53,MW-54**	**Yes**	**0.00232,0.000553,0.00179,0.00191**	**n/a w/combined bg**	**NP (nrm)/OH**	**NaN**	**22**	**0.0005035**	**0.0006208**	**ShapiroWilk**
Nickel (mg/L)	MW-54,MW-53	No	n/a	n/a w/combined bg	EPA/OH	0.05	22	0.0077	0.007568	ShapiroWilk
Selenium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.002404	0.0006483	n/a
Silver (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.0004734	0.0001492	n/a
Thallium (mg/L)	**MW-53,MW-54**	**Yes**	**0.00278**	**n/a w/combined bg**	**OH**	**NaN**	**22**	**0.0006491**	**0.0004981**	**n/a**
Vanadium (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.002415	0.0003972	n/a
Zinc (mg/L)	MW-53,MW-54	No	n/a	n/a w/combined bg	OH	NaN	22	0.009708	0.006783	n/a

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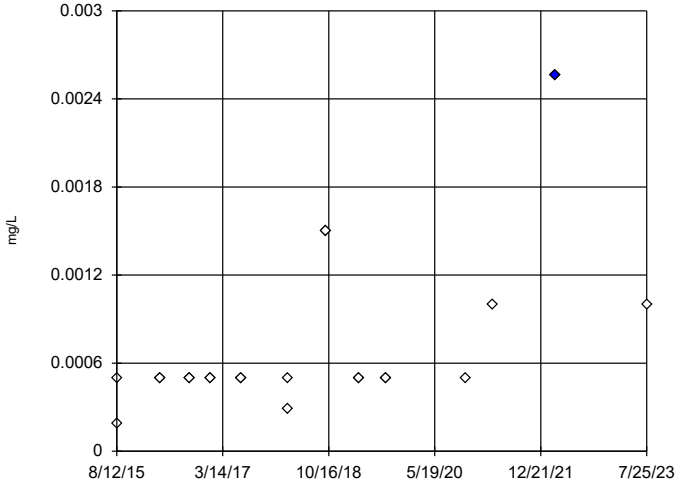
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Antimony Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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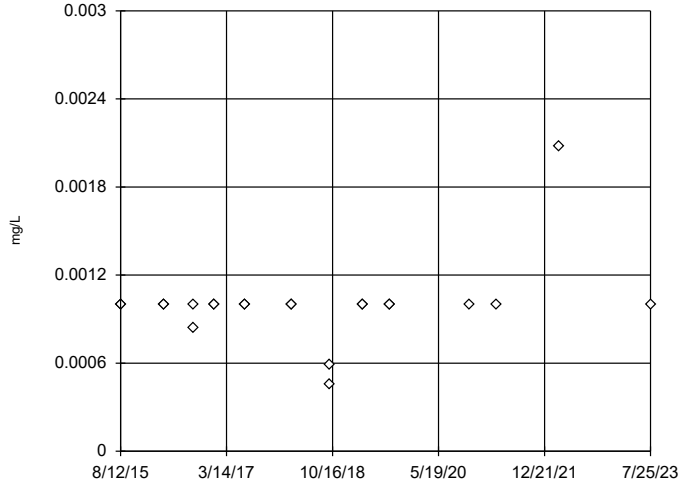
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

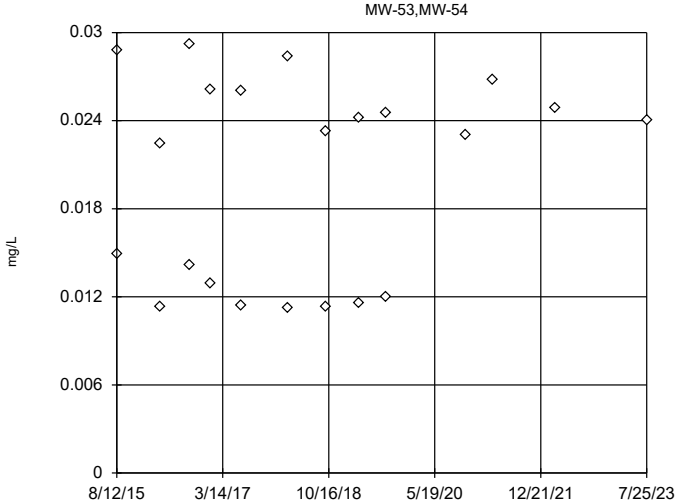
No statistical outliers.

Constituent: Arsenic Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

No outliers found.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

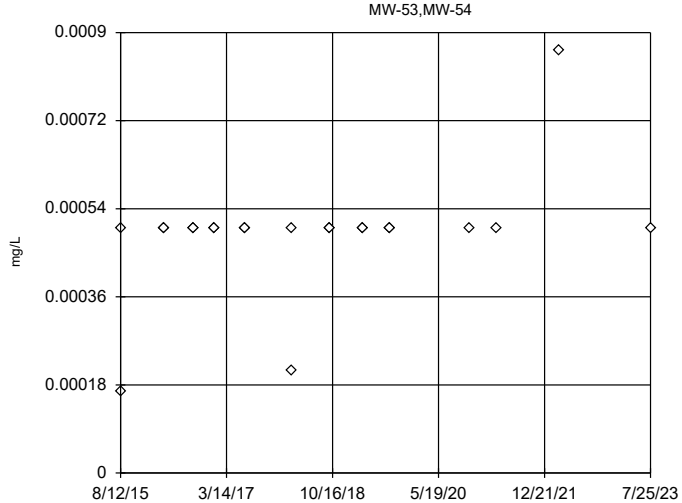
High cutoff = 0.0688, low cutoff = -0.03095, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



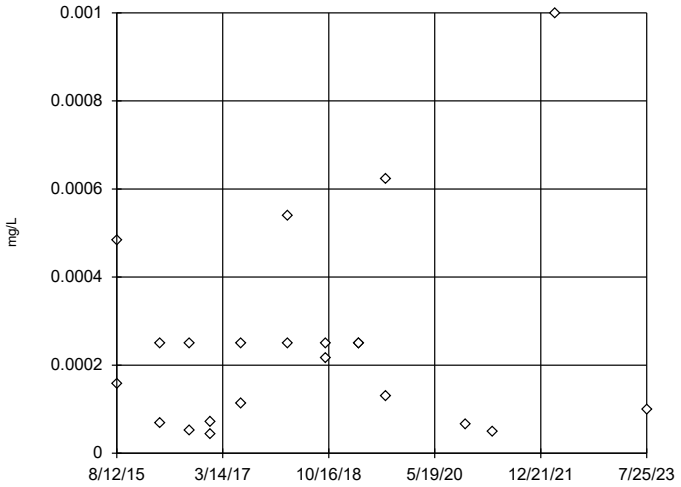
n = 22

No statistical outliers.

Constituent: Beryllium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

EPA Screening (suspected outliers for Rosner's Test)

MW-53,MW-54



n = 22

Rosner's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.0002483, std. dev. 0.0002316, critical Tn 2.603

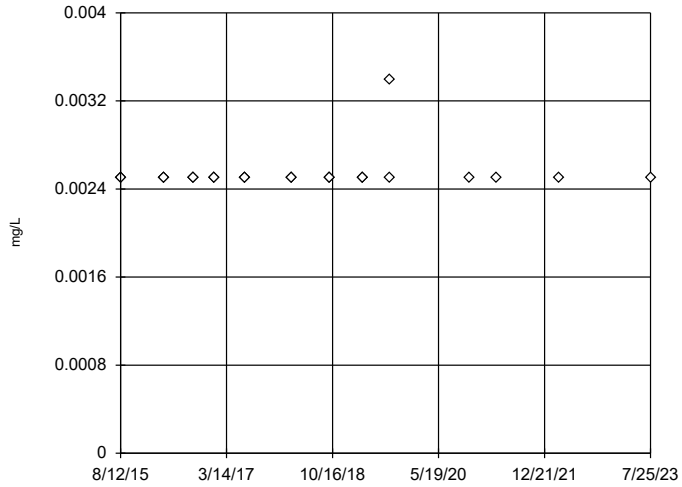
Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9486
Critical = 0.878 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Cadmium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

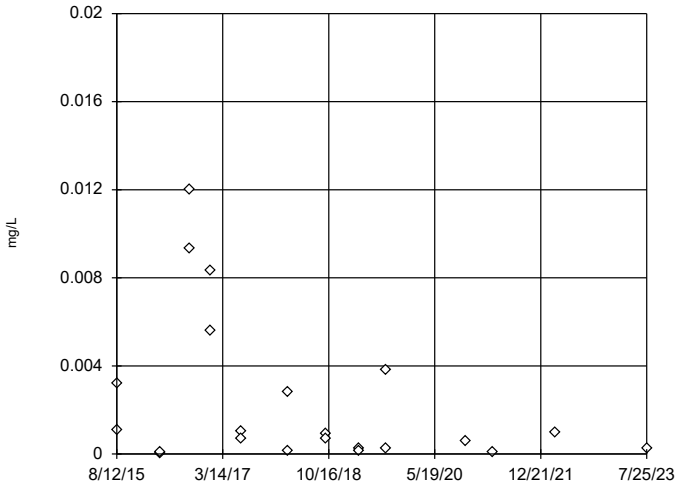
No statistical outliers.

Constituent: Chromium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

EPA Screening (suspected outliers for Rosner's Test)

MW-53,MW-54



n = 22

Rosner's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.002378, std. dev. 0.003421, critical Tn 2.603

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9569
Critical = 0.878 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Cobalt Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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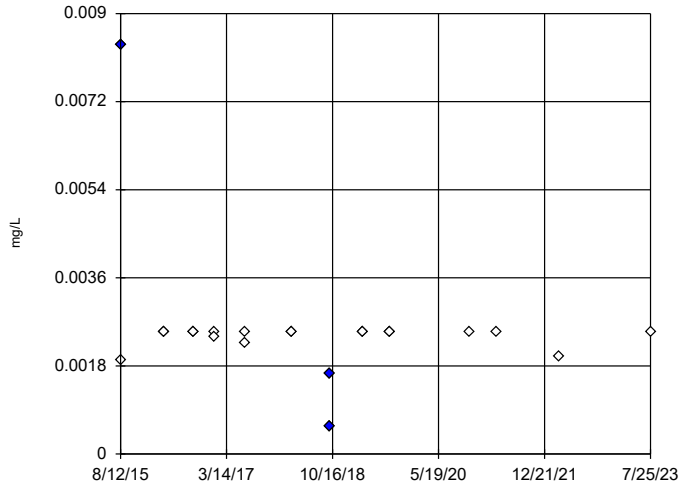
Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

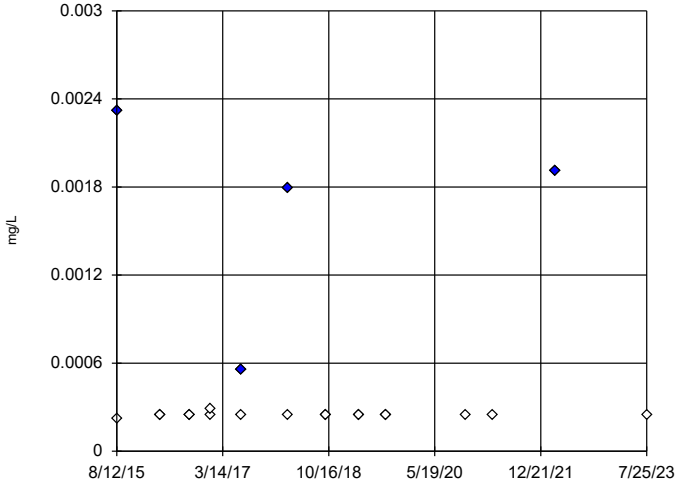
Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.003025, low cutoff = 0.0018, based on IQR multiplier of 3.

Constituent: Copper Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Tukey's Outlier Screening / Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

Outliers are drawn as solid.
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.01 alpha level.

High cutoff = 0.000324, low cutoff = 0.0001945, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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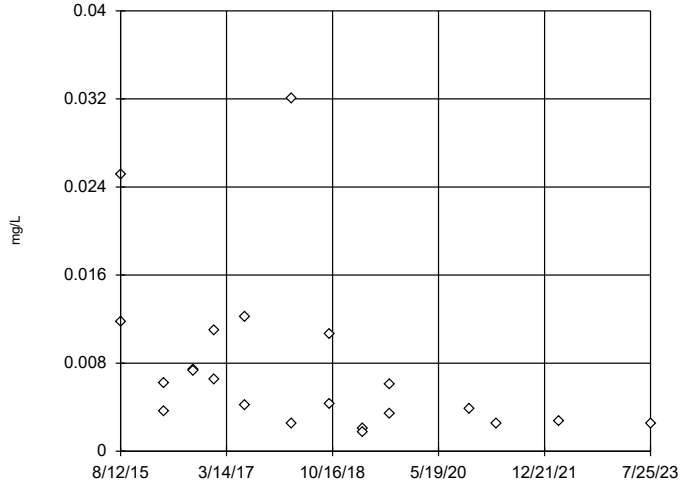
EPA Screening (suspected outliers for Rosner's Test)

MW-54,MW-53



n = 22

Rosner's will not be run.
No suspect values identified or unable to establish suspect values.
Ohio method in use.
Mean 0.0077, std. dev. 0.007568, critical Tn 2.603

Normality test used:
Shapiro Wilk@alpha = 0.01
Calculated = 0.9486
Critical = 0.878 (after natural log transformation)
The distribution was found to be log-normal.

Constituent: Nickel Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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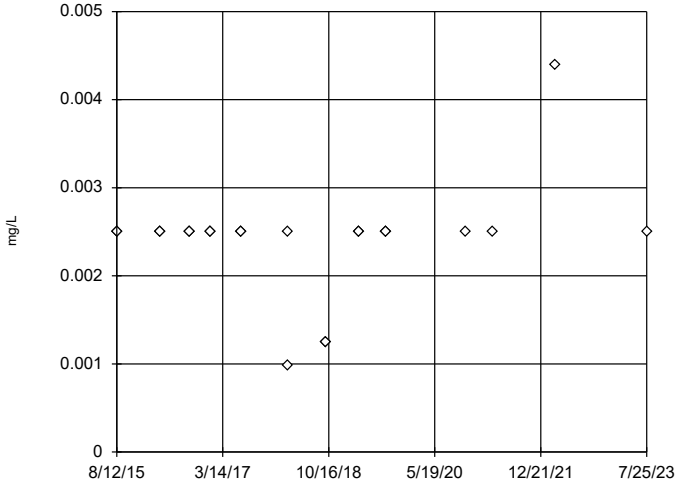
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

No statistical outliers.

Constituent: Selenium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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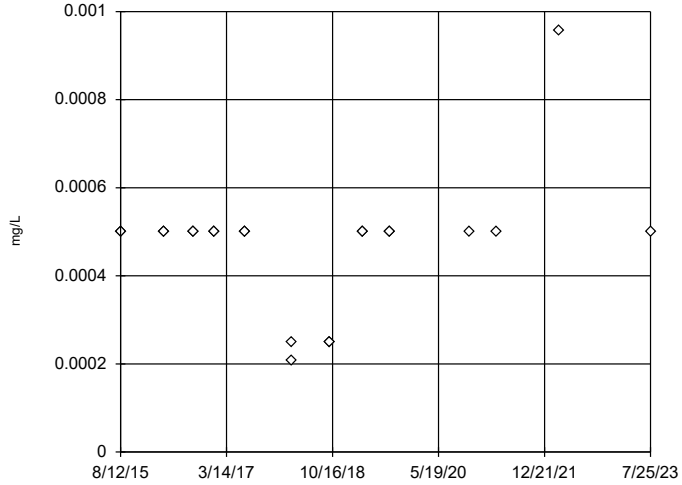
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

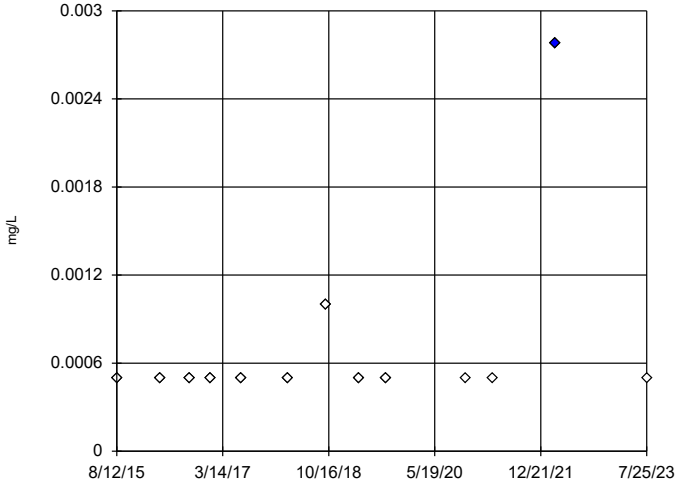
No statistical outliers.

Constituent: Silver Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

Statistical outlier is drawn as solid.
Outlier per Ohio method.

Constituent: Thallium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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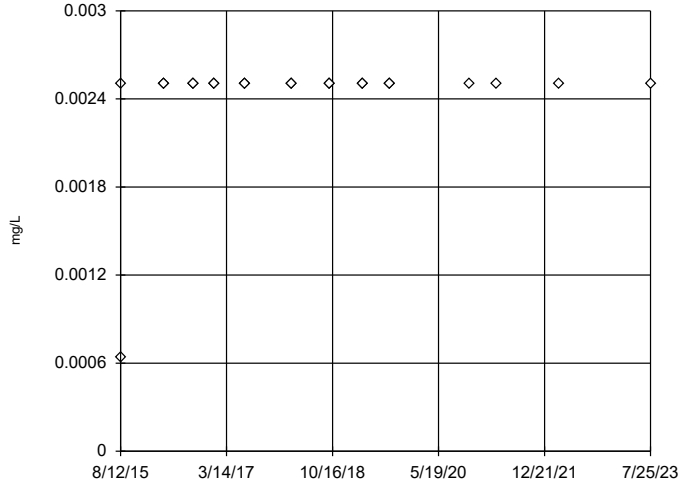
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

No statistical outliers.

Constituent: Vanadium Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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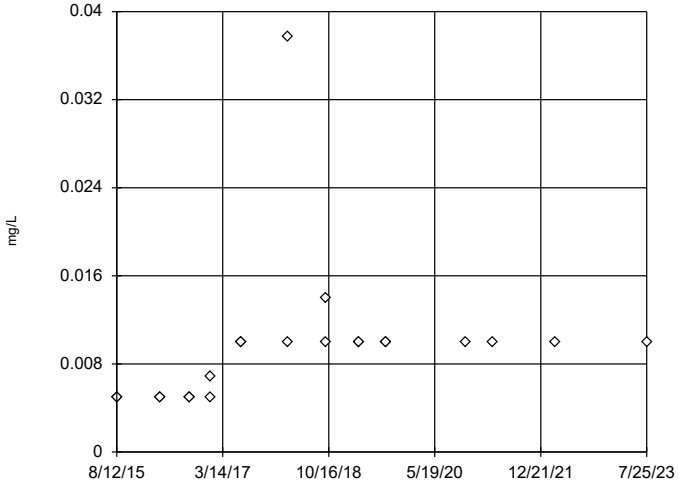
Ohio EPA 0715 Outlier Algorithm, Pooled Background

MW-53,MW-54



n = 22

No statistical outliers.

Constituent: Zinc Analysis Run 9/15/2023 4:35 PM View: 2023AWQR - Outliers BG
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Interwell Prediction Limit Summary Table and Graphs – AMD Wells

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 9/15/2023, 5:07 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Arsenic (mg/L)	**MW-39R**	**0.00208**	**n/a**	**7/25/2023**	**0.0223**	**Yes**	**22**	**81.82**	**n/a**	**0.003131**	**NP Inter (NDs) 1 of 2**
Arsenic (mg/L)	**MW-40**	**0.00208**	**n/a**	**7/25/2023**	**0.00466**	**Yes**	**22**	**81.82**	**n/a**	**0.003131**	**NP Inter (NDs) 1 of 2**
Arsenic (mg/L)	**04-MW-56**	**0.00208**	**n/a**	**7/25/2023**	**0.004705**	**Yes**	**22**	**81.82**	**n/a**	**0.003131**	**NP Inter (NDs) 1 of 2**
Arsenic (mg/L)	**MW-65**	**0.00208**	**n/a**	**7/25/2023**	**0.0187**	**Yes**	**22**	**81.82**	**n/a**	**0.003131**	**NP Inter (NDs) 1 of 2**
Barium (mg/L)	MW-39R	0.0292	n/a	7/25/2023	0.00939	No	22	0	n/a	0.003131	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-40	0.0292	n/a	7/25/2023	0.0148	No	22	0	n/a	0.003131	NP Inter (normality) 1 of 2
Barium (mg/L)	04-MW-56	0.0292	n/a	7/25/2023	0.02795	No	22	0	n/a	0.003131	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-58	0.0292	n/a	7/25/2023	0.0107	No	22	0	n/a	0.003131	NP Inter (normality) 1 of 2
Barium (mg/L)	MW-63R	0.0292	n/a	7/25/2023	0.0141	No	22	0	n/a	0.003131	NP Inter (normality) 1 of 2
Barium (mg/L)	**MW-65**	**0.0292**	**n/a**	**7/25/2023**	**0.217**	**Yes**	**22**	**0**	**n/a**	**0.003131**	**NP Inter (normality) 1 of 2**
Cadmium (mg/L)	MW-40	0.0009223	n/a	7/25/2023	0.000616	No	22	40.91	sqrt(x)	0.0002508	Param Inter 1 of 2
Cadmium (mg/L)	MW-63R	0.0009223	n/a	7/25/2023	0.000637	No	22	40.91	sqrt(x)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	**MW-39R**	**0.01671**	**n/a**	**7/25/2023**	**0.0219**	**Yes**	**22**	**9.091**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	**MW-40**	**0.01671**	**n/a**	**7/25/2023**	**0.106**	**Yes**	**22**	**9.091**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	04-MW-56	0.01671	n/a	7/25/2023	0.01495	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	**MW-58**	**0.01671**	**n/a**	**7/25/2023**	**0.0315**	**Yes**	**22**	**9.091**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Cobalt (mg/L)	MW-63R	0.01671	n/a	7/25/2023	0.000686	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Cobalt (mg/L)	MW-65	0.01671	n/a	7/25/2023	0.00327	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	MW-39R	0.03161	n/a	7/25/2023	0.0142	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	**MW-40**	**0.03161**	**n/a**	**7/25/2023**	**0.0656**	**Yes**	**22**	**9.091**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Nickel (mg/L)	**04-MW-56**	**0.03161**	**n/a**	**7/25/2023**	**0.06425**	**Yes**	**22**	**9.091**	**x^(1/3)**	**0.0002508**	**Param Inter 1 of 2**
Nickel (mg/L)	MW-58	0.03161	n/a	7/25/2023	0.0305	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	MW-63R	0.03161	n/a	7/25/2023	0.0135	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Nickel (mg/L)	MW-65	0.03161	n/a	7/25/2023	0.0068	No	22	9.091	x^(1/3)	0.0002508	Param Inter 1 of 2
Zinc (mg/L)	**MW-40**	**0.0377**	**n/a**	**7/25/2023**	**0.0443**	**Yes**	**22**	**86.36**	**n/a**	**0.003131**	**NP Inter (NDs) 1 of 2**
Zinc (mg/L)	**MW-63R**	**0.0377**	**n/a**	**7/25/2023**	**0.0618**	**Yes**	**22**	**86.36**	**n/a**	**0.003131**	**NP Inter (NDs) 1 of 2**

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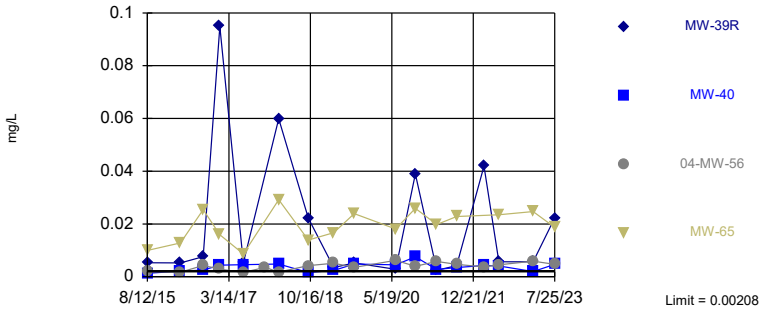
Exceeds Limit: MW-39R, MW-40, 04-MW-56, MW-65

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 81.82% NDs. Annual per-constituent alpha = 0.08406. Individual comparison alpha = 0.003131 (1 of 2). Comparing 4 points to limit. Assumes 10 future values.

Constituent: Arsenic Analysis Run 9/15/2023 5:05 PM View: 2023AWQR - AMD Wells InterPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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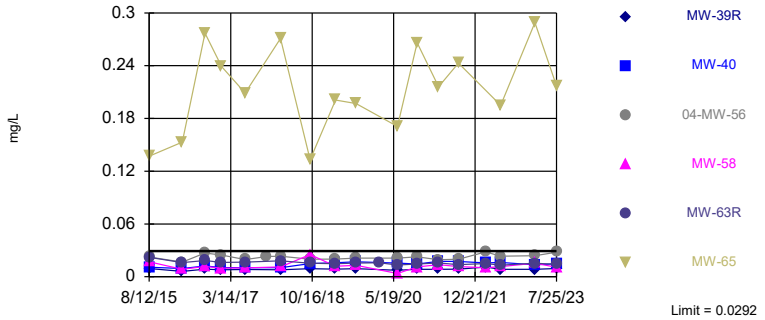
Exceeds Limit: MW-65

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 22 background values. Annual per-constituent alpha = 0.08406. Individual comparison alpha = 0.003131 (1 of 2). Comparing 6 points to limit. Assumes 8 future values.

Constituent: Barium Analysis Run 9/15/2023 5:05 PM View: 2023AWQR - AMD Wells InterPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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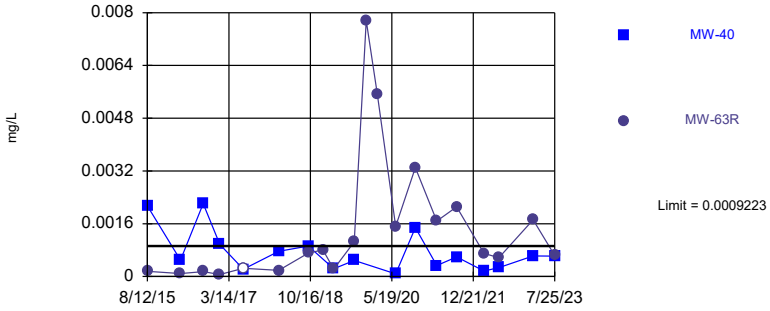
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.01273, Std. Dev.=0.006881, n=22, 40.91% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8981, critical = 0.878. Kappa = 2.563 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 2 points to limit. Assumes 12 future values.

Constituent: Cadmium Analysis Run 9/15/2023 5:05 PM View: 2023AWQR - AMD Wells InterPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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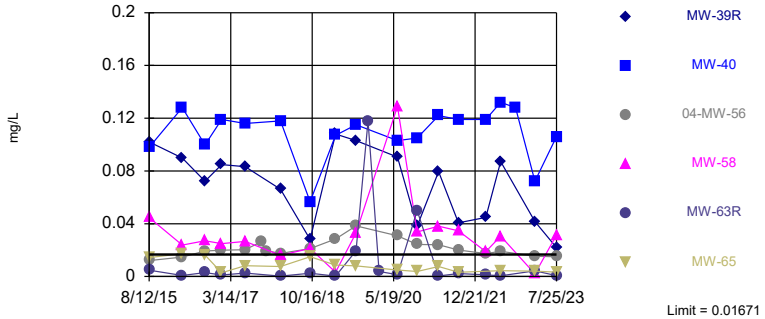
Exceeds Limit: MW-39R, MW-40, MW-58

Prediction Limit

Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=0.1065, Std. Dev.=0.05819, n=22, 9.091% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8996, critical = 0.878. Kappa = 2.563 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 6 points to limit. Assumes 8 future values.

Constituent: Cobalt Analysis Run 9/15/2023 5:05 PM View: 2023AWQR - AMD Wells InterPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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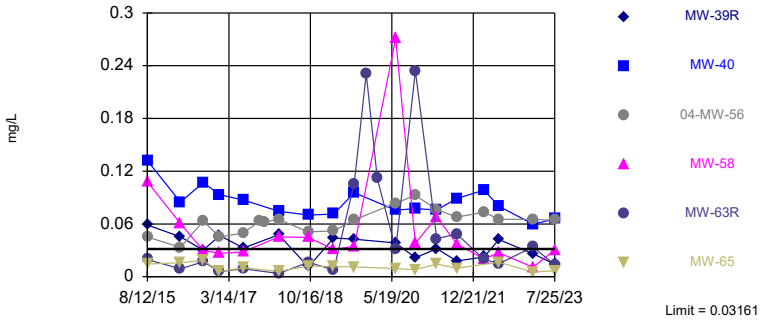
Exceeds Limit: MW-40, 04-MW-56

Prediction Limit

Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=0.1832, Std. Dev.=0.05191, n=22, 9.091% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8923, critical = 0.878. Kappa = 2.563 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.003506. Individual comparison alpha = 0.0002508. Comparing 6 points to limit. Assumes 8 future values.

Constituent: Nickel Analysis Run 9/15/2023 5:05 PM View: 2023AWQR - AMD Wells InterPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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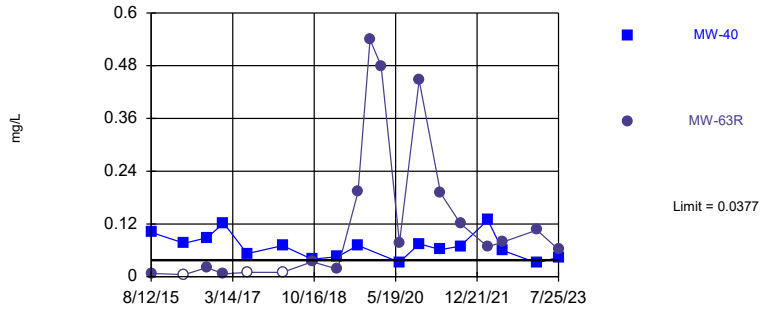
Hollow symbols indicate censored values.

Exceeds Limit: MW-40, MW-63R

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 86.36% NDs. Annual per-constituent alpha = 0.08406. Individual comparison alpha = 0.003131 (1 of 2). Comparing 2 points to limit. Assumes 12 future values.

Constituent: Zinc Analysis Run 9/15/2023 5:05 PM View: 2023AWQR - AMD Wells InterPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Intrawell Prediction Limit Summary Table and Graphs – AMD Wells

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 9/15/2023, 5:23 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Antimony (mg/L)	MW-39R	0.0015	n/a	7/25/2023	0.001ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Antimony (mg/L)	MW-40	0.0015	n/a	7/25/2023	0.001ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Antimony (mg/L)	04-MW-56	0.0015	n/a	7/25/2023	0.001ND	No	11	90.91	n/a	0.01276	NP Intra (NDs) 1 of 2
Antimony (mg/L)	MW-58	0.002	n/a	7/25/2023	0.001ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Arsenic (mg/L)	MW-39R	0.1791	n/a	7/25/2023	0.0223	No	12	0	x^(1/3)	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	MW-40	0.00912	n/a	7/25/2023	0.00466	No	12	0	No	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	04-MW-56	0.008195	n/a	7/25/2023	0.004705	No	13	0	No	0.0002508	Param Intra 1 of 2
Arsenic (mg/L)	MW-58	0.004	n/a	7/25/2023	0.001ND	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Arsenic (mg/L)	MW-63R	0.01	n/a	7/25/2023	0.001ND	No	13	76.92	n/a	0.009692	NP Intra (NDs) 1 of 2
Arsenic (mg/L)	MW-65	0.03865	n/a	7/25/2023	0.0187	No	12	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-39R	0.01096	n/a	7/25/2023	0.00939	No	12	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-40	0.02238	n/a	7/25/2023	0.0148	No	12	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	04-MW-56	0.0295	n/a	7/25/2023	0.02795	No	13	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-58	0.02799	n/a	7/25/2023	0.0107	No	12	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-63R	0.02289	n/a	7/25/2023	0.0141	No	13	0	No	0.0002508	Param Intra 1 of 2
Barium (mg/L)	MW-65	0.3614	n/a	7/25/2023	0.217	No	12	0	No	0.0002508	Param Intra 1 of 2
Beryllium (mg/L)	MW-39R	0.0005	n/a	7/25/2023	0.0005ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Beryllium (mg/L)	MW-40	0.0005	n/a	7/25/2023	0.0005ND	No	12	75	n/a	0.01077	NP Intra (NDs) 1 of 2
Beryllium (mg/L)	04-MW-56	0.0005	n/a	7/25/2023	0.0005ND	No	11	90.91	n/a	0.01276	NP Intra (NDs) 1 of 2
Beryllium (mg/L)	MW-58	0.0054	n/a	7/25/2023	0.0005ND	No	12	41.67	n/a	0.01077	NP Intra (normality) 1 of 2
Beryllium (mg/L)	MW-63R	0.00188	n/a	7/25/2023	0.0005ND	No	13	69.23	n/a	0.009692	NP Intra (NDs) 1 of 2
Beryllium (mg/L)	MW-65	0.0005	n/a	2/21/2023	0.0005ND	No	10	80	n/a	0.01476	NP Intra (NDs) 1 of 2
Cadmium (mg/L)	MW-39R	0.000319	n/a	7/25/2023	0.0001ND	No	12	58.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Cadmium (mg/L)	MW-40	0.003094	n/a	7/25/2023	0.000616	No	12	0	No	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	04-MW-56	0.0005274	n/a	7/25/2023	0.0001ND	No	13	38.46	No	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	MW-58	0.01314	n/a	7/25/2023	0.0001ND	No	12	8.333	x^(1/3)	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	MW-63R	0.01037	n/a	7/25/2023	0.000637	No	15	6.667	sqrt(x)	0.0002508	Param Intra 1 of 2
Cadmium (mg/L)	MW-65	0.000735	n/a	7/25/2023	0.0001ND	No	12	66.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-39R	0.0025	n/a	7/25/2023	0.0025ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Chromium (mg/L)	04-MW-56	0.0025	n/a	7/25/2023	0.0025ND	No	11	90.91	n/a	0.01276	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-58	0.0025	n/a	7/25/2023	0.0025ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-63R	0.025	n/a	7/25/2023	0.0025ND	No	13	92.31	n/a	0.009692	NP Intra (NDs) 1 of 2
Chromium (mg/L)	MW-65	0.0025	n/a	2/21/2023	0.0025ND	No	10	60	n/a	0.01476	NP Intra (NDs) 1 of 2
Cobalt (mg/L)	MW-39R	0.1546	n/a	7/25/2023	0.0219	No	12	0	No	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-40	0.164	n/a	7/25/2023	0.106	No	12	0	No	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	04-MW-56	0.04254	n/a	7/25/2023	0.01495	No	14	0	No	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-58	0.1521	n/a	7/25/2023	0.0315	No	12	0	sqrt(x)	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-63R	0.6753	n/a	7/25/2023	0.000686	No	14	0	ln(x)	0.0002508	Param Intra 1 of 2
Cobalt (mg/L)	MW-65	0.02472	n/a	7/25/2023	0.00327	No	12	0	No	0.0002508	Param Intra 1 of 2
Copper (mg/L)	MW-39R	0.0136	n/a	7/25/2023	0.0025ND	No	12	75	n/a	0.01077	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-40	0.00326	n/a	7/25/2023	0.0025ND	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Copper (mg/L)	04-MW-56	0.01	n/a	7/25/2023	0.0025ND	No	13	84.62	n/a	0.009692	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-58	0.01	n/a	7/25/2023	0.0025ND	No	12	66.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-63R	0.025	n/a	7/25/2023	0.0025ND	No	13	76.92	n/a	0.009692	NP Intra (NDs) 1 of 2
Copper (mg/L)	MW-65	0.0025	n/a	7/25/2023	0.0025ND	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-39R	0.00362	n/a	7/25/2023	0.00025ND	No	12	66.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-40	0.0021	n/a	7/25/2023	0.00025ND	No	12	66.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Lead (mg/L)	04-MW-56	0.001	n/a	7/25/2023	0.00025ND	No	13	53.85	n/a	0.009692	NP Intra (NDs) 1 of 2
Lead (mg/L)	MW-58	0.00335	n/a	7/25/2023	0.00025ND	No	12	41.67	n/a	0.01077	NP Intra (normality) 1 of 2
Lead (mg/L)	MW-63R	0.00528	n/a	7/25/2023	0.00025ND	No	14	57.14	n/a	0.008612	NP Intra (NDs) 1 of 2

Prediction Limit

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 9/15/2023, 5:23 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Lead (mg/L)	MW-65	0.00211	n/a	7/25/2023	0.00025ND	No	12	58.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Nickel (mg/L)	MW-39R	0.07721	n/a	7/25/2023	0.0142	No	12	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-40	0.1424	n/a	7/25/2023	0.0656	No	12	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	04-MW-56	0.1075	n/a	7/25/2023	0.06425	No	14	0	No	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-58	0.3946	n/a	7/25/2023	0.0305	No	12	0	ln(x)	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-63R	0.4863	n/a	7/25/2023	0.0135	No	14	0	x^(1/3)	0.0002508	Param Intra 1 of 2
Nickel (mg/L)	MW-65	0.02329	n/a	7/25/2023	0.0068	No	12	0	No	0.0002508	Param Intra 1 of 2
Selenium (mg/L)	MW-39R	0.0025	n/a	7/25/2023	0.0025ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-40	0.0025	n/a	7/25/2023	0.0025ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Selenium (mg/L)	04-MW-56	0.0025	n/a	7/25/2023	0.0025ND	No	11	100	n/a	0.01276	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-58	0.01	n/a	7/25/2023	0.0025ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-63R	0.025	n/a	7/25/2023	0.0025ND	No	13	84.62	n/a	0.009692	NP Intra (NDs) 1 of 2
Selenium (mg/L)	MW-65	0.0025	n/a	2/21/2023	0.000983J	No	10	60	n/a	0.01476	NP Intra (NDs) 1 of 2
Silver (mg/L)	MW-39R	0.0005	n/a	7/25/2023	0.0005ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Silver (mg/L)	04-MW-56	0.0005	n/a	7/25/2023	0.0005ND	No	11	90.91	n/a	0.01276	NP Intra (NDs) 1 of 2
Silver (mg/L)	MW-58	0.0005	n/a	7/25/2023	0.0005ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Silver (mg/L)	MW-63R	0.005	n/a	7/25/2023	0.0005ND	No	13	92.31	n/a	0.009692	NP Intra (NDs) 1 of 2
Thallium (mg/L)	MW-39R	0.001	n/a	7/25/2023	0.0005ND	No	12	66.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Thallium (mg/L)	MW-40	0.0006159	n/a	7/25/2023	0.0005ND	No	12	41.67	No	0.0002508	Param Intra 1 of 2
Thallium (mg/L)	04-MW-56	0.001	n/a	7/25/2023	0.0005ND	No	11	54.55	n/a	0.01276	NP Intra (NDs) 1 of 2
Thallium (mg/L)	MW-58	0.001	n/a	7/25/2023	0.0005ND	No	12	75	n/a	0.01077	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-39R	0.0025	n/a	7/25/2023	0.0025ND	No	12	91.67	n/a	0.01077	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-40	0.0025	n/a	7/25/2023	0.0025ND	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	04-MW-56	0.0025	n/a	7/25/2023	0.0025ND	No	11	81.82	n/a	0.01276	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-63R	0.025	n/a	7/25/2023	0.0025ND	No	13	92.31	n/a	0.009692	NP Intra (NDs) 1 of 2
Vanadium (mg/L)	MW-65	0.0025	n/a	2/21/2023	0.0025ND	No	10	50	n/a	0.01476	NP Intra (normality) 1 of 2
Zinc (mg/L)	MW-39R	0.0644	n/a	7/25/2023	0.01ND	No	12	75	n/a	0.01077	NP Intra (NDs) 1 of 2
Zinc (mg/L)	MW-40	0.1489	n/a	7/25/2023	0.0443	No	12	0	No	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	04-MW-56	0.05628	n/a	7/25/2023	0.01595J	No	14	14.29	No	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	MW-58	1.716	n/a	7/25/2023	0.0183J	No	12	0	ln(x)	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	MW-63R	1.309	n/a	7/25/2023	0.0618	No	14	21.43	x^(1/3)	0.0002508	Param Intra 1 of 2
Zinc (mg/L)	MW-65	0.0327	n/a	7/25/2023	0.01ND	No	12	83.33	n/a	0.01077	NP Intra (NDs) 1 of 2

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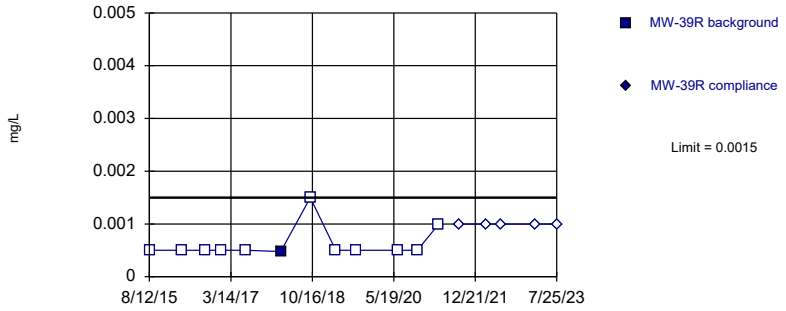
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

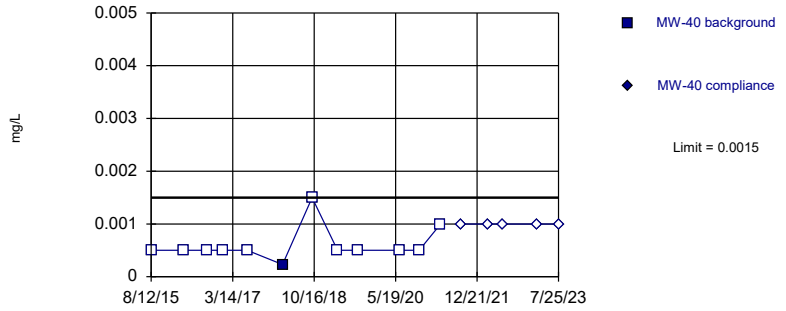
Constituent: Antimony Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

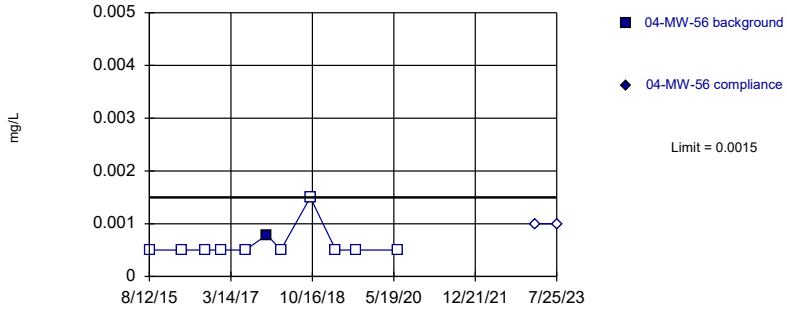
Constituent: Antimony Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

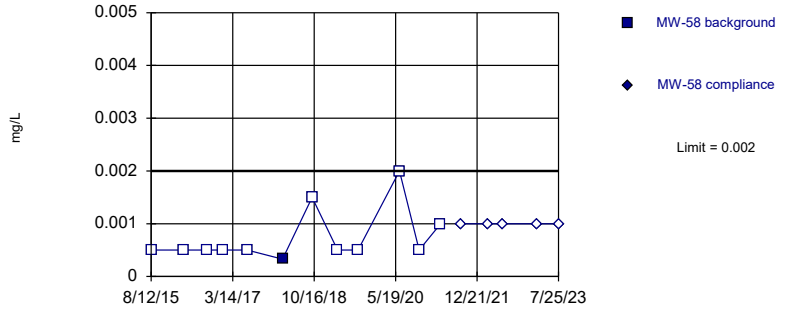
Constituent: Antimony Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

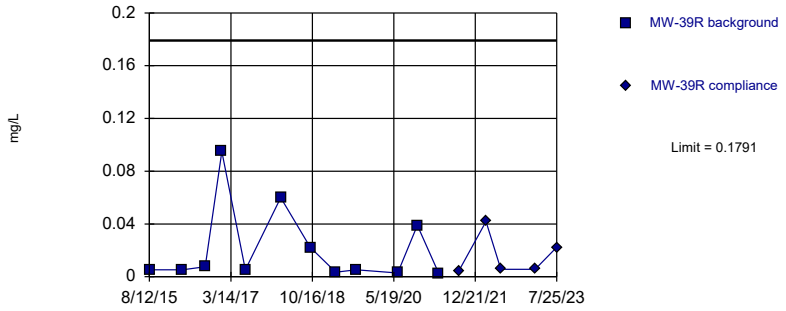
Constituent: Antimony Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation): Mean=0.2322, Std. Dev.=0.108, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8078, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Arsenic Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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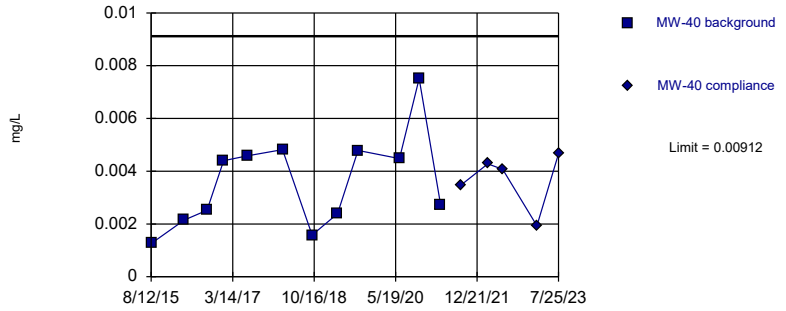
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.003601, Std. Dev.=0.001799, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9115, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Arsenic Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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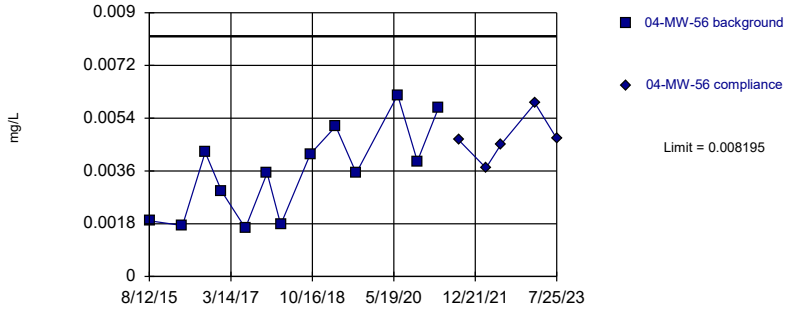
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.003573, Std. Dev.=0.001544, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9254, critical = 0.814. Kappa = 2.994 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Arsenic Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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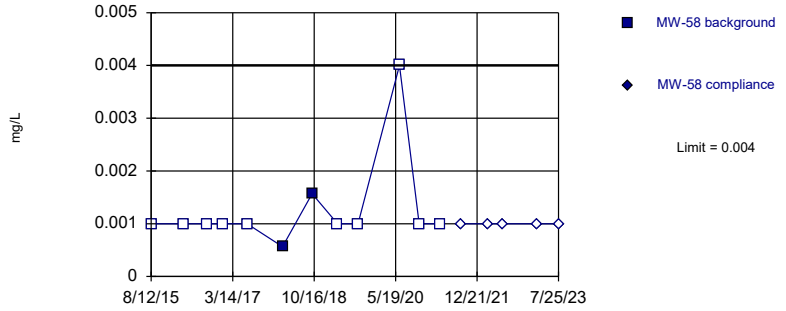
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

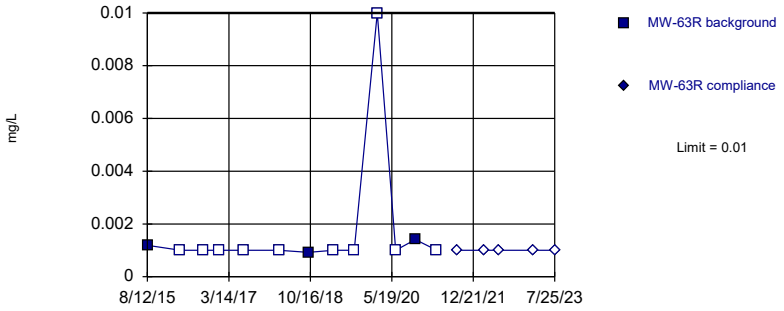
Constituent: Arsenic Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 76.92% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

Constituent: Arsenic Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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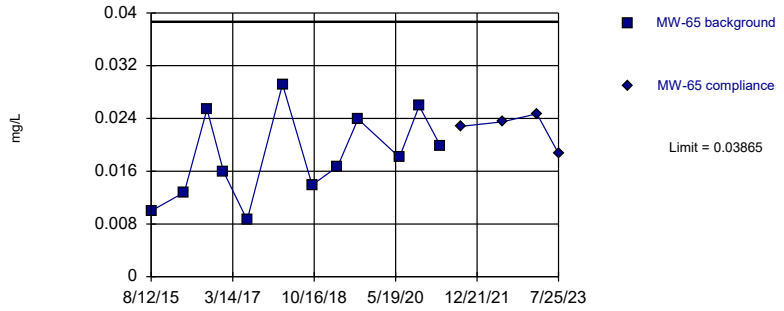
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01835, Std. Dev.=0.00662, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9608, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Arsenic Analysis Run 9/15/2023 5:21 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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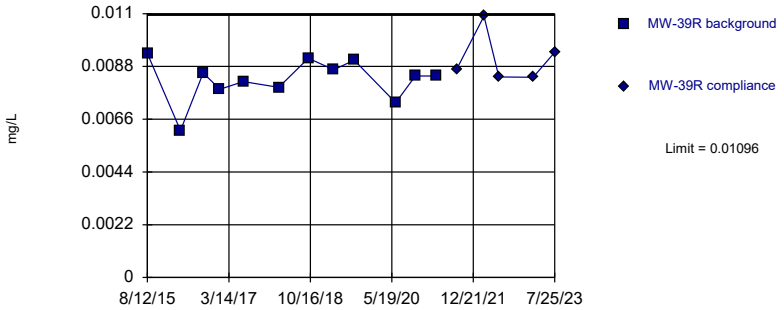
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.008242, Std. Dev.=0.0008849, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9139, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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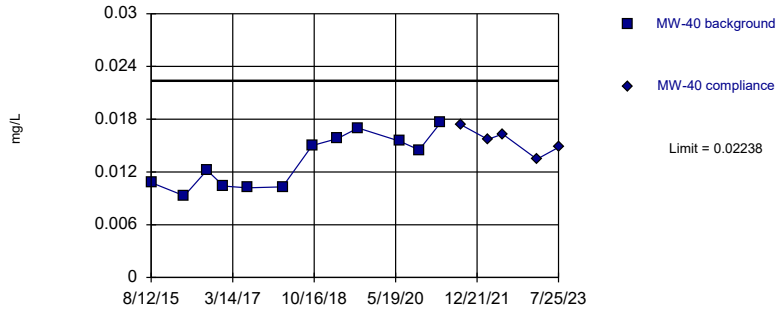
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01322, Std. Dev.=0.002986, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8947, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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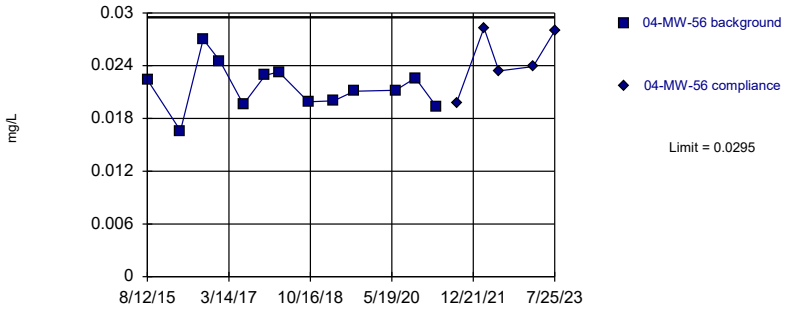
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.02157, Std. Dev.=0.002649, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9788, critical = 0.814. Kappa = 2.994 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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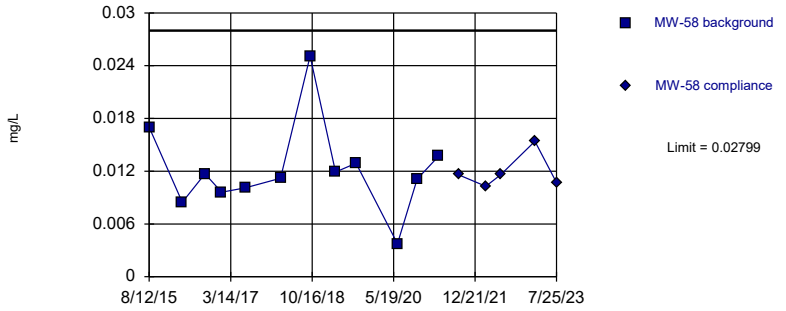
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01221, Std. Dev.=0.005143, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.881, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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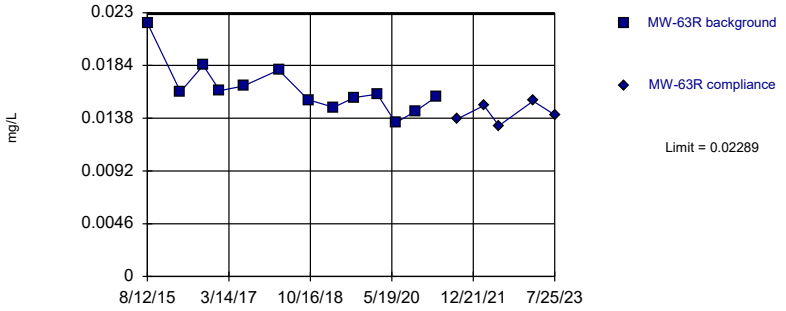
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01635, Std. Dev.=0.002185, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8721, critical = 0.814. Kappa = 2.994 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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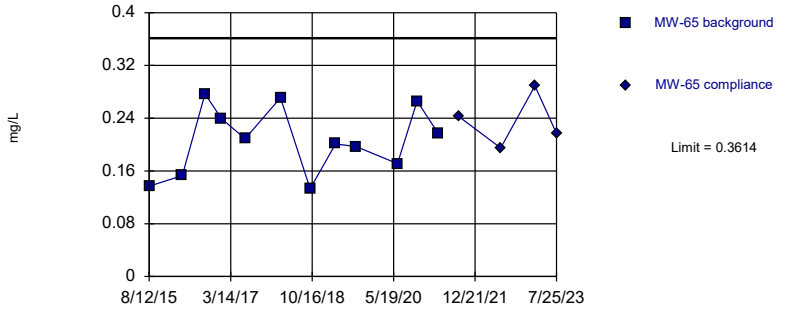
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.2058, Std. Dev.=0.05072, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9355, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Barium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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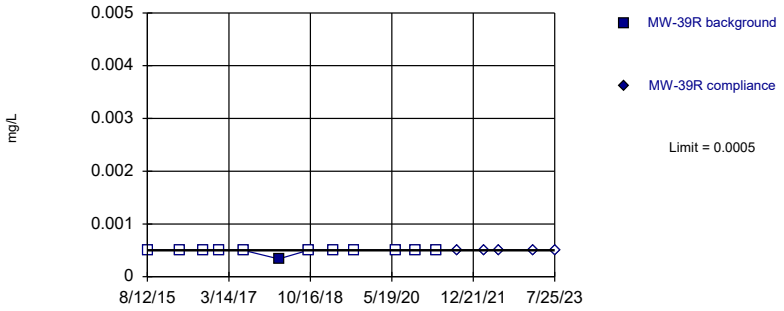
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Beryllium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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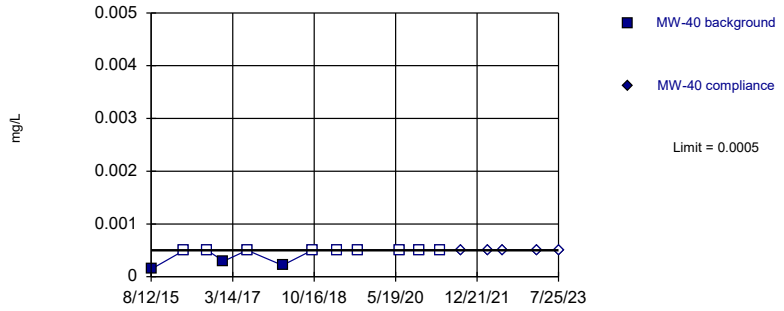
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

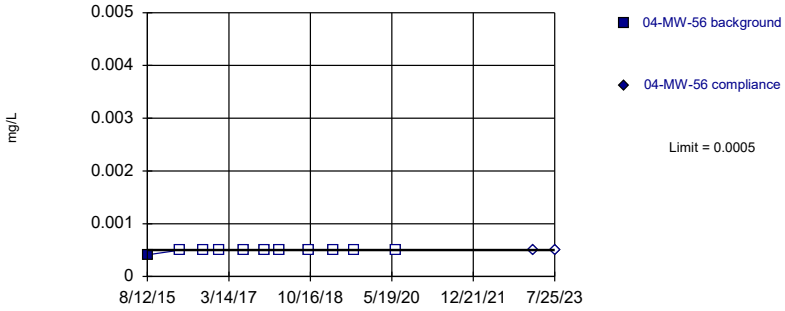
Constituent: Beryllium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

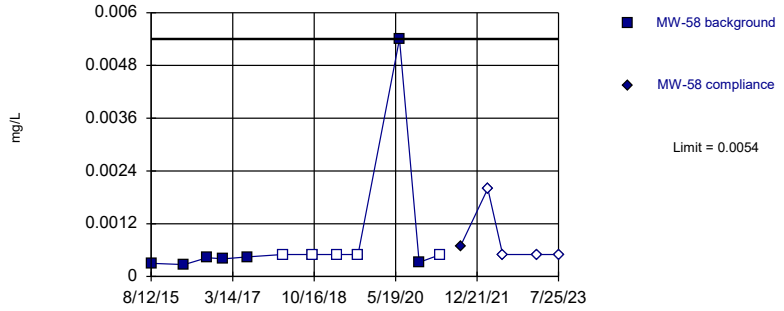
Constituent: Beryllium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 12 background values. 41.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

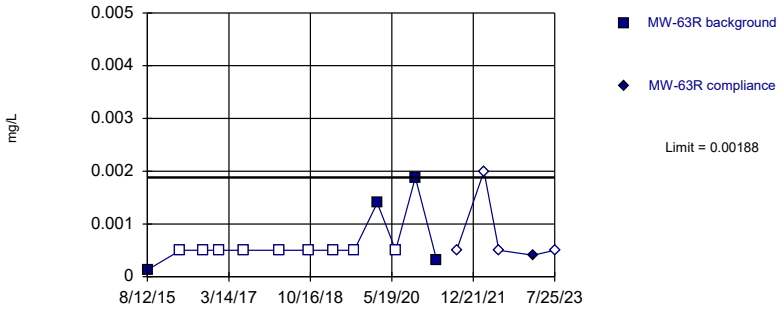
Constituent: Beryllium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 69.23% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

Constituent: Beryllium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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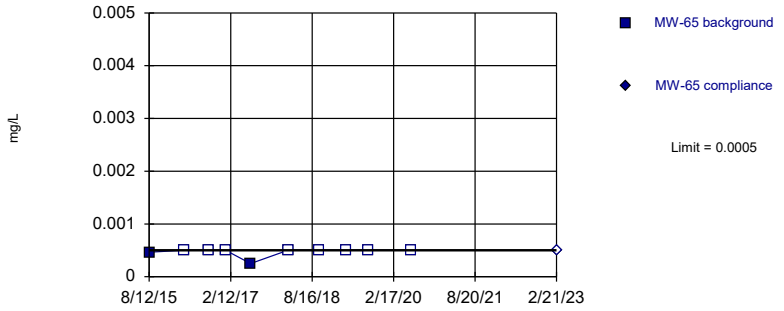
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 10 background values. 80% NDs. Well-constituent pair annual alpha = 0.0293. Individual comparison alpha = 0.01476 (1 of 2).

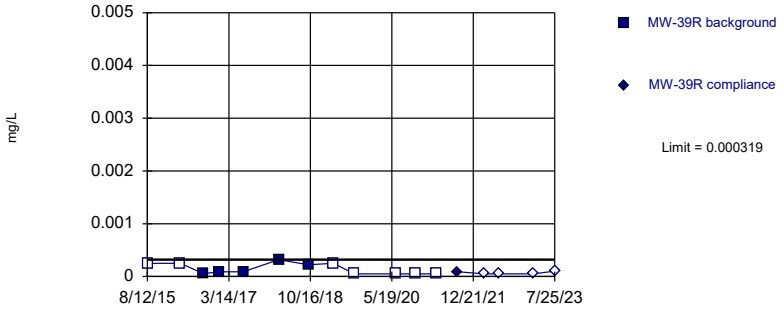
Constituent: Beryllium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Cadmium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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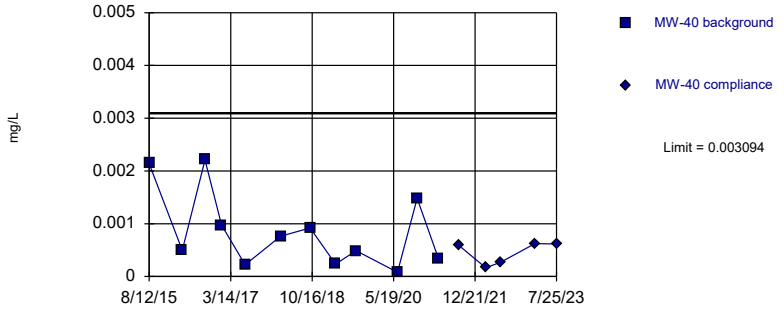
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.0008613, Std. Dev.=0.0007278, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8651, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

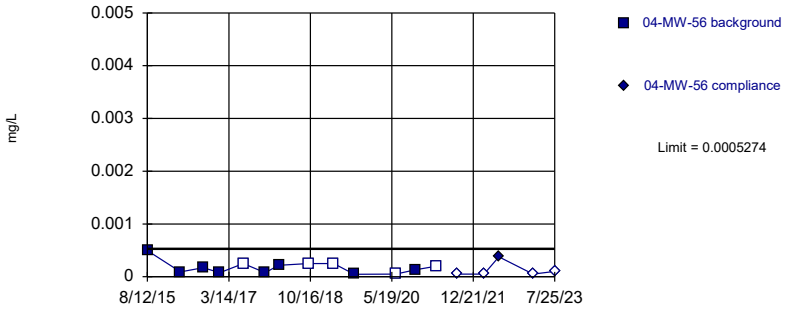
Constituent: Cadmium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0001493, Std. Dev.=0.0001263, n=13, 38.46% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8604, critical = 0.814. Kappa = 2.994 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

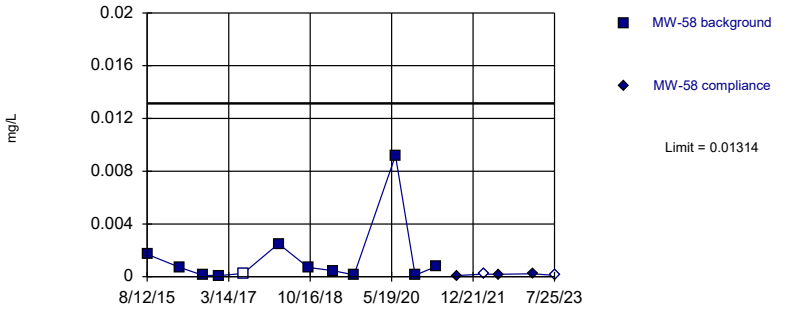
Constituent: Cadmium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation): Mean=0.08872, Std. Dev.=0.04801, n=12, 8.333% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8416, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

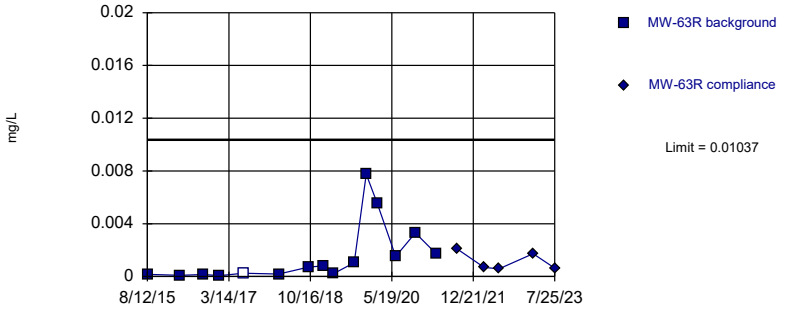
Constituent: Cadmium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.03157, Std. Dev.=0.02468, n=15, 6.667% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8489, critical = 0.835. Kappa = 2.846 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

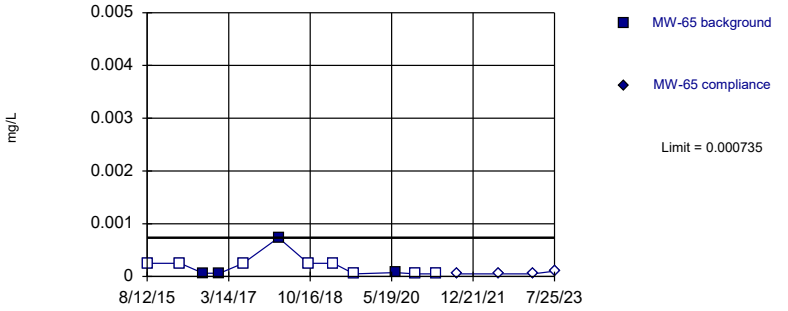
Constituent: Cadmium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

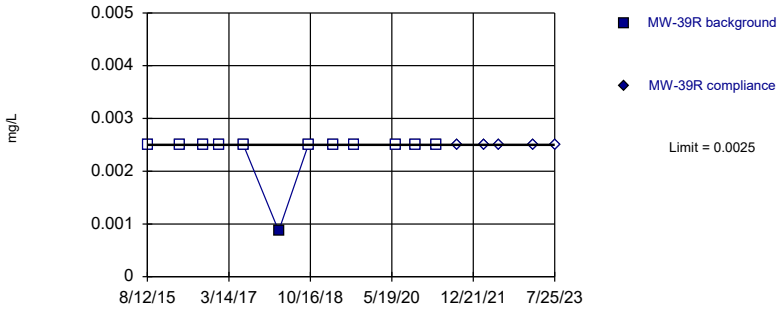
Constituent: Cadmium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

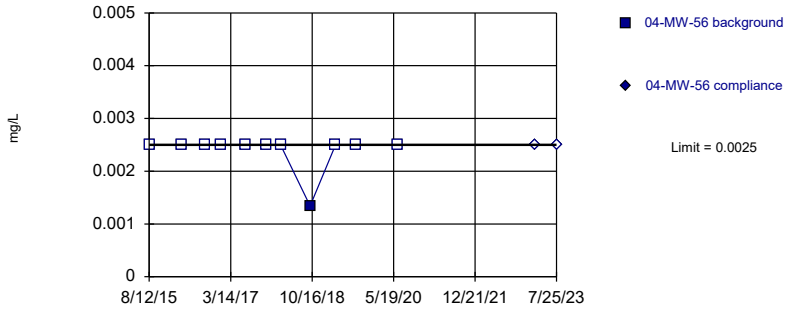
Constituent: Chromium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

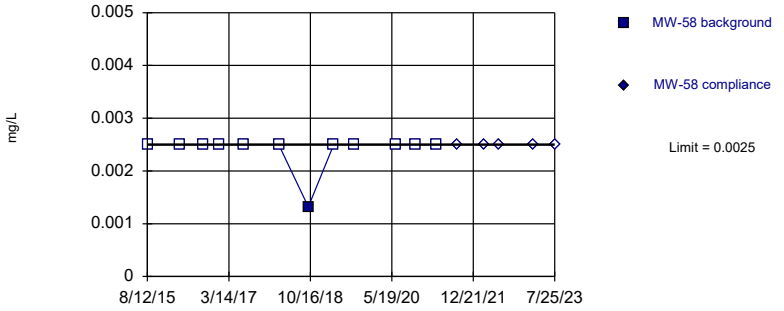
Constituent: Chromium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

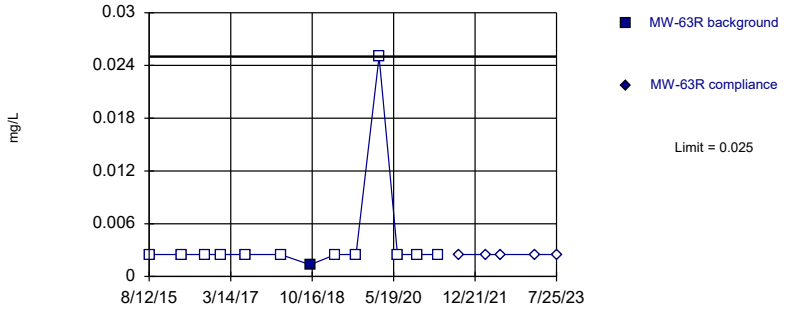
Constituent: Chromium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 92.31% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

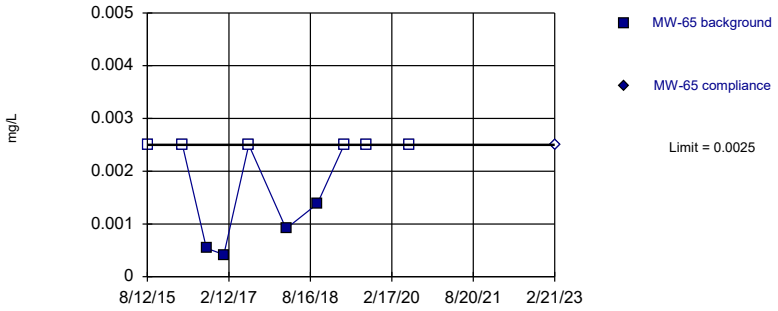
Constituent: Chromium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 10 background values. 60% NDs. Well-constituent pair annual alpha = 0.0293. Individual comparison alpha = 0.01476 (1 of 2).

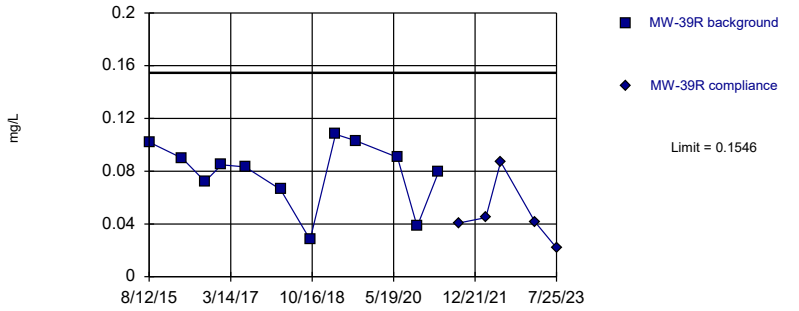
Constituent: Chromium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.0788, Std. Dev.=0.02471, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8968, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Cobalt Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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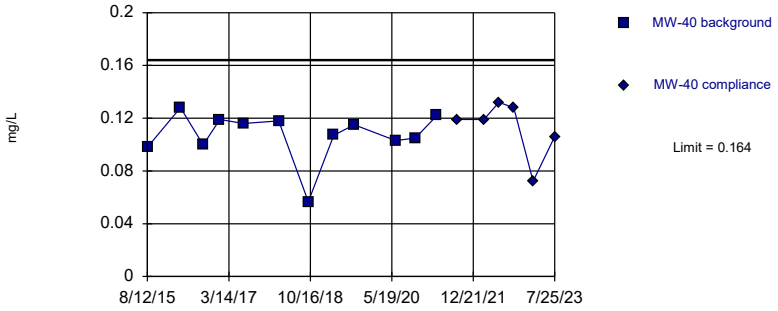
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.1073, Std. Dev.=0.01849, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8102, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

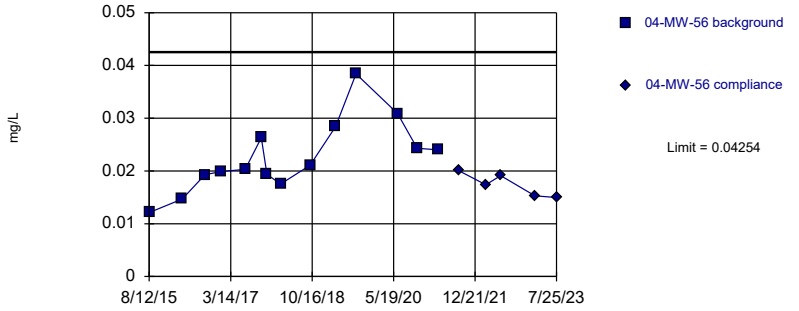
Constituent: Cobalt Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.02261, Std. Dev.=0.006824, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9557, critical = 0.825. Kappa = 2.92 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

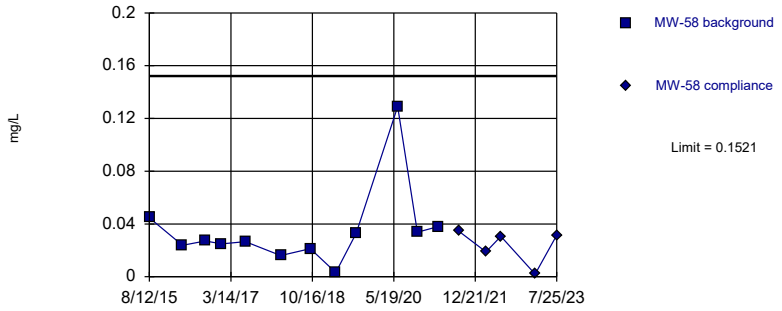
Constituent: Cobalt Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=0.1749, Std. Dev.=0.07013, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.836, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Cobalt Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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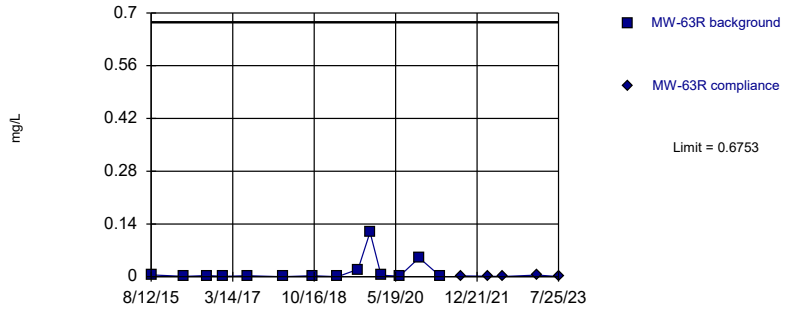
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-5.947, Std. Dev.=1.902, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9406, critical = 0.825. Kappa = 2.92 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

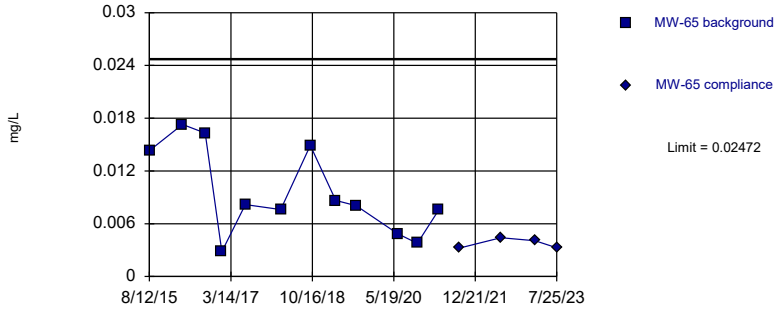
Constituent: Cobalt Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.009528, Std. Dev.=0.004953, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9029, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

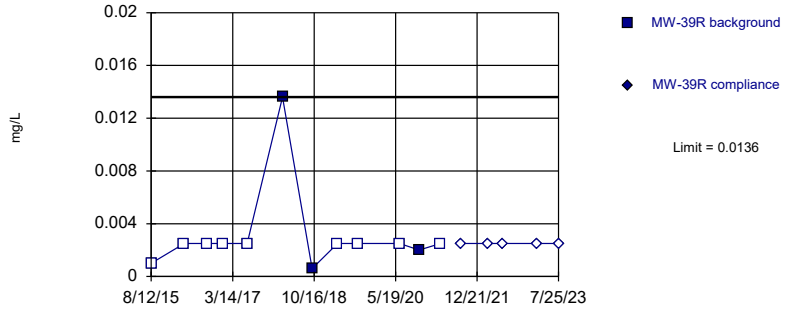
Constituent: Cobalt Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

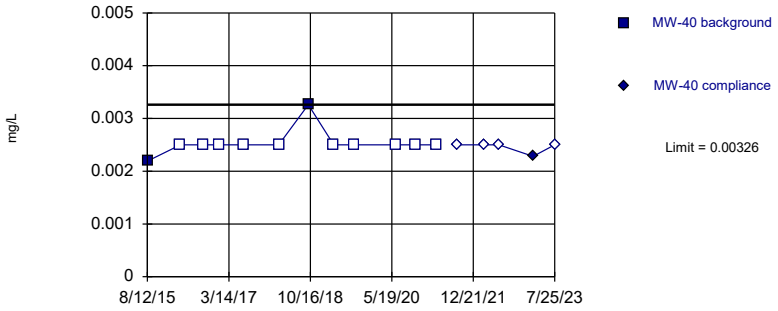
Constituent: Copper Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

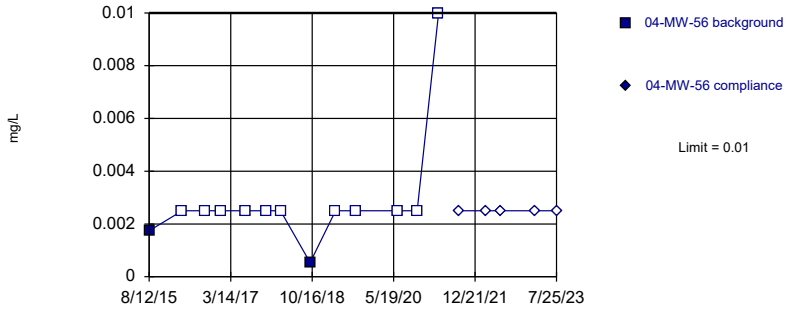
Constituent: Copper Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 84.62% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

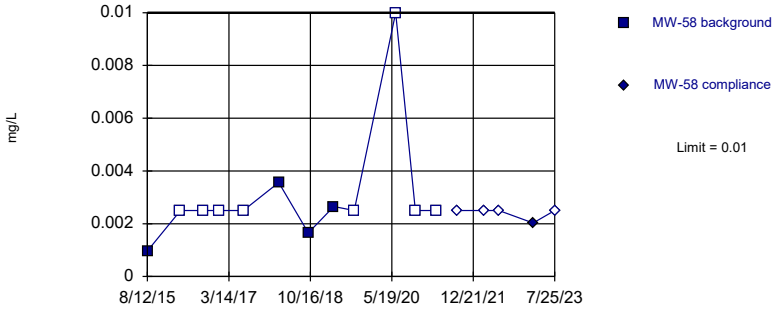
Constituent: Copper Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

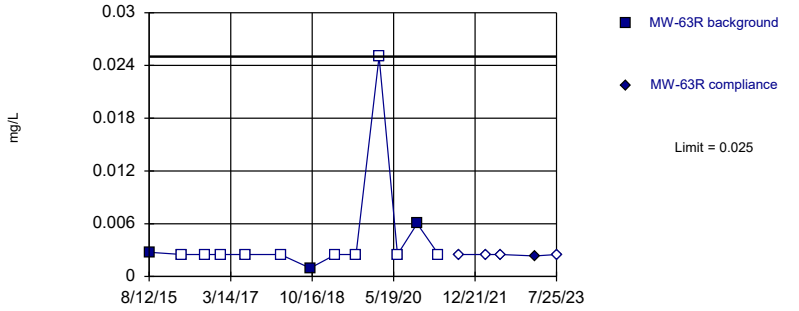
Constituent: Copper Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 76.92% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

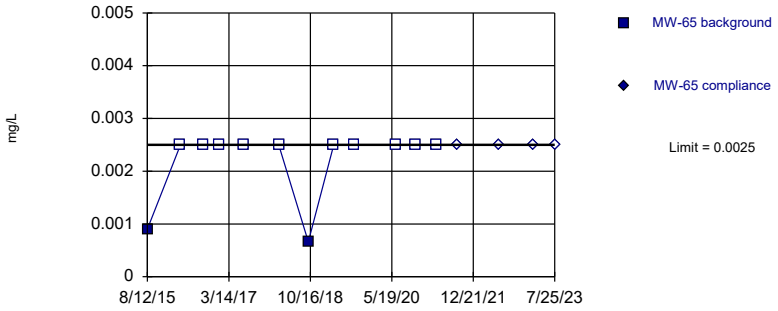
Constituent: Copper Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

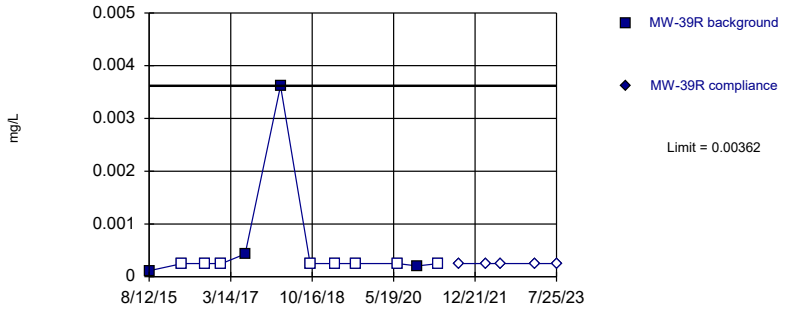
Constituent: Copper Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

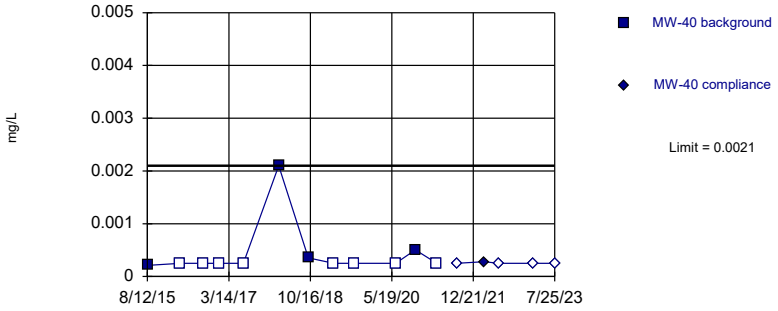
Constituent: Lead Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

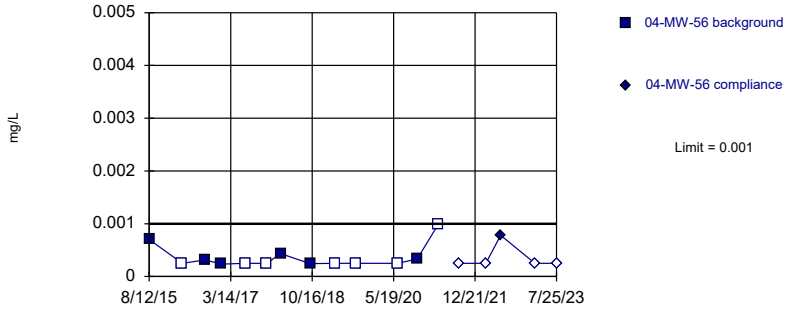
Constituent: Lead Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 53.85% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

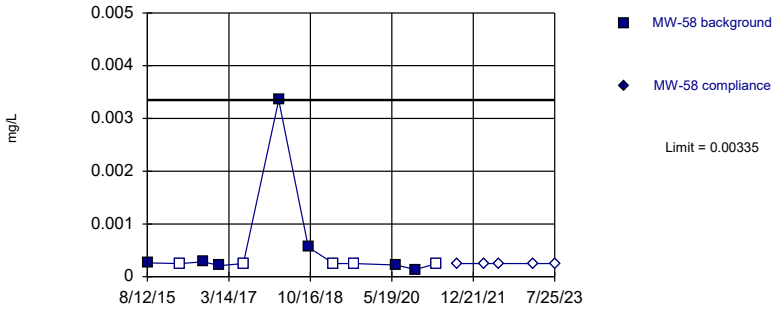
Constituent: Lead Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 12 background values. 41.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

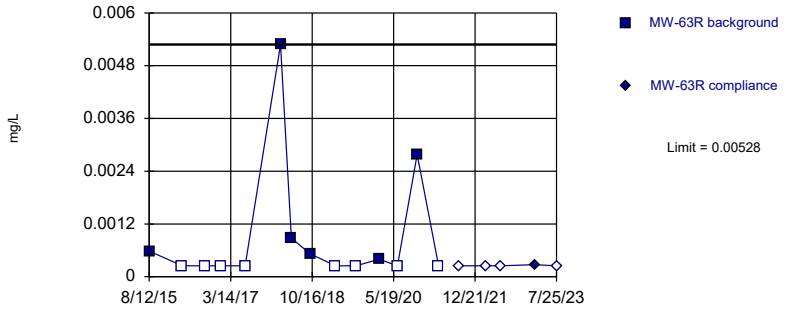
Constituent: Lead Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 14 background values. 57.14% NDs. Well-constituent pair annual alpha = 0.01715. Individual comparison alpha = 0.008612 (1 of 2).

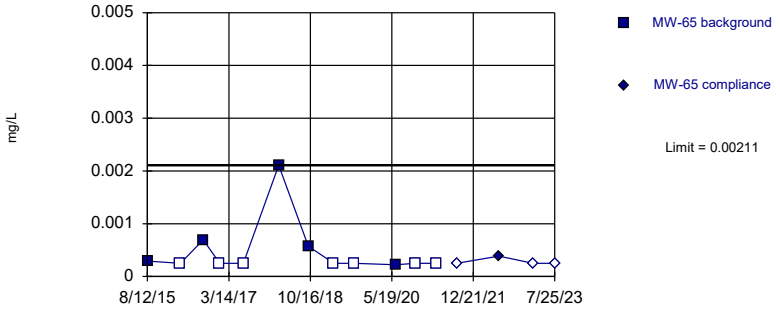
Constituent: Lead Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 58.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

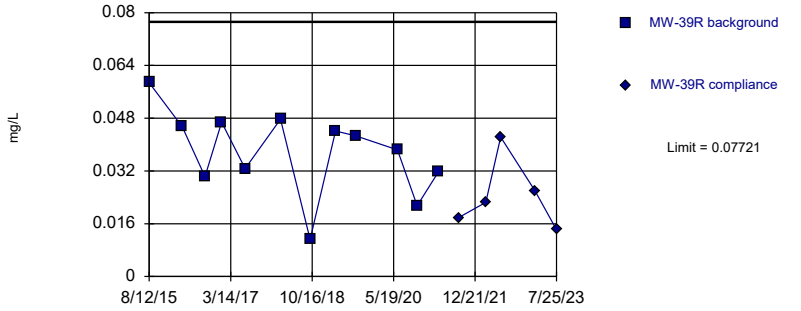
Constituent: Lead Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.0376, Std. Dev.=0.01291, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9619, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

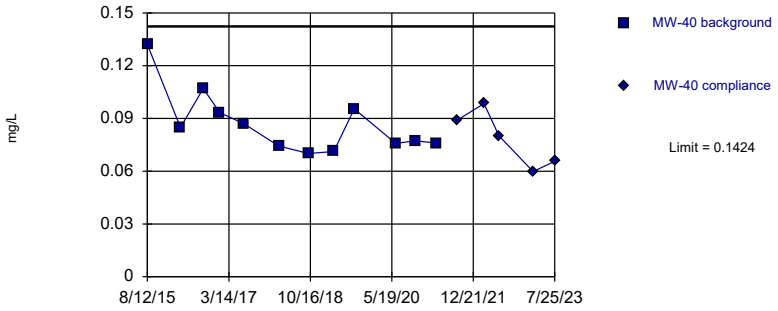
Constituent: Nickel Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.08705, Std. Dev.=0.01803, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8391, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

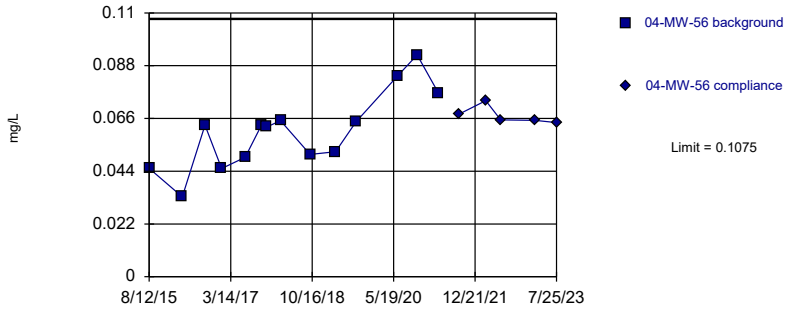
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.06055, Std. Dev.=0.01608, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.962, critical = 0.825. Kappa = 2.92 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

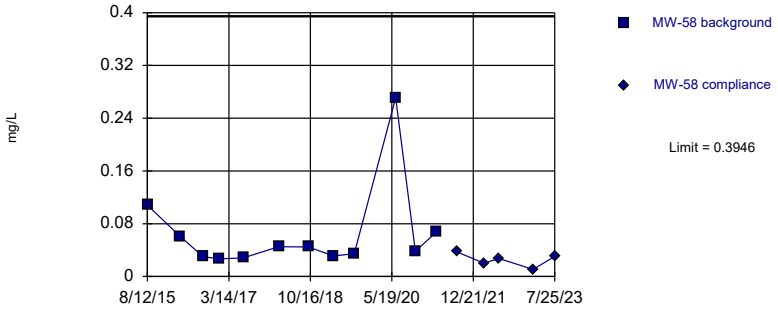
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-3.003, Std. Dev.=0.6758, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8309, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

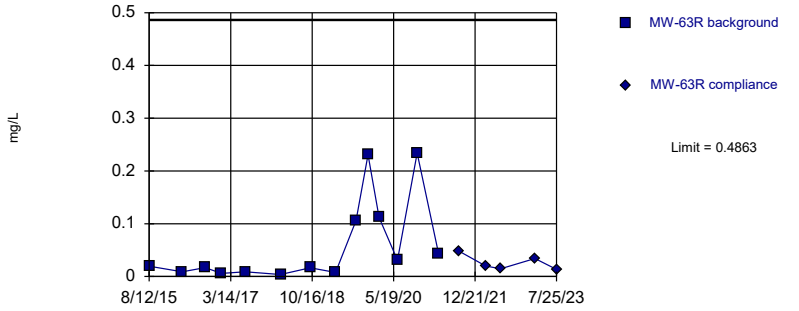
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation): Mean=0.327, Std. Dev.=0.1573, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8596, critical = 0.825. Kappa = 2.92 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

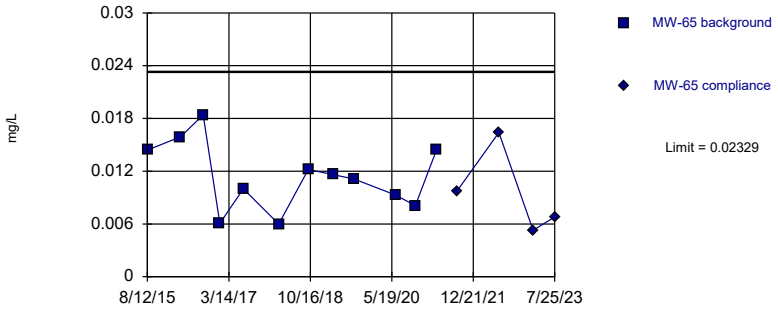
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.01146, Std. Dev.=0.003858, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9696, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Nickel Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

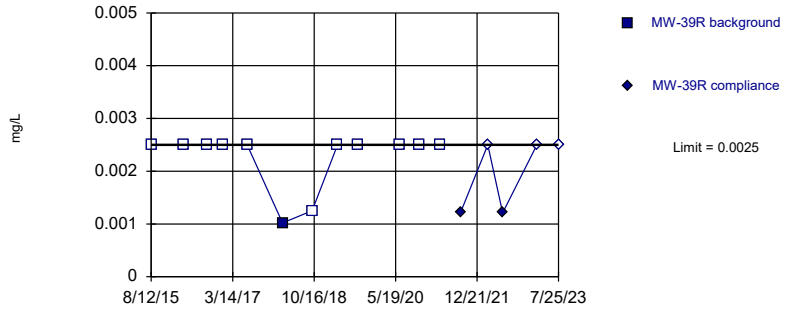
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Selenium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

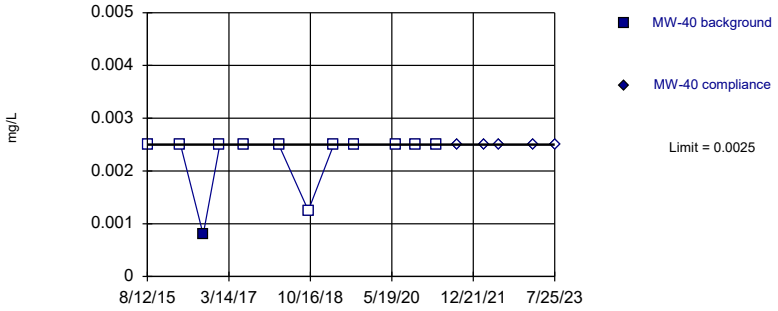
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Selenium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

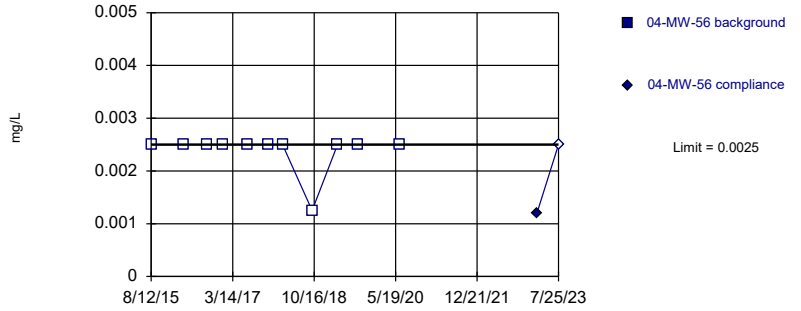
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 100% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

Constituent: Selenium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL

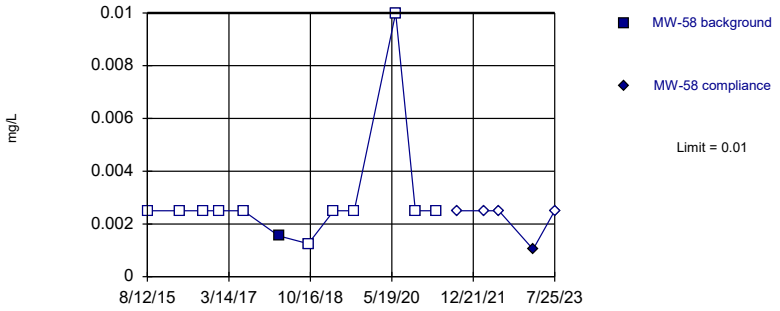
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

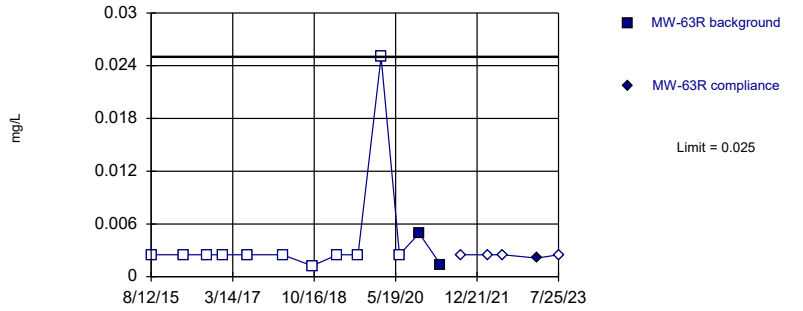
Constituent: Selenium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 84.62% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

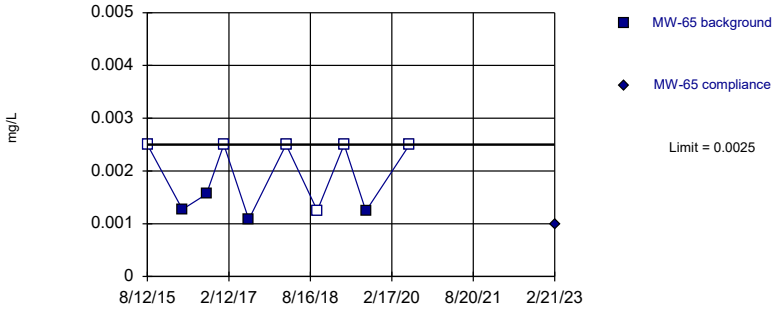
Constituent: Selenium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 10 background values. 60% NDs. Well-constituent pair annual alpha = 0.0293. Individual comparison alpha = 0.01476 (1 of 2).

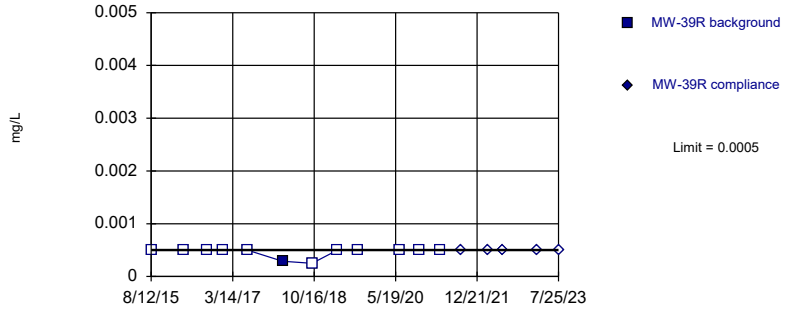
Constituent: Selenium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

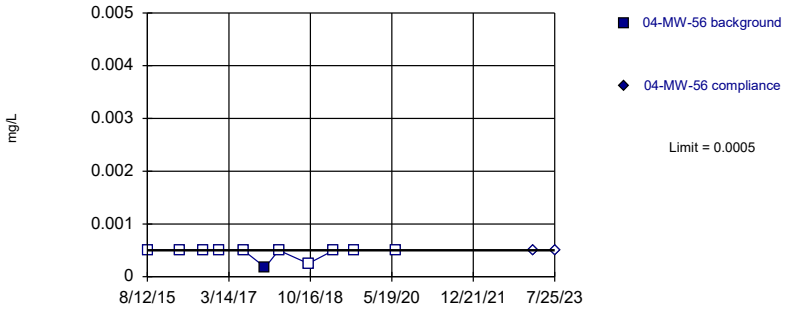
Constituent: Silver Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 90.91% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

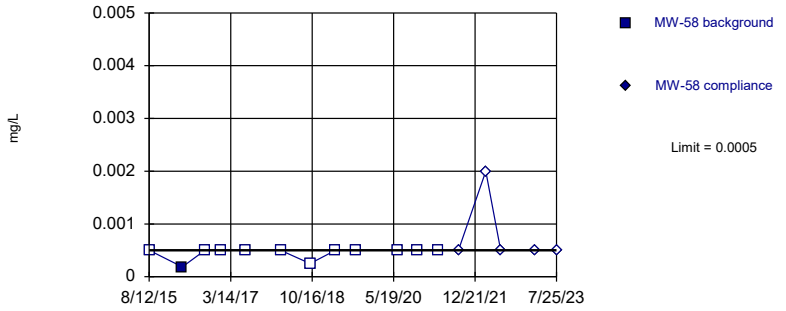
Constituent: Silver Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

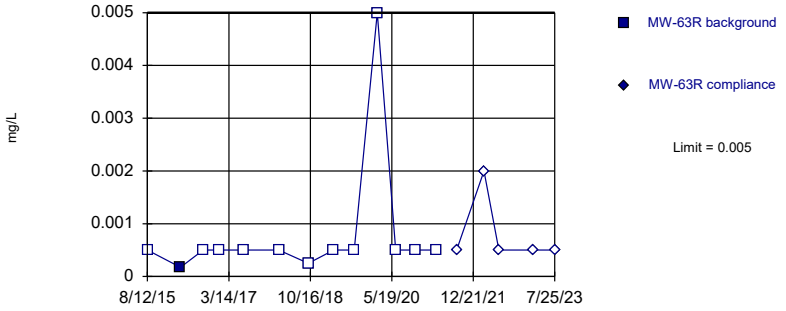
Constituent: Silver Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 92.31% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

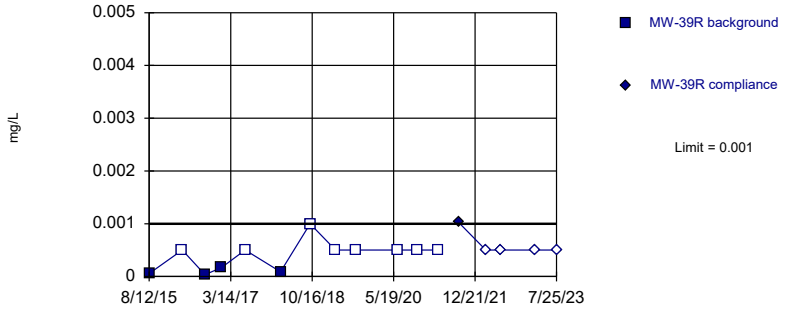
Constituent: Silver Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 66.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

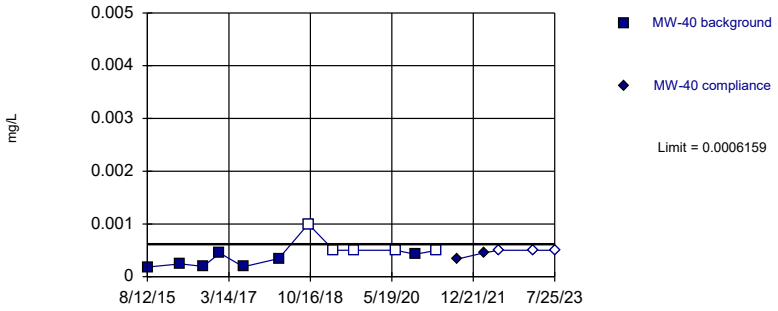
Constituent: Thallium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0002893, Std. Dev.=0.0001065, n=12, 41.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8212, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

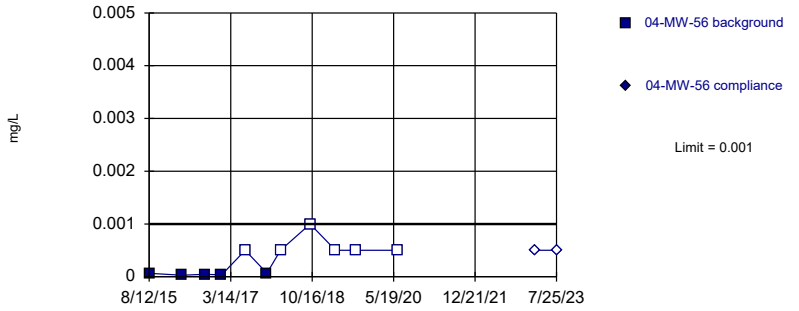
Constituent: Thallium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 54.55% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

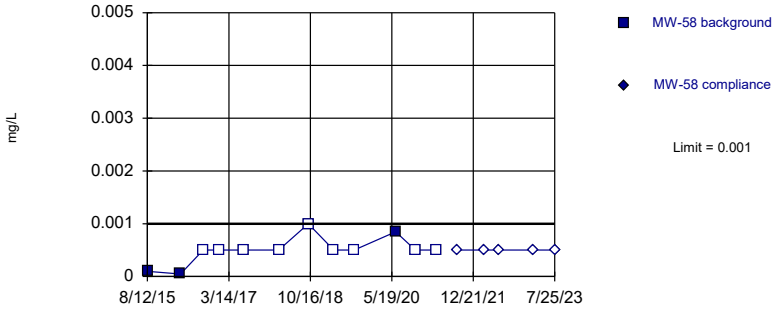
Constituent: Thallium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

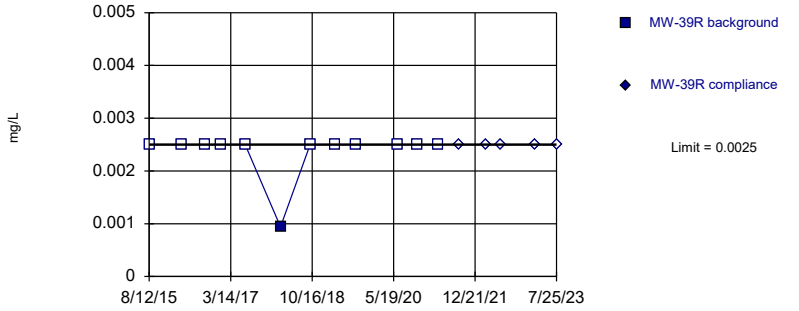
Constituent: Thallium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 91.67% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

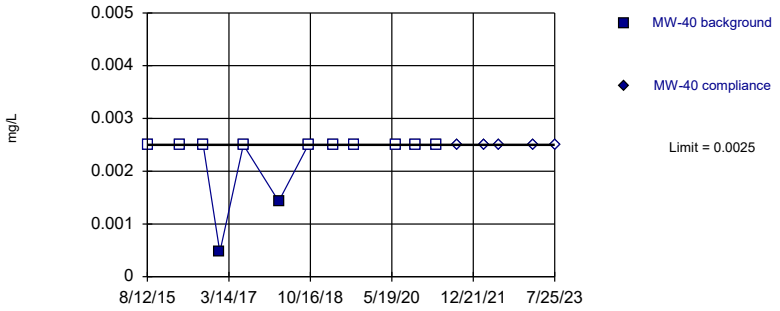
Constituent: Vanadium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

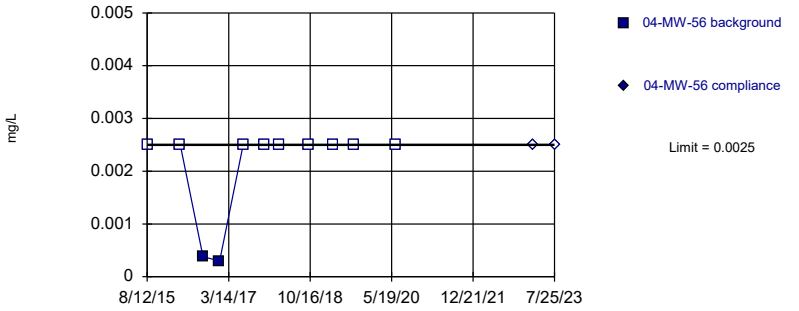
Constituent: Vanadium Analysis Run 9/15/2023 5:22 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 11 background values. 81.82% NDs. Well-constituent pair annual alpha = 0.02537. Individual comparison alpha = 0.01276 (1 of 2).

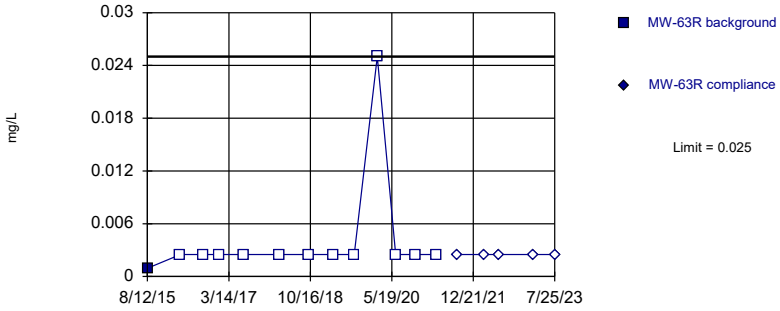
Constituent: Vanadium Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 13 background values. 92.31% NDs. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2).

Constituent: Vanadium Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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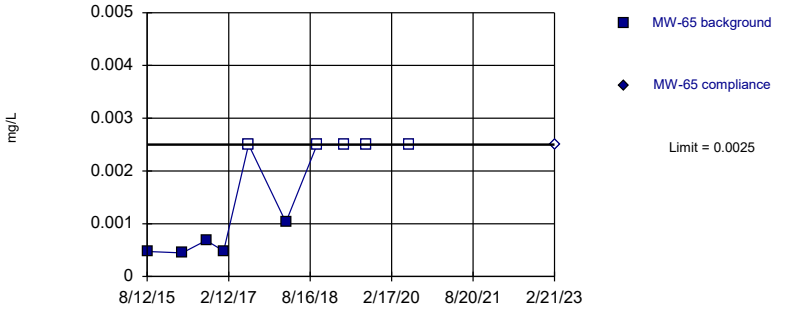
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 10 background values. 50% NDs. Well-constituent pair annual alpha = 0.0293. Individual comparison alpha = 0.01476 (1 of 2).

Constituent: Vanadium Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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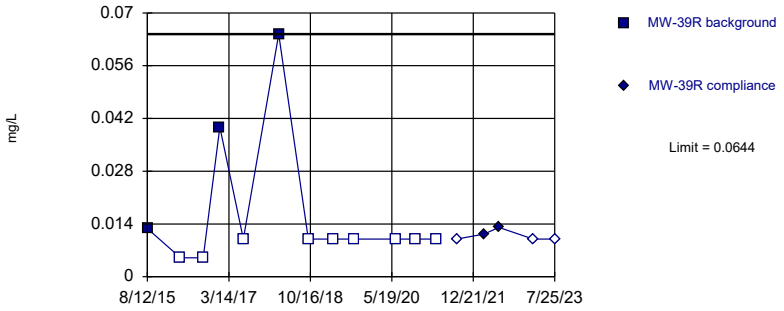
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 75% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Zinc Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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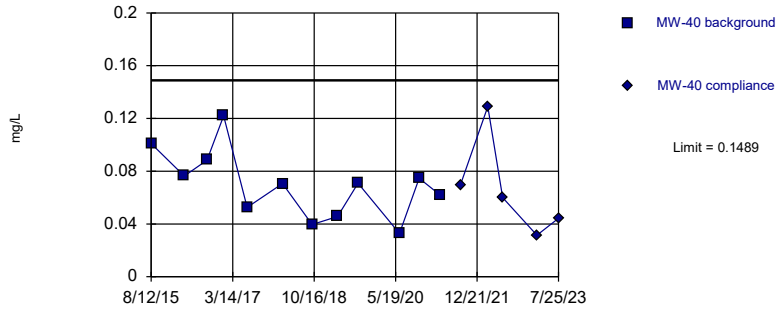
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.06968, Std. Dev.=0.02582, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9673, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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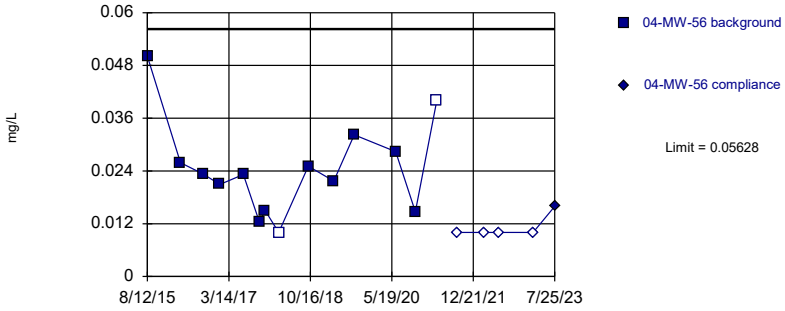
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=0.02449, Std. Dev.=0.01089, n=14, 14.29% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9285, critical = 0.825. Kappa = 2.92 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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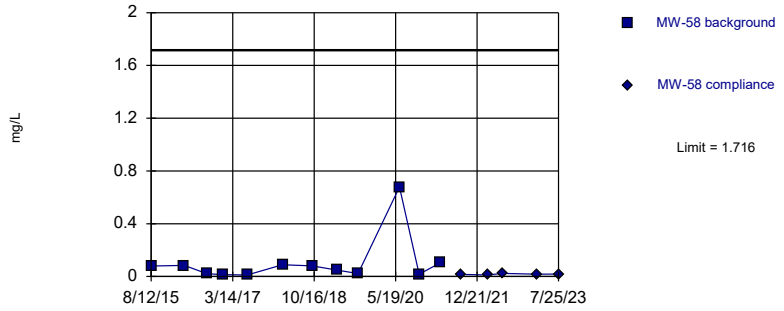
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on natural log transformation): Mean=-3.01, Std. Dev.=1.157, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8998, critical = 0.805. Kappa = 3.068 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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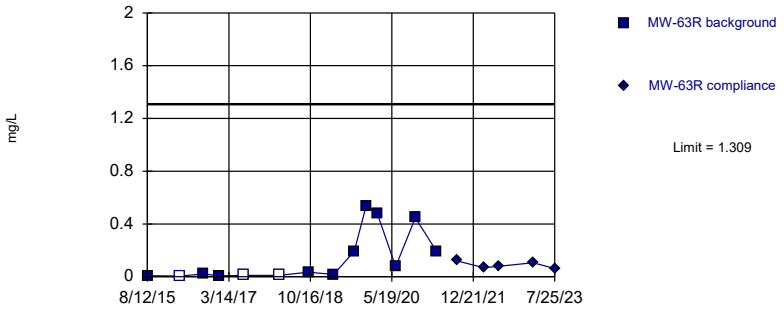
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation) (after Kaplan-Meier Adjustment): Mean=0.4131, Std. Dev.=0.2331, n=14, 21.43% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8389, critical = 0.825. Kappa = 2.92 (c=15, w=14, 1 of 2, event alpha = 0.05132). Report alpha = 0.0002508.

Constituent: Zinc Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

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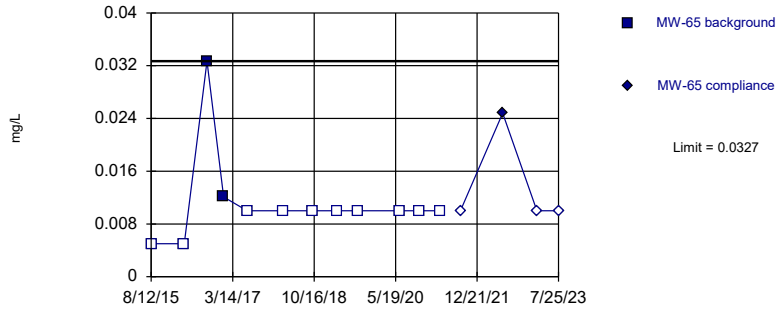
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 12 background values. 83.33% NDs. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2).

Constituent: Zinc Analysis Run 9/15/2023 5:23 PM View: 2023AWQR - AMD Wells IntraPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Interwell Prediction Limit Summary Table and Graphs – Assessment Monitoring Wells

Prediction Limit

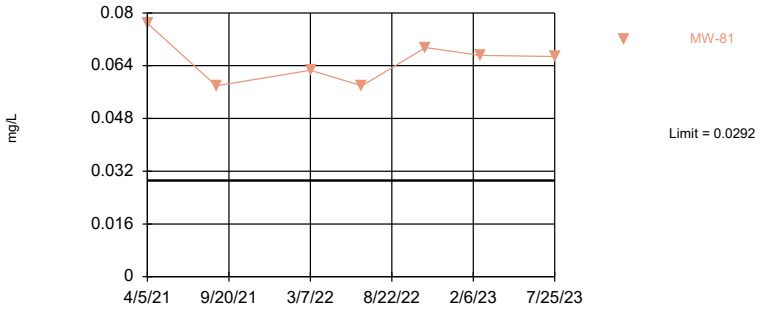
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master Printed 9/15/2023, 4:48 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Trans...	Alpha	Method
Barium (mg/L)	**MW-81**	**0.0292**	**n/a**	**7/25/2023**	**0.0668**	**Yes**	**22**	**0**	**n/a**	**0.003131**	**NP Inter (normality) 1 of 2**

Exceeds Limit: MW-81

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 22 background values. Annual per-constituent alpha = 0.08406. Individual comparison alpha = 0.003131 (1 of 2). Assumes 13 future values.

Constituent: Barium Analysis Run 9/15/2023 4:47 PM View: 2023AWQR - DM and AM InterPL

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC Sanitas Master

Mann-Kendall/Sen's Slope Trend Test Summary Table and Graphs – Assessment Monitoring Wells

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM Printed 11/2/2023, 11:01 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
2-Butanone (ug/L)	93-MW-32	0	5	21	No	8	87.5	0.01	NP
Acetone (ug/L)	93-MW-32	0	9	21	No	8	75	0.01	NP
Antimony (mg/L)	93-MW-32	0	11	21	No	8	87.5	0.01	NP
Arsenic (mg/L)	93-MW-32	0.001513	16	21	No	8	50	0.01	NP
Barium (mg/L)	93-MW-32	0.02001	14	21	No	8	0	0.01	NP
Barium (mg/L)	MW-62	-0.001041	-6	-21	No	8	0	0.01	NP
Barium (mg/L)	MW-81	0	0	18	No	7	0	0.01	NP
Cadmium (mg/L)	93-MW-32	0.00003405	2	21	No	8	0	0.01	NP
Cadmium (mg/L)	MW-81	-0.00003951	-9	-18	No	7	14.29	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-81	0.1284	7	18	No	7	0	0.01	NP
Cobalt (mg/L)	93-MW-32	0.00576	10	21	No	8	0	0.01	NP
Cobalt (mg/L)	MW-62	0.00007343	16	21	No	8	0	0.01	NP
Copper (mg/L)	93-MW-32	0	1	21	No	8	87.5	0.01	NP
Copper (mg/L)	MW-62	0	5	21	No	8	87.5	0.01	NP
Lead (mg/L)	93-MW-32	0.00009127	11	21	No	8	37.5	0.01	NP
Lead (mg/L)	MW-62	0	-2	-21	No	8	50	0.01	NP
Nickel (mg/L)	93-MW-32	0.004183	12	21	No	8	0	0.01	NP
Nickel (mg/L)	MW-62	0.0004311	4	21	No	8	0	0.01	NP
Selenium (mg/L)	MW-62	0	4	21	No	8	75	0.01	NP
Tetrachloroethene (ug/L)	MW-81	-0.2009	-11	-18	No	7	14.29	0.01	NP
Toluene (ug/L)	93-MW-32	0	3	21	No	8	87.5	0.01	NP
Zinc (mg/L)	93-MW-32	0.001556	4	21	No	8	0	0.01	NP

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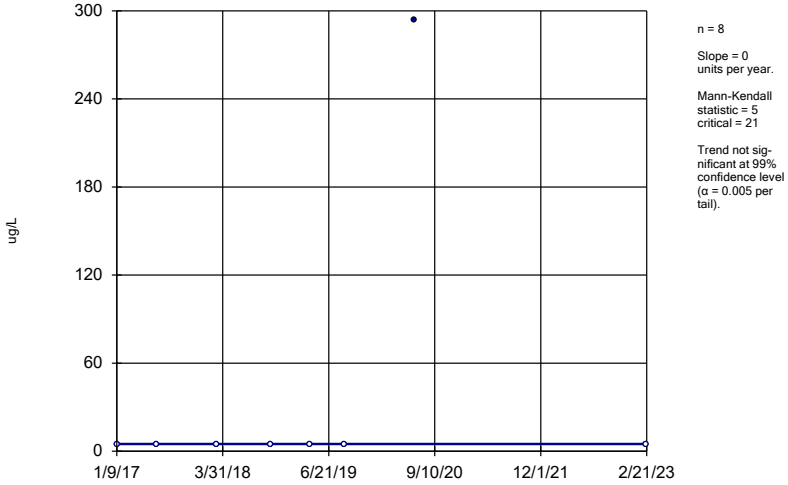
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 5
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 2-Butanone Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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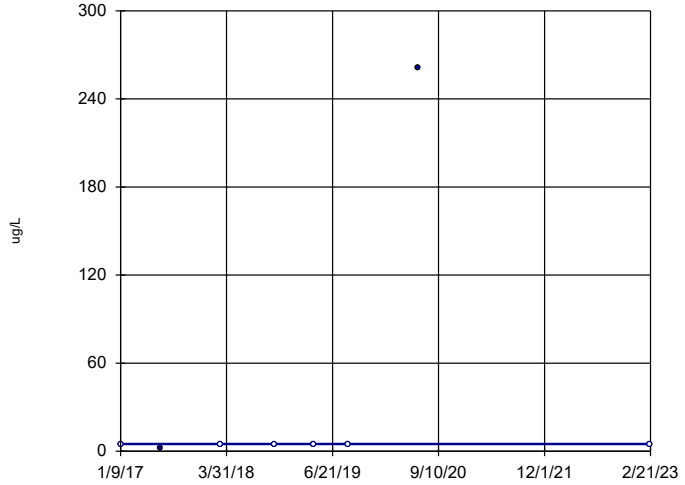
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 9
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Acetone Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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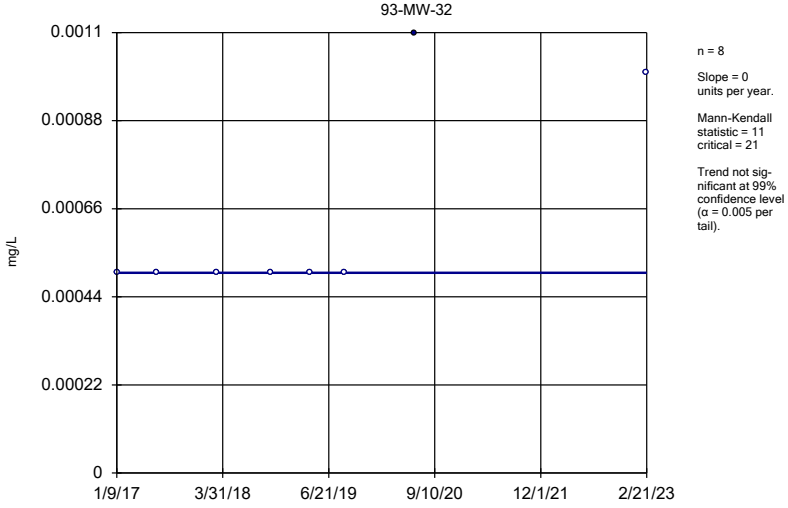
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = 11
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Antimony Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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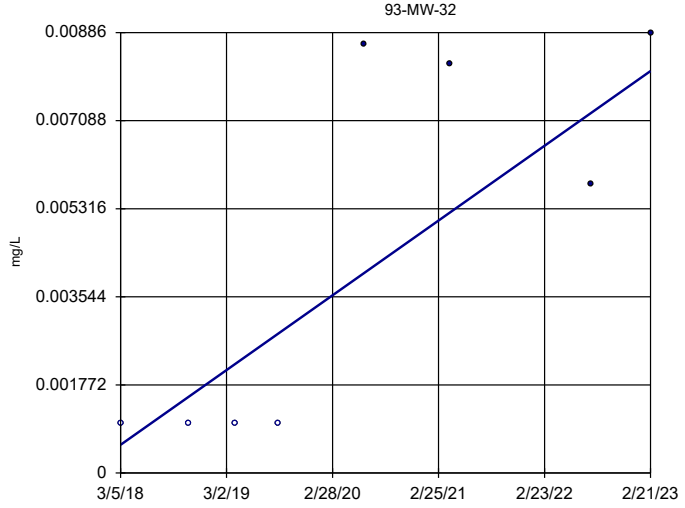
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.001513 units per year.

Mann-Kendall statistic = 16
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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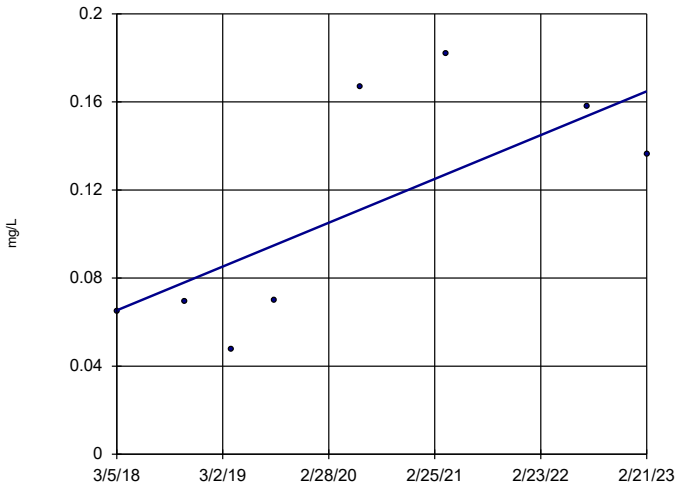
Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.02001 units per year.

Mann-Kendall statistic = 14
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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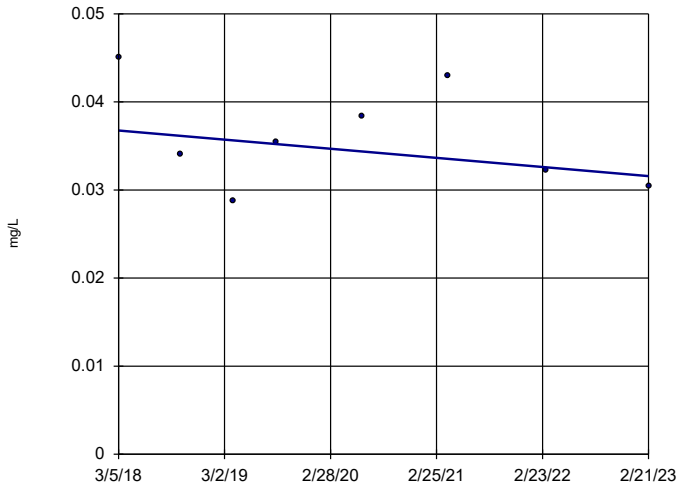
Sen's Slope Estimator

MW-62



n = 8

Slope = -0.001041 units per year.

Mann-Kendall statistic = -6
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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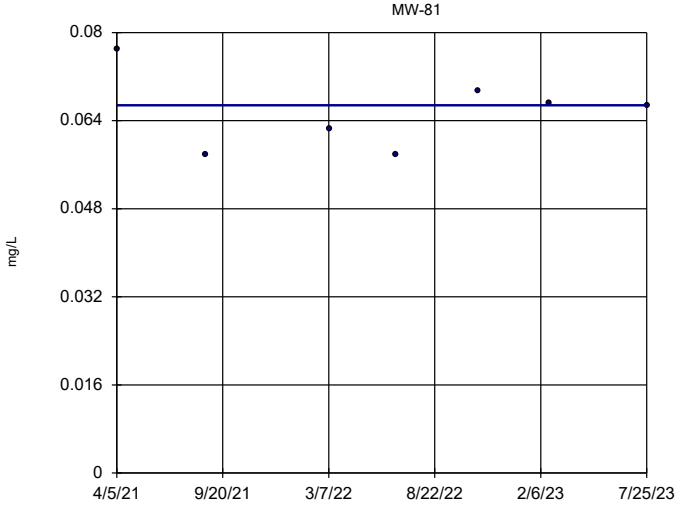
Sen's Slope Estimator

MW-81



n = 7

Slope = 0 units per year.

Mann-Kendall statistic = 0
critical = 18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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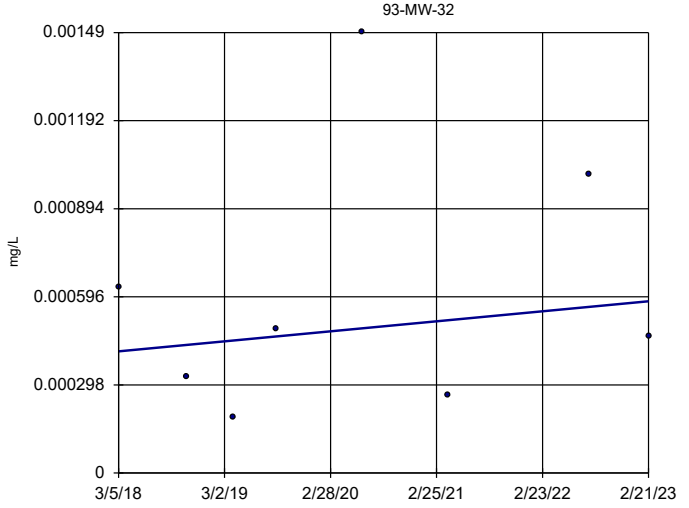
Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.00003405 units per year.

Mann-Kendall statistic = 2
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cadmium Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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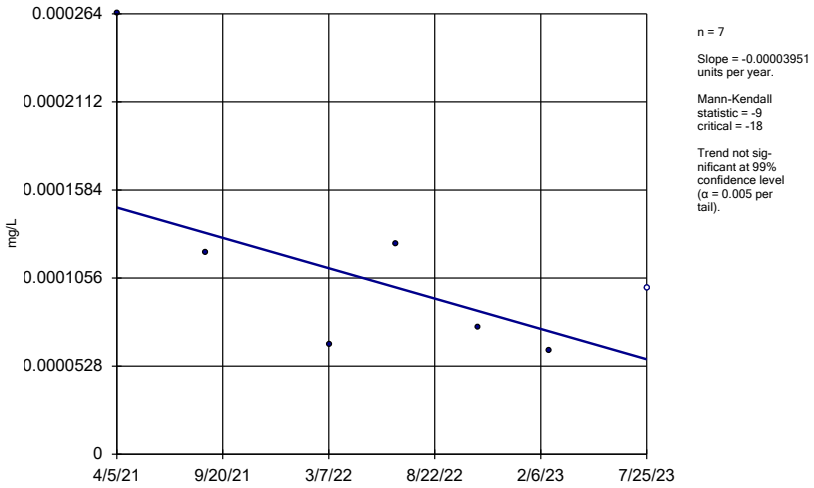
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-81



Constituent: Cadmium Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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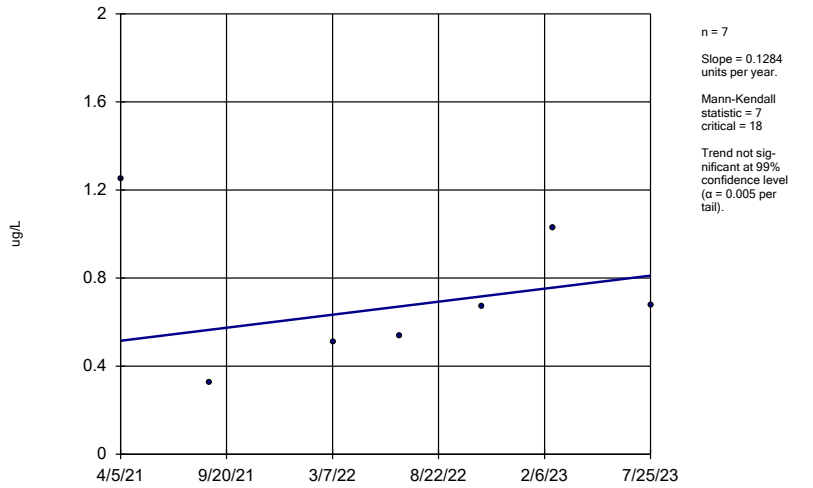
Sen's Slope Estimator

MW-81



Constituent: cis-1,2-Dichloroethene Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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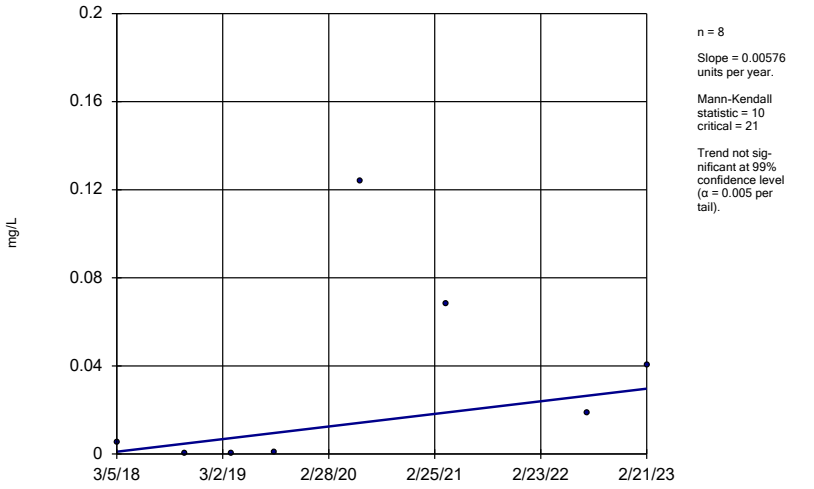
Sen's Slope Estimator

93-MW-32



Constituent: Cobalt Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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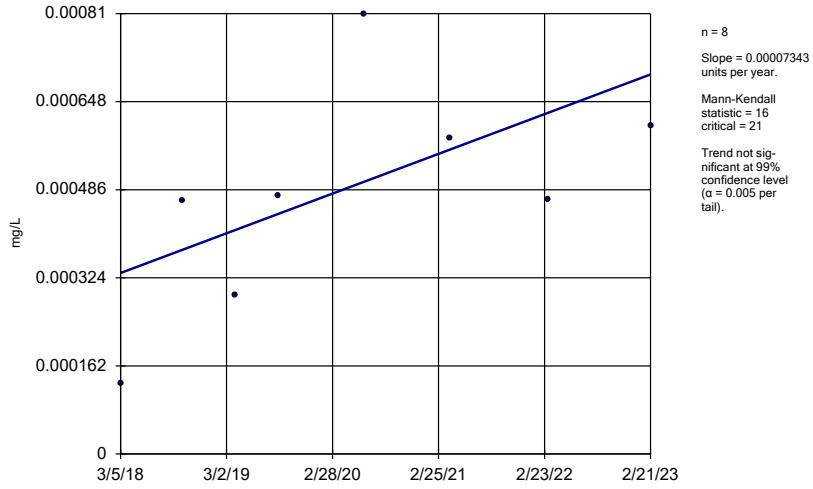
Sen's Slope Estimator

MW-62

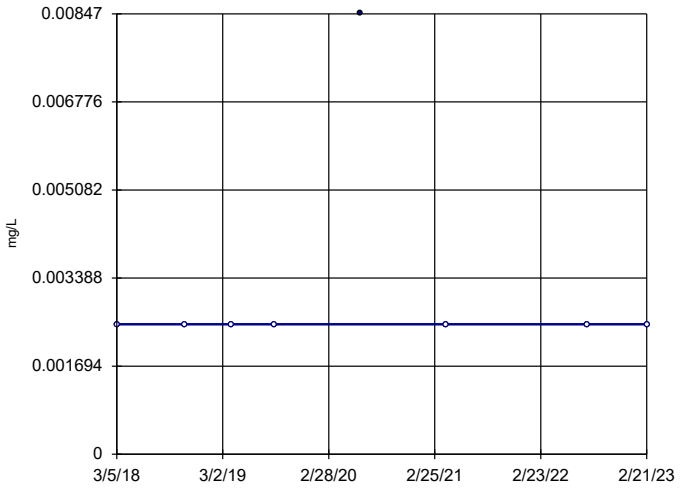


Constituent: Cobalt Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = 1
critical = 21

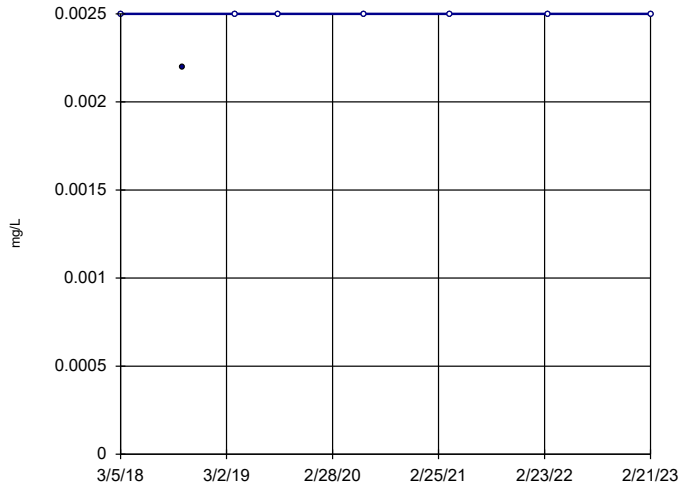
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Copper Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-62



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = 5
critical = 21

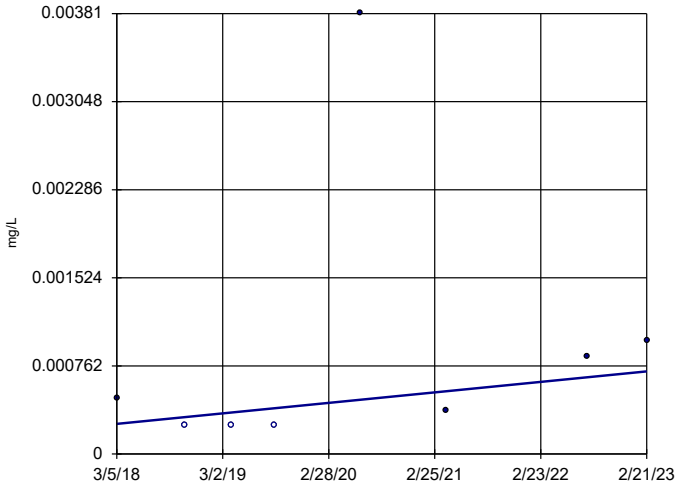
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Copper Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



n = 8

Slope = 0.00009127
units per year.

Mann-Kendall
statistic = 11
critical = 21

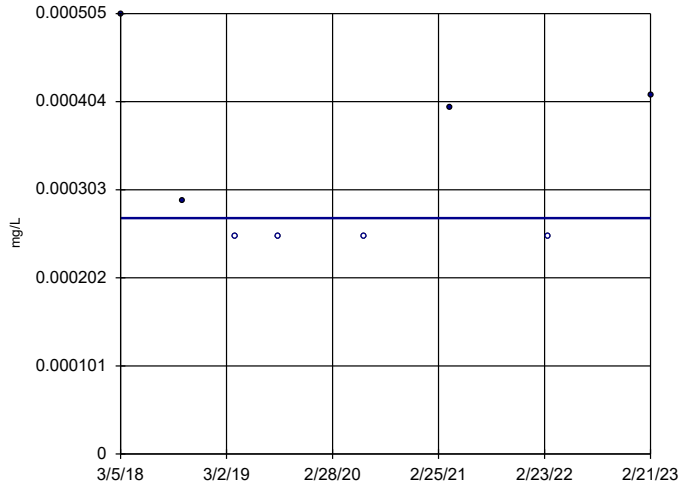
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Lead Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-62



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = -2
critical = -21

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: Lead Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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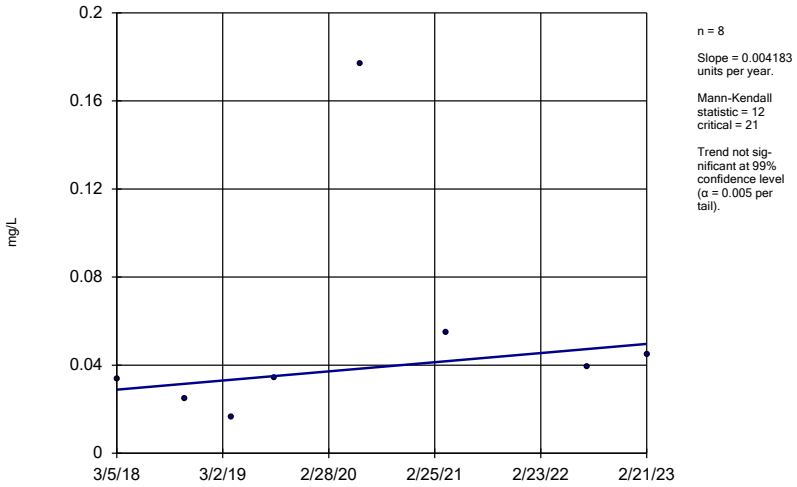
Sen's Slope Estimator

93-MW-32

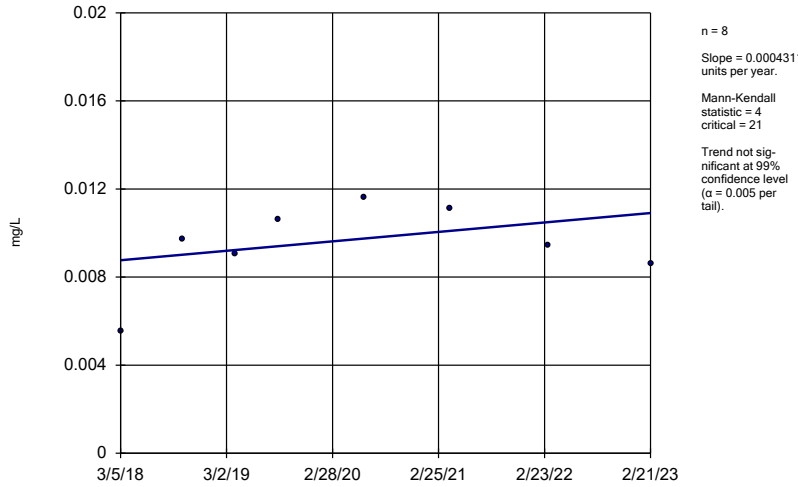


Constituent: Nickel Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-62



Constituent: Nickel Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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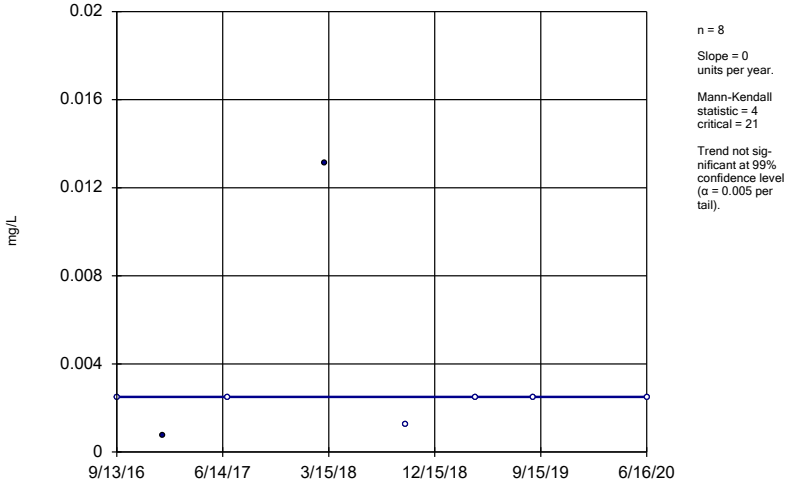
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-62



Constituent: Selenium Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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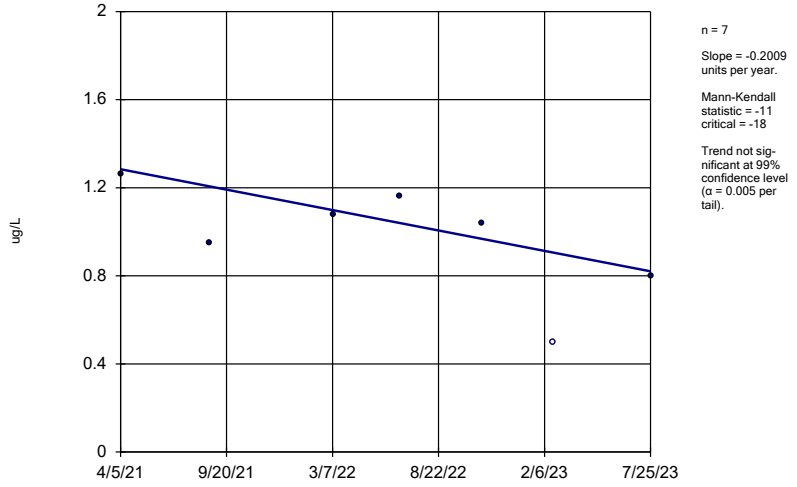
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-81

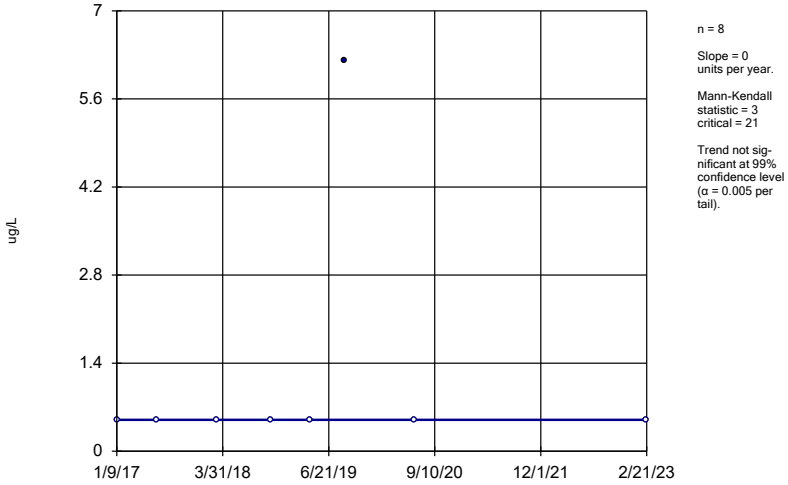


Constituent: Tetrachloroethene Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-32



Constituent: Toluene Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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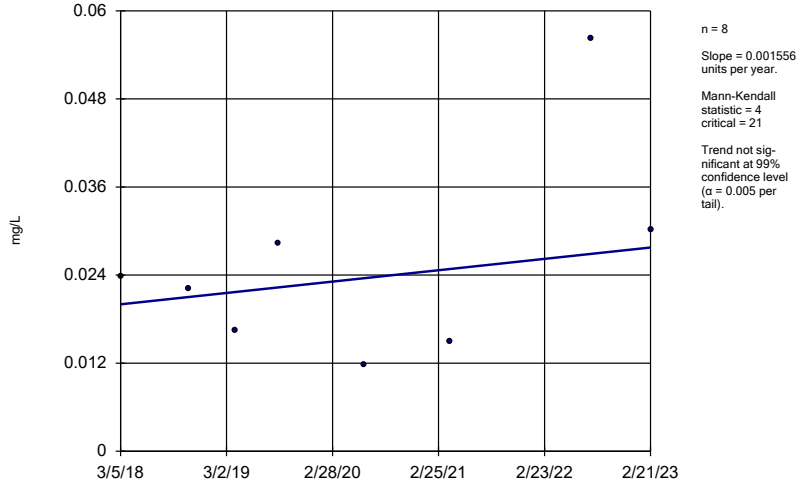
Sen's Slope Estimator

93-MW-32



Constituent: Zinc Analysis Run 11/2/2023 10:59 AM View: 2023AWQR - Mann Kendall
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Mann-Kendall/Sen's Slope Trend Test Summary Table and Graphs – AMD Wells Organics and Sulfide

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM Printed 9/18/2023, 5:15 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
1,1-Dichloroethane (ug/L)	MW-59	0	-7	-21	No	8	75	0.01	NP
1,1-Dichloroethane (ug/L)	MW-64	0	-1	-21	No	8	37.5	0.01	NP
1,1-Dichloroethane (ug/L)	MW-65	-0.06566	-12	-21	No	8	12.5	0.01	NP
2-Methylnaphthalene (ug/L)	04-MW-56	-0.004419	-1	-8	No	4	75	0.01	NP
2-Methylnaphthalene (ug/L)	MW-39R	0.008666	1	12	No	5	80	0.01	NP
2-Methylnaphthalene (ug/L)	MW-58	0.026	1	12	No	5	80	0.01	NP
2-Methylnaphthalene (ug/L)	MW-65	0.04641	3	12	No	5	80	0.01	NP
Acetone (ug/L)	MW-59	0.8269	9	21	No	8	25	0.01	NP
Benzene (ug/L)	MW-40	-0.05978	-6	-21	No	8	0	0.01	NP
Benzene (ug/L)	MW-59	-0.2066	-6	-21	No	8	12.5	0.01	NP
Benzene (ug/L)	MW-65	0.06405	4	21	No	8	12.5	0.01	NP
Chloroethane (ug/L)	MW-65	0.2705	5	21	No	8	0	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-40	0.7908	16	21	No	8	0	0.01	NP
Naphthalene (ug/L)	MW-40	0	3	14	No	6	83.33	0.01	NP
Sulfide (mg/L)	MW-59	0	-3	-14	No	6	83.33	0.01	NP
Sulfide (mg/L)	MW-63R	0	-4	-12	No	5	80	0.01	NP
Sulfide (mg/L)	MW-65	0	-4	-12	No	5	80	0.01	NP
Vinyl chloride (ug/L)	MW-40	-0.02323	-2	-21	No	8	12.5	0.01	NP

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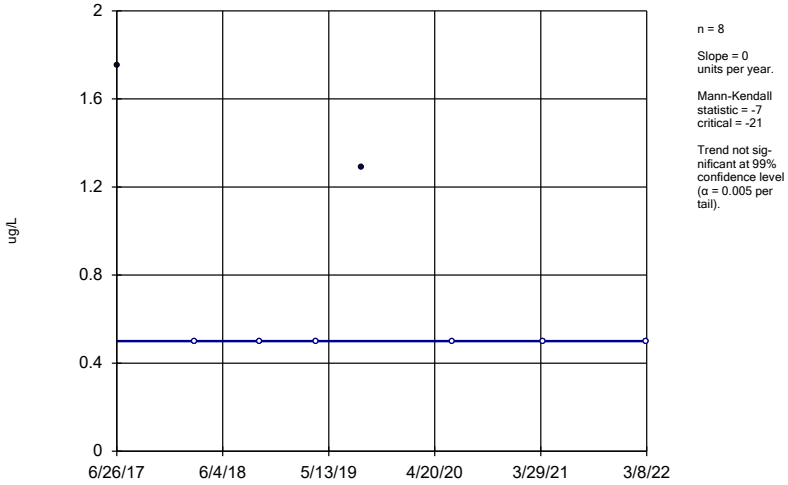
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = -7
critical = -21

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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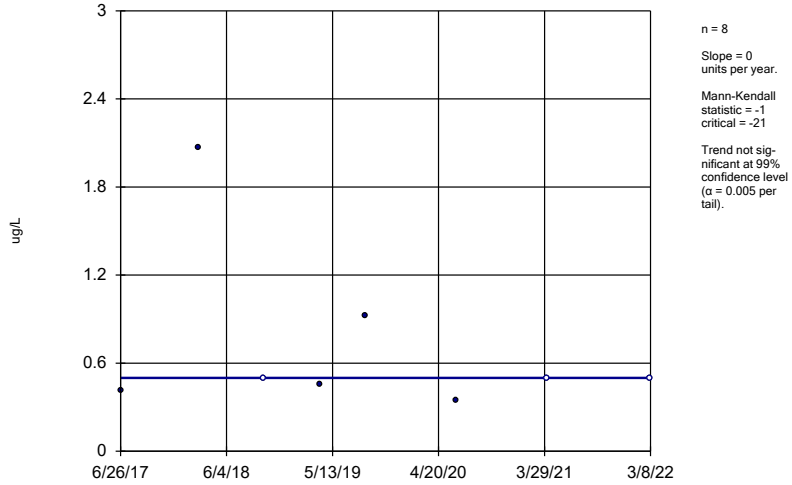
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-64



n = 8

Slope = 0
units per year.

Mann-Kendall
statistic = -1
critical = -21

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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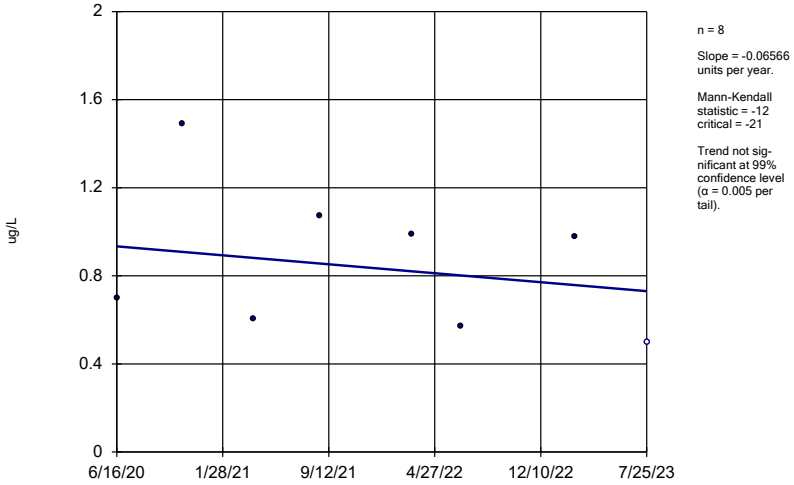
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



n = 8

Slope = -0.06566
units per year.

Mann-Kendall
statistic = -12
critical = -21

Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).

Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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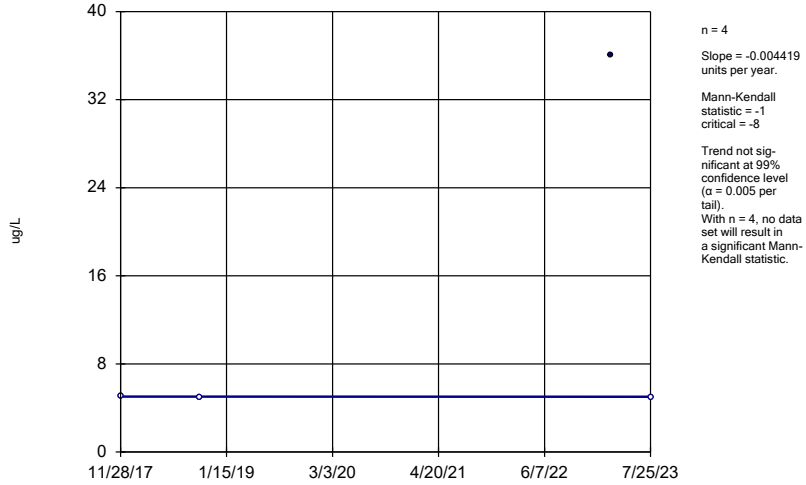
Hollow symbols indicate censored values.

Sen's Slope Estimator

04-MW-56



n = 4

Slope = -0.004419
units per year.

Mann-Kendall
statistic = -1
critical = -8

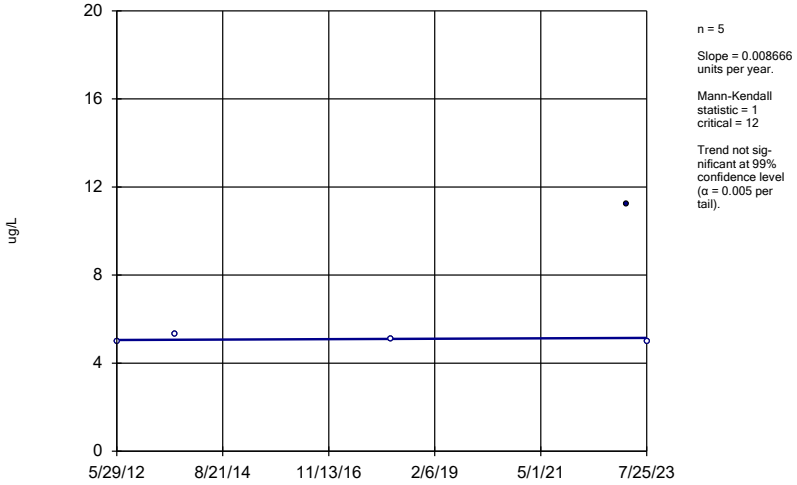
Trend not sig-
nificant at 99%
confidence level
(α = 0.005 per
tail).
With n = 4, no data
set will result in
a significant Mann-
Kendall statistic.

Constituent: 2-Methylnaphthalene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-39R



Constituent: 2-Methylnaphthalene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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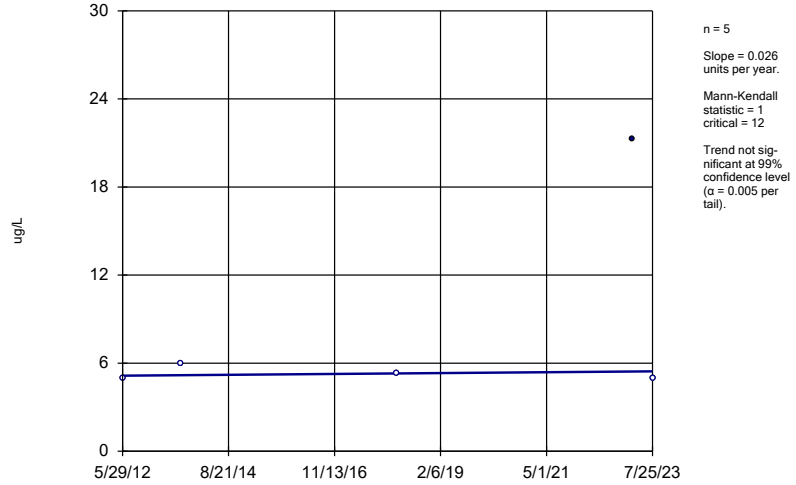
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-58

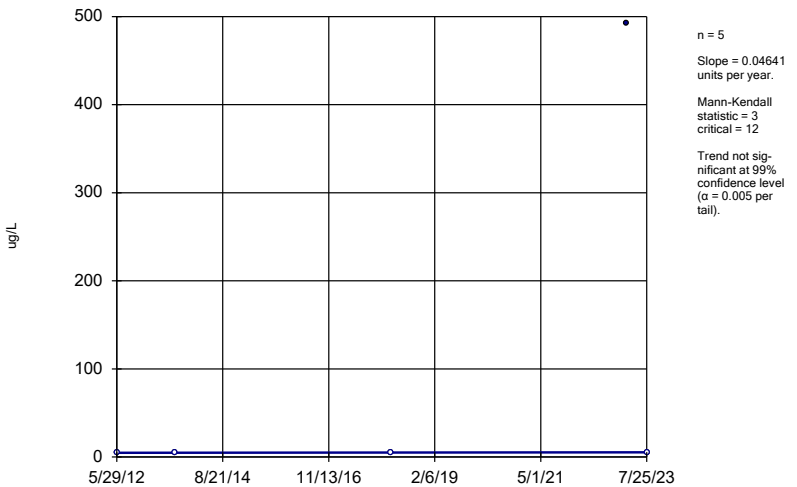


Constituent: 2-Methylnaphthalene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



Constituent: 2-Methylnaphthalene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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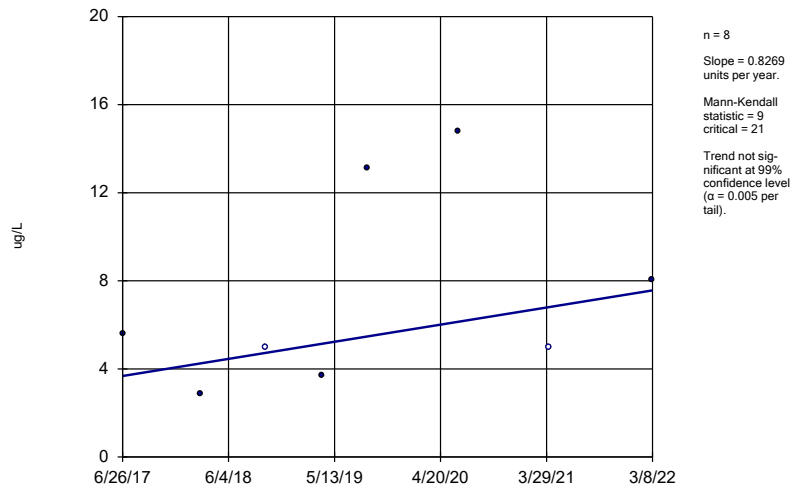
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



Constituent: Acetone Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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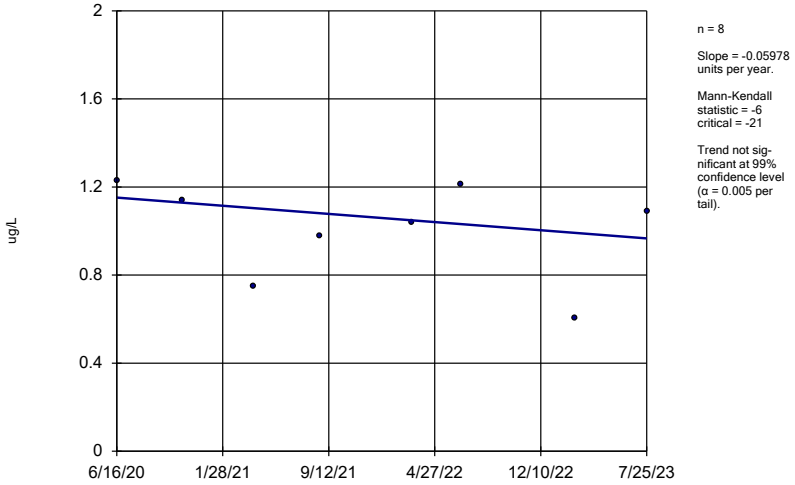
Sen's Slope Estimator

MW-40



Constituent: Benzene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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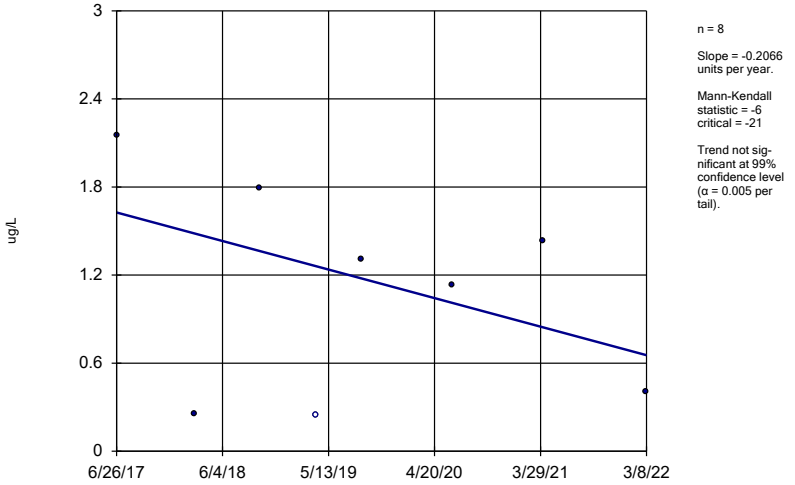
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



Constituent: Benzene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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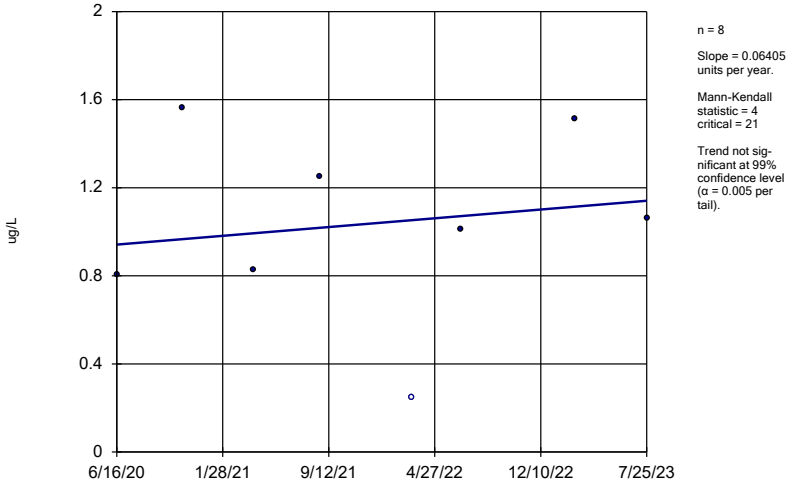
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



Constituent: Benzene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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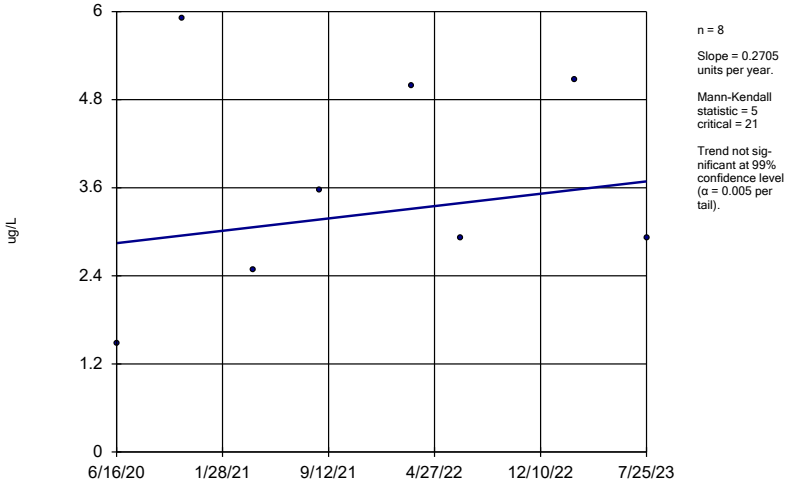
Sen's Slope Estimator

MW-65



Constituent: Chloroethane Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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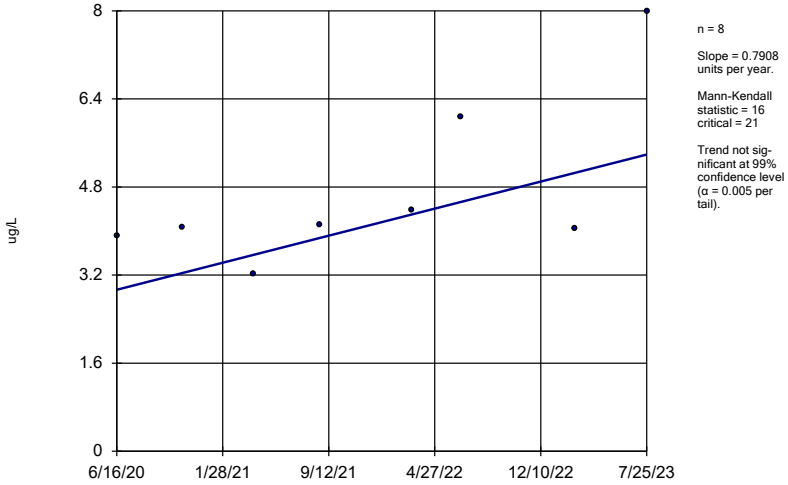
Sen's Slope Estimator

MW-40



Constituent: cis-1,2-Dichloroethene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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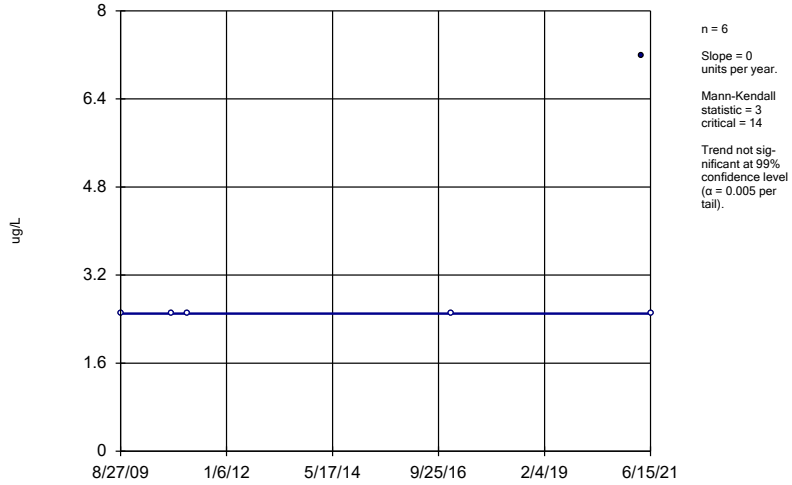
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-40



Constituent: Naphthalene Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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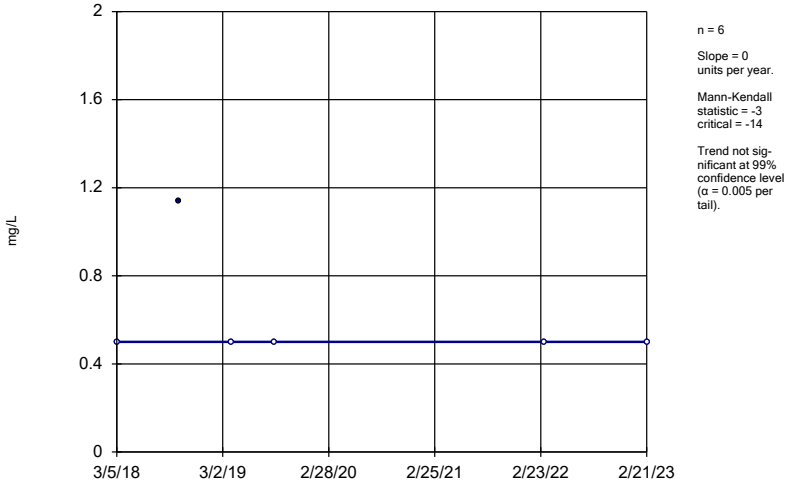
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-59



Constituent: Sulfide Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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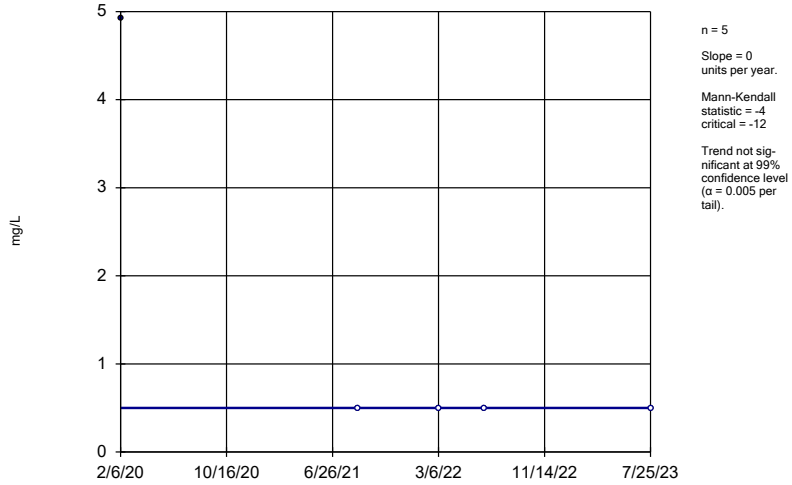
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-63R



Constituent: Sulfide Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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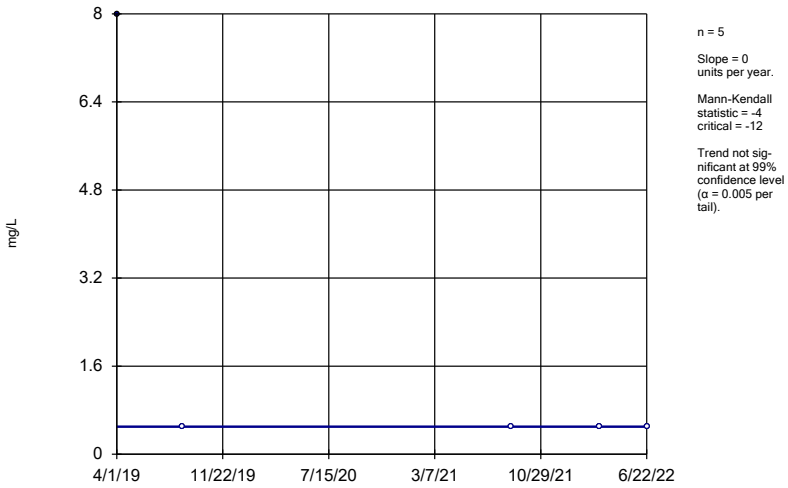
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65

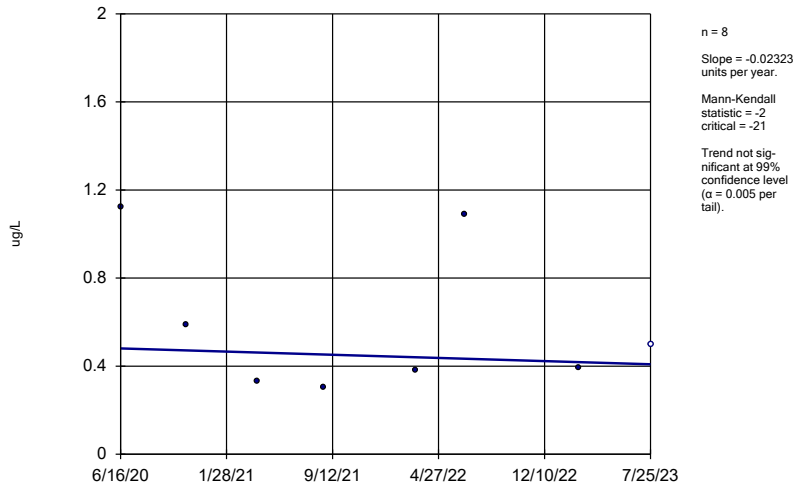


Constituent: Sulfide Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-40



Constituent: Vinyl chloride Analysis Run 9/18/2023 5:13 PM View: 2023AWQR - AMD VOC MK
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

Confidence Interval Summary Table and Graphs – Assessment Monitoring Wells

Confidence Interval

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM Printed 11/2/2023, 11:06 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
2-Butanone (ug/L)	93-MW-32	294	5	4000	No	8	87.5	No	0.004	NP (NDs)
Acetone (ug/L)	93-MW-32	261	1.91	6300	No	8	75	No	0.004	NP (NDs)
Antimony (mg/L)	93-MW-32	0.0011	0.0005	0.006	No	8	87.5	No	0.004	NP (NDs)
Arsenic (mg/L)	93-MW-32	0.008194	0.001694	0.01	No	8	50	No	0.01	Param.
Barium (mg/L)	93-MW-32	0.1693	0.05437	2	No	8	0	No	0.01	Param.
Barium (mg/L)	MW-62	0.04207	0.02981	2	No	8	0	No	0.01	Param.
Cadmium (mg/L)	93-MW-32	0.001073	0.0001422	0.005	No	8	0	No	0.01	Param.
Cobalt (mg/L)	93-MW-32	0.07913	-0.01468	0.01671	No	8	0	No	0.01	Param.
Cobalt (mg/L)	MW-62	0.0006951	0.0002613	0.01671	No	8	0	No	0.01	Param.
Copper (mg/L)	93-MW-32	0.00847	0.0025	1.3	No	8	87.5	No	0.004	NP (NDs)
Copper (mg/L)	MW-62	0.0025	0.002195	1.3	No	8	87.5	No	0.004	NP (NDs)
Lead (mg/L)	93-MW-32	0.00381	0.00025	0.015	No	8	37.5	No	0.004	NP (normality)
Lead (mg/L)	MW-62	0.0004557	0.0003117	0.015	No	8	50	No	0.01	Param.
Nickel (mg/L)	93-MW-32	0.177	0.0163	0.1	No	8	0	No	0.004	NP (normality)
Nickel (mg/L)	MW-62	0.01146	0.00745	0.1	No	8	0	No	0.01	Param.
Selenium (mg/L)	MW-62	0.0131	0.000753	0.05	No	8	75	No	0.004	NP (NDs)
Toluene (ug/L)	93-MW-32	6.22	0.5	1000	No	8	87.5	No	0.004	NP (NDs)
Zinc (mg/L)	93-MW-32	0.04029	0.01063	2	No	8	0	No	0.01	Param.

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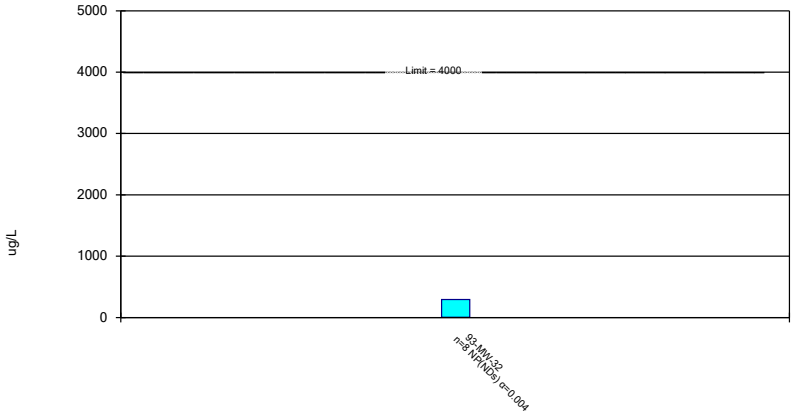
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

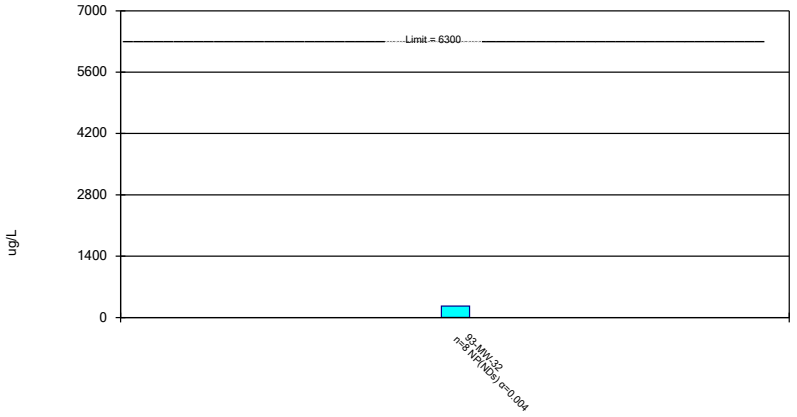


Constituent: 2-Butanone Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



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Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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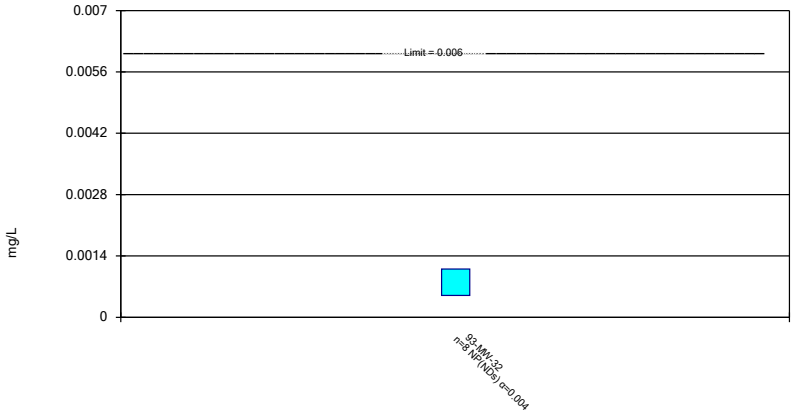
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



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Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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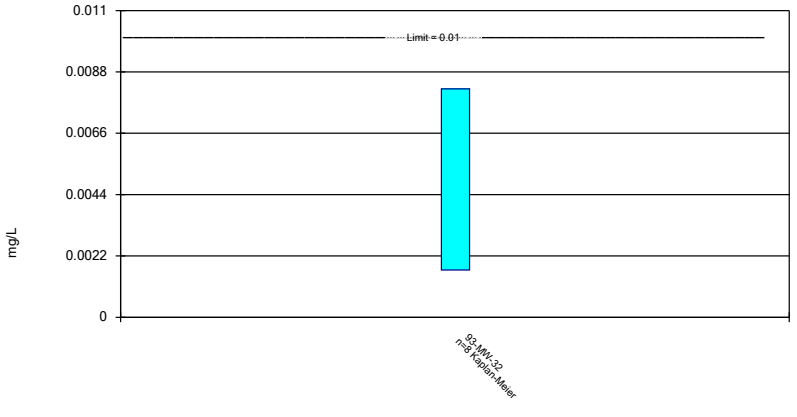

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Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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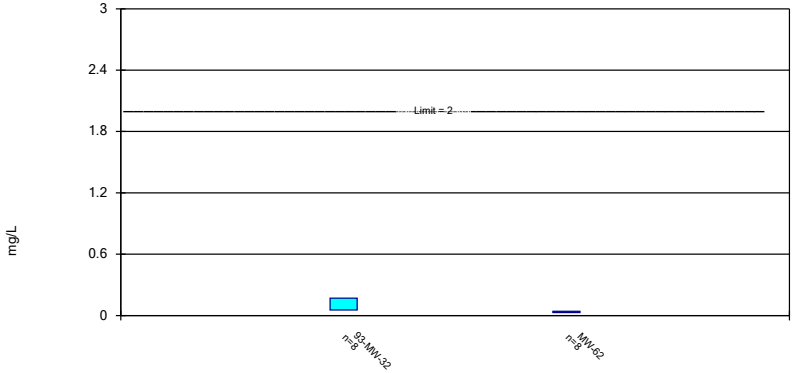

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Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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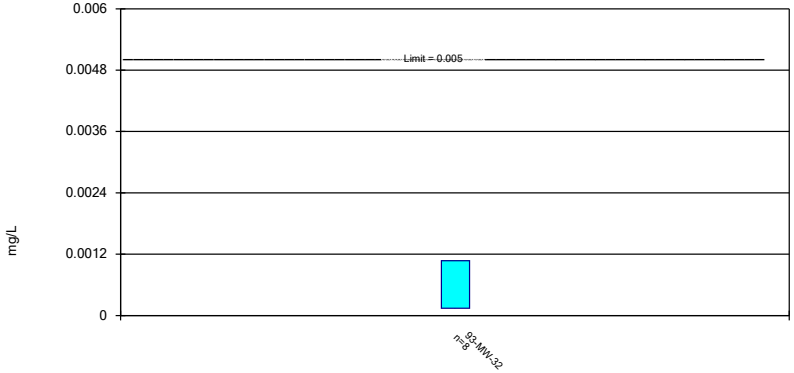

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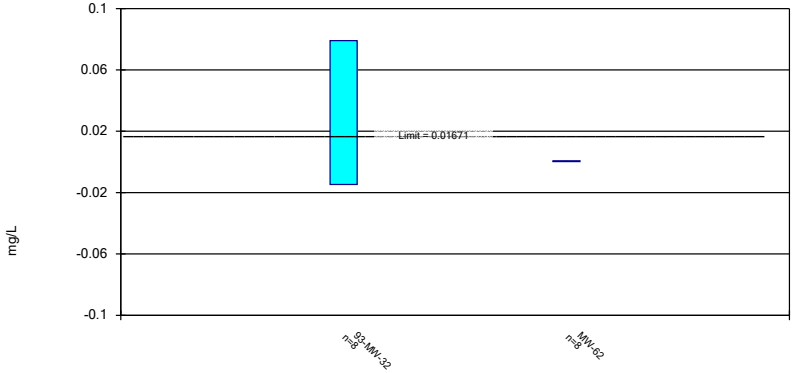
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



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Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Non-Parametric Confidence Interval

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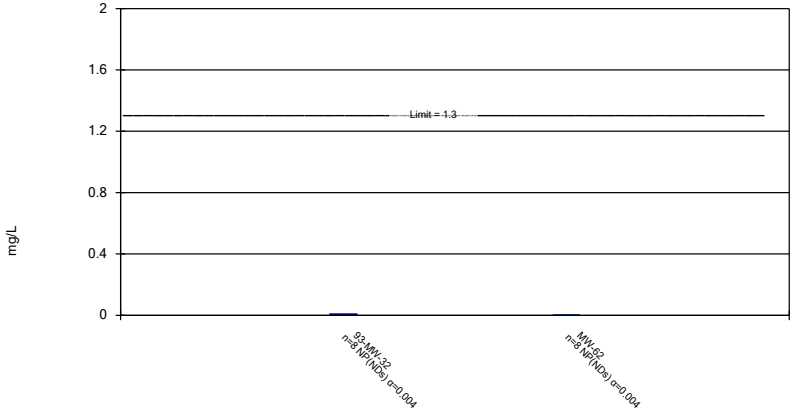

Constituent: Copper Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Parametric and Non-Parametric (NP) Confidence Interval

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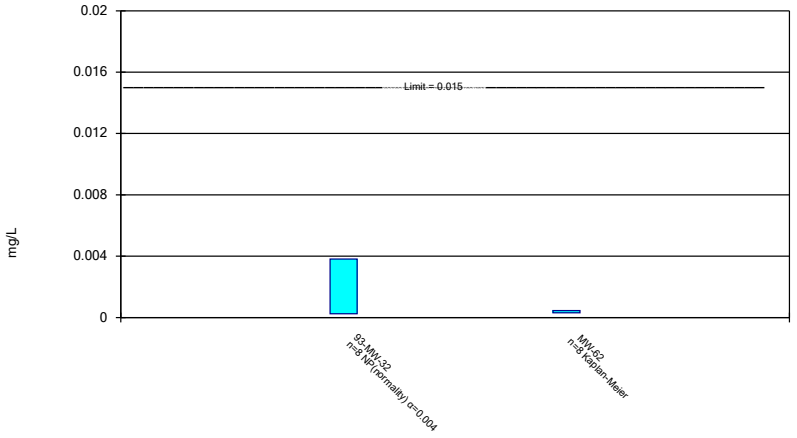

Constituent: Lead Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Parametric and Non-Parametric (NP) Confidence Interval

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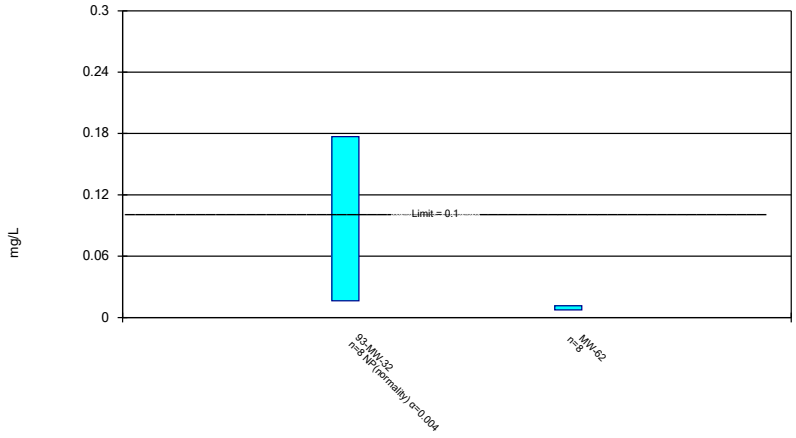

Constituent: Nickel Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Non-Parametric Confidence Interval

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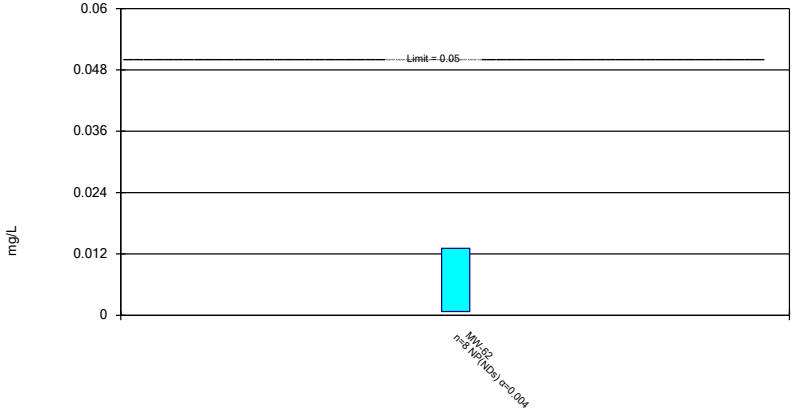

Constituent: Selenium Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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Non-Parametric Confidence Interval

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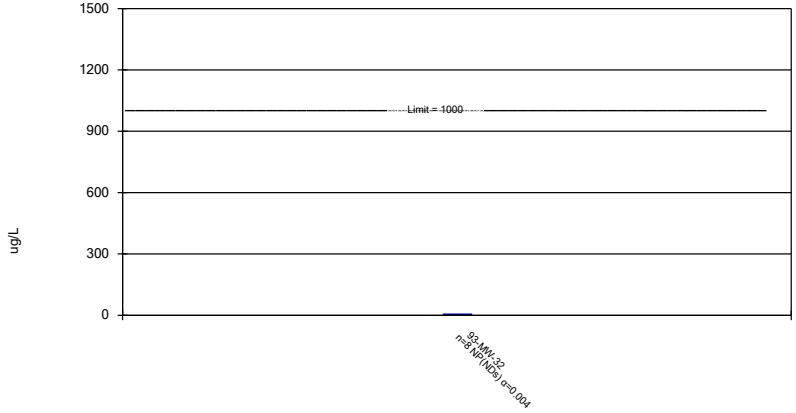

Constituent: Toluene Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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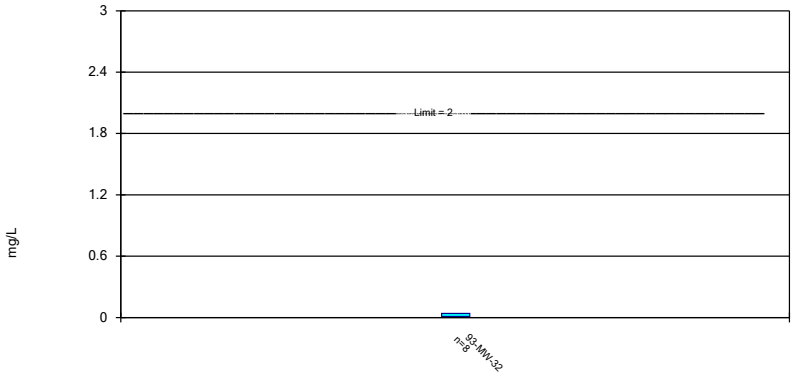
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Zinc Analysis Run 11/2/2023 11:04 AM View: 2023AWQR - Confidence Interval

Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Confidence Interval Summary Table and Graphs – AMD Wells Organics and Sulfide

Confidence Interval

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM Printed 9/18/2023, 5:21 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
1,1-Dichloroethane (ug/L)	MW-59	1.75	0.5	140	No	8	75	No	0.004	NP (NDs)
1,1-Dichloroethane (ug/L)	MW-64	2.07	0.344	140	No	8	37.5	No	0.004	NP (normality)
1,1-Dichloroethane (ug/L)	MW-65	1.215	0.5097	140	No	8	12.5	No	0.01	Param.
2-Methylnaphthalene (ug/L)	04-MW-56	36	5	28	No	4	75	No	0.0625	NP (NDs)
2-Methylnaphthalene (ug/L)	MW-39R	11.2	5	28	No	5	80	No	0.031	NP (NDs)
2-Methylnaphthalene (ug/L)	MW-58	21.3	5	28	No	5	80	No	0.031	NP (NDs)
2-Methylnaphthalene (ug/L)	MW-65	492	5	28	No	5	80	No	0.031	NP (NDs)
Acetone (ug/L)	MW-59	11.77	2.798	6300	No	8	25	No	0.01	Param.
Benzene (ug/L)	MW-40	1.24	0.7699	5	No	8	0	No	0.01	Param.
Benzene (ug/L)	MW-59	1.856	0.3235	5	No	8	12.5	No	0.01	Param.
Benzene (ug/L)	MW-65	1.484	0.5838	5	No	8	12.5	No	0.01	Param.
Chloroethane (ug/L)	MW-65	5.269	2.064	2800	No	8	0	No	0.01	Param.
cis-1,2-Dichloroethene (ug/L)	MW-40	6.368	3.078	70	No	8	0	No	0.01	Param.
Naphthalene (ug/L)	MW-40	7.18	2.5	100	No	6	83.33	No	0.0155	NP (NDs)
Sulfide (mg/L)	MW-59	1.14	0.5	1	No	6	83.33	No	0.0155	NP (NDs)
Sulfide (mg/L)	MW-63R	4.92	0.5	1	No	5	80	No	0.031	NP (NDs)
Sulfide (mg/L)	MW-65	7.98	0.5	1	No	5	80	No	0.031	NP (NDs)
Vinyl chloride (ug/L)	MW-40	0.9398	0.2373	2	No	8	12.5	No	0.01	Param.

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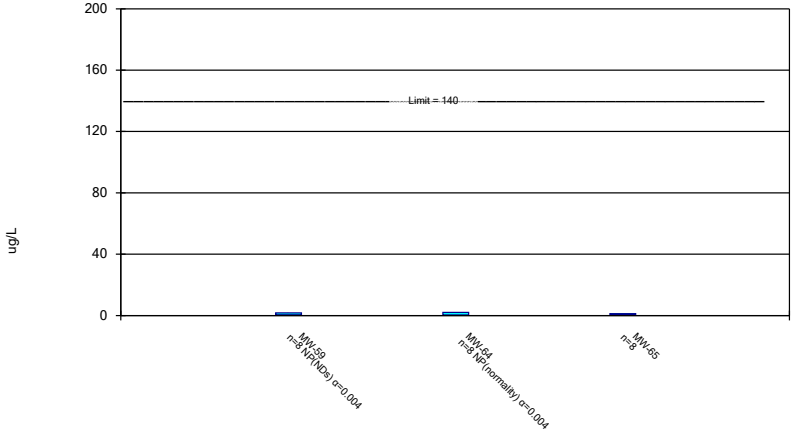
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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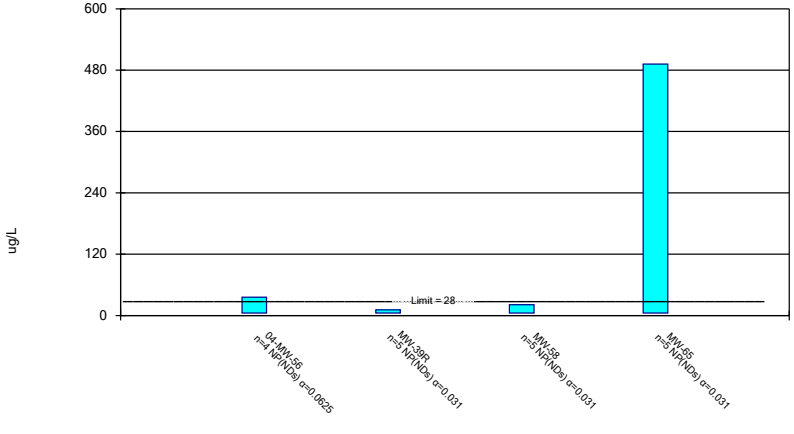
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: 2-Methylnaphthalene Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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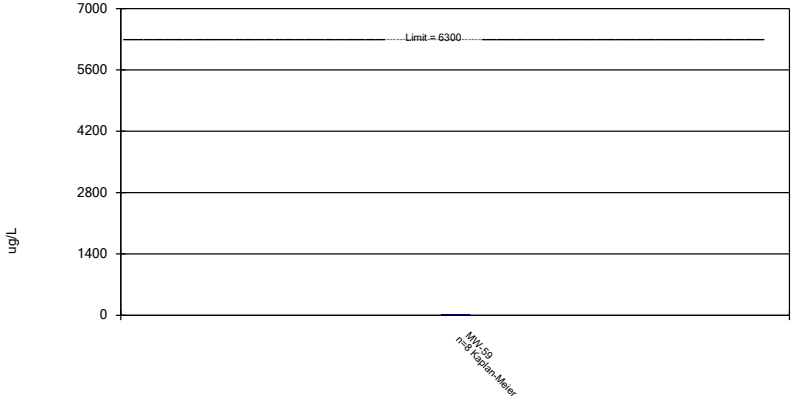

Constituent: Acetone Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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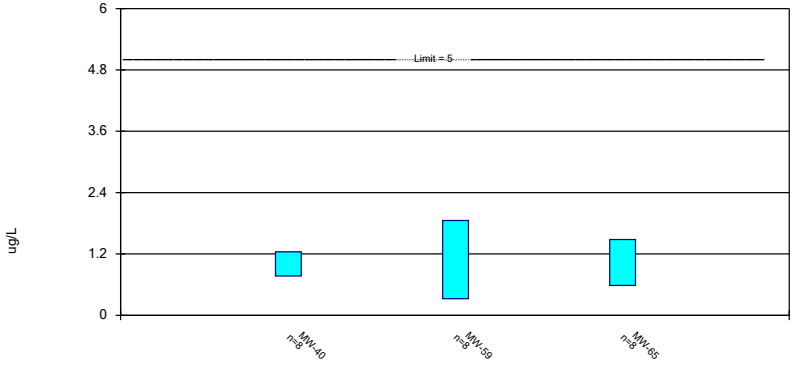

Constituent: Benzene Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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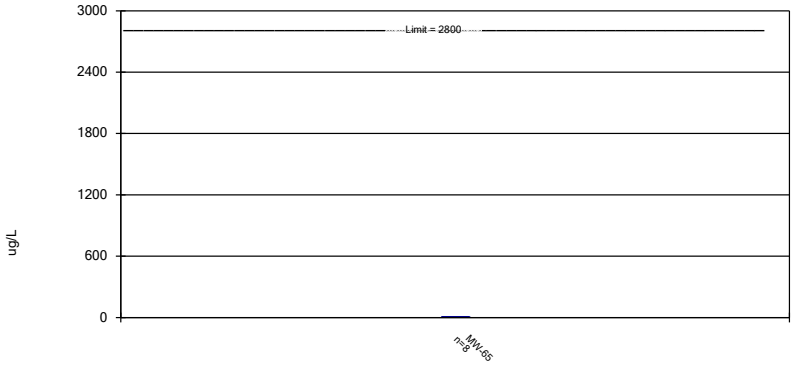

Constituent: Chloroethane Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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Parametric Confidence Interval

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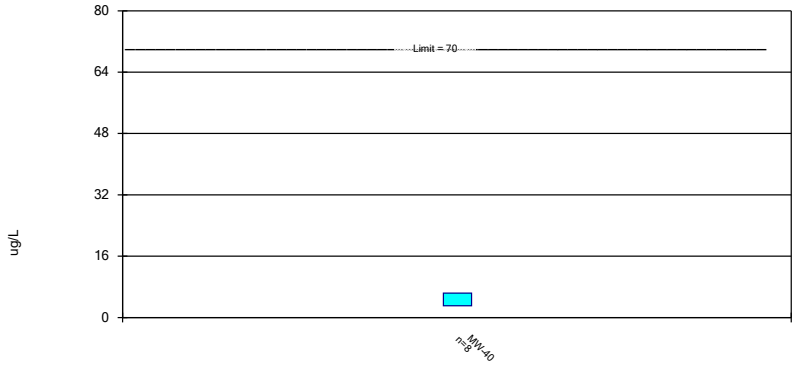

Constituent: cis-1,2-Dichloroethene Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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Non-Parametric Confidence Interval

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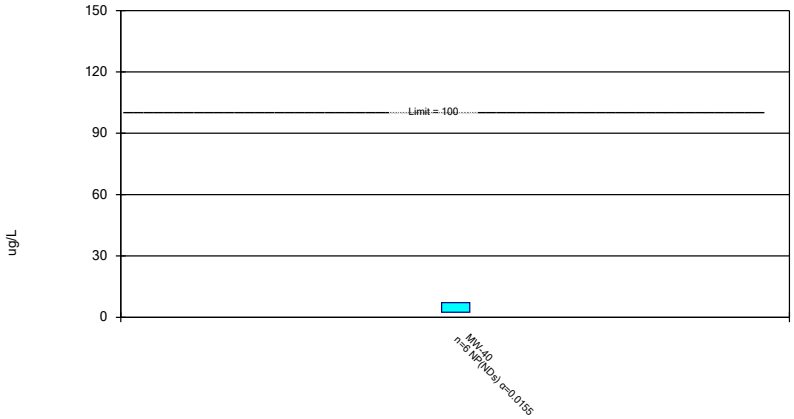

Constituent: Naphthalene Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

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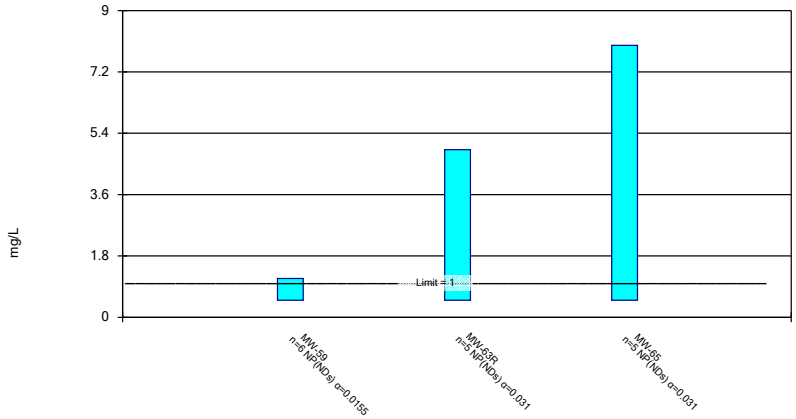
Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

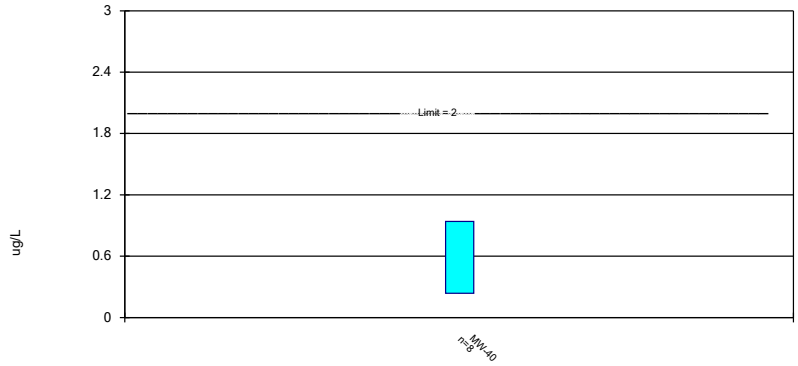


Constituent: Sulfide Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI
Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Vinyl chloride Analysis Run 9/18/2023 5:20 PM View: 2023AWQR - AMD VOC CI

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD OWSWC 2023AWQR-AM

Appendix E

Leachate Control System Performance Evaluation Report

2023 LEACHATE CONTROL SYSTEM PERFORMANCE EVALUATION REPORT

FOR

OTTUMWA-WAPELLO COUNTY LANDFILL

WEST MSWLF UNIT

OTTUMWA, IOWA

SUBMITTAL DATE: DECEMBER 2023

PREPARED FOR:
OTTUMWA-WAPELLO COUNTY SOLID WASTE COMMISSION

PREPARED BY:
SCS ENGINEERS

Table of Contents

Section 1.0 Leachate Control System 1-1

1.1 LOCATION OF CONTROL SYSTEM 1-1

1.2 EFFECTIVENESS OF THE LEACHATE CONTROL SYSTEM 1-1

1.3 APPROVED CHANGES TO SYSTEM 1-2

1.4 PROPOSED CHANGES TO SYSTEM 1-2

Figures

FIGURE 1 LEACHATE CONTROL SYSTEM

Attachments

ATTACHMENT A TABLE 12 – DNR ANNUAL WATER QUALITY REPORT TEMPLATE

ATTACHMENT B HISTORICAL LEACHATE COLUMN THICKNESS TABLES AND GRAPHS

ATTACHMENT C LEACHATE TESTING LABORATORY ANALYTICAL DATA SHEETS

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Section 1.0

Leachate Control System

SCS Engineers (SCS), on behalf of the Ottumwa-Wapello County Solid Waste Commission, has prepared this Leachate Control System Performance Evaluation Report (LCSPER) for the West municipal solid waste landfill (MSWLF) unit at the Ottumwa-Wapello County Landfill (Landfill) to comply with the requirements of Iowa Administrative Code (IAC) 567-113.7(5)"b"(14) and additional Iowa Department of Natural Resources (DNR) requirements specified in the West MSWLF's operating permit, most recently revised on May 11, 2023 (Doc #106563). This LCSPER describes the leachate control system, discusses maintenance activities, provides an evaluation of the effectiveness of the system, and, if necessary, provides recommendations for additional control measures. The reporting period for this LCSPER is from October 2022 – October 2023.

1.1 Location of Control System

The Landfill property is depicted on Figure 1, Leachate Control System and is located along 165th Avenue, approximately 1.5 miles north of State Highway 23 in Wapello County, Iowa. The Landfill property consists of approximately 250 acres and is located within the SE ¼; the E 30 acres of the S ½, S ½, NE ¼; and a portion of the W 10 acres of the S ½, S ½, NE ¼; all in Section 33, T73N, R14W, Wapello County, Iowa, as well as approximately 30 acres in the W ½ of the NE Fractional Quarter of Section 4, T72N, R14W, and Parcel A of the SW ¼ of Section 34, T73N, R14W, all in Wapello County, Iowa.

Leachate underdrains and collection pipes are located above the liners of the south cell, the west cell, the first north cell (built in 2000), the second north cell (built in 2006), the Phases 1A and 1B cell (built in 2009), the Phase 2 cell (built in 2013), and the Phase 3 cell (built in 2019). A toe drain with laterals extending into the waste mass is also present along the east toe of the closed unlined area of the unit. The monitoring system for the West MSWLF unit consists of thirteen leachate piezometers (LPZ-6R2, LPZ-7R2, LPZ-9R, LPZ-10R, LPZ-11, LPZ-12, LPZ-14, LPZ-15, LPZ-16, LPZ-17, LPZ-18, LPZ-19, and LPZ-20). An above-ground direct recirculation line runs from the leachate lagoon to the active area. A leachate extraction well (LEW-1) is located near the location of leachate piezometer LPZ-13R2 in the alternatively-lined north cell. Leachate piezometer LPZ-13R2 is not a functional measurement point and was approved for removal without replacement.

1.2 Effectiveness of the Leachate Control System

Table 12 in Attachment A provides monthly leachate column thicknesses for the West MSWLF unit. Leachate level measurements are collected monthly by landfill personnel except April and May 2023 measurements were collected by SCS. The measurements are reviewed each month by SCS to verify the recorded measurements appear representative. If the measurements do not appear representative, Landfill personnel recheck the levels.

Leachate thickness trends are described below and a historical table and graphs are included in Attachment B.

Unlined

LPZ-6R2 – Leachate thicknesses were erratic during this reporting period. The start of the reporting period had the lowest measured thicknesses since 2017 before increasing to a historical high in March 2024, then decreasing rapidly by approximately five feet through the end of the reporting period.

LPZ-7R2 – Leachate thickness measurements fluctuated between dry for most measurements and near 10 feet for four measurements.

LPZ-9R – Leachate thicknesses during this period were generally stable within the historical range except for a historical low in July 2023.

LPZ-10R – Leachate thicknesses were erratic during this reporting period, with numerous measurements both below and above the historical range since 2018.

LPZ-11 – The leachate thicknesses decreased steadily throughout the reporting period.

LPZ-12 – Leachate thicknesses increased approximately 3.7 feet from November 2022 through January 2023, remained elevated through April 2023, and then decreased to end the reporting at nearly the same level as the start.

LPZ-19 – Leachate thicknesses were erratic during this reporting period after a stable trend in recent years. Thicknesses were generally within the historical range, although March 2023 was the third highest on record and the May and July 2023 measurements were below the historical range since 2016.

Clay Lined

LPZ-18 – Leachate thicknesses had a spike during November 2022 but quickly decreased to more typical levels and remained there through the end of the reporting period.

Composite Lined

LPZ-14 – The piezometer was dry during this reporting period.

LPZ-15 – The piezometer was dry during this reporting period.

LPZ-16 – The piezometer was dry during this reporting period.

LPZ-17 – The piezometer was dry during this reporting period.

LPZ-20 – Leachate thicknesses were above the compliance limit from June through September 2023 but returned to below the compliance limit in October 2023.

1.3 Approved Changes to System

Small tears at the edge of the leachate lagoon liner were repaired in July 2023.

The leachate recirculation piping was not used during this reporting period. The pipe was repaired after being damaged by a mower. The line should be inspected before the next planned use and is required to be inspected monthly when in use.

1.4 Proposed Changes to System

There are no proposed changes to the leachate control system at this time. SCS recommends continuing to perform the following items to maintain the effectiveness of the leachate control system:

- Continue monthly monitoring of the leachate levels as required in the facility permit.
- Maintain good vegetation over the final cover and intermediate cover over the inactive areas.
- Continue operation and maintenance of the leachate control system in accordance with the approved Leachate Control System Plan.
- Continue recording the volume of leachate conveyed to and treated at the City of Ottumwa publicly-owned treatment works (POTW). 786,000 gallons of leachate were hauled for disposal during this reporting period. Analytical test results for this reporting period are included in Attachment C.
- Continue cleaning the leachate collection system if leachate head or the volume of leachate collected indicates cleaning is necessary.



Leachate Control System

Legend

- Leachate Control System Monitoring Point
- Leachate Monitoring Point
- Monitoring Well
- Groundwater Underdrain
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary

Ottumwa-Wapello County
Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: August 2023

Figure 1

W S N E

0 230 460 920 Feet

SCS ENGINEERS
environmental consultants and contractors

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Attachment A

Table 12 – Leachate Management Summary

Table 12
Leachate Management Summary
2023 Leachate Control System Performance Evaluation Report
Ottumwa-Wapello County Landfill
Permit No. 90-SDP-01-75P

	Unlined Cells - Column Thickness (ft)							Lined Cells - Column Thickness (ft)						Hauled to	Leachate Used in ADC	Precipitation
Month	LPZ-6R2	LPZ-7R2	LPZ-9R	LPZ-10R	LPZ-11	LPZ-12	LPZ-19	LPZ-14	LPZ-15	LPZ-16	LPZ-17	LPZ-18	LPZ-20	Ottumwa POTW (gal)	Preparation (gal)	(in)
October 2022	7.2	11.2	18.8	5.5	4.8	4.4	9.9	Dry	Dry	Dry	Dry	1.4	1.0			1.41
November 2022	6.5	NA	16.7	6.7	4.8	4.4	10.8	Dry	Dry	Dry	Dry	3.6	0.6			3.64
December 2022	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM			1.29
January 2023	10.6	Dry	5.8	10.8	4.3	8.1	11.5	Dry	Dry	Dry	Dry	1.7	Dry			1.49
February 2023	11.9	Dry	6.1	3.6	4.4	7.4	10.3	Dry	Dry	Dry	Dry	1.4	0.5			2.45
March 2023	13.3	Dry	7.3	3.7	4.4	8.3	12.6	Dry	Dry	Dry	Dry	2.0	0.7			2.23
April 2023	12.9	9.8	7.1	12.9	4.1	8.3	10.1	Dry	Dry	Dry	Dry	1.6	0.6	786,000	67,600	1.37
May 2023	11.8	9.5	5.9	4.3	Dry	5.6	7.5	Dry	Dry	Dry	Dry	1.8	0.9			0.93
June 2023	11.9	Dry	5.6	7.3	3.8	5.0	8.1	Dry	Dry	Dry	Dry	1.6	2.0			2.43
July 2023	10.6	Dry	2.9	6.4	3.7	4.9	7.3	Dry	Dry	Dry	Dry	1.5	1.3			2.53
August 2023	10.6	10.4	6.8	12.7	3.9	4.5	11.8	Dry	Dry	Dry	Dry	1.7	1.6			1.20
September 2023	9.7	Dry	7.5	6.4	3.7	3.9	NM	Dry	Dry	Dry	Dry	1.4	2.1			1.19
October 2023	8.4	Dry	5.5	6.5	3.4	3.9	9.4	Dry	Dry	Dry	Dry	1.6	Dry			1.96
													Reporting Period Total Gallons	786,000	67,600	24.12

Measurements performed by Landfill staff except for April and May 2023 measurements performed by SCS.
NA - Not applicable. Likely anomalous values were not considered in the thickness interpretation.
Comments:
1. Reporting Period: October 2022 - October 2023
2. Recommended Changes to Leachate Control System: No changes recommended.
3. Maintenance Performed on Leachate Control System: Repairs were made during this reporting period to the leachate lagoon liner and leachate recirculation line.
4. Last Date of Cleaning and Inspection: August 2017
5. Date for Next Cleaning and Inspection: Leachate line cleaning and inspection will be performed if performance declines are observed.
6. Volume of Leachate Used in Alternative Daily Cover (ADC) Preparation: 67,600 gallons of leachate were used for preparation of ADC during this reporting period.
7. Volume of Leachate Treated On-Site: Leachate is not treated on-site.
8. Volume of Leachate Treated Off-Site: 786,000 gallons of leachate were hauled to the Ottumwa POTW for disposal during this reporting period.
9. Precipitation data from Iowa State University Iowa Environmental Mesonet (https://mesonet.agron.iastate.edu/ASOS/reports/mon_prec.php).
13. NM - Measurements in December 2022 were inadvertently omitted during this reporting period.

Attachment B

Historical Leachate Column Thickness Tables and Graphs

ATTACHMENT B
HISTORICAL LEACHATE COLUMN THICKNESSES
OTTUMWA-WAPELLO COUNTY LANDFILL

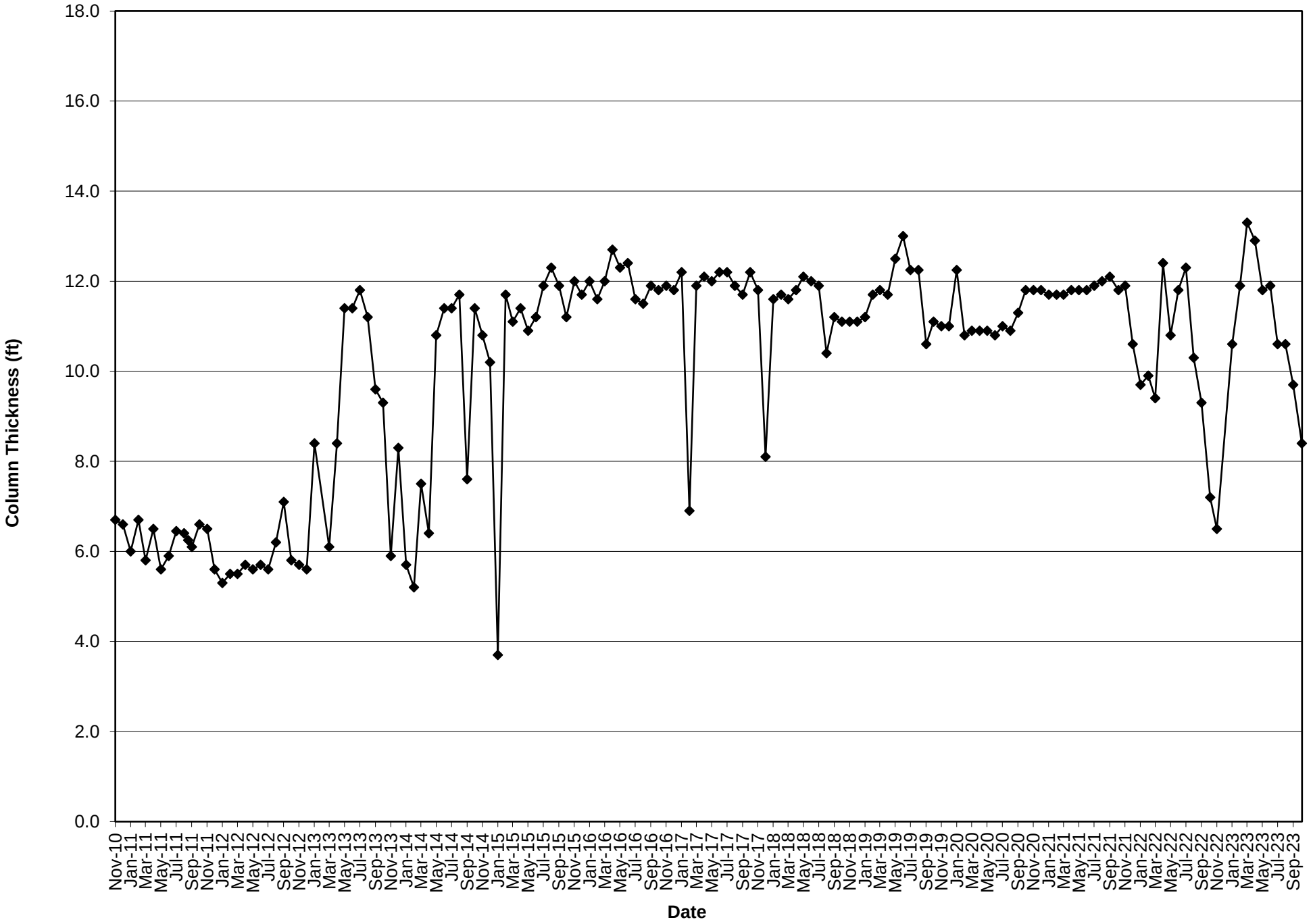
Date	Unlined Area of West MSWLF Unit							Lined Area of West MSWLF Unit					
	LPZ-6R2	LPZ-7R2	LPZ-9R	LPZ-10R	LPZ-11	LPZ-12	LPZ-19	LPZ-14	LPZ-15	LPZ-16	LPZ-17	LPZ-18	LPZ-20
Apr-07	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
Oct-07	NI	NI	NI	NM	NM	NI	NI	NM	0.0	NM	NI	NI	NI
Mar-08	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
Apr-08	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
Apr-08	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
May-08	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
Jun-08	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
Jul-08	NI	NI	NI	NM	NM	NI	NI	NM	NM	NM	NI	NI	NI
Aug-08	NI	NI	NI	0.2	NM	NI	NI	NM	0.2	NM	NI	NI	NI
Sep-08	NI	NI	NI	2.8	NM	NI	NI	NM	2.8	NM	NI	NI	NI
Sep-08	NI	NI	NI	Dry	NM	NI	NI	NM	0.0	NM	NI	NI	NI
Oct-08	NI	NI	NI	0.2	NM	NI	NI	NM	0.2	NM	NI	NI	NI
Nov-08	NI	NI	NI	Dry	NM	NM	NI	NM	0.0	NM	NI	NI	NI
Dec-08	NI	NI	NI	Dry	NM	NM	NI	NM	0.0	NM	NI	NI	NI
Jan-09	NI	NI	NI	Dry	NM	NM	NI	NM	0.0	NM	NI	NI	NI
Feb-09	NI	NI	NI	Dry	NM	NM	NI	NM	0.0	NM	NI	NI	NI
Mar-09	NI	NI	NI	Dry	NM	NM	NI	NM	0.0	NM	NI	NI	NI
Apr-09	NI	NI	NI	Dry	NM	5.2	NI	NM	0.0	NM	NI	NI	NI
Apr-09	NI	NI	NI	5.2	NM	NM	NI	NM	5.2	NM	NI	NI	NI
May-09	NI	NI	NI	Dry	Dry	5.0	NI	NM	0.0	NM	NI	NI	NI
Jun-09	NI	NI	NI	Dry	Dry	5.0	NI	NM	0.0	NM	NI	NI	NI
Jul-09	NI	NI	NI	Dry	Dry	4.8	NI	NM	0.0	NM	NI	NI	NI
Aug-09	NI	NI	NI	Dry	Dry	4.6	NI	NM	0.0	NM	NI	NI	NI
Sep-09	NI	NI	NI	Dry	Dry	5.3	NI	NM	0.0	NM	NI	NI	NI
Oct-09	NI	NI	NI	Dry	Dry	5.6	NI	NM	0.0	NM	NI	NI	NI
Oct-09	NI	NI	NI	Dry	Dry	NM	NI	NM	0.0	NM	NI	NI	NI
Oct-09	NI	NI	NI	NM	NM	NM	NI	NM	NM	NM	NI	NI	NI
Nov-09	NI	NI	NI	Dry	Dry	5.6	NI	NM	0.0	NM	NI	NI	NI
Dec-09	NI	NI	NI	Dry	Dry	5.1	NI	NM	0.0	NM	NI	NI	NI
Jan-10	NI	NI	NI	Dry	Dry	8.1	NI	4.4	1.2	0.2	NI	NI	NI
Feb-10	NI	NI	NI	Dry	Dry	8.3	NI	4.2	1.3	0.5	NI	NI	NI
Mar-10	NI	NI	NI	Dry	Dry	8.0	NI	4.3	1.2	Dry	NI	NI	NI
Apr-10	NI	NI	NI	Dry	Dry	8.5	NI	4.4	1.5	Dry	NI	NI	NI
Apr-10	NI	NI	NI	Dry	Dry	5.6	NI	NM	NM	Dry	NI	NI	NI
May-10	NI	NI	NI	Dry	Dry	8.2	NI	4.5	1.3	Dry	NI	NI	NI
Jun-10	NI	NI	NI	Dry	Dry	8.5	NI	4.4	1.5	Dry	NI	NI	NI
Jul-10	NI	NI	NI	Dry	Dry	9.3	NI	4.1	1.7	Dry	NI	NI	NI
Aug-10	NI	NI	NI	Dry	Dry	8.9	NI	3.1	0.7	Dry	NI	NI	NI
Sep-10	NI	NI	NI	Dry	Dry	6.6	NI	4.0	1.9	0.3	NI	NI	NI
Oct-10	NI	NI	NI	Dry	Dry	5.3	NI	4.0	0.4	Dry	NI	NI	NI
Oct-10	NI	8.5	10.6	3.3	Dry	NM	NI	NM	NM	NM	NI	NI	NI
Nov-10	6.7	11.2	11.4	1.8	Dry	4.2	NI	3.8	1.3	Dry	NI	NI	NI
Dec-10	6.6	12.2	10.3	2.1	Dry	4.4	NI	5.5	1.1	Dry	NI	NI	NI
Jan-11	6.0	11.4	9.3	2.2	Dry	6.2	NI	3.9	1.0	Dry	NI	NI	NI
Feb-11	6.7	11.3	9.6	1.9	Dry	8.5	NI	4.1	1.1	Dry	NI	NI	NI
Feb-11	Dry	11.3	10.7	2.3	Dry	7.6	NI	NM	NM	NM	NI	NI	NI
Mar-11	5.8	11.1	6.3	1.8	Dry	6.0	NI	3.5	0.9	0.6	NI	NI	NI
Apr-11	6.5	12.6	9.3	3.0	Dry	5.9	NI	4.5	2.3	NM	NI	NI	NI
May-11	5.6	11.9	4.8	1.7	Dry	6.3	NI	3.5	0.9	0.7	NI	NI	NI
Jun-11	5.9	13.9	8.9	2.3	Dry	8.2	NI	3.2	1.2	0.2	NI	NI	NI
Jul-11	6.5	11.6	8.7	1.9	Dry	8.4	NI	4.1	1.2	Dry	NI	NI	NI
Aug-11	6.4	10.6	10.3	2.1	Dry	8.6	NI	3.1	1.3	Dry	NI	NI	NI
Aug-11	6.3	10.3	4.5	2.2	Dry	4.2	NI	NM	NM	NM	NI	NI	NI
Sep-11	6.1	13.2	6.9	2.0	Dry	5.9	NI	3.1	0.6	1.1	NI	NI	NI
Oct-11	6.6	14.2	8.7	3.6	Dry	6.7	NI	3.4	0.7	2.1	NI	NI	NI
Nov-11	6.5	16.6	9.6	2.6	Dry	6.3	NI	3.9	0.9	Dry	NI	NI	NI
Dec-11	5.6	10.9	4.6	3.0	Dry	6.2	NI	Dry	1.9	Dry	NI	NI	NI
Jan-12	5.3	10.3	3.3	1.7	Dry	6.0	NI	3.4	6.2	0.4	NI	NI	NI
Feb-12	5.5	11.0	4.3	1.8	Dry	5.9	NI	3.2	6.1	0.4	NI	NI	NI
Mar-12	5.5	10.7	6.6	2.6	Dry	7.0	NI	4.4	7.2	0.5	NI	NI	NI
Apr-12	5.7	10.7	6.7	2.5	Dry	6.0	NI	2.6	6.4	0.4	NI	NI	NI
May-12	5.6	9.8	3.1	5.0	Dry	5.7	NI	Dry	0.5	0.4	NI	NI	NI
Jun-12	5.7	10.3	3.7	5.0	Dry	5.7	NI	Dry	0.5	0.4	NI	NI	NI
Jul-12	5.6	10.0	3.2	1.0	Dry	5.3	NI	Dry	0.6	Dry	NI	NI	NI
Aug-12	6.2	10.6	6.3	3.6	Dry	6.6	NI	Dry	0.7	Dry	NI	NI	NI
Sep-12	7.1	10.0	3.6	2.4	Dry	6.7	NI	Dry	1.0	0.3	NI	NI	NI
Oct-12	5.8	9.6	3.7	2.1	Dry	5.7	NI	Dry	6.3	0.7	NI	NI	NI
Nov-12	5.7	16.6	10.3	2.3	Dry	6.9	NI	Dry	5.5	0.4	NI	NI	NI
Dec-12	5.6	10.6	3.4	2.3	Dry	6.3	NI	Dry	7.2	0.5	NI	NI	NI
Jan-13	8.4	9.5	3.3	1.7	Dry	6.1	NI	Dry	1.3	0.3	NI	NI	NI
Feb-13	NM	9.4	3.3	2.8	Dry	6.3	NI	Dry	1.3	0.5	NI	NI	NI
Mar-13	6.1	11.5	9.2	2.1	Dry	6.2	NI	Dry	1.4	0.3	NI	NI	NI
Apr-13	8.4	9.9	3.4	NM	Dry	6.0	NI	3.4	0.9	0.2	NI	NI	NI
May-13	11.4	11.2	4.3	2.9	Dry	NM	NI	Dry	NM	0.3	NI	NI	NI
Jun-13	11.4	11.2	4.3	2.9	Dry	NM	NI	Dry	NM	0.3	NI	NI	NI
Jul-13	11.8	10.6	3.4	3.6	Dry	5.4	NI	Dry	1.5	1.1	NI	NI	NI
Aug-13	11.2	11.0	4.0	3.2	Dry	5.4	NI	Dry	NM	0.9	NI	NI	NI
Sep-13	9.6	10.5	4.2	NM	Dry	6.9	NI	Dry	NM	Dry	NI	NI	NI
Oct-13	9.3	10.6	4.6	2.8	3.6	6.3	NI	Dry	Dry	0.3	NI	NI	NI
Nov-13	5.9	12.2	9.2	2.2	Dry	5.6	NI	Dry	Dry	Dry	NI	NI	NI
Dec-13	8.3	10.0	3.9	2.4	Dry	6.3	NI	Dry	Dry	Dry	NI	NI	NI
Jan-14	5.7	10.3	9.6	3.0	Dry	6.1	NI	Dry	Dry	Dry	Dry	NI	NI
Feb-14	5.2	11.5	3.2	2.1	3.7	5.2	NI	Dry	Dry	Dry	Dry	NI	NI
Mar-14	7.5	9.9	4.3	2.6	NM	NM	NI	Dry	Dry	Dry	Dry	NI	NI
Apr-14	6.4	NM	4.4	2.2	Dry	7.1	NI	Dry	1.1	0.1	Dry	NI	NI
May-14	10.8	10.5	NM	2.5	Dry	8.0	NI	5.3	1.1	0.4	0.5	NI	NI
Jun-14	11.4	10.9	5.6	2.4	Dry	6.9	NI	5.2	1.1	Dry	Dry	NI	NI
Jul-14	11.4	12.2	5.8	2.5	Dry	7.1	NI	Dry	1.0	Dry	Dry	NI	NI
Aug-14	11.7	10.3	6.7	4.3	Dry	7.7	NI	Dry	Dry	Dry	Dry	NI	NI
Sep-14	7.6	NM	4.6	3.4	NM	7.7	NI	Dry	1.1	Dry	Dry	NI	NI
Oct-14	11.4	10.5	6.6	4.6	4.4	6.8	NI	5.2	1.0	0.4	0.4	NI	NI
Nov-14	10.8	10.2	5.8	2.4	Dry	6.8	NI	Dry	Dry	Dry	Dry	NI	NI
Dec-14	10.2	9.9	10.5	2.9	4.1	2.1	NI	Dry	Dry	Dry	Dry	NI	NI
Jan-15	3.7	9.5	4.7	2.3	Dry	7.7	NI	Dry	Dry	Dry	Dry	NI	NI
Feb-15	11.7	9.9	5.2	2.7	Dry	7.6	NI	Dry	Dry	Dry	Dry	NI	NI
Mar-15	11.1	10.2	5.1	2.9	Dry	6.2	NI	Dry	Dry	Dry	Dry	NI	NI
Apr-15	11.4	9.9	3.7	2.9	Dry	6.3	7.1	Dry	Dry	Dry	Dry	1.5	NI
May-15	10.9	9.9	5.3	6.8	Dry	6.2	7.6	Dry	Dry	Dry	Dry	1.5	NI
Jun-15	11.2	1.8	4.2	3.0	Dry	6.7	7.8	Dry	Dry	Dry	Dry	NM	NI
Jul-15	11.9	10.0	9.5	6.5	Dry	6.9	8.0	Dry	Dry	Dry	0.5	1.5	NI
Aug-15	12.3	10.0	5.5	3.0	Dry	6.5	8.1	4.8	Dry	Dry	Dry	1.5	NI
Sep-15	11.9	10.3	5.4	6.5	Dry	5.2	8.3	Dry	Dry	Dry	0.5	5.5	NI
Oct-15	11.2	9.6	8.4	2.5	3.8	6.1	9.9	4.0	Dry	Dry	Dry	1.5	NI
Nov-15	12.0	9.5	5.0	2.6	3.9	11.9	8.3	5.2	Dry	0.2	Dry	1.4	NI
Dec-15	11.7	9.4	5.5	5.4	4.3	6.5	8.4	Dry	Dry	Dry	Dry	0.5	NI

ATTACHMENT B
HISTORICAL LEACHATE COLUMN THICKNESSES
OTTUMWA-WAPELLO COUNTY LANDFILL

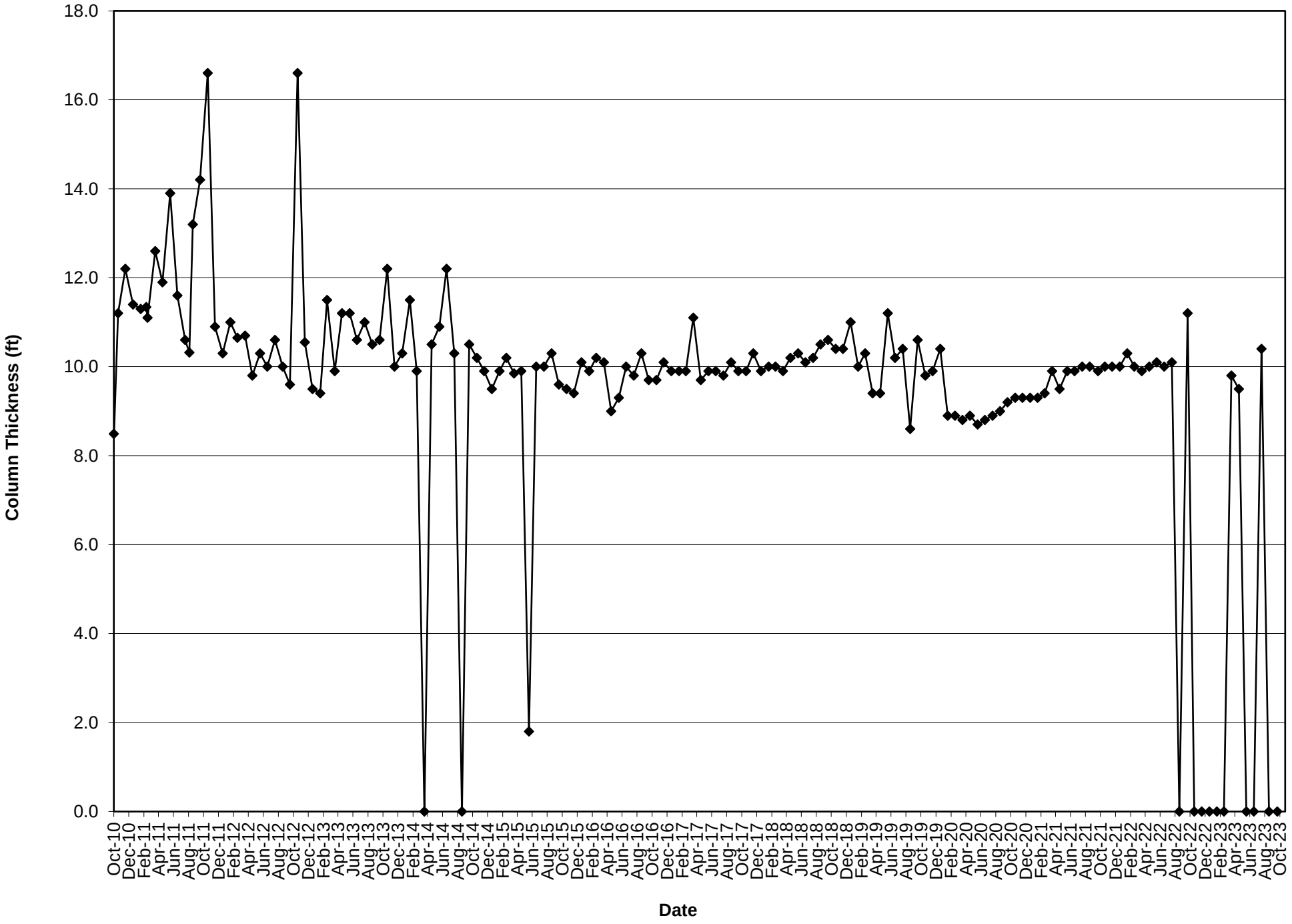
Date	Unlined Area of West MSWLF Unit							Lined Area of West MSWLF Unit					
	LPZ-6R2	LPZ-7R2	LPZ-9R	LPZ-10R	LPZ-11	LPZ-12	LPZ-19	LPZ-14	LPZ-15	LPZ-16	LPZ-17	LPZ-18	LPZ-20
Jan-16	12.0	10.1	5.6	1.4	Dry	6.1	8.3	Dry	Dry	Dry	Dry	1.5	NI
Feb-16	11.6	9.9	5.1	3.9	Dry	6.2	8.3	Dry	Dry	Dry	Dry	1.5	NI
Mar-16	12.0	10.2	10.3	3.5	Dry	6.3	3.5	Dry	Dry	Dry	Dry	1.6	NI
Apr-16	12.7	10.1	5.0	3.6	Dry	5.7	8.4	Dry	Dry	Dry	Dry	1.7	NI
May-16	12.3	9.0	Dry	4.0	Dry	5.2	8.3	Dry	Dry	Dry	Dry	1.7	NI
Jun-16	12.4	9.3	11.5	4.3	Dry	5.4	8.5	Dry	Dry	Dry	Dry	2.0	NI
Jul-16	11.6	10.0	10.3	Dry	Dry	Dry	8.3	5.0	Dry	Dry	Dry	1.7	NI
Aug-16	11.5	9.8	9.6	Dry	Dry	Dry	8.5	4.8	Dry	Dry	Dry	1.5	NI
Sep-16	11.9	10.3	11.9	4.5	Dry	Dry	9.0	Dry	Dry	Dry	Dry	1.5	NI
Oct-16	11.8	9.7	5.8	4.8	Dry	2.7	9.8	Dry	Dry	Dry	Dry	1.8	NI
Nov-16	11.9	9.7	5.8	5.0	Dry	3.0	9.8	Dry	Dry	Dry	Dry	1.8	NI
Dec-16	11.8	10.1	10.3	5.3	Dry	2.7	10.6	Dry	Dry	Dry	Dry	1.9	NI
Jan-17	12.2	9.9	10.7	5.4	Dry	5.2	9.8	Dry	Dry	Dry	Dry	1.8	NI
Feb-17	6.9	9.9	6.1	3.8	Dry	5.9	10.1	Dry	Dry	Dry	Dry	1.9	NI
Mar-17	11.9	9.9	5.6	3.8	Dry	5.7	9.9	Dry	Dry	Dry	Dry	1.8	NI
Apr-17	12.1	11.1	7.2	4.8	Dry	5.9	10.0	Dry	Dry	Dry	Dry	1.9	NI
May-17	12.0	9.7	6.1	4.6	Dry	5.7	9.6	Dry	Dry	Dry	Dry	1.7	NI
Jun-17	12.2	9.9	10.7	5.6	Dry	5.9	9.9	Dry	Dry	Dry	Dry	1.8	NI
Jul-17	12.2	9.9	11.1	7.2	Dry	5.3	9.8	Dry	Dry	Dry	Dry	1.7	NI
Aug-17	11.9	9.8	10.7	5.6	Dry	4.6	8.4	Dry	Dry	Dry	Dry	1.7	NI
Sep-17	11.7	10.1	10.4	5.8	Dry	2.9	9.9	Dry	Dry	Dry	Dry	2.0	NI
Oct-17	12.2	9.9	9.7	5.4	Dry	4.0	8.0	Dry	Dry	Dry	Dry	2.0	NI
Nov-17	11.8	9.9	5.9	4.4	Dry	4.7	8.6	Dry	Dry	Dry	Dry	1.9	NI
Dec-17	8.1	10.3	5.4	5.7	Dry	4.4	8.3	Dry	Dry	Dry	Dry	1.7	NI
Jan-18	11.6	9.9	10.9	5.1	Dry	3.1	8.2	Dry	Dry	Dry	Dry	1.8	NI
Feb-18	11.7	10.0	12.3	5.1	Dry	3.2	8.3	Dry	Dry	Dry	Dry	1.8	NI
Mar-18	11.6	10.0	10.3	7.0	Dry	3.2	8.2	Dry	Dry	Dry	Dry	1.7	NI
Apr-18	11.8	9.9	12.4	7.6	Dry	3.2	8.3	Dry	Dry	Dry	Dry	2.0	NI
May-18	12.1	10.2	10.9	7.5	Dry	3.2	8.5	Dry	Dry	Dry	Dry	1.8	NI
Jun-18	12.0	10.3	6.1	8.5	Dry	3.2	8.1	Dry	Dry	Dry	Dry	1.9	NI
Jul-18	11.9	10.1	11.8	7.5	Dry	5.5	8.0	Dry	Dry	Dry	Dry	1.9	NI
Aug-18	10.4	10.2	4.3	7.5	Dry	3.4	8.4	Dry	Dry	Dry	Dry	1.4	NI
Sep-18	11.2	10.5	5.7	7.4	Dry	3.9	8.8	Dry	Dry	Dry	Dry	2.1	NI
Oct-18	11.1	10.6	5.6	7.3	Dry	4.1	9.0	Dry	Dry	Dry	Dry	2.1	NI
Nov-18	11.1	10.4	5.6	6.8	Dry	2.9	8.9	Dry	Dry	Dry	Dry	1.9	NI
Dec-18	11.1	10.4	5.4	6.8	Dry	5.6	8.3	Dry	Dry	Dry	Dry	1.8	NI
Jan-19	11.2	11.0	5.8	8.0	Dry	Dry	8.3	Dry	Dry	Dry	Dry	1.8	NI
Feb-19	11.7	10.0	10.4	7.1	Dry	8.6	8.3	Dry	Dry	Dry	Dry	1.7	NI
Mar-19	11.8	10.3	10.3	7.2	Dry	8.7	8.3	Dry	Dry	Dry	Dry	1.7	NI
Apr-19	11.7	9.4	9.7	7.2	Dry	8.7	9.3	Dry	Dry	Dry	Dry	1.7	NI
May-19	12.5	9.4	9.7	7.4	Dry	5.3	9.3	Dry	Dry	Dry	Dry	1.8	NI
Jun-19	13.0	11.2	11.0	7.9	Dry	5.2	8.4	Dry	Dry	Dry	Dry	1.8	NI
Jul-19	12.3	10.2	11.0	7.6	Dry	5.4	8.4	Dry	Dry	Dry	Dry	2.0	NI
Aug-19	12.3	10.4	5.7	8.4	Dry	5.7	13.0	Dry	Dry	Dry	Dry	NM	NI
Sep-19	10.6	8.6	5.1	7.1	3.9	4.2	10.9	Dry	Dry	Dry	Dry	1.5	NI
Oct-19	10.7	8.7	5.0	7.5	3.6	5.2	11.0	Dry	Dry	Dry	Dry	1.4	NI
Nov-19	11.0	9.8	10.4	8.0	4.5	Dry	8.4	Dry	Dry	Dry	Dry	1.7	NI
Dec-19	11.0	9.9	10.5	6.9	4.4	Dry	9.4	Dry	Dry	Dry	Dry	1.8	NI
Jan-20	12.3	10.4	5.7	8.4	4.7	Dry	13.0	Dry	Dry	Dry	Dry	NA	NI
Feb-20	10.8	8.9	5.0	7.7	4.2	Dry	11.1	Dry	Dry	Dry	Dry	1.5	NI
Mar-20	10.9	8.9	5.0	7.7	4.2	Dry	11.2	Dry	Dry	Dry	Dry	0.5	NI
Apr-20	10.9	8.8	5.1	8.0	4.9	Dry	11.0	Dry	Dry	Dry	Dry	1.4	NI
May-20	10.9	8.9	5.1	7.5	4.3	4.6	10.9	Dry	Dry	Dry	Dry	1.2	NI
Jun-20	10.8	8.7	4.9	7.4	4.2	4.7	11.0	Dry	Dry	Dry	Dry	1.4	NI
Jul-20	11.0	8.8	5.1	7.4	4.2	4.7	11.2	Dry	Dry	Dry	Dry	1.5	NI
Aug-20	10.9	8.9	5.1	6.6	4.4	4.7	11.6	Dry	Dry	Dry	Dry	1.4	NI
Sep-20	11.3	9.0	5.1	7.4	4.7	4.8	11.4	Dry	Dry	Dry	Dry	1.5	NI
Oct-20	11.8	9.2	5.1	7.6	4.6	5.0	11.0	Dry	Dry	Dry	Dry	1.5	NI
Nov-20	11.8	9.3	5.2	7.7	4.2	5.3	11.1	Dry	Dry	Dry	Dry	1.4	NI
Dec-20	11.8	9.3	5.2	7.7	4.2	5.3	11.2	Dry	Dry	Dry	Dry	1.4	NM
Jan-21	11.7	9.3	5.1	8.0	4.2	Dry	11.3	Dry	Dry	Dry	Dry	1.5	NM
Feb-21	11.7	9.3	5.1	8.0	4.2	Dry	11.3	Dry	Dry	Dry	Dry	1.5	NM
Mar-21	11.7	9.4	5.0	7.9	4.2	Dry	11.2	Dry	Dry	Dry	Dry	1.4	0.8
Apr-21	11.8	9.9	5.2	12.8	4.3	5.9	11.0	Dry	Dry	Dry	Dry	0.4	0.5
May-21	11.8	9.5	5.2	11.9	4.6	5.9	11.1	Dry	Dry	Dry	Dry	NA	0.6
Jun-21	11.8	9.9	6.2	8.0	4.7	Dry	11.1	Dry	Dry	Dry	Dry	0.4	0.6
Jul-21	11.9	9.9	6.3	6.9	4.5	Dry	11.1	Dry	Dry	Dry	Dry	0.5	0.5
Aug-21	12.0	10.0	6.3	7.1	4.2	5.0	11.2	Dry	Dry	Dry	Dry	0.6	0.6
Sep-21	12.1	10.0	6.4	7.0	4.1	4.8	11.2	Dry	Dry	Dry	Dry	0.6	0.6
Oct-21	11.8	9.9	6.8	7.7	4.0	8.2	11.3	Dry	Dry	Dry	Dry	0.1	0.6
Nov-21	11.9	10.0	6.8	6.9	4.4	6.6	11.3	Dry	Dry	Dry	Dry	0.2	0.7
Dec-21	10.6	10.0	6.7	6.4	4.2	5.6	11.4	Dry	Dry	Dry	Dry	Dry	0.5
Jan-22	9.7	10.0	6.8	6.3	4.6	5.7	11.6	Dry	Dry	Dry	Dry	0.1	0.6
Feb-22	9.9	10.3	6.8	6.2	4.7	5.8	11.6	Dry	Dry	Dry	Dry	0.1	0.5
Mar-22	9.4	10.0	6.8	7.3	4.7	5.8	11.7	Dry	Dry	Dry	Dry	0.2	0.7
Apr-22	12.4	9.9	6.8	6.3	4.5	5.7	11.3	Dry	Dry	Dry	Dry	0.1	0.5
May-22	10.8	10.0	6.3	9.7	4.3	5.1	11.6	Dry	Dry	Dry	Dry	0.1	0.5
Jun-22	11.8	10.1	6.9	6.9	4.2	5.3	11.8	Dry	Dry	Dry	Dry	0.3	0.8
Jul-22	12.3	10.0	6.6	7.4	4.0	5.1	11.6	Dry	Dry	Dry	Dry	1.6	0.6
Aug-22	10.3	10.1	6.7	6.5	3.8	4.5	11.7	Dry	Dry	Dry	Dry	1.5	0.7
Sep-22	9.3	Dry	5.8	5.0	2.9	3.8	11.6	Dry	Dry	Dry	Dry	0.4	0.8
Oct-22	7.2	11.2	NA	5.5	4.8	4.4	9.9	Dry	Dry	Dry	Dry	1.4	1.0
Nov-22	6.5	NA	NA	6.7	4.8	4.4	10.8	Dry	Dry	Dry	Dry	3.6	0.6
Dec-22	NM	Dry	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Jan-23	10.6	Dry	5.8	10.8	4.3	8.1	11.5	Dry	Dry	Dry	Dry	1.7	Dry
Feb-23	11.9	Dry	6.1	3.6	4.4	7.4	10.3	Dry	Dry	Dry	Dry	1.4	0.5
Mar-23	13.3	Dry	7.3	3.7	4.4	8.3	12.6	Dry	Dry	Dry	Dry	2.0	0.7
Apr-23	12.9	9.8	7.1	12.9	4.1	8.3	10.1	Dry	Dry	Dry	Dry	1.6	0.6
May-23	11.8	9.5	5.9	4.3	Dry	5.6	7.5	Dry	Dry	Dry	Dry	1.8	0.9
Jun-23	11.9	Dry	5.6	7.3	3.8	5.0	8.1	Dry	Dry	Dry	Dry	1.6	2.0
Jul-23	10.6	Dry	2.9	6.4	3.7	4.9	7.3	Dry	Dry	Dry	Dry	1.5	1.3
Aug-23	10.6	10.4	6.8	12.7	3.9	4.5	11.8	Dry	Dry	Dry	Dry	1.7	1.6
Sep-23	9.7	Dry	7.5	6.4	3.7	3.9	NM	Dry	Dry	Dry	Dry	1.4	2.1
Oct-23	8.4	Dry	5.5	6.5	3.4	3.9	9.4	Dry	Dry	Dry	Dry	1.6	Dry

Notes:
NI = Not Installed, NM = Not Measured, NA = Not Applicable
Levels measured monthly by landfill staff. April and May 2023 levels measured by SCS.

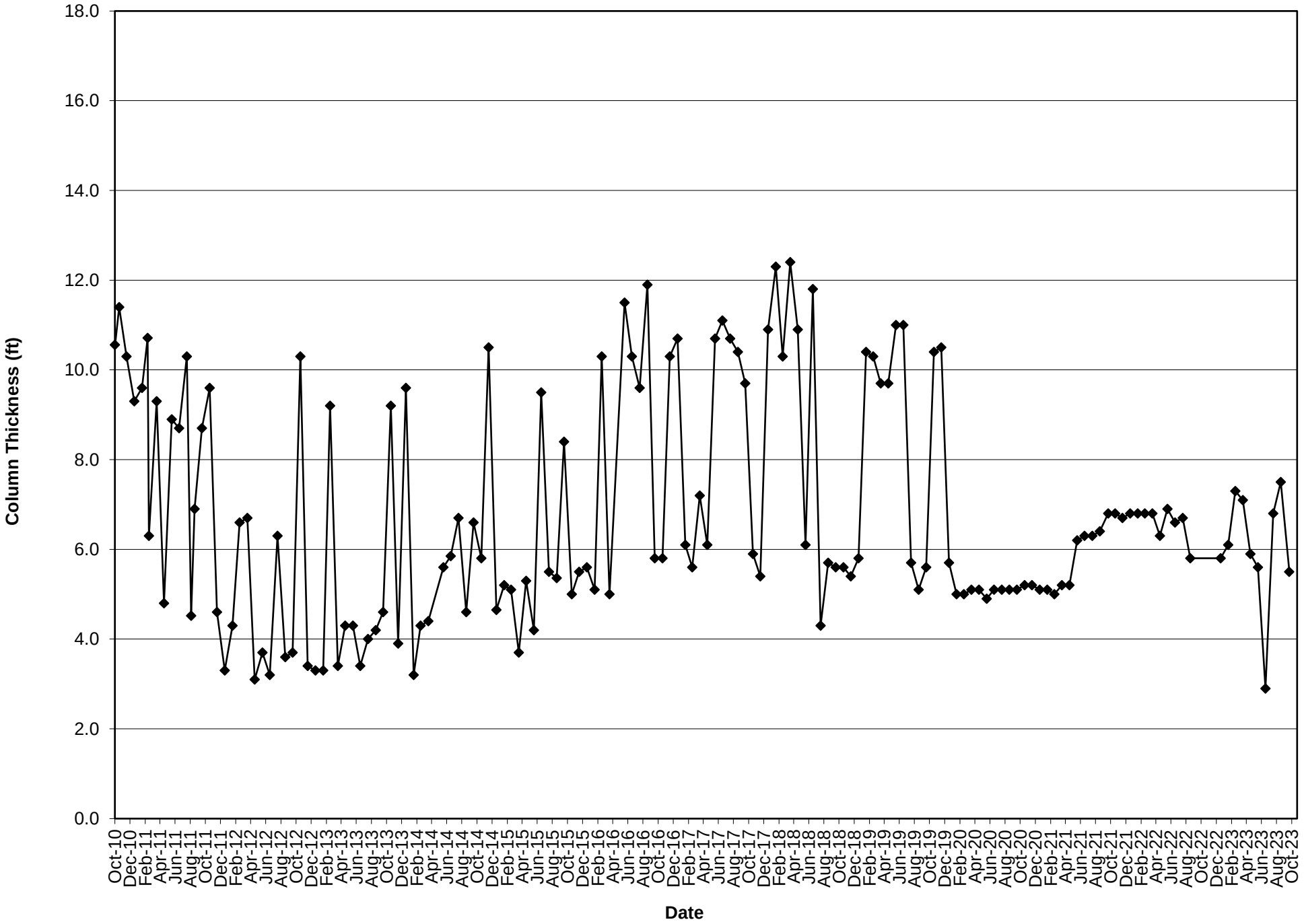
LPZ-6R2 Historical Leachate Column Thickness



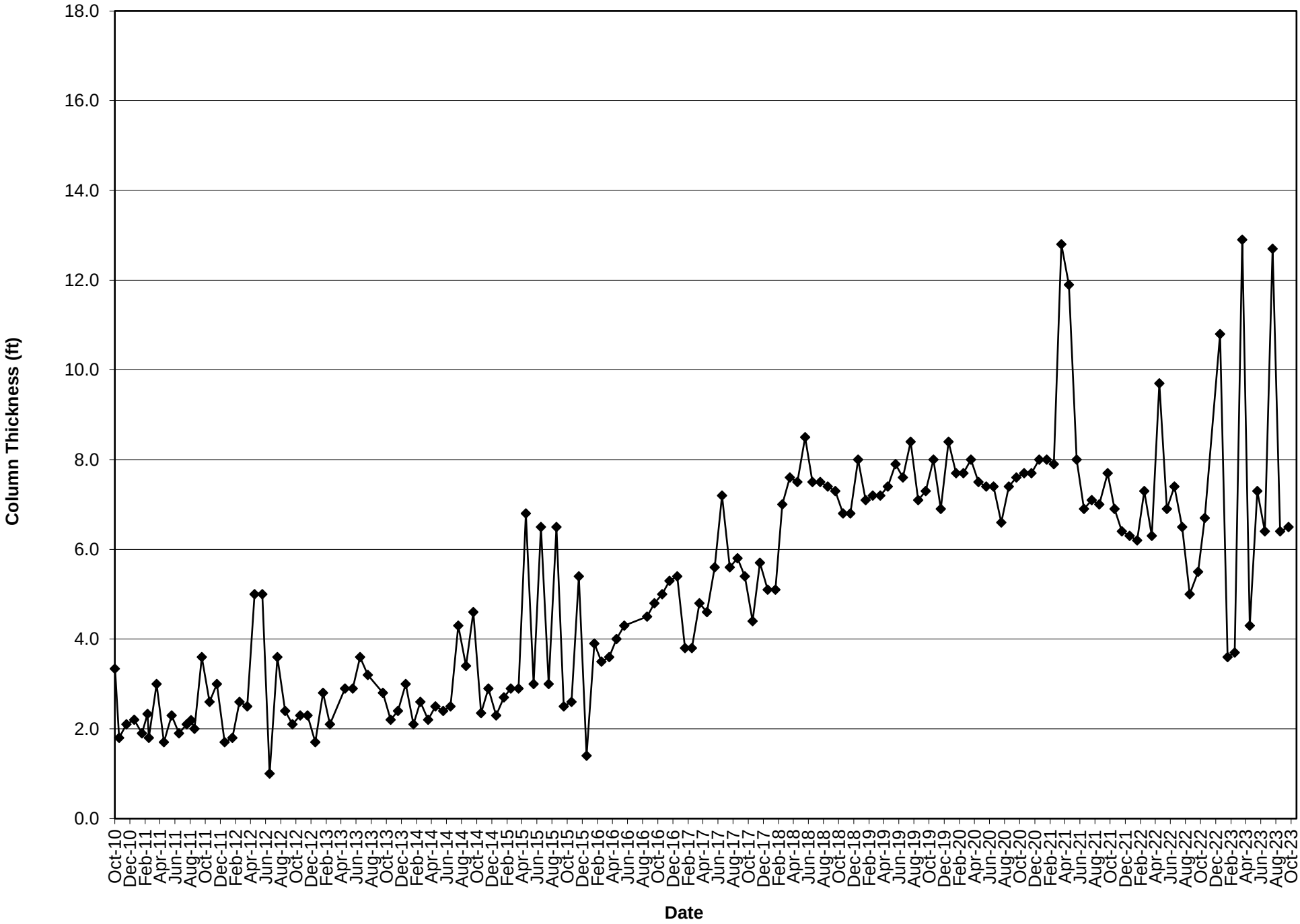
LPZ-7R2 Historical Leachate Column Thickness



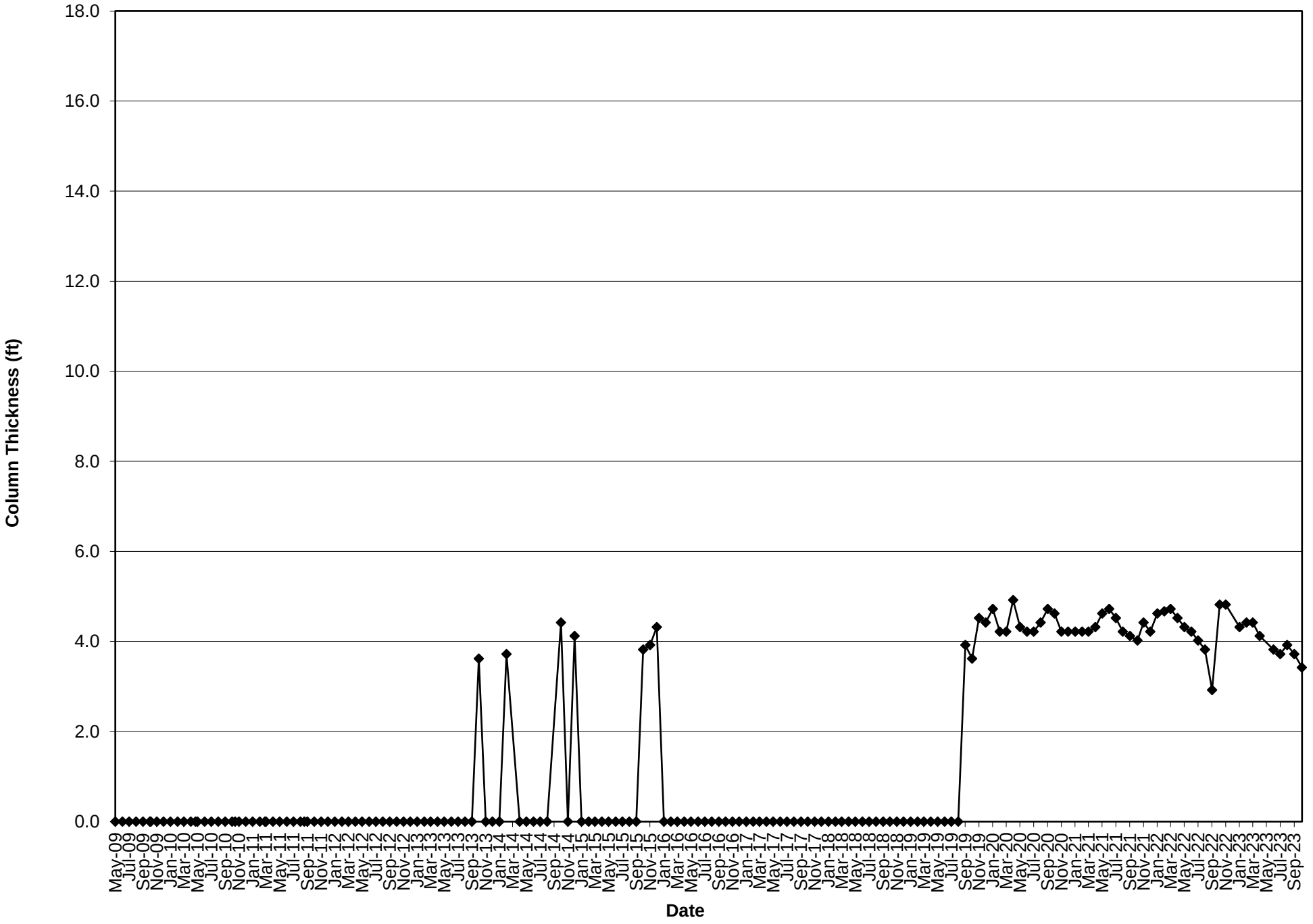
LPZ-9R Historical Leachate Column Thickness



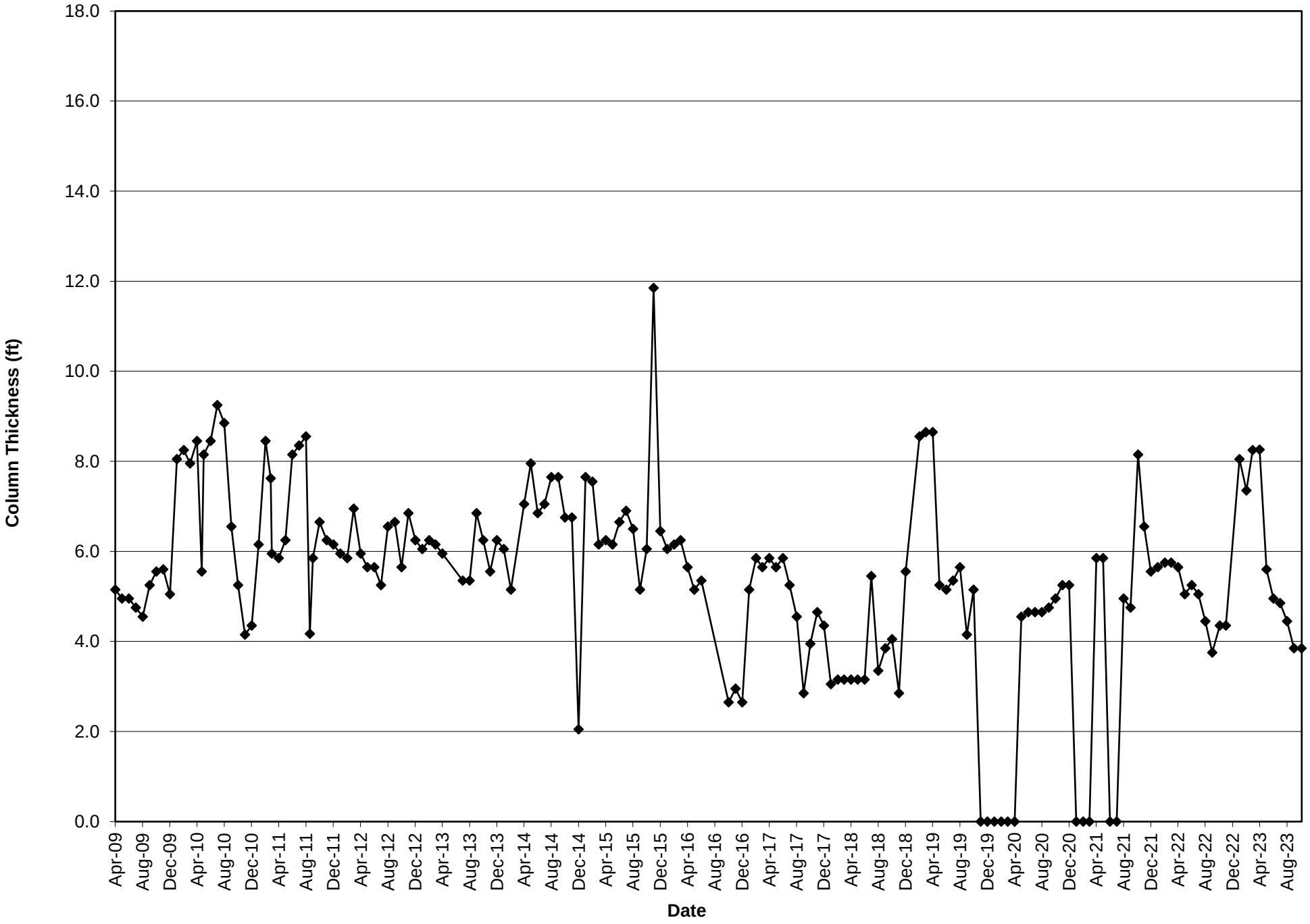
LPZ-10R Historical Leachate Column Thickness



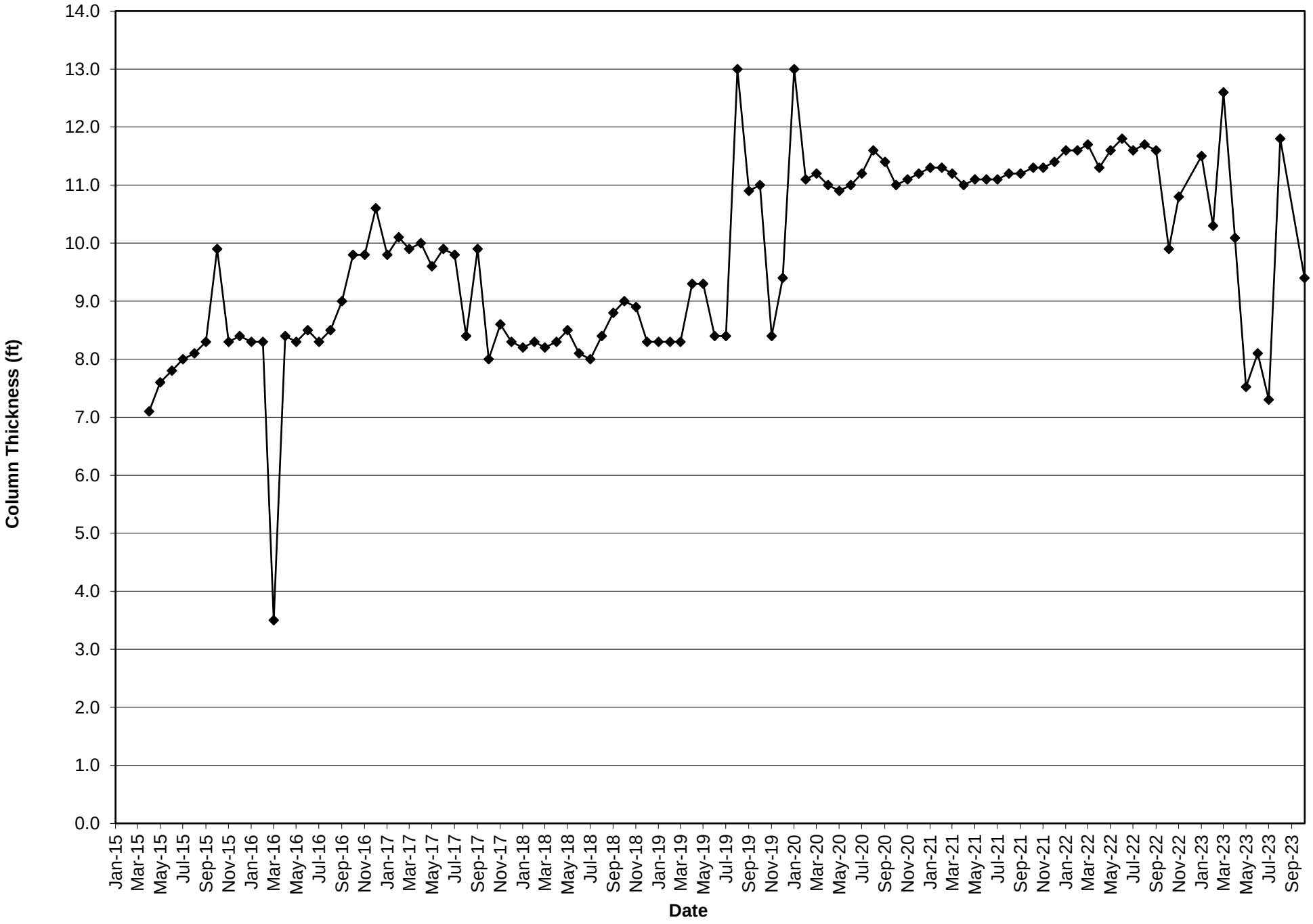
LPZ-11 Historical Leachate Column Thickness



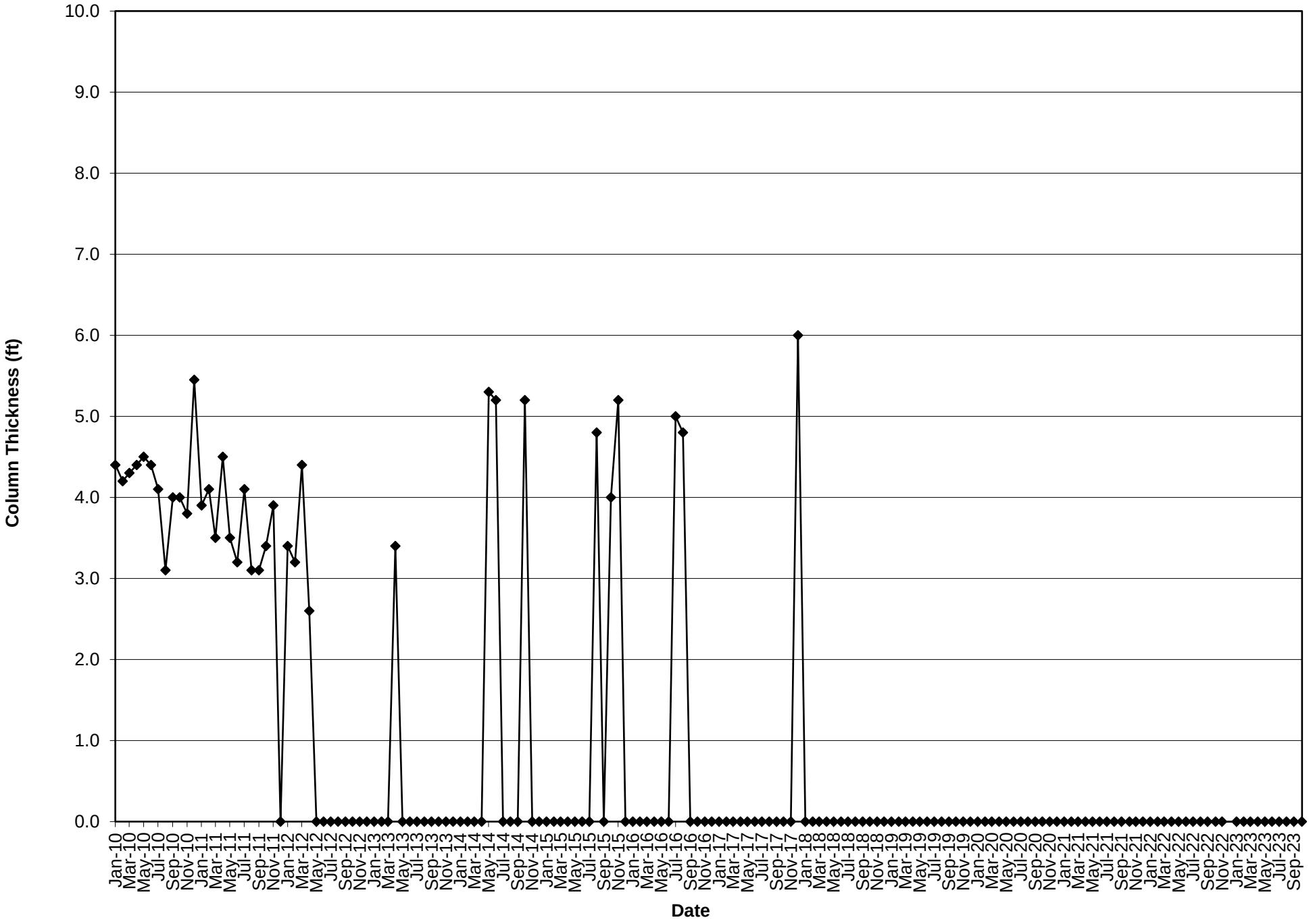
LPZ-12 Historical Leachate Column Thickness



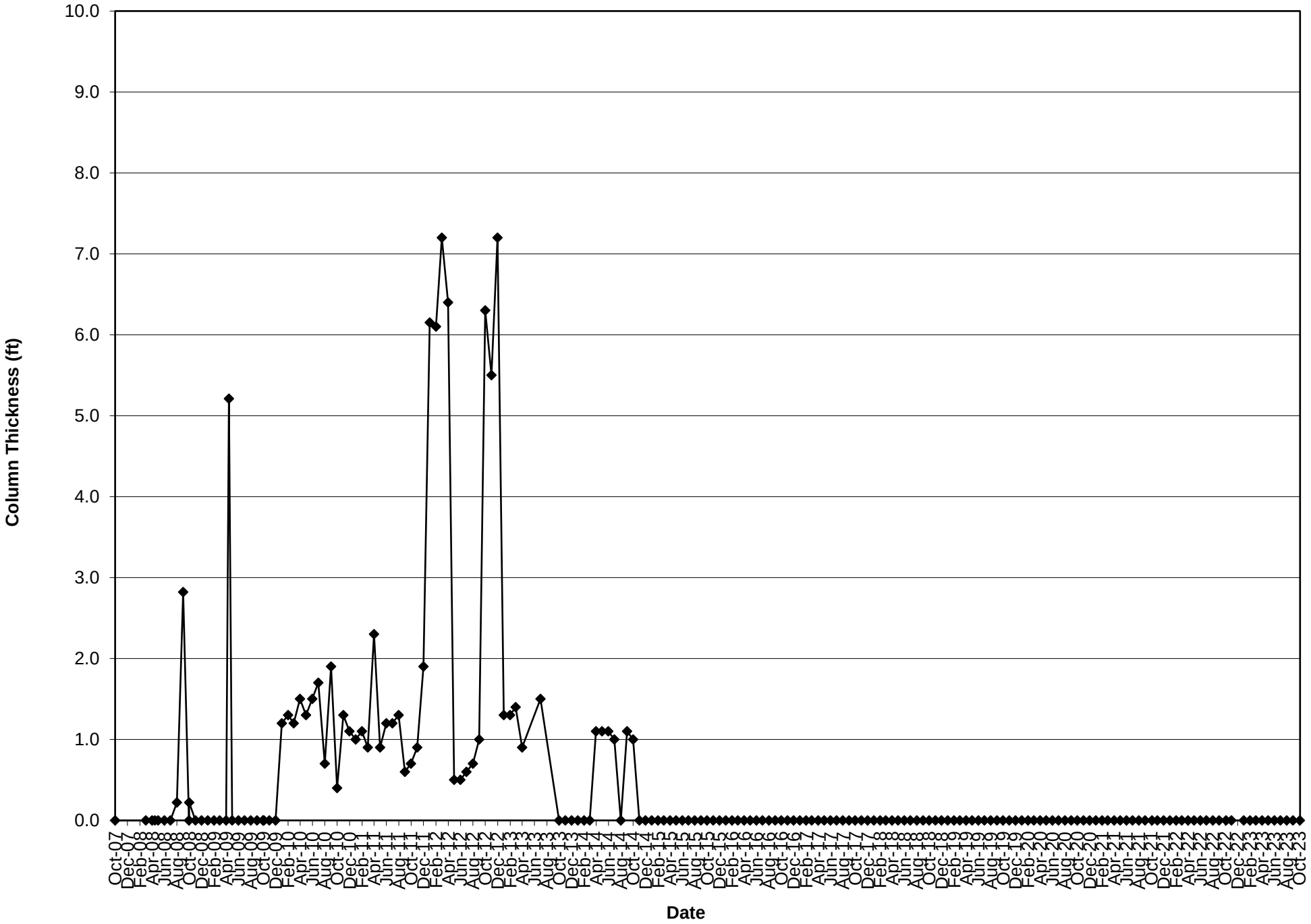
LPZ-19 Historical Leachate Column Thickness



LPZ-14 Historical Leachate Column Thickness



LPZ-15 Historical Leachate Column Thickness



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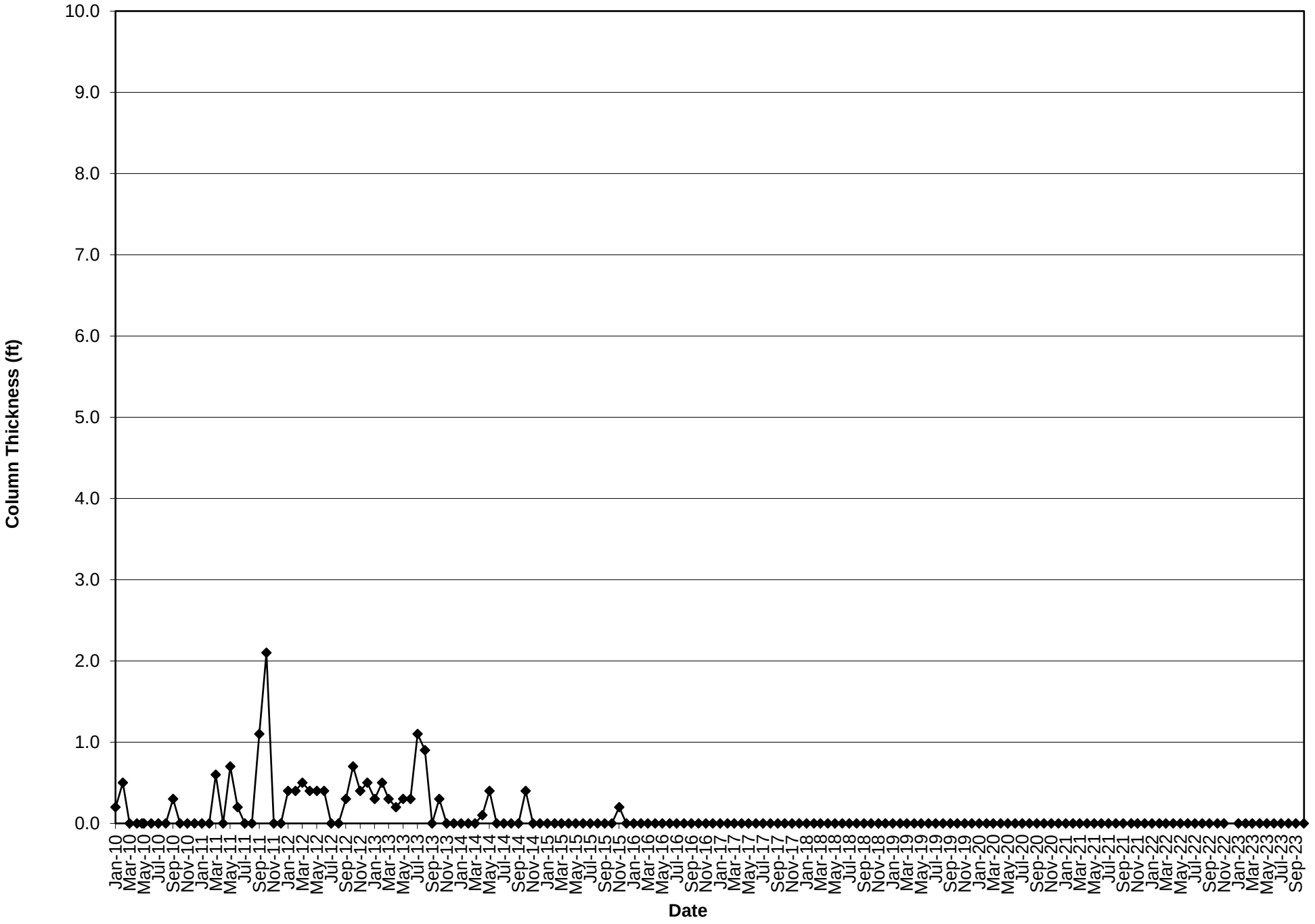

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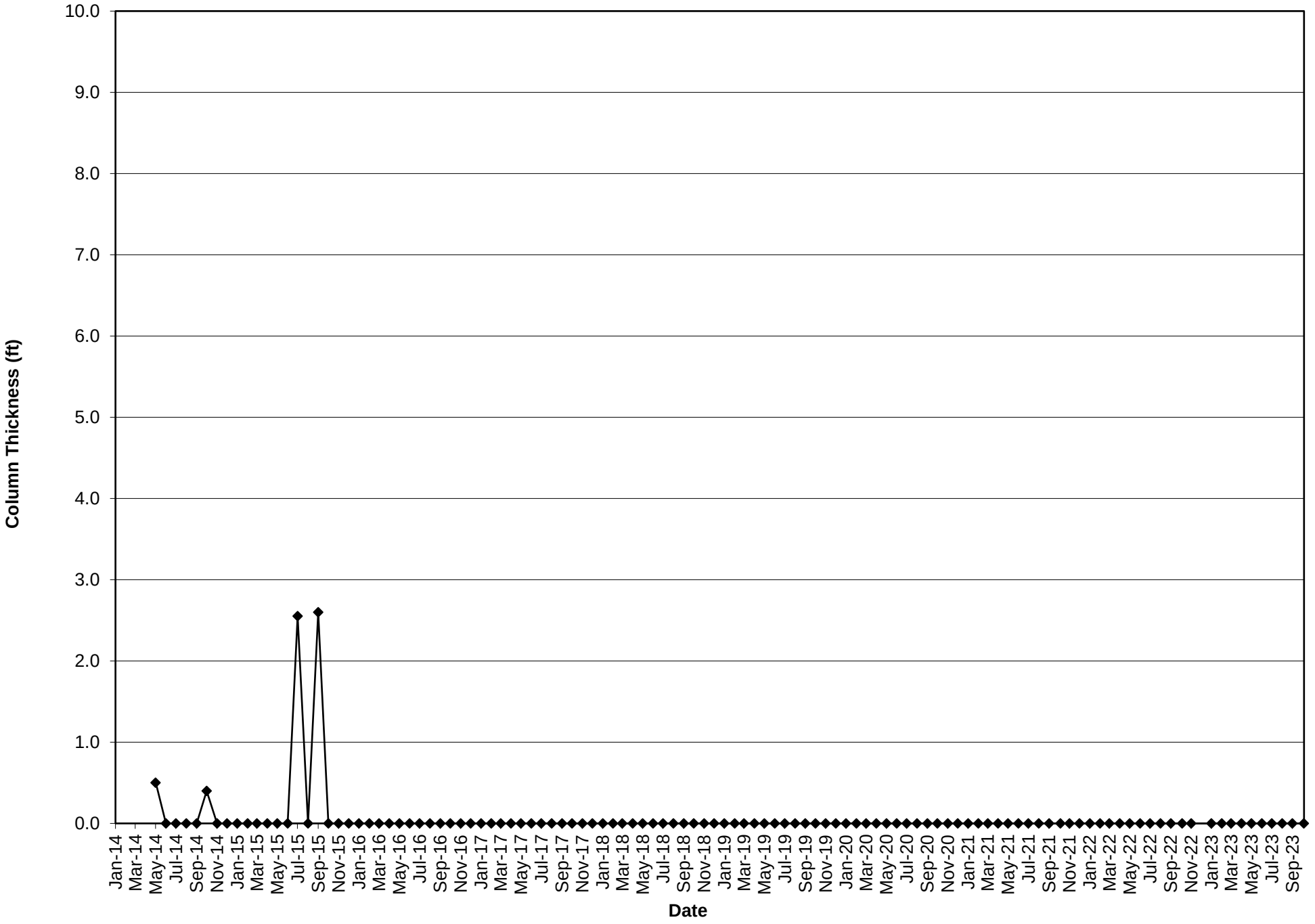
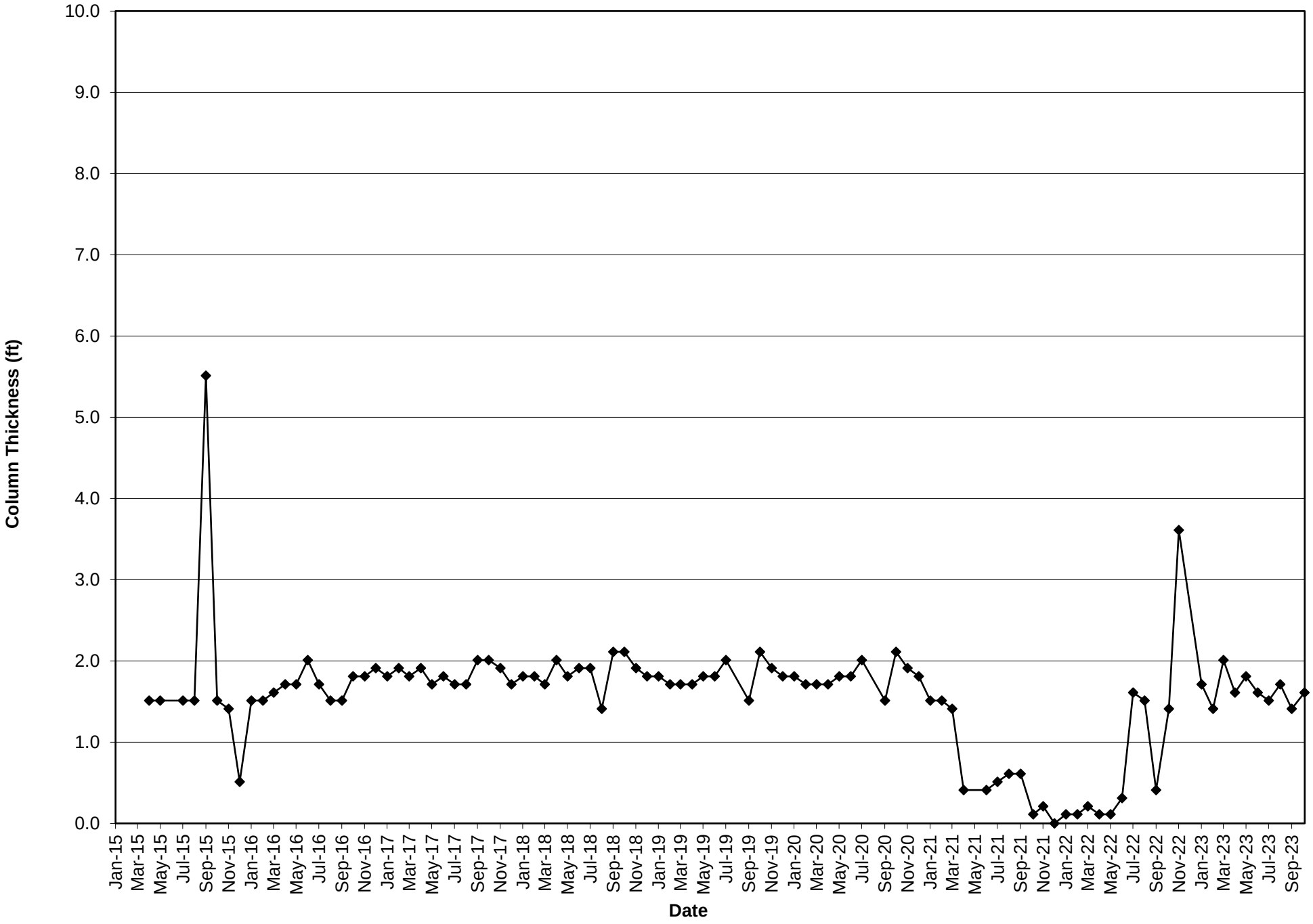
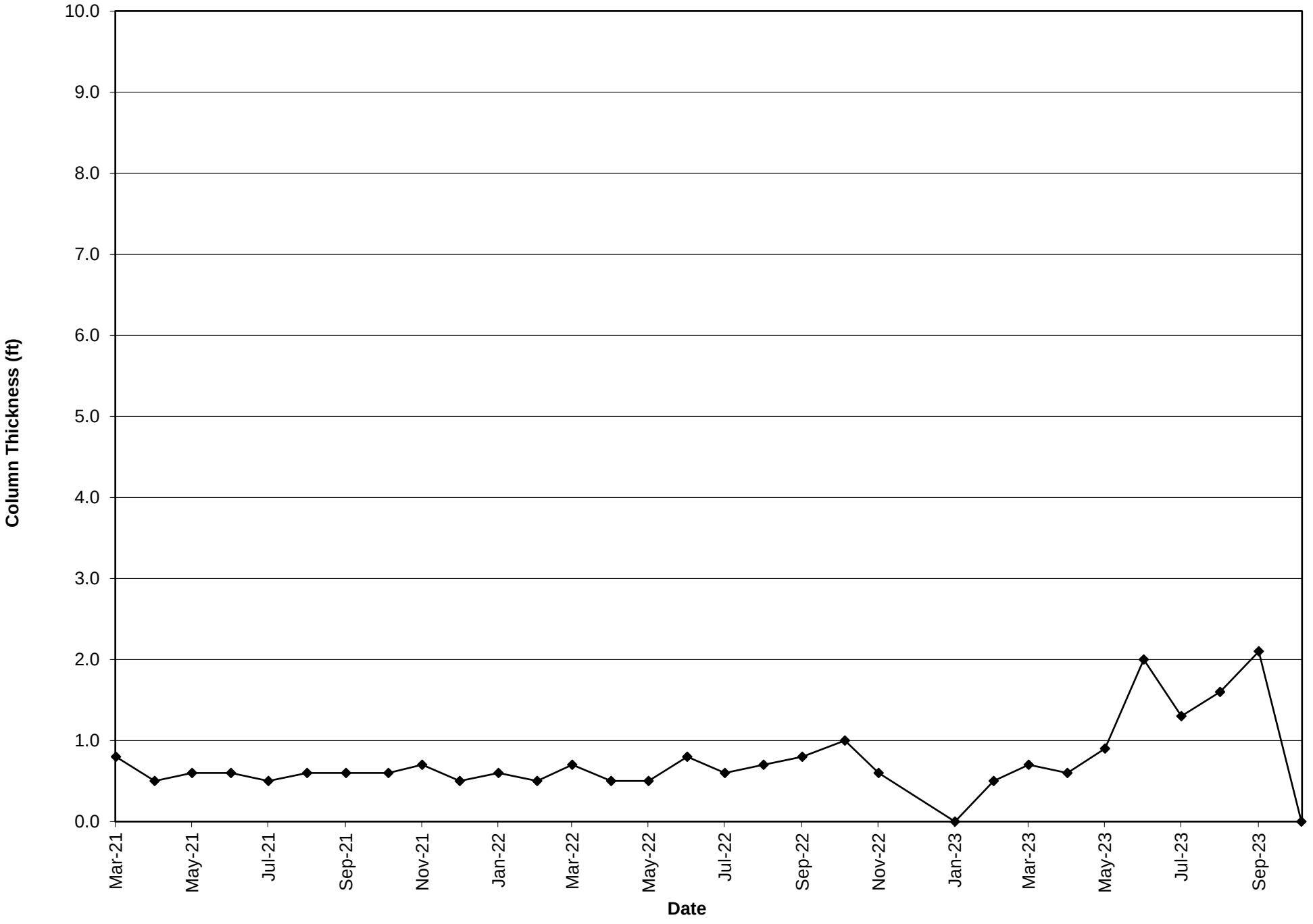


LPZ-18 Historical Leachate Column Thickness



LPZ-20 Historical Leachate Column Thickness



Attachment C

Leachate Testing Laboratory Analytical Data Sheets

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Troy Fadiga
Ottumwa WWTP
2222 S. Emma
Ottumwa, Iowa 52501

Generated 12/7/2022 2:34:23 PM

JOB DESCRIPTION

SIV Samples

JOB NUMBER

310-245326-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

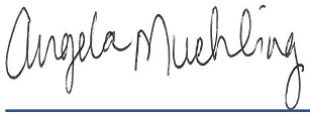
my EOL

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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QC Sample Results 10
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Method Summary 17
Chain of Custody 18
Receipt Checklists 20

Case Narrative

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Job ID: 310-245326-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-245326-1

Comments
No additional comments.

Receipt
The samples were received on 11/23/2022 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.1° C.

HPLC/IC
Method 300.0: The following sample was diluted due to the nature of the sample matrix: Mahaska Co Landfill Leachate (310-245326-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 200.7 Rev 4.4: The initial continuing calibration verification (CCVH) associated with batch 310-373717 recovered above the upper control limit for Mo. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 200.7 Rev 4.4: The following sample was diluted due to the presence of an interferent: Mahaska Co Landfill Leachate (310-245326-1). Elevated reporting limits (RLs) are provided.

Method 200.7: The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of >2: Mahaska Co Landfill Leachate (310-245326-1) and Wapello Co Landfill Leachate (310-245326-2). The samples were preserved to the appropriate pH in the laboratory.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-245326-1	Mahaska Co Landfill Leachate	Wastewater	11/21/22 11:46	11/23/22 09:30
310-245326-2	Wapello Co Landfill Leachate	Wastewater	11/22/22 09:20	11/23/22 09:30

Detection Summary

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Client Sample ID: Mahaska Co Landfill Leachate — Lab Sample ID: 310-245326-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6540		100		mg/L	100		300.0	Total/NA
HEM (Oil & Grease)	6.0		5.7		mg/L	1		1664A	Total/NA
Ammonia	754		235		mg/L	9.38		350.1	Total/NA

Client Sample ID: Wapello Co Landfill Leachate — Lab Sample ID: 310-245326-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	909		20.0		mg/L	20		300.0	Total/NA
Sulfate	72.8		20.0		mg/L	20		300.0	Total/NA
Nickel	0.0743		0.0500		mg/L	1		200.7 Rev 4.4	Total/NA
HEM (Oil & Grease)	9.5		5.5		mg/L	1		1664A	Total/NA
Ammonia	185		25.0		mg/L	1		350.1	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Client Sample ID: Mahaska Co Landfill Leachate

Lab Sample ID: 310-245326-1

Date Collected: 11/21/22 11:46

Matrix: Wastewater

Date Received: 11/23/22 09:30

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6540**		100		mg/L			12/05/22 11:17	100
Sulfate	<20.0		20.0		mg/L			12/02/22 22:11	20

Method: 40CFR136A 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.240		0.240		mg/L		12/01/22 08:45	12/02/22 14:23	3
Cadmium	<0.0600		0.0600		mg/L		12/01/22 08:45	12/02/22 14:23	3
Chromium	<0.0600		0.0600		mg/L		12/01/22 08:45	12/02/22 14:23	3
Copper	<0.0600		0.0600		mg/L		12/01/22 08:45	12/02/22 14:23	3
Lead	<0.300		0.300		mg/L		12/01/22 08:45	12/02/22 14:23	3
Molybdenum	<0.150	^+	0.150		mg/L		12/01/22 08:45	12/02/22 14:23	3
Nickel	<0.150		0.150		mg/L		12/01/22 08:45	12/02/22 14:23	3
Selenium	<0.300		0.300		mg/L		12/01/22 08:45	12/02/22 14:23	3
Silver	<0.0600		0.0600		mg/L		12/01/22 08:45	12/02/22 14:23	3
Zinc	<0.120		0.120		mg/L		12/01/22 08:45	12/02/22 14:23	3

Method: EPA 245.2 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/02/22 14:40	12/05/22 15:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	**6.0**		5.7		mg/L		12/06/22 08:00	12/06/22 08:00	1
Cyanide, Total (MCAWW 335.4)	<0.0100		0.0100		mg/L		12/02/22 09:20	12/02/22 18:57	1
Ammonia (MCAWW 350.1)	**754**		235		mg/L		11/30/22 12:41	12/01/22 21:18	9.38
Phenols, Total (MCAWW 420.4)	<0.0200		0.0200		mg/L		11/28/22 09:42	11/28/22 19:08	1

Client Sample Results

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Client Sample ID: Wapello Co Landfill Leachate

Lab Sample ID: 310-245326-2

Date Collected: 11/22/22 09:20

Matrix: Wastewater

Date Received: 11/23/22 09:30

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**909**		20.0		mg/L			12/02/22 22:23	20
Sulfate	**72.8**		20.0		mg/L			12/02/22 22:23	20

Method: 40CFR136A 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0800		0.0800		mg/L		12/01/22 08:45	12/02/22 14:25	1
Cadmium	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 14:25	1
Chromium	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 14:25	1
Copper	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 14:25	1
Lead	<0.100		0.100		mg/L		12/01/22 08:45	12/02/22 14:25	1
Molybdenum	<0.0500	^+	0.0500		mg/L		12/01/22 08:45	12/02/22 14:25	1
Nickel	**0.0743**		0.0500		mg/L		12/01/22 08:45	12/02/22 14:25	1
Selenium	<0.100		0.100		mg/L		12/01/22 08:45	12/02/22 14:25	1
Silver	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 14:25	1
Zinc	<0.0400		0.0400		mg/L		12/01/22 08:45	12/02/22 14:25	1

Method: EPA 245.2 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/02/22 14:40	12/05/22 15:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	**9.5**		5.5		mg/L		12/06/22 08:00	12/06/22 08:00	1
Cyanide, Total (MCAWW 335.4)	<0.0100		0.0100		mg/L		12/05/22 09:08	12/05/22 22:01	1
Ammonia (MCAWW 350.1)	**185**		25.0		mg/L		11/30/22 12:41	12/01/22 20:34	1
Phenols, Total (MCAWW 420.4)	<0.0200		0.0200		mg/L		11/28/22 09:42	11/28/22 19:09	1

Definitions/Glossary

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 310-373868/3
Matrix: Water
Analysis Batch: 373868

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			12/02/22 17:08	1
Sulfate	<1.00		1.00		mg/L			12/02/22 17:08	1

Lab Sample ID: LCS 310-373868/4
Matrix: Water
Analysis Batch: 373868

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.543		mg/L		95	90 - 110
Sulfate	10.0	9.674		mg/L		97	90 - 110

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 310-373407/1-A
Matrix: Water
Analysis Batch: 373717

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373407

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0800		0.0800		mg/L		12/01/22 08:45	12/02/22 13:57	1
Cadmium	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 13:57	1
Chromium	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 13:57	1
Copper	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 13:57	1
Lead	<0.100		0.100		mg/L		12/01/22 08:45	12/02/22 13:57	1
Molybdenum	<0.0500	^+	0.0500		mg/L		12/01/22 08:45	12/02/22 13:57	1
Nickel	<0.0500		0.0500		mg/L		12/01/22 08:45	12/02/22 13:57	1
Selenium	<0.100		0.100		mg/L		12/01/22 08:45	12/02/22 13:57	1
Silver	<0.0200		0.0200		mg/L		12/01/22 08:45	12/02/22 13:57	1
Zinc	<0.0400		0.0400		mg/L		12/01/22 08:45	12/02/22 13:57	1

Lab Sample ID: LCS 310-373407/2-A
Matrix: Water
Analysis Batch: 373717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373407

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	1.963		mg/L		98	85 - 115
Cadmium	1.00	1.002		mg/L		100	85 - 115
Chromium	1.00	0.9132		mg/L		91	85 - 115
Copper	2.00	1.861		mg/L		93	85 - 115
Lead	2.00	1.934		mg/L		97	85 - 115
Molybdenum	2.00	2.089	^+	mg/L		104	85 - 115
Nickel	2.00	1.875		mg/L		94	85 - 115
Selenium	4.00	4.180		mg/L		104	85 - 115
Silver	0.100	0.1068		mg/L		107	85 - 115
Zinc	2.00	1.936		mg/L		97	85 - 115

Method: 245.2 - Mercury (CVAA)

Lab Sample ID: MB 310-373711/1-A
Matrix: Water
Analysis Batch: 373876

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373711

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		12/02/22 14:40	12/05/22 14:24	1

Lab Sample ID: LCS 310-373711/2-A
Matrix: Water
Analysis Batch: 373876

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373711

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001607		mg/L		96	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 310-373830/1-A
Matrix: Water
Analysis Batch: 373933

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	<5.0		5.0		mg/L		12/06/22 08:00	12/06/22 08:00	1

Lab Sample ID: LCS 310-373830/6-A
Matrix: Water
Analysis Batch: 373933

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	34.70		mg/L		87	78 - 114

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 310-373637/1-A
Matrix: Water
Analysis Batch: 373737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373637

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0100		0.0100		mg/L		12/02/22 09:20	12/02/22 18:39	1

Lab Sample ID: LCS 310-373637/2-A
Matrix: Water
Analysis Batch: 373737

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373637

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.200	0.2073		mg/L		104	90 - 110

Lab Sample ID: MB 310-373808/1-A
Matrix: Water
Analysis Batch: 373890

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373808

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0100		0.0100		mg/L		12/05/22 09:08	12/05/22 21:43	1

Method: 335.4 - Cyanide, Total (Continued)

Lab Sample ID: LCS 310-373808/2-A
Matrix: Water
Analysis Batch: 373890

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373808

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.200	0.1991		mg/L		100	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-373393/1-A
Matrix: Water
Analysis Batch: 373593

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373393

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.500		0.500		mg/L		11/30/22 12:41	12/01/22 20:14	1

Lab Sample ID: LCS 310-373393/2-A
Matrix: Water
Analysis Batch: 373593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373393

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	4.00	3.871		mg/L		97	90 - 110

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-373072/1-A
Matrix: Water
Analysis Batch: 373159

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 373072

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		11/28/22 09:42	11/28/22 18:49	1

Lab Sample ID: LCS 310-373072/2-A
Matrix: Water
Analysis Batch: 373159

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 373072

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09899		mg/L		99	90 - 110

QC Association Summary

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

HPLC/IC

Analysis Batch: 373868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	300.0	
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	300.0	
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	300.0	
MB 310-373868/3	Method Blank	Total/NA	Water	300.0	
LCS 310-373868/4	Lab Control Sample	Total/NA	Water	300.0	

Metals

Prep Batch: 373407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	200.7	
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	200.7	
MB 310-373407/1-A	Method Blank	Total/NA	Water	200.7	
LCS 310-373407/2-A	Lab Control Sample	Total/NA	Water	200.7	

Prep Batch: 373711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	245.1	
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	245.1	
MB 310-373711/1-A	Method Blank	Total/NA	Water	245.1	
LCS 310-373711/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 373717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	200.7 Rev 4.4	373407
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	200.7 Rev 4.4	373407
MB 310-373407/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	373407
LCS 310-373407/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	373407

Analysis Batch: 373876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	245.2	373711
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	245.2	373711
MB 310-373711/1-A	Method Blank	Total/NA	Water	245.2	373711
LCS 310-373711/2-A	Lab Control Sample	Total/NA	Water	245.2	373711

General Chemistry

Prep Batch: 373072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	Distill/Phenol	
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	Distill/Phenol	
MB 310-373072/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-373072/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 373159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	420.4	373072
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	420.4	373072
MB 310-373072/1-A	Method Blank	Total/NA	Water	420.4	373072
LCS 310-373072/2-A	Lab Control Sample	Total/NA	Water	420.4	373072

General Chemistry

Prep Batch: 373393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	Distill/Ammonia	
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	Distill/Ammonia	
MB 310-373393/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-373393/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 373593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	350.1	373393
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	350.1	373393
MB 310-373393/1-A	Method Blank	Total/NA	Water	350.1	373393
LCS 310-373393/2-A	Lab Control Sample	Total/NA	Water	350.1	373393

Prep Batch: 373637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	Distill/CN	
MB 310-373637/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 310-373637/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	

Analysis Batch: 373737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	335.4	373637
MB 310-373637/1-A	Method Blank	Total/NA	Water	335.4	373637
LCS 310-373637/2-A	Lab Control Sample	Total/NA	Water	335.4	373637

Prep Batch: 373808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	Distill/CN	
MB 310-373808/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 310-373808/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	

Prep Batch: 373830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	1664A	
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	1664A	
MB 310-373830/1-A	Method Blank	Total/NA	Water	1664A	
LCS 310-373830/6-A	Lab Control Sample	Total/NA	Water	1664A	

Analysis Batch: 373890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	335.4	373808
MB 310-373808/1-A	Method Blank	Total/NA	Water	335.4	373808
LCS 310-373808/2-A	Lab Control Sample	Total/NA	Water	335.4	373808

Analysis Batch: 373933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-245326-1	Mahaska Co Landfill Leachate	Total/NA	Wastewater	1664A	373830
310-245326-2	Wapello Co Landfill Leachate	Total/NA	Wastewater	1664A	373830
MB 310-373830/1-A	Method Blank	Total/NA	Water	1664A	373830
LCS 310-373830/6-A	Lab Control Sample	Total/NA	Water	1664A	373830

Lab Chronicle

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Client Sample ID: Mahaska Co Landfill Leachate

Lab Sample ID: 310-245326-1

Date Collected: 11/21/22 11:46

Matrix: Wastewater

Date Received: 11/23/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	300.0		20	373868	DHM5	EET CF	12/02/22 22:11
Total/NA	Analysis	300.0		100	373868	DHM5	EET CF	12/05/22 11:17
Total/NA	Prep	200.7			373407	QTZ5	EET CF	12/01/22 08:45
Total/NA	Analysis	200.7 Rev 4.4		3	373717	ZRI4	EET CF	12/02/22 14:23
Total/NA	Prep	245.1			373711	XXW3	EET CF	12/02/22 14:40
Total/NA	Analysis	245.2		1	373876	XXW3	EET CF	12/05/22 15:17
Total/NA	Prep	1664A			373830	HE7K	EET CF	12/06/22 08:00
Total/NA	Analysis	1664A		1	373933	DGU1	EET CF	12/06/22 08:00
Total/NA	Prep	Distill/CN			373637	ENB7	EET CF	12/02/22 09:20
Total/NA	Analysis	335.4		1	373737	ZJX4	EET CF	12/02/22 18:57
Total/NA	Prep	Distill/Ammonia			373393	V7KD	EET CF	11/30/22 12:41
Total/NA	Analysis	350.1		9.38	373593	ZJX4	EET CF	12/01/22 21:18
Total/NA	Prep	Distill/Phenol			373072	ENB7	EET CF	11/28/22 09:42
Total/NA	Analysis	420.4		1	373159	ZJX4	EET CF	11/28/22 19:08

Client Sample ID: Wapello Co Landfill Leachate

Lab Sample ID: 310-245326-2

Date Collected: 11/22/22 09:20

Matrix: Wastewater

Date Received: 11/23/22 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	300.0		20	373868	DHM5	EET CF	12/02/22 22:23
Total/NA	Prep	200.7			373407	QTZ5	EET CF	12/01/22 08:45
Total/NA	Analysis	200.7 Rev 4.4		1	373717	ZRI4	EET CF	12/02/22 14:25
Total/NA	Prep	245.1			373711	XXW3	EET CF	12/02/22 14:40
Total/NA	Analysis	245.2		1	373876	XXW3	EET CF	12/05/22 15:19
Total/NA	Prep	1664A			373830	HE7K	EET CF	12/06/22 08:00
Total/NA	Analysis	1664A		1	373933	DGU1	EET CF	12/06/22 08:00
Total/NA	Prep	Distill/CN			373808	ENB7	EET CF	12/05/22 09:08
Total/NA	Analysis	335.4		1	373890	ZJX4	EET CF	12/05/22 22:01
Total/NA	Prep	Distill/Ammonia			373393	V7KD	EET CF	11/30/22 12:41
Total/NA	Analysis	350.1		1	373593	ZJX4	EET CF	12/01/22 20:34
Total/NA	Prep	Distill/Phenol			373072	ENB7	EET CF	11/28/22 09:42
Total/NA	Analysis	420.4		1	373159	ZJX4	EET CF	11/28/22 19:09

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: Ottumwa WWTP
Project/Site: SIV Samples

Job ID: 310-245326-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET CF
200.7 Rev 4.4	Metals (ICP)	40CFR136A	EET CF
245.2	Mercury (CVAA)	EPA	EET CF
1664A	HEM and SGT-HEM	1664A	EET CF
335.4	Cyanide, Total	MCAWW	EET CF
350.1	Nitrogen, Ammonia	MCAWW	EET CF
420.4	Phenolics, Total Recoverable	MCAWW	EET CF
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CF
200.7	Preparation, Total Metals	EPA	EET CF
245.1	Preparation, Mercury	EPA	EET CF
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/CN	Distillation, Cyanide	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing America

310-245326 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: City of Ottumwa

City/State: CITY Ottumwa | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 11/23/22 | TIME 0930 | Received By: JJ

Delivery Type: ☒ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☐ Yes ☒ No *If yes:* Cooler # _____ of _____

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T | Correction Factor (°C): +0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 3.1 | Corrected Temp (°C): 3.1

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

TestAmerica

Cedar Falls Division
3019 Venture Way
Cedar Falls, IA 50613

Phone 319-277-2401 or 1-800-750-2401
Fax 319-277-2425

Chain of Custody Record

Company	CITY OF OTTUMWA (WPC)		Your PO#
Send Report To	~~Julaine Olson~~ Troy Fadiga		Invoice To
Address	2222 South Emma Street		
City/State/Zip Code	Ottumwa, IA 52501		Project Name Slv Samples
Telephone Number	(641) 683-0641	Fax (641) 683-0647	Project Number
Sampled by (Print Name)	Troy Fadiga		
(Signature)	Troy Fadiga		Email Address fadigat@ottumwa.us ~~olsonj@ottumwa.us~~

Sample ID	Date Sampled	Time Sampled	# of containers shipped	Grab	Composite	Field Filtered	Ice	HNO3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H2SO4 Plastic (Yellow & White Label)	H2SO4 Glass (Yellow & White Label)	None (Black & White Label)	Other (Specify)	Wastewater	Sludge	Other Specify	Total Phenols, Oil + Grease	Ca, Cr, Cu, Pb, Hg, Ni, Se, Ag, Zn, As, Mo	Cyanide	Chlorides, Sulfates	Ammonia		
Mahaska Co Landfill Leachate	11/21/22	1146hrs	6	X				X	~~X~~	X	X	2	X		X			X	X	X	X	X		
Wapello Co Landfill Leachate	11/22/22	0920	6	X				X		X	X	2	X		X			X	X	X	X	X		

Note All turn around times are calculated from the time of receipt at TestAmerica
NOTICE **Pre-Arrangements must be made *AT LEAST 48 hours in ADVANCE* to receive results with RUSH turn around time commitments additional charges may be assessed**
Note There may be a charge assessed for TestAmerica disposing of sample remainders

NOTES

Relinquished by	Date	Time	Received by	Date	Time	Relinquished by	Date	Time
Troy Fadiga	11/22/22	1300						
Shipped Via			Comments			Shipped Via		
Received for TestAmerica by	Date	Time	Temperature Upon Receipt			Laboratory Comments		
RL	11-23-22	930						

12/7/2022

Login Sample Receipt Checklist

Client: Ottumwa WWTP

Job Number: 310-245326-1

Login Number: 245326
List Number: 1
Creator: Kizer, Preston V

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Troy Fadiga
Ottumwa WWTP
2222 S. Emma
Ottumwa, Iowa 52501

Generated 3/3/2023 10:18:54 AM

JOB DESCRIPTION

Wapello Landfill Leachate

JOB NUMBER

310-250138-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

my EOL

Job Notes

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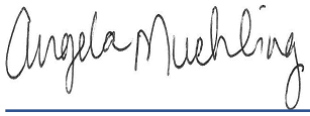
The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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3/3/2023 10:18:54 AM

Authorized for release by
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Case Narrative

Client: Ottumwa WWTP
Project/Site: Wapello Landfill Leachate

Job ID: 310-250138-1

Job ID: 310-250138-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-250138-1

Comments
No additional comments.

Receipt
The sample was received on 2/22/2023 8:40 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.0° C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-250138-1	Wapello Landfill Leachate from Tanker	Wastewater	02/14/23 10:40	02/22/23 08:40

Detection Summary

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Client Sample ID: Wapello Landfill Leachate from Tanker
Lab Sample ID: 310-250138-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nickel	0.0824		0.0500		mg/L	1		200.7 Rev 4.4	Total/NA
Ammonia	176		25.0		mg/L	1		350.1	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Client Sample ID: Wapello Landfill Leachate from Tanker
Lab Sample ID: 310-250138-1

Date Collected: 02/14/23 10:40
Matrix: Wastewater
Date Received: 02/22/23 08:40

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0800		0.0800		mg/L		02/24/23 09:00	02/24/23 17:13	1
Cadmium	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 17:13	1
Chromium	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 17:13	1
Copper	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 17:13	1
Lead	<0.100		0.100		mg/L		02/24/23 09:00	02/24/23 17:13	1
Molybdenum	<0.0500		0.0500		mg/L		02/24/23 09:00	02/24/23 17:13	1
Nickel	**0.0824**		0.0500		mg/L		02/24/23 09:00	02/24/23 17:13	1
Selenium	<0.100		0.100		mg/L		02/24/23 09:00	02/24/23 17:13	1
Silver	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 17:13	1
Zinc	<0.0400		0.0400		mg/L		02/24/23 09:00	02/24/23 17:13	1

Method: EPA 245.2 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/23/23 16:09	02/24/23 13:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	<5.0		5.0		mg/L		03/01/23 14:00	03/01/23 14:00	1
Cyanide, Total (EPA 335.4)	<0.0100		0.0100		mg/L		02/22/23 09:51	02/22/23 20:32	1
Ammonia (EPA 350.1)	**176**		25.0		mg/L		02/28/23 08:29	03/01/23 18:02	1
Phenols, Total (EPA 420.4)	<0.0200		0.0200		mg/L		02/22/23 08:45	02/22/23 20:52	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 310-379845/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 380021
Prep Batch: 379845

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0800		0.0800		mg/L		02/24/23 09:00	02/24/23 16:12	1
Cadmium	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 16:12	1
Chromium	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 16:12	1
Copper	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 16:12	1
Lead	<0.100		0.100		mg/L		02/24/23 09:00	02/24/23 16:12	1
Molybdenum	<0.0500		0.0500		mg/L		02/24/23 09:00	02/24/23 16:12	1
Nickel	<0.0500		0.0500		mg/L		02/24/23 09:00	02/24/23 16:12	1
Selenium	<0.100		0.100		mg/L		02/24/23 09:00	02/24/23 16:12	1
Silver	<0.0200		0.0200		mg/L		02/24/23 09:00	02/24/23 16:12	1
Zinc	<0.0400		0.0400		mg/L		02/24/23 09:00	02/24/23 16:12	1

Lab Sample ID: LCS 310-379845/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 380021
Prep Batch: 379845

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	1.842		mg/L		92	85 - 115
Cadmium	1.00	0.8979		mg/L		90	85 - 115
Chromium	1.00	0.8951		mg/L		90	85 - 115
Copper	2.00	1.803		mg/L		90	85 - 115
Lead	2.00	1.786		mg/L		89	85 - 115
Molybdenum	2.00	1.821		mg/L		91	85 - 115
Nickel	2.00	1.795		mg/L		90	85 - 115
Selenium	4.00	3.662		mg/L		92	85 - 115
Silver	0.100	0.1034		mg/L		103	85 - 115
Zinc	2.00	1.838		mg/L		92	85 - 115

Method: 245.2 - Mercury (CVAA)

Lab Sample ID: MB 310-379868/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 379963
Prep Batch: 379868

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/23/23 16:09	02/24/23 13:36	1

Lab Sample ID: LCS 310-379868/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 379963
Prep Batch: 379868

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001648		mg/L		99	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 310-380187/1-A
Matrix: Water
Analysis Batch: 380294

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380187

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	<5.0		5.0		mg/L		03/01/23 14:00	03/01/23 14:00	1

Lab Sample ID: LCS 310-380187/2-A
Matrix: Water
Analysis Batch: 380294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380187

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	31.50		mg/L		79	78 - 114

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 310-379746/1-A
Matrix: Water
Analysis Batch: 379795

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 379746

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0100		0.0100		mg/L		02/22/23 09:51	02/22/23 20:00	1

Lab Sample ID: LCS 310-379746/2-A
Matrix: Water
Analysis Batch: 379795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 379746

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.200	0.2087		mg/L		104	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-380113/1-A
Matrix: Water
Analysis Batch: 380290

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380113

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	<0.500		0.500		mg/L		02/28/23 08:29	03/01/23 17:50	1

Lab Sample ID: LCS 310-380113/2-A
Matrix: Water
Analysis Batch: 380290

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380113

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia	4.00	4.169		mg/L		104	90 - 110

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-379739/1-A
Matrix: Water
Analysis Batch: 379796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 379739

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		02/22/23 08:45	02/22/23 20:42	1

Method: 420.4 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: LCS 310-379739/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 379796
Prep Batch: 379739

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total			0.100	0.09303		mg/L		93	90 - 110		

QC Association Summary

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Metals

Prep Batch: 379845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	200.7	
MB 310-379845/1-A	Method Blank	Total/NA	Water	200.7	
LCS 310-379845/2-A	Lab Control Sample	Total/NA	Water	200.7	

Prep Batch: 379868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	245.1	
MB 310-379868/1-A	Method Blank	Total/NA	Water	245.1	
LCS 310-379868/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 379963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	245.2	379868
MB 310-379868/1-A	Method Blank	Total/NA	Water	245.2	379868
LCS 310-379868/2-A	Lab Control Sample	Total/NA	Water	245.2	379868

Analysis Batch: 380021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	200.7 Rev 4.4	379845
MB 310-379845/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	379845
LCS 310-379845/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	379845

General Chemistry

Prep Batch: 379739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	Distill/Phenol	
MB 310-379739/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-379739/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Prep Batch: 379746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	Distill/CN	
MB 310-379746/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 310-379746/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	

Analysis Batch: 379795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	335.4	379746
MB 310-379746/1-A	Method Blank	Total/NA	Water	335.4	379746
LCS 310-379746/2-A	Lab Control Sample	Total/NA	Water	335.4	379746

Analysis Batch: 379796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	420.4	379739
MB 310-379739/1-A	Method Blank	Total/NA	Water	420.4	379739
LCS 310-379739/2-A	Lab Control Sample	Total/NA	Water	420.4	379739

Prep Batch: 380113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	Distill/Ammonia	

General Chemistry (Continued)

Prep Batch: 380113 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-380113/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-380113/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Prep Batch: 380187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	1664A	
MB 310-380187/1-A	Method Blank	Total/NA	Water	1664A	
LCS 310-380187/2-A	Lab Control Sample	Total/NA	Water	1664A	

Analysis Batch: 380290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	350.1	380113
MB 310-380113/1-A	Method Blank	Total/NA	Water	350.1	380113
LCS 310-380113/2-A	Lab Control Sample	Total/NA	Water	350.1	380113

Analysis Batch: 380294

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-250138-1	Wapello Landfill Leachate from Tanker	Total/NA	Wastewater	1664A	380187
MB 310-380187/1-A	Method Blank	Total/NA	Water	1664A	380187
LCS 310-380187/2-A	Lab Control Sample	Total/NA	Water	1664A	380187

Lab Chronicle

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Client Sample ID: Wapello Landfill Leachate from Tanker
Lab Sample ID: 310-250138-1

Date Collected: 02/14/23 10:40
Matrix: Wastewater
Date Received: 02/22/23 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	200.7			379845	KCK5	EET CF	02/24/23 09:00
Total/NA	Analysis	200.7 Rev 4.4		1	380021	ZRI4	EET CF	02/24/23 17:13
Total/NA	Prep	245.1			379868	XXW3	EET CF	02/23/23 16:09
Total/NA	Analysis	245.2		1	379963	XXW3	EET CF	02/24/23 13:58
Total/NA	Prep	1664A			380187	DN3P	EET CF	03/01/23 14:00
Total/NA	Analysis	1664A		1	380294	DN3P	EET CF	03/01/23 14:00
Total/NA	Prep	Distill/CN			379746	ENB7	EET CF	02/22/23 09:51
Total/NA	Analysis	335.4		1	379795	ZJX4	EET CF	02/22/23 20:32
Total/NA	Prep	Distill/Ammonia			380113	MQ8M	EET CF	02/28/23 08:29
Total/NA	Analysis	350.1		1	380290	ZJX4	EET CF	03/01/23 18:02
Total/NA	Prep	Distill/Phenol			379739	ENB7	EET CF	02/22/23 08:45
Total/NA	Analysis	420.4		1	379796	ZJX4	EET CF	02/22/23 20:52

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: Ottumwa WWTP
Job ID: 310-250138-1
Project/Site: Wapello Landfill Leachate

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	EET CF
245.2	Mercury (CVAA)	EPA	EET CF
1664A	HEM and SGT-HEM	1664A	EET CF
335.4	Cyanide, Total	EPA	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
420.4	Phenolics, Total Recoverable	EPA	EET CF
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CF
200.7	Preparation, Total Metals	EPA	EET CF
245.1	Preparation, Mercury	EPA	EET CF
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/CN	Distillation, Cyanide	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF

Protocol References:

1664A = EPA-821-98-002

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing America

310-250138 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Clo OHumwa

City/State: CITY | STATE TA | Project:

Receipt Information

Date/Time Received: DATE 2/23/23 | TIME 0840 | Received By:

Delivery Type: ☒ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☒ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present? No	☐ Yes	☒ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐
Sample Custody Seals Present? No	☐ Yes	☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐
Trip Blank Present?	☐ Yes	☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T | Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.9 | Corrected Temp (°C): 6.0

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Cold Card

TestAmerica

Cedar Falls Division
3019 Venture Way
Cedar Falls IA 50613

Phone 319-277 2401 or 1-800-750-2401
Fax 319-277-2425

mpany	CITY OF OTTUMWA (WPC)	Your PO#	
end Report To	~~Julaine Olson~~ Troy Fadiga	Invoice To	
Address	2222 South Emma Street		
ty State Zip Code	Ottumwa, IA 52501	Project Name	Wapello Landfill Leachate
Telephone Number	(641) 683-0641 Fax (641) 683-0647	Project Number	
sampled by (Print Name)			
(Signature		Email Address	olsonj@ottumwa.us

Sample ID	Date Sampled	Time Sampled	# of containers shipped	Grab	Composite	Field Filtered	Ice	HNO3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H2SO4 Plastic (Yellow & White Label)	H2SO4 Glass (Yellow & White Label)	None (Black & White Label)	Other (Specify)	Wastewater	Sludge	Other Specify	Oil + Grease	Phenols	Cyanide	Ammonia	Cd, Cr, Cu, Ni, Se, Ag, Zn, As, Pb, Hg, Mo	
Wapello Landfill Leachate from Tanker	2/14/23	1040	5	X			X	X		X	X	2			X			X	X	X	X	X	

N All ... around times a ... alculated from the time of receipt at TestAmerica
N T ... Pre-Arrangements must be made AT LEAST 48 hours in ADVANCE to receive results
... with RUSH turn around time commitments additional charges may be assessed
N t The ... ma ... ha ge assessed ... TestAmerica disposing of sample remainders

NOTES

Relinquished by	Date	Time	Received by	Date	Time	Relinquished by	Date	Time

Shipped	Comments	Shipped Via

Received TestAmerica by	Date	Time	Temperature Upon Receipt	Laboratory Comments
n	2/22/23	0840		

3/3/2023

Login Sample Receipt Checklist

Client: Ottumwa WWTP

Job Number: 310-250138-1
SDG Number:

Login Number: 250138
List Number: 1
Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix F

Landfill Gas Annual Report

No.	Name	Type	Description
#1	Office	Indoor	Inside office building
#2	Shop	Indoor	Inside shop building
#3	Scale	Indoor	Beneath scale
#4	Maintenance Building	Indoor	Inside maintenance building
#5	South Shed	Indoor	Inside shed on the south side of the facility property
#13	93-MW-31	Monitoring Well	Deep vadose zone off the southwest corner of the West MSWLF unit
#14	LFGW-W2	Gas Monitoring Probe	Vadose zone of the scale house
#15	91-MW-6	Monitoring Well	Vadose zone off the northwest corner of the West MSWLF unit
#16	LFGW-W3	Gas Monitoring Probe	Shallow vadose zone near the northwest property corner
#17	Beneath Scalehouse	Subsurface	Subsurface vent for void space under scalehouse
#18	LFGW-T4	Gas Monitoring Probe	Shallow vadose zone, off landfill property, southwest of the West MSWLF unit
#19	LFGW-T1	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence
#20	LFGW-T2	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence
#21	LFGW-T3	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence
#22	LFGW-W1	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence
#23	LFGW-W4	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence
#25	Exhaust	Other	Between knockout and blower in landfill gas extraction trailer
#26	GUCO-5	Subsurface	Vadose zone beneath Phase IA & IB, east side
#27	GUCO-6	Subsurface	Vadose zone beneath Phase IA & IB, west side
#31	LFGW-W5	Gas Monitoring Probe	Shallow vadose zone, west of GUCO-6
#36	GUCO-7	Subsurface	Vadose zone beneath Phase 3, east side.

SCS ENGINEERS
environmental consultants and contractors

Methane Monitoring Network

Legend

- Methane Monitoring Point
- Monitoring Well
- Groundwater Underdrain
- Leachate Monitoring Point
- Landfill Gas Well
- Approximate Property Boundary
- Approximate Waste Boundary
- Approximate Future Waste Boundary

Ottumwa-Wapello County
Landfill
Ottumwa, IA
Project No: 27223157.24
Drawing Date: August 2023

Figure 1

Overview Map Scale
0 80 160 320 Feet
0 287.5 575 1,150 Feet

N S E W

Maxar, Microsoft, GEODATA, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri, CGIAR, USGS

Path: C:\Users\bmadison\OneDrive - SCS Engineers\Desktop\GIS\Maps\OWSWC\2023 AWOR\OWSWC-2023-AWOR.aprx
User: bmadison
Date Saved: 8/21/2023 2:43 PM

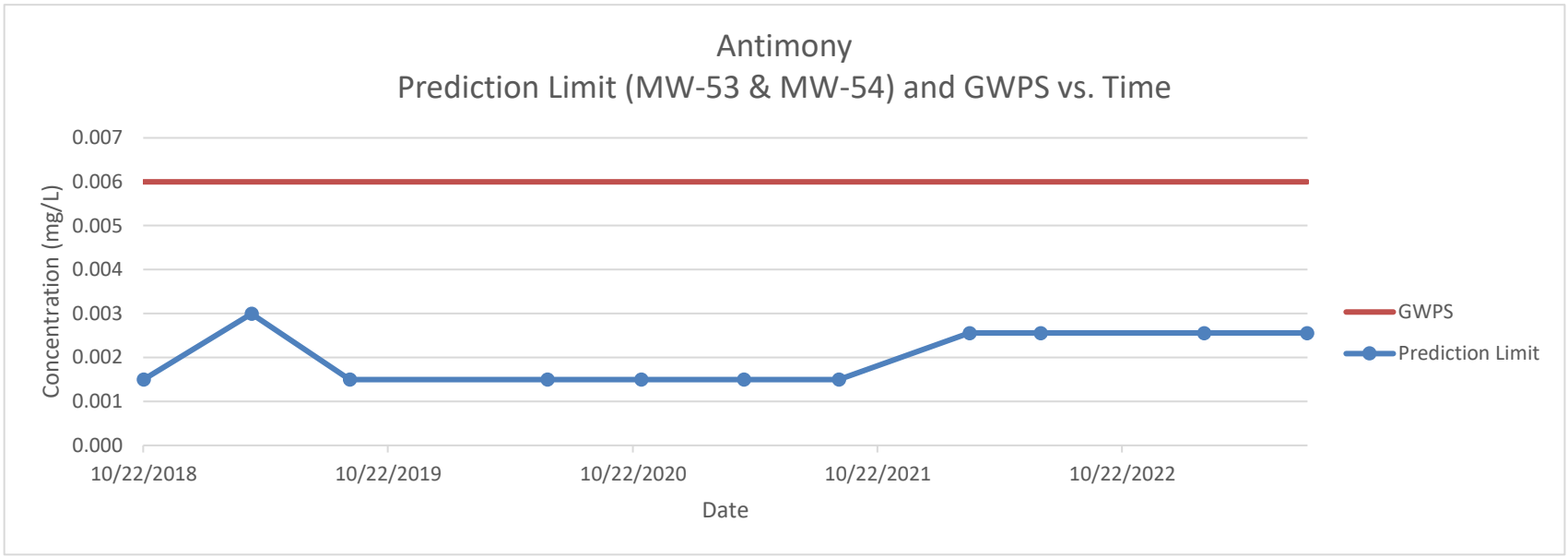
Table 13
Gas Monitoring Summary
2023 Gas Monitoring Report
Ottumwa-Wapello County Landfill
West MSWLF Unit Permit No. 90-SDP-01-75P

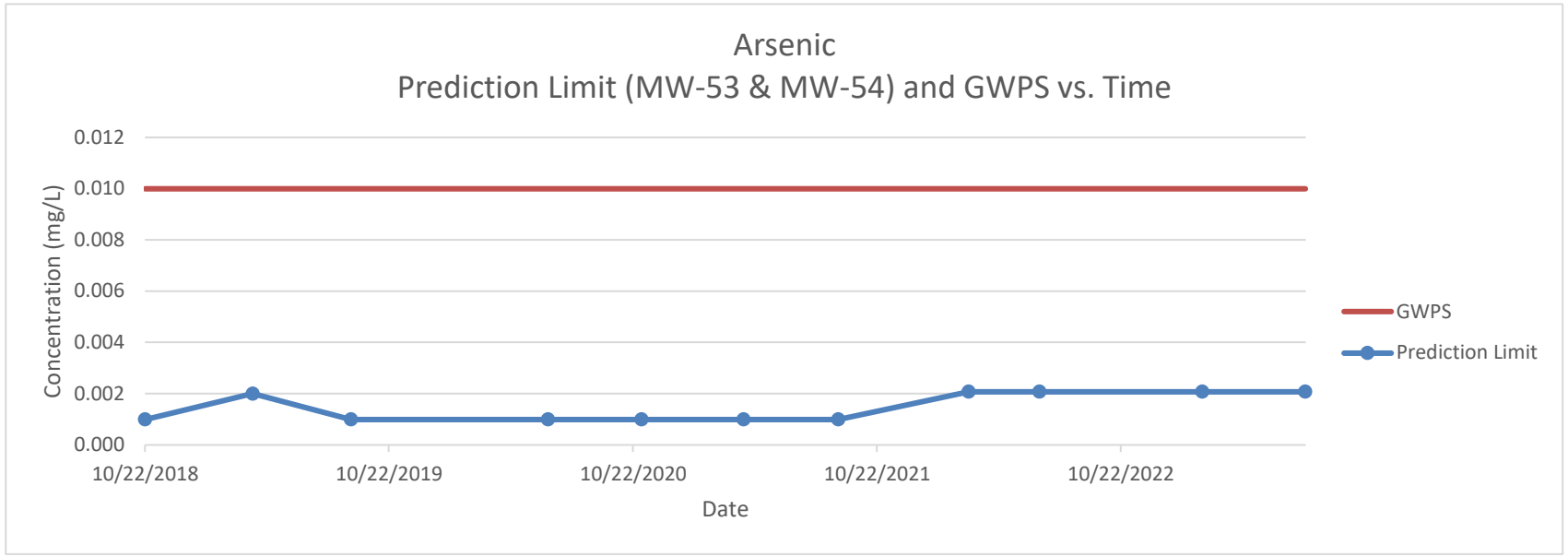
Monitoring Points				Methane Results (% LEL)							
Name		Type	Description	2/24/2023	S (Y/N)	6/30/2023	S (Y/N)	7/27/2023	S (Y/N)	11/2/2023	S (Y/N)
#1	Office	Indoor	Inside office building	0%		0%		0%		0%	
#2	Shop	Indoor	Inside shop building	0%		0%		0%		0%	
#3	Scale	Indoor	Beneath scale	0%		0%		0%		0%	
#4	Maintenance Building	Indoor	Inside maintenance building	0%		0%		0%		0%	
#5	South Shed	Indoor	Inside shed on the south side of the facility property	0%		0%		0%		0%	
#13	93-MW-31R	Monitoring Well	Deep vadose zone off the southwest corner of the West MSWLF unit	0%	N	0%	N	0%	N	0%	N
#14	LFGW-W2	Gas Monitoring Probe	Vadose zone of the scale house	0%	Y	0%	N	0%	N	0%	N
#15	91-MW-6	Monitoring Well	Vadose zone off the northwest corner of the West MSWLF unit	0%	Y	0%	Y	0%	Y	0%	Y
#16	LFGW-W3	Gas Monitoring Probe	Shallow vadose zone near the northwest property corner	0%	N	0%	N	0%	N	0%	N
#17	Beneath Scalehouse	Subsurface	Subsurface vent for void space under scalehouse	0%		0%		0%		0%	
#18	LFGW-T4	Gas Monitoring Probe	Shallow vadose zone, off landfill property, southwest of the West MSWLF unit	0%	N	0%	N	0%	N	0%	N
#19	LFGW-T1	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence	0%	N	0%	N	0%	N	0%	N
#20	LFGW-T2	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence	0%	N	0%	N	0%	N	0%	N
#21	LFGW-T3	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence	0%	N	0%	N	0%	N	0%	N
#22	LFGW-W1	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence	0%	N	0%	N	0%	N	0%	N
#23	LFGW-W4	Gas Monitoring Probe	Shallow vadose zone off the southwest corner of the West MSWLF unit, across from a residence	0%	N	0%	N	0%	N	Not located	
#25	Exhaust	Other	Between knockout and blower in landfill gas extraction trailer	>100%		>100%		>100%		0%	
#26	GUCO-5	Subsurface	Vadose zone beneath Phase IA & IB, east side	6%		0%		0%		0%	
#27	GUCO-6	Subsurface	Vadose zone beneath Phase IA & IB, west side	0%		0%		0%		0%	
#31	LFGW-W5	Gas Monitoring Probe	Shallow vadose zone, west of GUCO-6	0%	N	0%	N	0%	N	0%	N
#36	GUCO-7	Subsurface	Vadose zone beneath Phase 3, east side.	0%		0%		0%		0%	

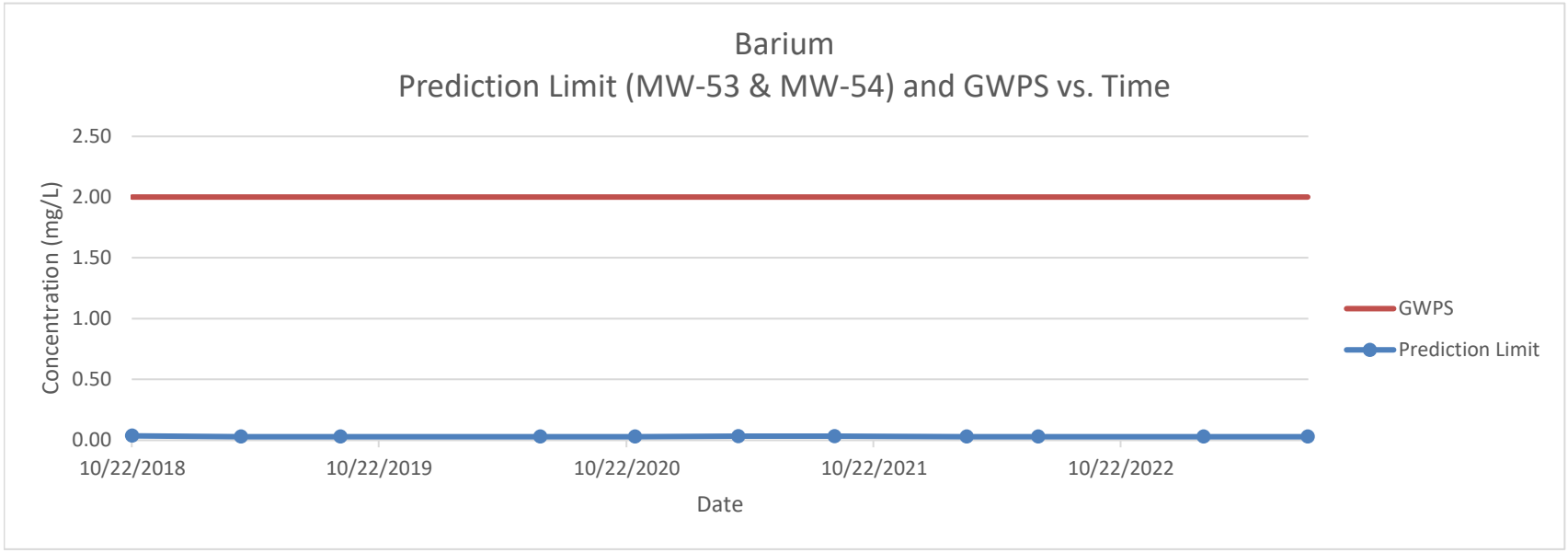
S(Y/N) - Was screen submerged, yes or no or blank is non-applicable.
No actions due to methane exceedances were required during this reported period.

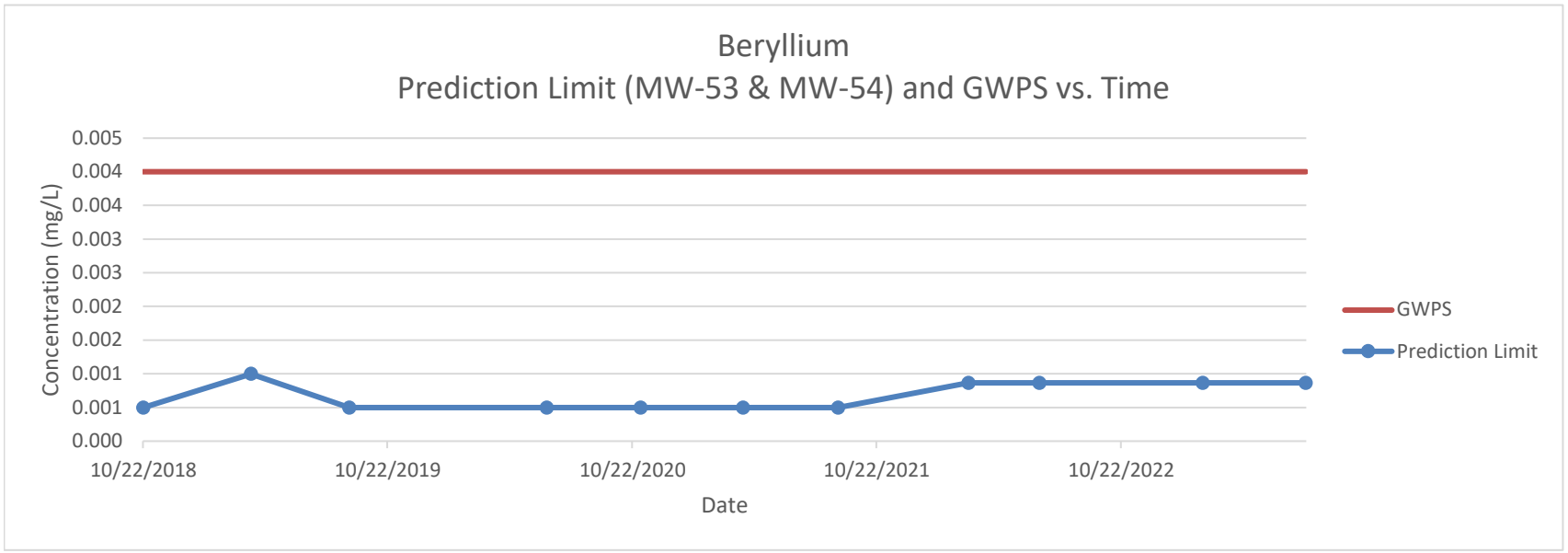
Appendix G

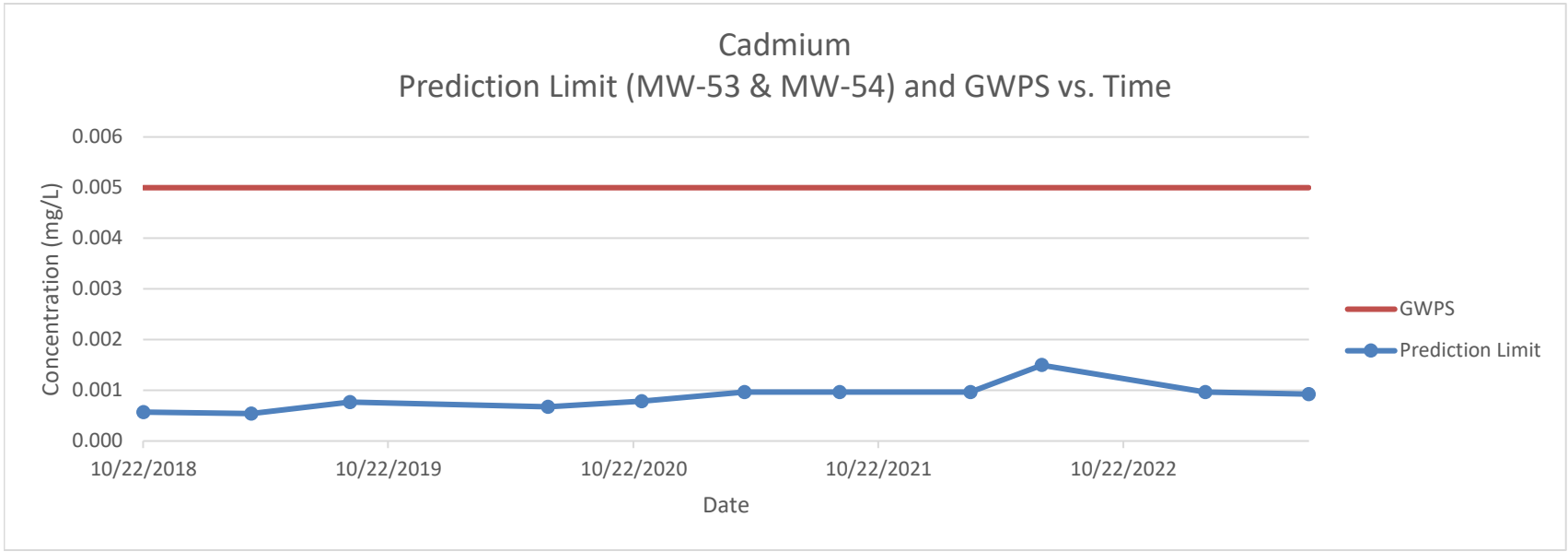
Standards History Graphs

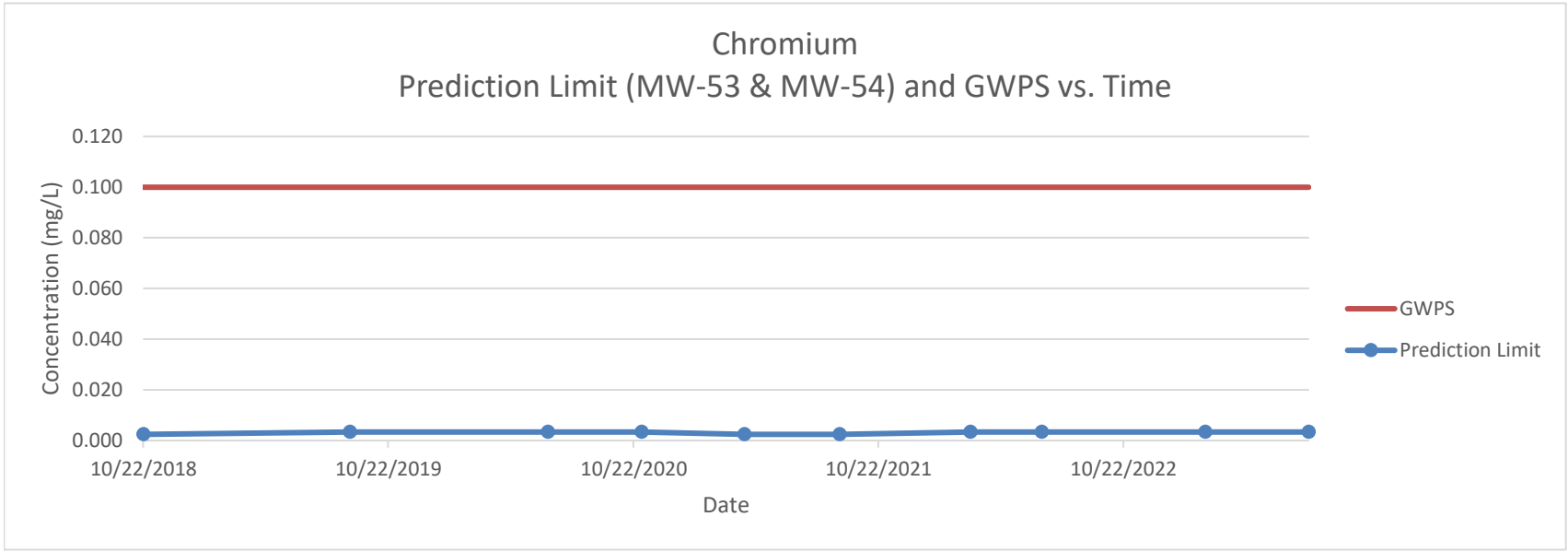

Antimony
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

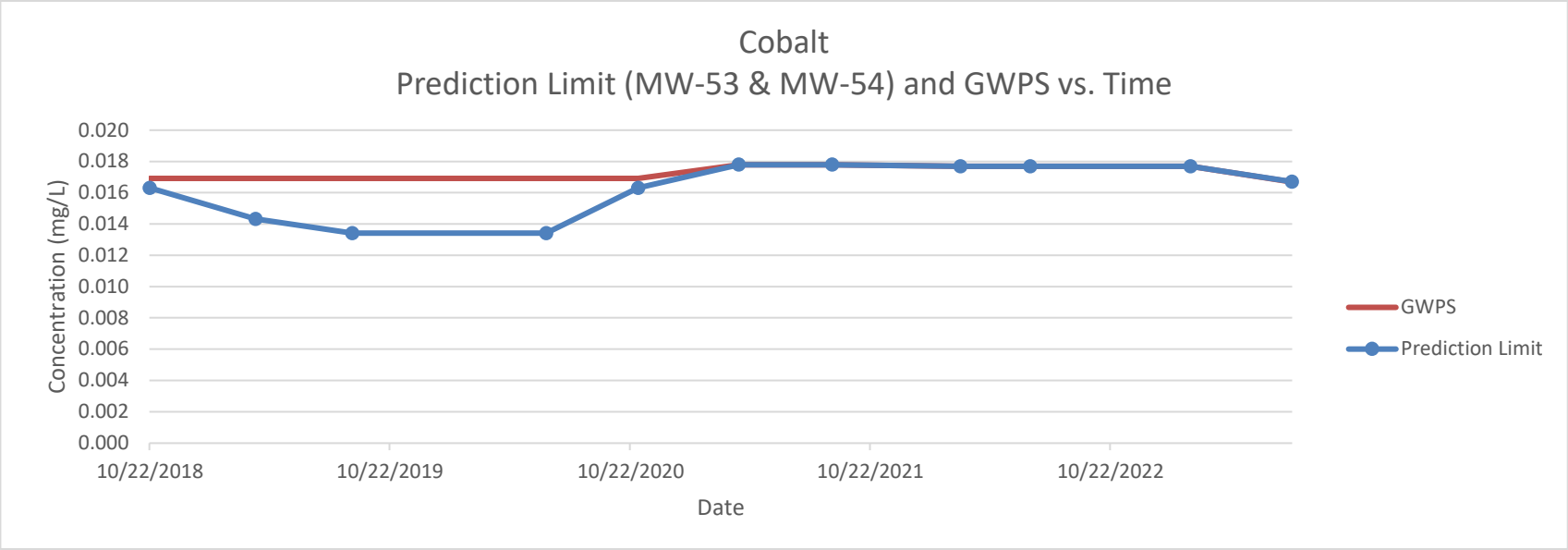

Arsenic
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.012
0.010
0.008
0.006
0.004
0.002
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

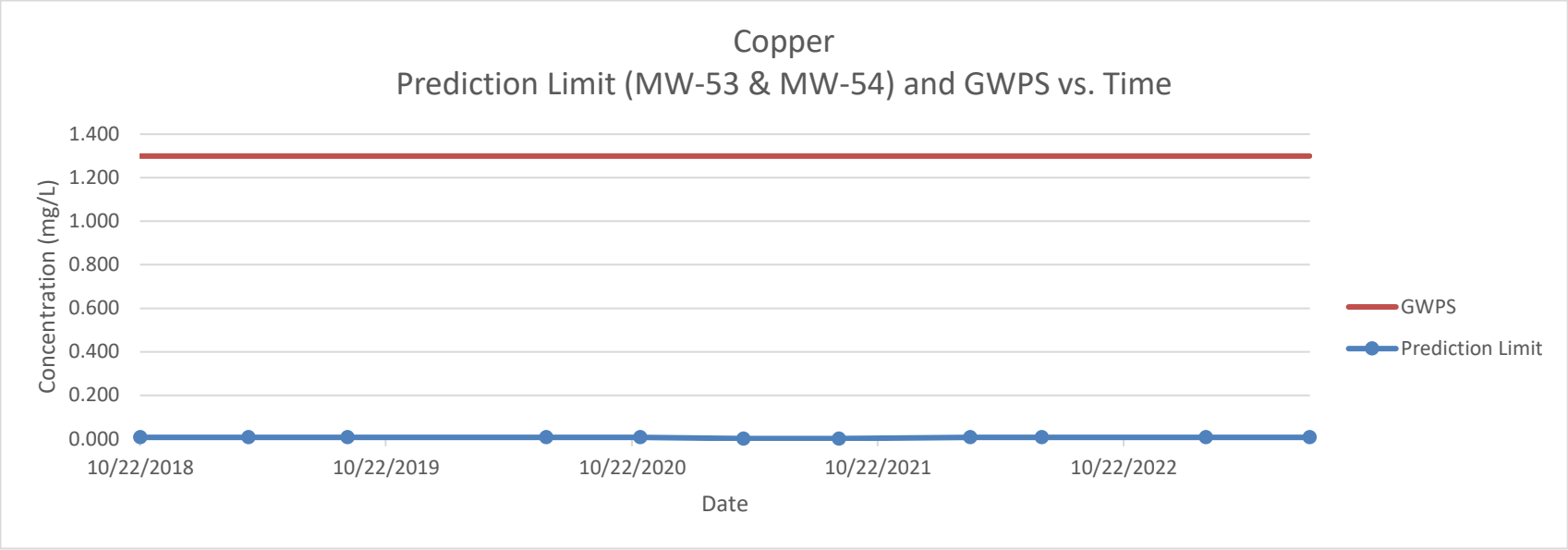

Barium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
2.50
2.00
1.50
1.00
0.50
0.00
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

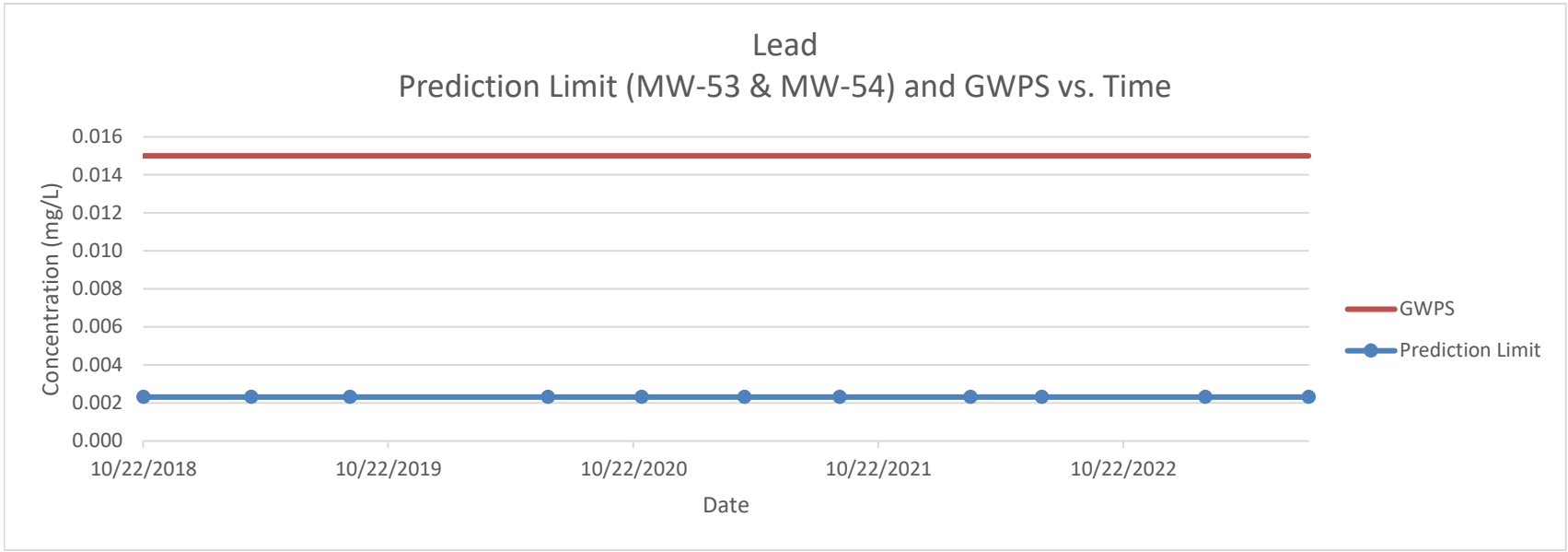

Beryllium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.005
0.004
0.004
0.003
0.003
0.002
0.002
0.001
0.001
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

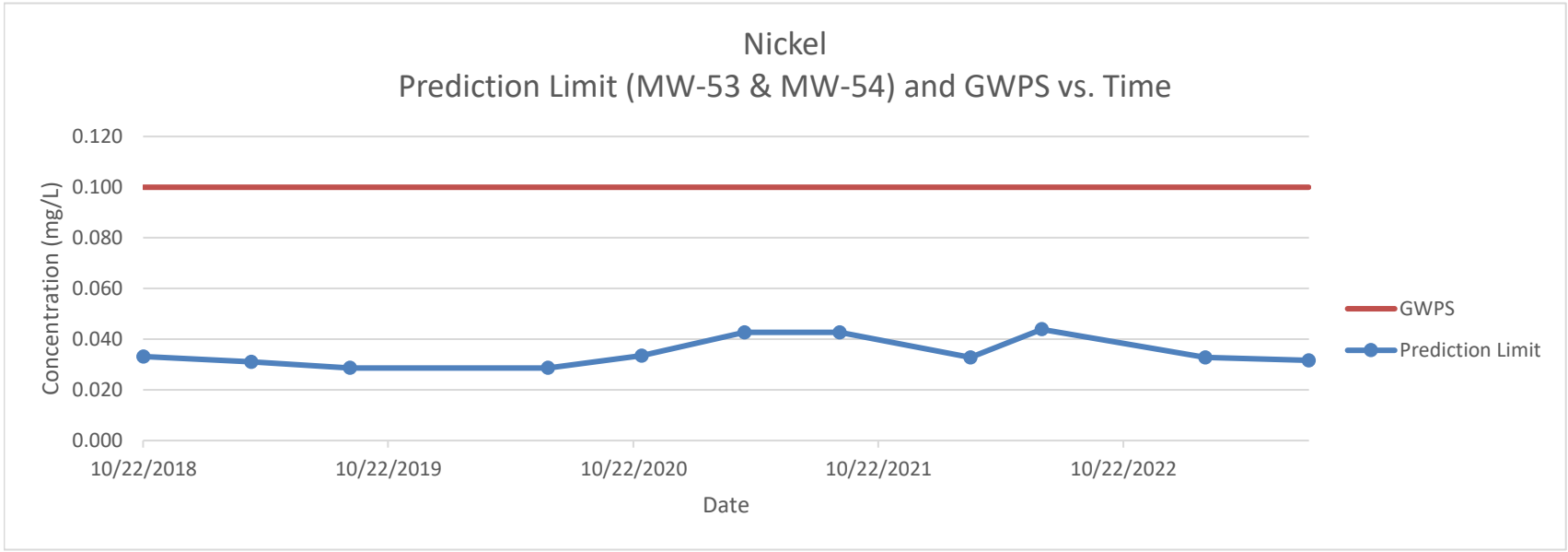

Cadmium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.006
0.005
0.004
0.003
0.002
0.001
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

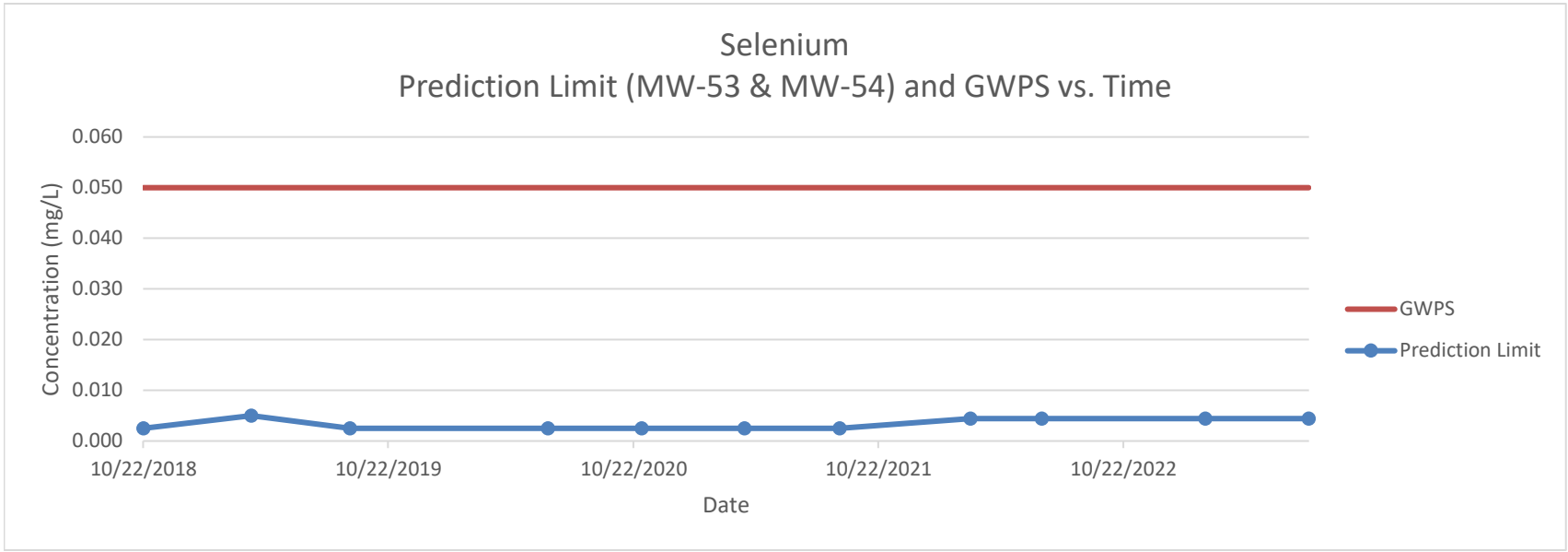

Chromium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.120
0.100
0.080
0.060
0.040
0.020
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

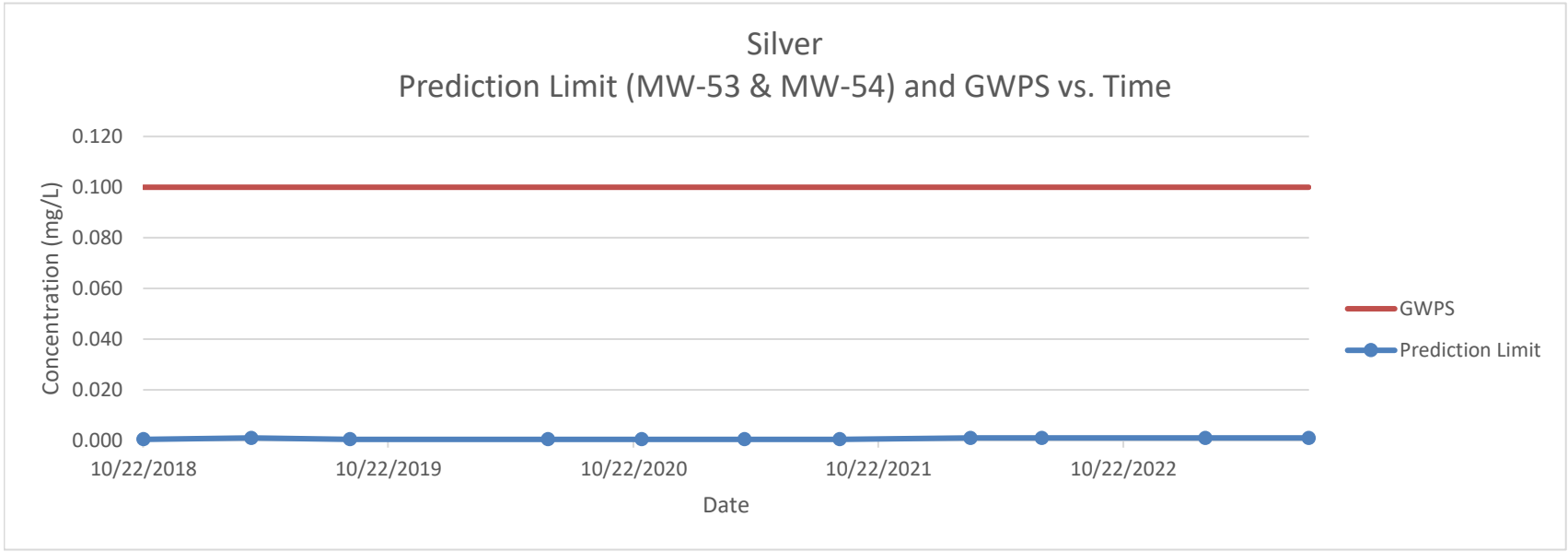

Cobalt
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.020
0.018
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

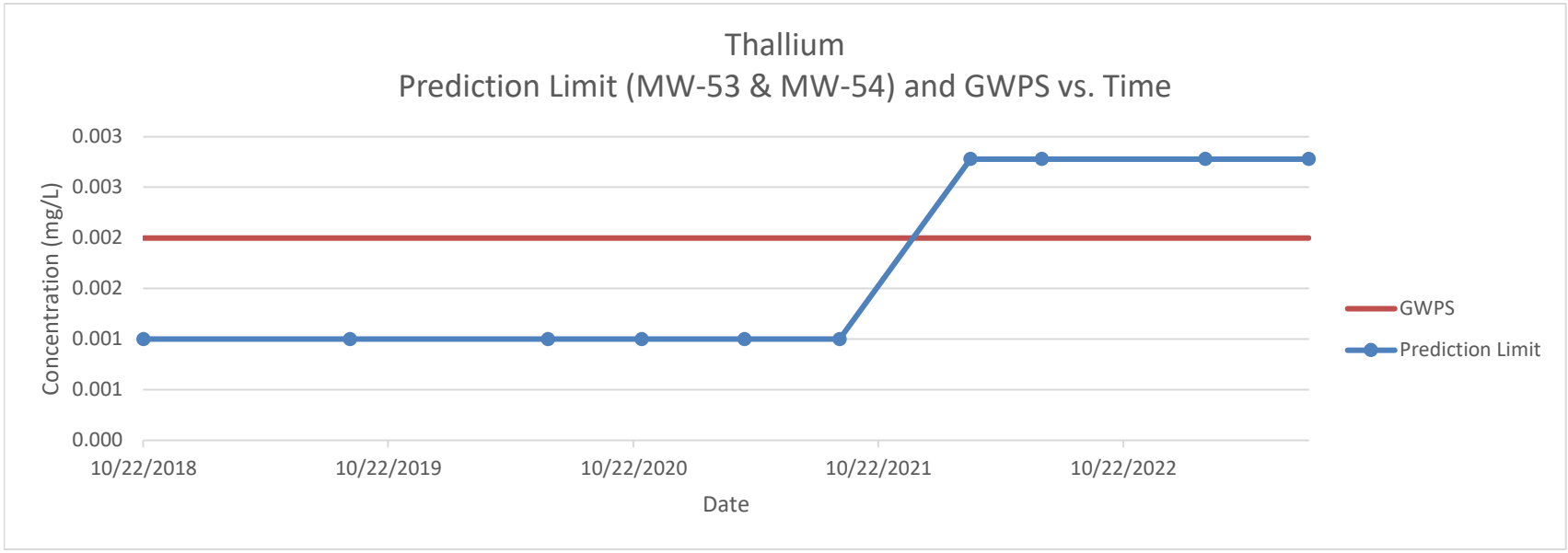

Copper
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

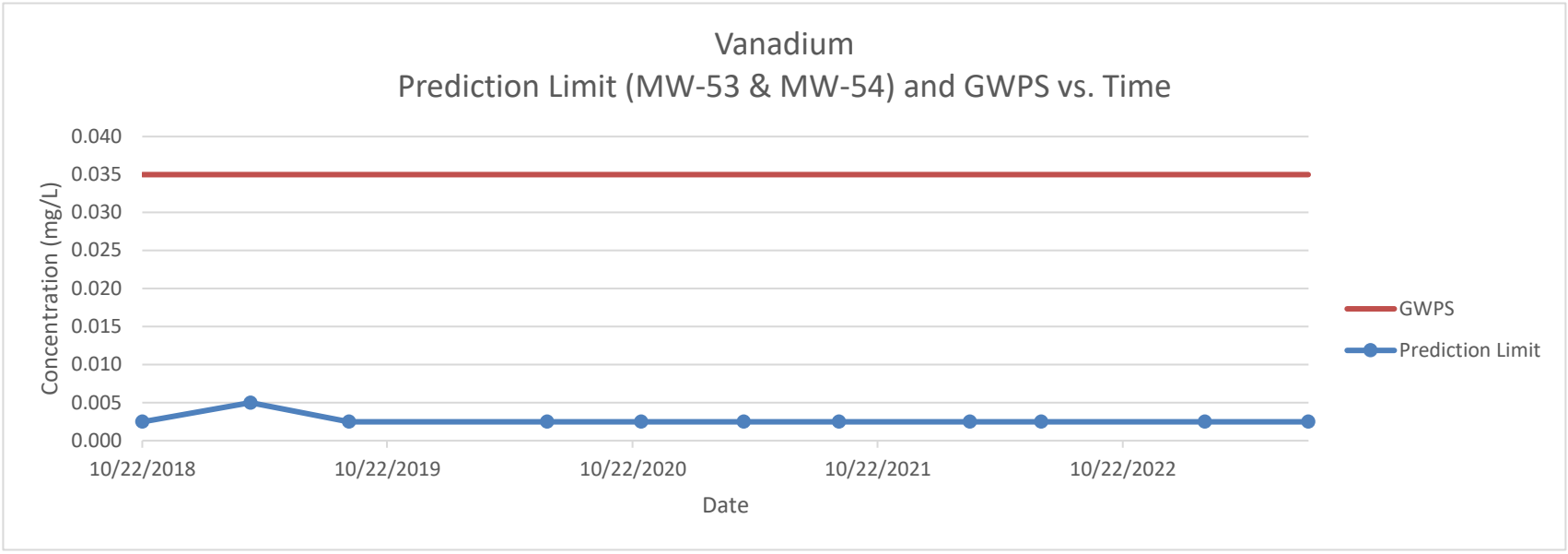

Lead
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

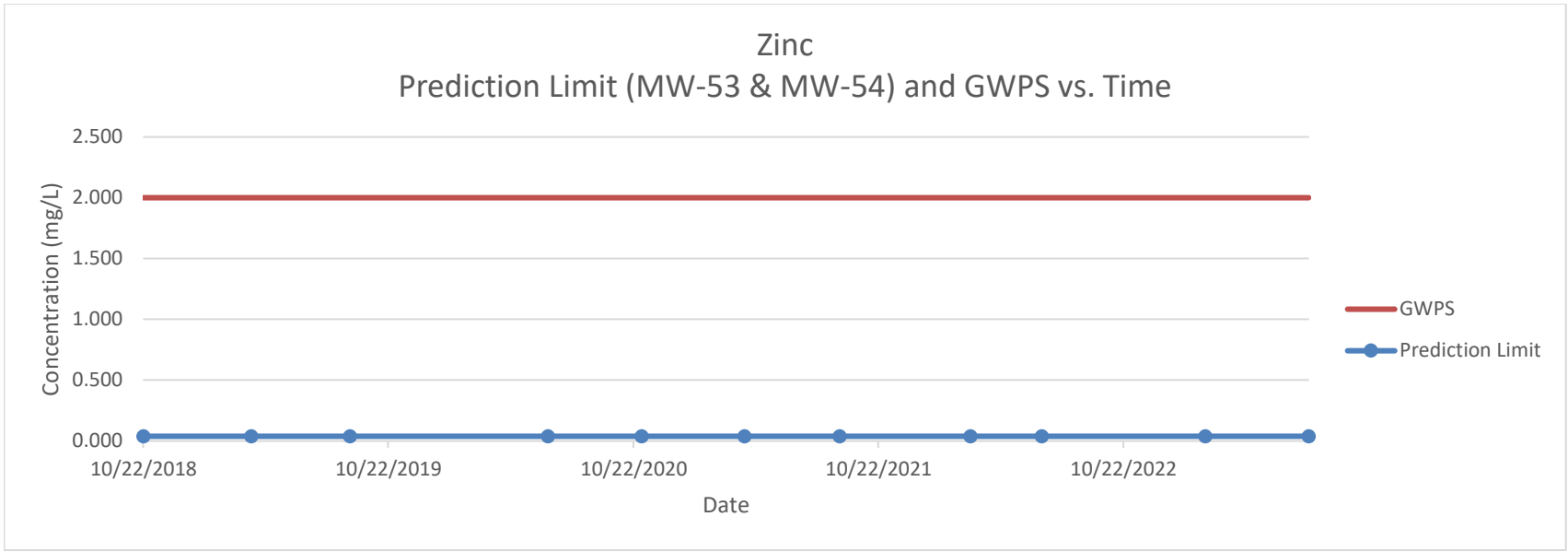

Nickel
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.120
0.100
0.080
0.060
0.040
0.020
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit


Selenium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
0.060
0.050
0.040
0.030
0.020
0.010
0.000
Concentration (mg/L)
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit


Silver
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
0.120
0.100
0.080
0.060
0.040
0.020
0.000
Concentration (mg/L)
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit


Thallium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.003
0.003
0.002
0.002
0.001
0.001
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit


Vanadium
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit


Zinc
Prediction Limit (MW-53 & MW-54) and GWPS vs. Time
Concentration (mg/L)
2.500
2.000
1.500
1.000
0.500
0.000
10/22/2018
10/22/2019
10/22/2020
10/22/2021
10/22/2022
Date
GWPS
Prediction Limit

Appendix H

AZPOC Monitoring Well MW-81 Confidence Interval Summary Table and Graphs

Confidence Interval

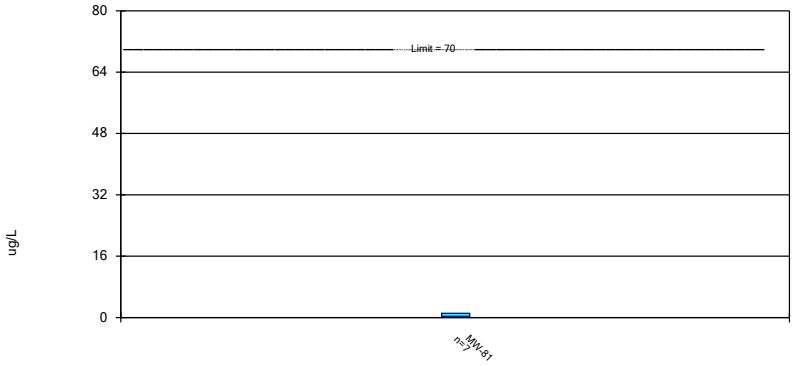
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM Printed 11/2/2023, 11:10 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
cis-1,2-Dichloroethene (ug/L)	MW-81	1.094	0.3343	70	No	7	0	No	0.01	Param.
Cobalt (mg/L)	MW-81	0.0003846	0.0001706	0.01671	No	7	28.57	No	0.01	Param.
Tetrachloroethene (ug/L)	MW-81	1.272	0.6675	5	No	7	14.29	No	0.01	Param.
Trichloroethene (ug/L)	MW-81	0.739	0.4862	5	No	7	14.29	No	0.01	Param.

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: cis-1,2-Dichloroethene Analysis Run 11/2/2023 11:09 AM View: 2023AWQR - MW-81
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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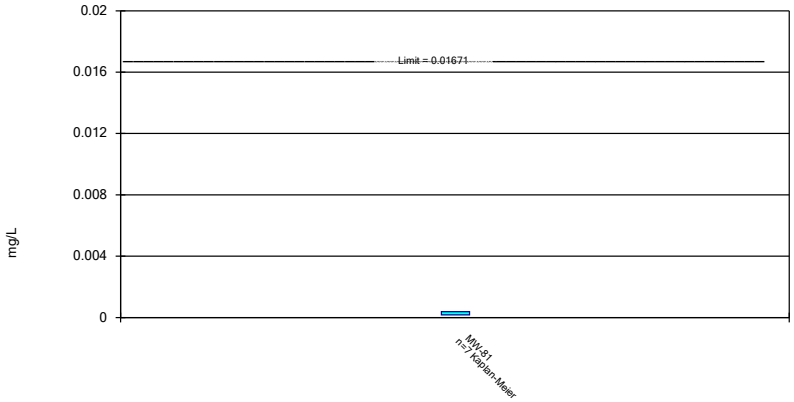
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 11/2/2023 11:09 AM View: 2023AWQR - MW-81
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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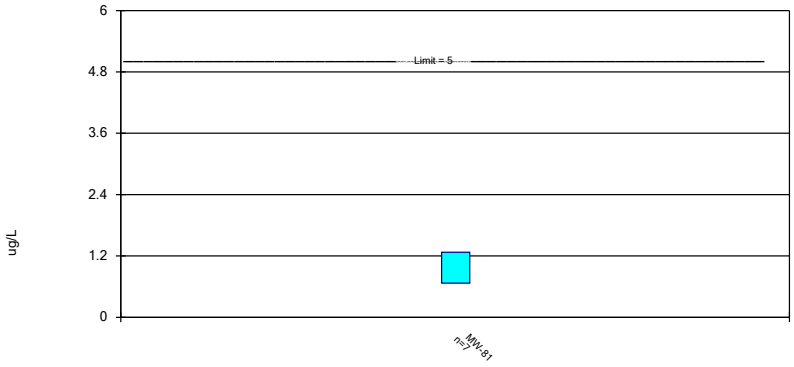
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Tetrachloroethene Analysis Run 11/2/2023 11:09 AM View: 2023AWQR - MW-81
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

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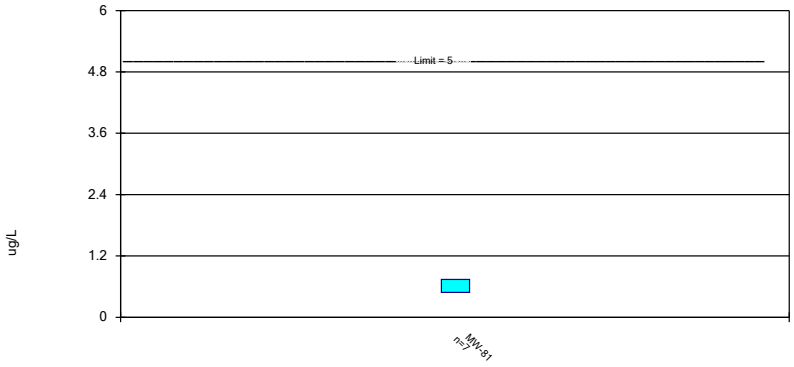
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Trichloroethene Analysis Run 11/2/2023 11:09 AM View: 2023AWQR - MW-81
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC 2023AWQR-AM

Appendix I

Gas Sampling Laboratory Report

CLIENT	:	SCS Engineers
PROJECT NAME	:	Ottumwa/Wapello County Landfill
PROJECT NO.	:	27223158.24
AAC PROJECT NO.	:	232291
REPORT DATE	:	11/14/2023

On November 6th, 2023, Atmospheric Analysis & Consulting, Inc. received one (1) Six-Liter Summa Canister for TNMOC analysis by EPA 25C and Fixed Gases analysis by EPA 3C. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Return Pressure (mmHg)
West MSWLF Unit Composite	232291-50944	579.1

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of these samples. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, Ph.D.
Technical Director

This report consists of 5 pages.

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com (805) 650-1642

Laboratory Analysis Report

CLIENT : SCS Engineers
PROJECT NO. : 232291
MATRIX : AIR

SAMPLING DATE : 11/02/2023
RECEIVING DATE : 11/06/2023
ANALYSIS DATE : 11/13/2023
REPORT DATE : 11/14/2023

EPA 25C & EPA 3C

Client ID	West MSWLF Unit Composite
AAC ID	232291-50944
Can Dilution Factor	1.57
Analyte	Result
H_2	< 1.6 %
O_2	16.0 %
N_2	56.3 %
CO	< 0.2 %
CO_2	10.7 %
CH_4	17.1 %
TNMOC (as Carbon)	51.6 ppmC

All fixed gases have been normalized to 100% on a dry basis

Sample Reporting Limit (SRL) is equal to Reporting Limit x Analysis Dil. Fac x Canister Dil. Fac

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com (805) 650-1642

Quality Control/Quality Assurance Report

Analysis Date : 11/13/2023
Analyst : NR
Units : ppmv

Instrument ID: : GCTCA#2-FID
Calibration Date: : 08/31/2023

I - Opening Calibration Verification Standard - Method 25C

Analyte	xRF	DRF	%RPD*
Propane	549886	572622	4.1

II - TNMOC Response Factor - Method 25C

Analyte	xRF	CV RF	CV dp RF	CV tp RF	Average RF	% RPD***
Propane	549886	572622	552266	525067	549985	0.0

III - Method Blank - Method 25C

AAC ID	Analyte	Sample Result
MB	TNMOC	0.00

IV - Laboratory Control Spike & Duplicate - Method 25C

AAC ID	Analyte	Spike Added	LCS	LCSD	LCS % Rec **	LCSD % Rec **	% RPD***
LCS/LCSD	Propane	50.6	50.769	48.268	100.4	95.5	5.0

V - Closing Calibration Verification Standard - Method 25C

Analyte	xCF	dCF	%RPD*
Propane	549886	569340	3.5

xCF - Average Calibration Factor from Initial Calibration Curve
dCF - Daily Calibration Factor
* Must be <15%
** Must be 90-110 %
*** Must be <20%

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com (805) 650-1642

Quality Control/Quality Assurance Report

Date Analyzed : 11/13/2023
Analyst : NR/RW
Units : %

Instrument ID : GC-TCA #2
Calb Date : 03/22/2023
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CH_4	CO	CO_2
CCV	Spike Conc	10.0	10.2	20.5	10.0	10.0	10.0
	Result	10.8	10.5	22.0	10.1	9.8	10.3
	% Rec *	107.9	102.5	107.8	100.6	98.2	102.8

II - Method Blank - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CH_4	CO	CO_2
MB	Concentration	ND	ND	ND	ND	ND	ND

III - Laboratory Control Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CH_4	CO	CO_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	9.8	11.0	21.1	9.5	9.5	9.6
	LCS Result	10.0	10.6	22.6	10.0	9.7	10.2
	LCSD Result	10.8	10.7	21.4	10.1	9.7	9.9
	LCS % Rec *	102.1	96.7	107.1	105.4	102.1	106.7
	LCSD % Rec *	110.9	97.9	101.3	106.0	102.1	103.8
	% RPD ***	8.2	1.2	5.6	0.6	0.1	2.8

IV -Sample & Sample Duplicate - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CH_4	CO	CO_2
232291-50944	Sample	0.0	9.8	34.6	10.5	0.0	6.5
	Sample Dup	0.0	9.8	34.6	10.5	0.0	6.6
	Mean	0.0	9.8	34.6	10.5	0.0	6.6
	% RPD ***	0.0	0.0	0.0	0.2	0.0	0.2

V - Matrix Spike & Duplicate- EPA 3C

AAC ID	Analyte	H_2	N_2	CH_4	CO	CO_2
232291-50944	Sample Conc	0.0	17.3	5.2	0.0	3.3
	Spike Conc	10.0	10.0	10.0	10.0	10.0
	MS Result	10.4	27.9	15.0	9.4	12.8
	MSD Result	10.8	27.5	15.3	9.7	13.1
	MS % Rec **	104.1	105.7	97.3	94.6	95.4
	MSD % Rec **	107.5	102.2	100.1	97.5	98.5
	% RPD ***	3.2	3.3	2.9	3.0	3.2

VI - Closing Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CH_4	CO	CO_2
CCV	Spike Conc	10.0	10.2	20.5	10.0	10.0	10.0
	Result	10.2	10.7	21.1	9.7	9.3	9.5
	% Rec *	102.0	104.4	103.0	97.1	93.0	94.9

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

ND = Not Detected

<RL = less than Reporting Limit

2225 Sperry Ave., Ventura, CA 93003 www.aaclab.com (805) 650-1642

232291

CHAIN OF CUSTODY AND ANALYSIS REQUEST – Chain of Custody is a LEGAL DOCUMENT. Complete all relevant fields.

Atmospheric Analysis and Consulting · Phone: 805-650-1642 · Email: info@aaclab.com · 2225 Sperry Ave, Ventura, CA 93003

AAC Project No.:

Client/Company Name
SCS Engineers
Project Manager Name
Nathan Ohrt

Project Name
Ottumwa/Wapello County Landfill
Project Number
27223158.24

Analysis Requested

Send Report To (Name/Email/Address)
Nathan Ohrt
nohrt@scsengineers.com

Turnaround Time
☐ Rush 24 h ☐ Same Day
☐ Rush 48 h ☐ 5 Days
☐ Rush 72 h X Normal

Sampler Name
Print: Caleb Gomez
Signature: Caleb Gomez

Send Invoice To (Name/Email/Address)
Zach Simonson
simonsonz@ottumwa.us
PO Number NA

Client Sample Name	Sample ID	Sampling Date	Sampling Time	Container Type/Qty	Method 3C	Method 25C				Lab ID
West MSWLF Unit Composite	2023	11/2/2023	3:30 PM							
		50944								

LAB USE ONLY

Sample Received via:
☐FedEx
☐UPS
☐Courier
☐Other_____

Temperature
_____°C
Thermometer ID _____
Initials _____

Returned Eqmt
Total cans: _____
Unused cans: _____
Flow Controllers: _____

Client Notes/Special Instructions:

EDD?
X Yes
☐No

LAB USE ONLY
Notes:

Relinquished By	Date	Received By	Date
Print:		Print: Hunter Oakley	11/6/23
Signature:	Time	Signature:	Time 1642
Relinquished By	Date	Received By	Date
Print:		Print:	
Signature:	Time	Signature:	Time

Fx – 1x can + 1x FC

Appendix J

Acid Mine Drainage Time Series Plots

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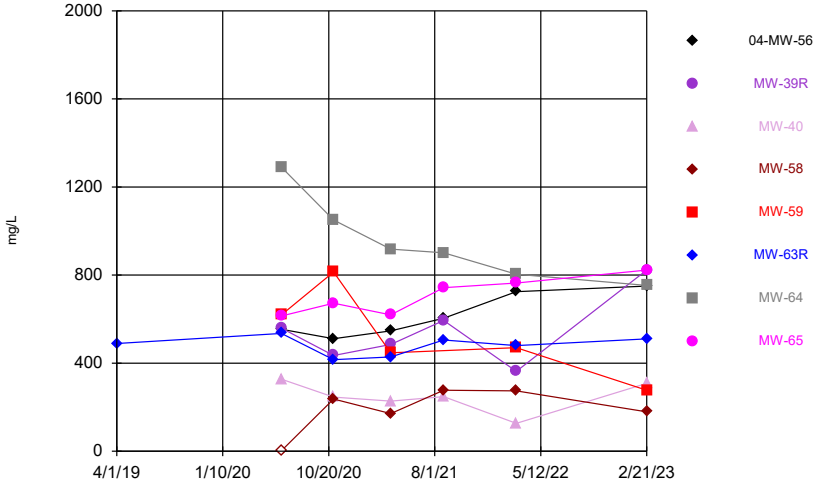
Hollow symbols indicate censored values.

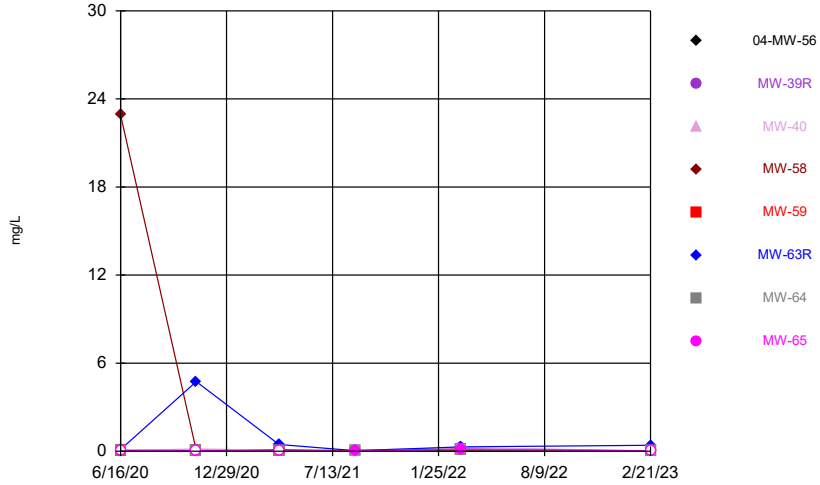
Time Series



Constituent: Alkalinity, Total [CaCO3] Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

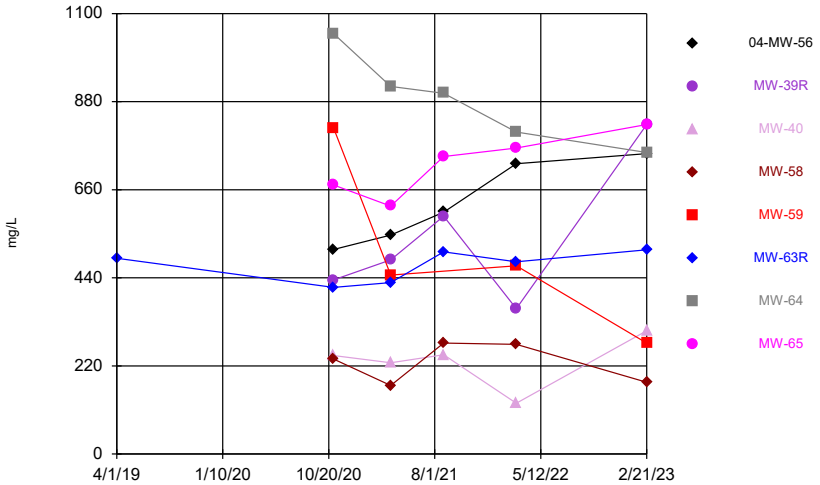
Time Series



Constituent: Aluminum Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

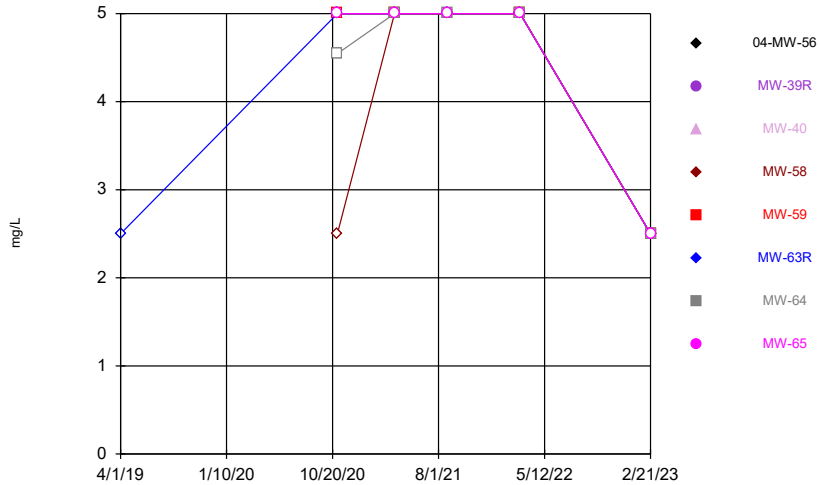
Time Series



Constituent: Bicarbonate Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

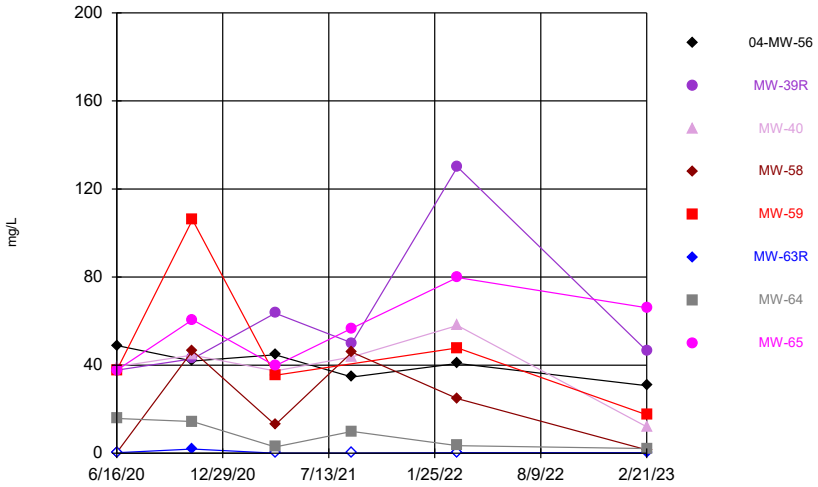
Time Series



Constituent: Carbonate Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG
Hollow symbols indicate censored values.

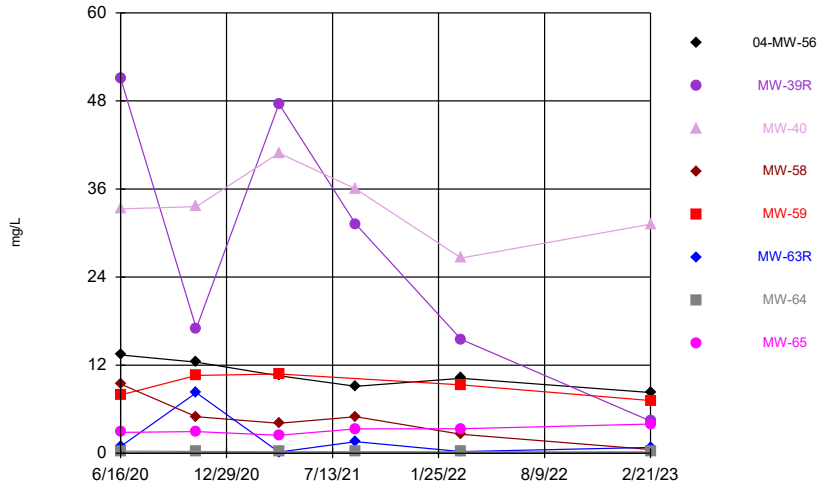
Time Series



Constituent: Iron Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

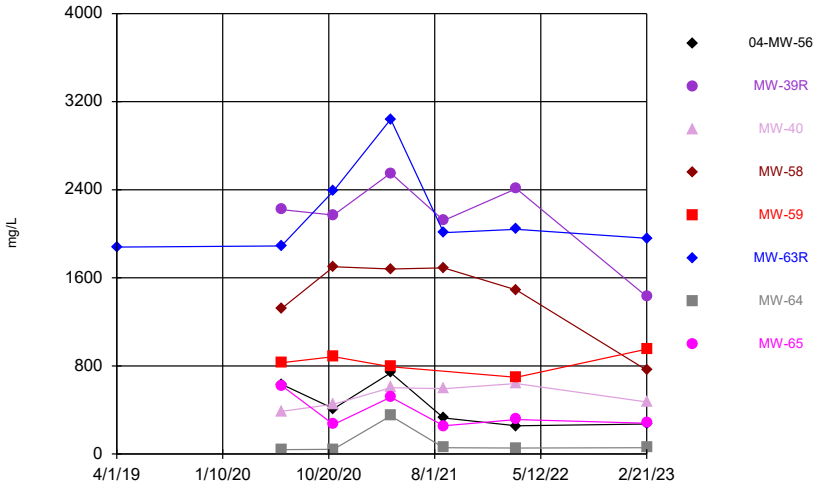
Time Series



Constituent: Manganese Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Time Series



Constituent: Sulfate Analysis Run 11/8/2023 2:21 PM View: 2023AWQR - AMD Wells
Ottumwa-Wapello County LF Client: SCS Engineers Data: OWSWC PRIME

Appendix K

Source Well Mann-Kendall Trending Summary (α=0.01)

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM Printed 9/18/2023, 5:34 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
1,1-Dichloroethane (ug/L)	93-MW-31R	-0.06887	-3	-21	No	8	37.5	0.01	NP
1,1-Dichloroethane (ug/L)	**MW-73**	**-0.8886**	**-19**	**-18**	**Yes**	**7**	**0**	**0.01**	**NP**
1,1-Dichloroethane (ug/L)	MW-79	-0.5702	-12	-21	No	8	0	0.01	NP
1,2-Dichloropropane (ug/L)	MW-73	-0.2352	-13	-18	No	7	0	0.01	NP
1,4-Dichlorobenzene (ug/L)	MW-79	-0.08505	-4	-21	No	8	12.5	0.01	NP
Arsenic (mg/L)	93-MW-31R	0.0006717	8	21	No	8	12.5	0.01	NP
Arsenic (mg/L)	MW-61R	0.0004954	8	21	No	8	0	0.01	NP
Arsenic (mg/L)	MW-73	0.0007246	6	21	No	8	0	0.01	NP
Barium (mg/L)	93-MW-31R	0.004524	4	21	No	8	0	0.01	NP
Barium (mg/L)	MW-61R	0.0001296	4	21	No	8	0	0.01	NP
Barium (mg/L)	MW-73	-0.000245	-6	-18	No	7	0	0.01	NP
Barium (mg/L)	MW-79	0.00631	6	21	No	8	0	0.01	NP
Benzene (ug/L)	93-MW-31R	0	-4	-21	No	8	50	0.01	NP
Benzene (ug/L)	**MW-73**	**-0.1806**	**-26**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Benzene (ug/L)	MW-79	-0.03143	-7	-21	No	8	25	0.01	NP
Beryllium (mg/L)	MW-79	-0.000677	-16	-21	No	8	50	0.01	NP
Cadmium (mg/L)	93-MW-31R	-0.00003312	-2	-21	No	8	0	0.01	NP
Cadmium (mg/L)	MW-61R	0.00008094	7	21	No	8	37.5	0.01	NP
Cadmium (mg/L)	MW-73	-0.001799	-10	-21	No	8	0	0.01	NP
Cadmium (mg/L)	**MW-79**	**-0.02683**	**-24**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Carbon disulfide (ug/L)	MW-79	0	9	21	No	8	75	0.01	NP
cis-1,2-Dichloroethene (ug/L)	93-MW-31R	-1.518	-2	-21	No	8	12.5	0.01	NP
cis-1,2-Dichloroethene (ug/L)	MW-61R	2.861	8	21	No	8	0	0.01	NP
cis-1,2-Dichloroethene (ug/L)	**MW-73**	**-8.777**	**-26**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
cis-1,2-Dichloroethene (ug/L)	MW-79	-11.07	-18	-21	No	8	0	0.01	NP
Cobalt (mg/L)	93-MW-31R	-0.001526	0	21	No	8	12.5	0.01	NP
Cobalt (mg/L)	MW-61R	0.001816	16	21	No	8	0	0.01	NP
Cobalt (mg/L)	MW-73	-0.005192	-14	-21	No	8	0	0.01	NP
Cobalt (mg/L)	MW-79	-0.0006406	-10	-21	No	8	0	0.01	NP
Copper (mg/L)	MW-61R	0.002766	21	21	No	8	50	0.01	NP
Copper (mg/L)	MW-79	-0.01486	-13	-21	No	8	37.5	0.01	NP
Lead (mg/L)	MW-61R	0.0003334	11	21	No	8	25	0.01	NP
Lead (mg/L)	MW-73	-0.00005381	-6	-18	No	7	42.86	0.01	NP
Lead (mg/L)	MW-79	-0.0007734	-17	-21	No	8	50	0.01	NP
Nickel (mg/L)	93-MW-31R	0.001286	2	21	No	8	12.5	0.01	NP
Nickel (mg/L)	**MW-61R**	**0.005058**	**27**	**21**	**Yes**	**8**	**0**	**0.01**	**NP**
Nickel (mg/L)	**MW-73**	**-0.002643**	**-22**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Nickel (mg/L)	MW-79	-0.006327	-15	-21	No	8	0	0.01	NP
Selenium (mg/L)	93-MW-31R	-0.000996	-11	-21	No	8	25	0.01	NP
Tetrachloroethene (ug/L)	**MW-73**	**-1.565**	**-24**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Thallium (mg/L)	93-MW-31R	0	-5	-21	No	8	75	0.01	NP
trans-1,2-Dichloroethene (ug/L)	MW-73	-0.1557	-17	-18	No	7	0	0.01	NP
trans-1,2-Dichloroethene (ug/L)	MW-79	-0.1998	-13	-21	No	8	37.5	0.01	NP
Trichloroethene (ug/L)	93-MW-31R	0	-7	-21	No	8	75	0.01	NP
Trichloroethene (ug/L)	**MW-73**	**-1.378**	**-28**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Vanadium (mg/L)	MW-61R	0.0004405	8	21	No	8	62.5	0.01	NP
Vanadium (mg/L)	MW-79	-0.0002909	-7	-21	No	8	50	0.01	NP
Vinyl chloride (ug/L)	93-MW-31R	-0.04383	-5	-21	No	8	37.5	0.01	NP
Vinyl chloride (ug/L)	**MW-73**	**-1.235**	**-22**	**-21**	**Yes**	**8**	**0**	**0.01**	**NP**
Vinyl chloride (ug/L)	MW-79	0.2823	4	21	No	8	0	0.01	NP

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM Printed 9/18/2023, 5:34 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Zinc (mg/L)	MW-61R	0.001954	4	21	No	8	12.5	0.01	NP
Zinc (mg/L)	MW-73	-0.0303	-9	-18	No	7	0	0.01	NP
Zinc (mg/L)	MW-79	-0.1349	-20	-21	No	8	12.5	0.01	NP

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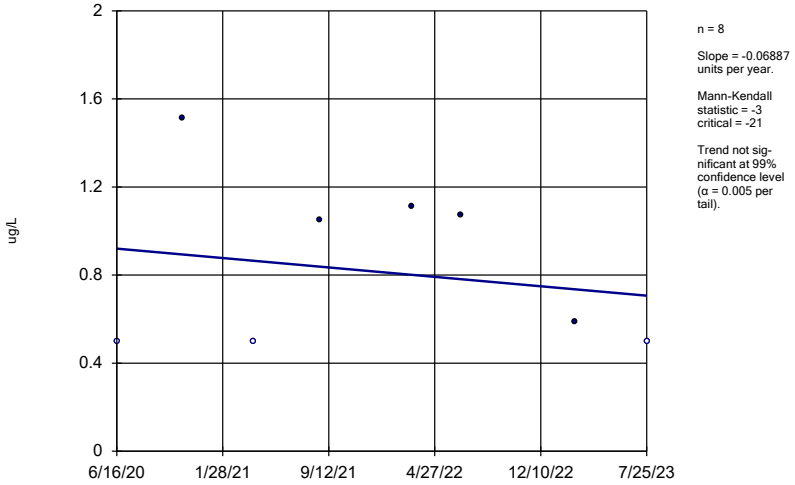
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 8

Slope = -0.06887 units per year.

Mann-Kendall statistic = -3
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

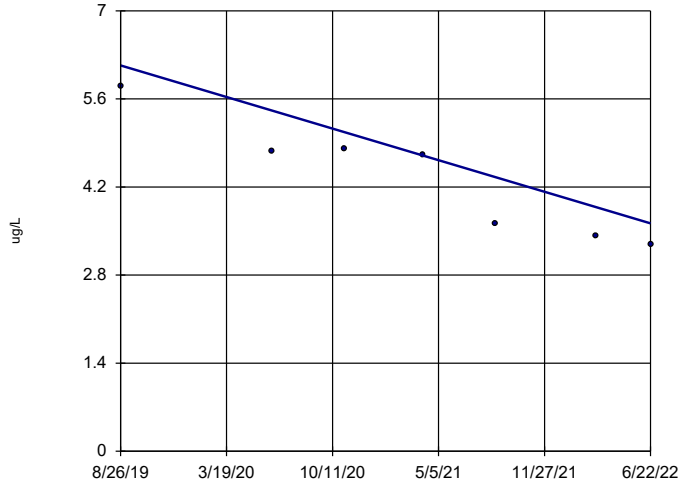
Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:32 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

Sanitas™ v.9.6.37 Software licensed to SCS Engineers. UG

Sen's Slope Estimator

MW-73



n = 7

Slope = -0.8886 units per year.

Mann-Kendall statistic = -19
critical = -18

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:32 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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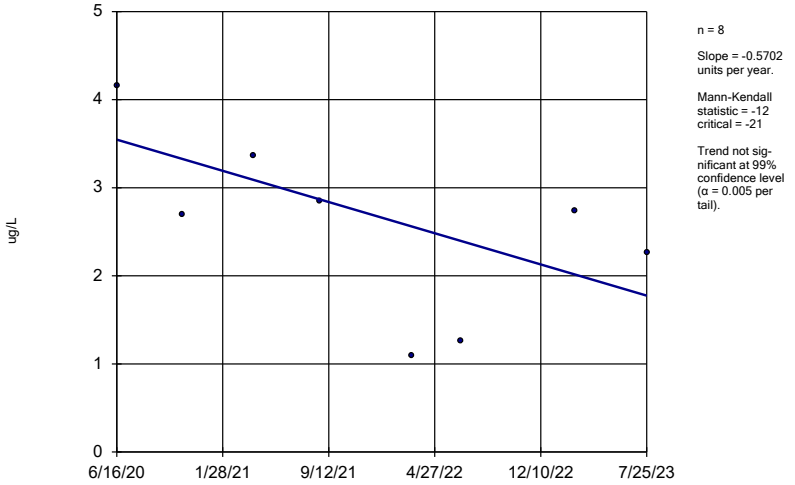
Sen's Slope Estimator

MW-79



n = 8

Slope = -0.5702 units per year.

Mann-Kendall statistic = -12
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,1-Dichloroethane Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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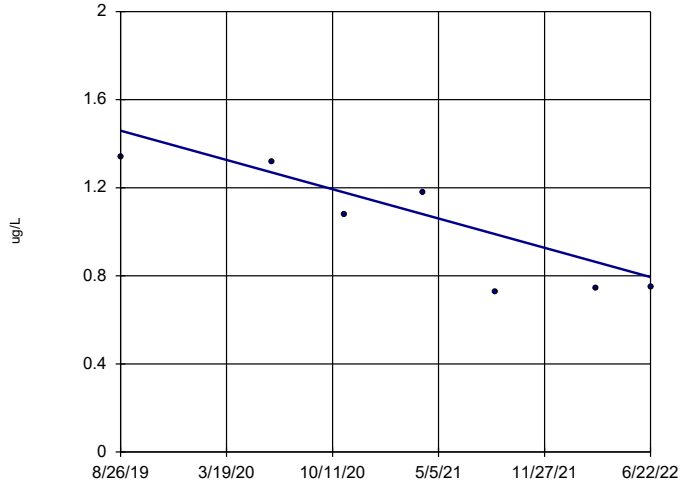
Sen's Slope Estimator

MW-73



n = 7

Slope = -0.2352 units per year.

Mann-Kendall statistic = -13
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,2-Dichloropropane Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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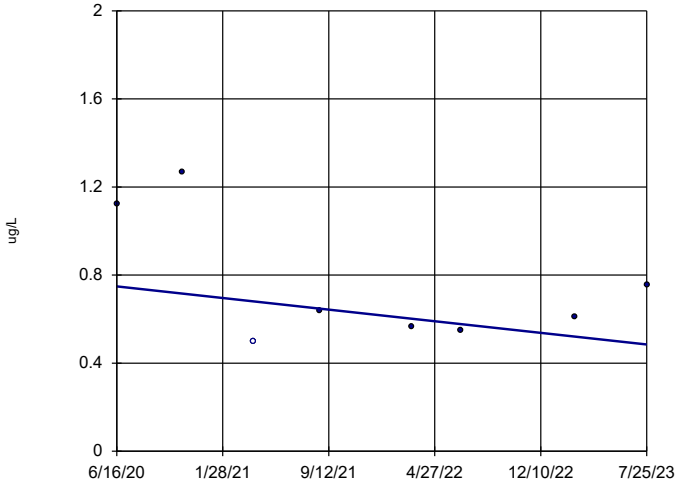
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.08505 units per year.

Mann-Kendall statistic = -4
critical = -21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: 1,4-Dichlorobenzene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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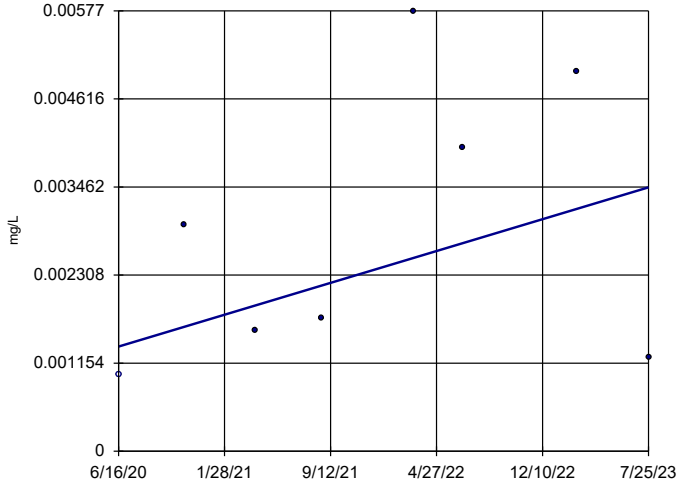
Sen's Slope Estimator

93-MW-31R



n = 8

Slope = 0.0006717 units per year.

Mann-Kendall statistic = 8
critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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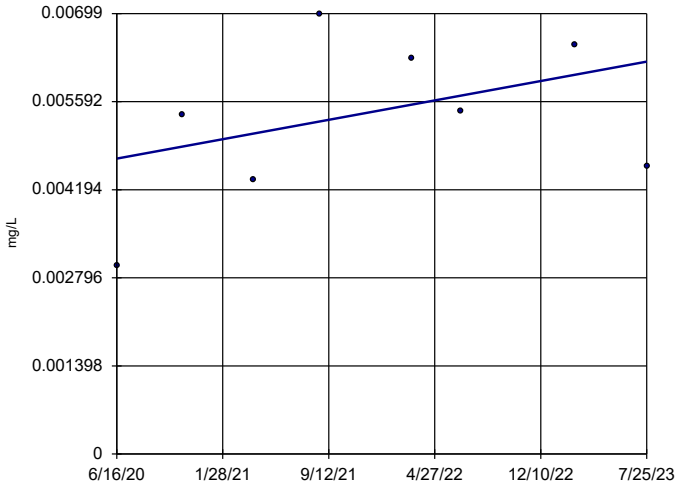
Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.0004954 units per year.

Mann-Kendall statistic = 8
critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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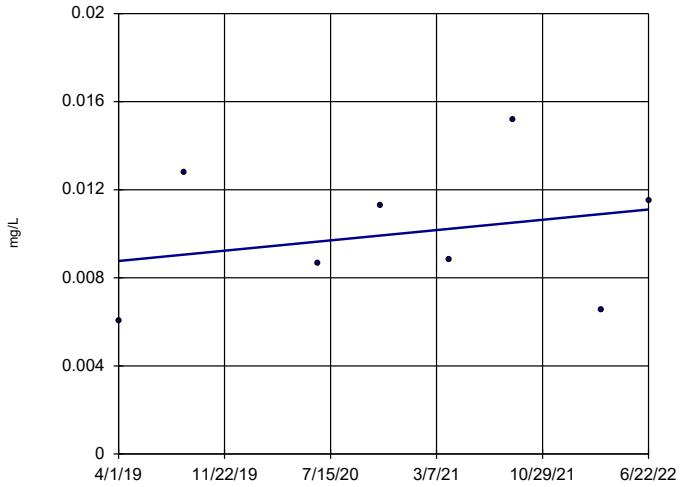
Sen's Slope Estimator

MW-73



n = 8

Slope = 0.0007246 units per year.

Mann-Kendall statistic = 6
critical = 21

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Arsenic Analysis Run 9/18/2023 5:33 PM

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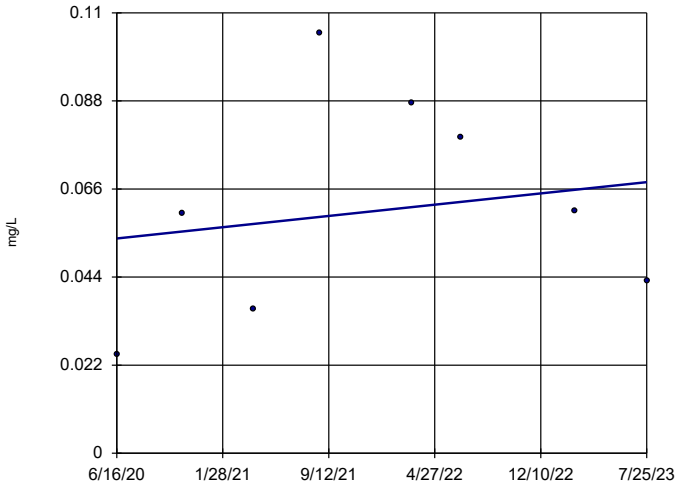
Sen's Slope Estimator

93-MW-31R



n = 8

Slope = 0.004524 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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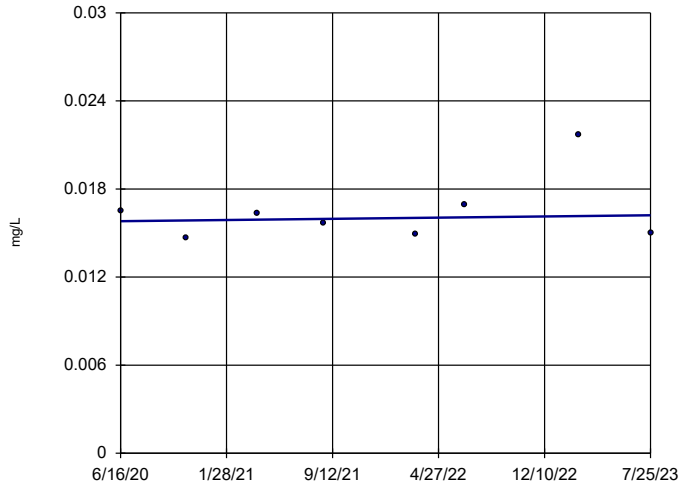
Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.0001296 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 9/18/2023 5:33 PM

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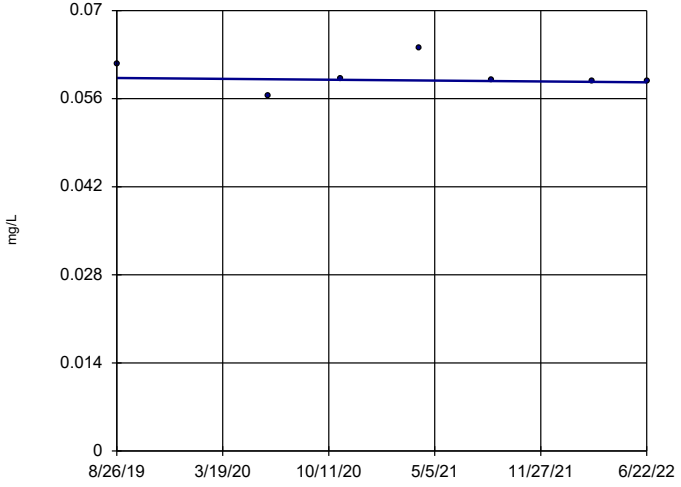
Sen's Slope Estimator

MW-73



n = 7

Slope = -0.000245 units per year.

Mann-Kendall statistic = -6
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 9/18/2023 5:33 PM

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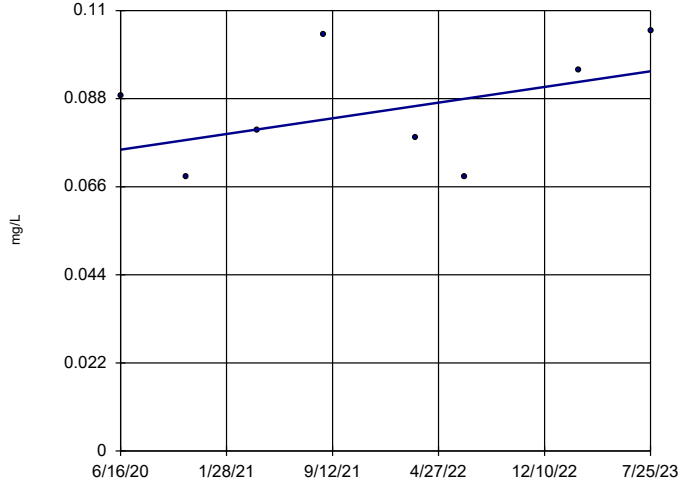
Sen's Slope Estimator

MW-79



n = 8

Slope = 0.00631 units per year.

Mann-Kendall statistic = 6
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 9/18/2023 5:33 PM

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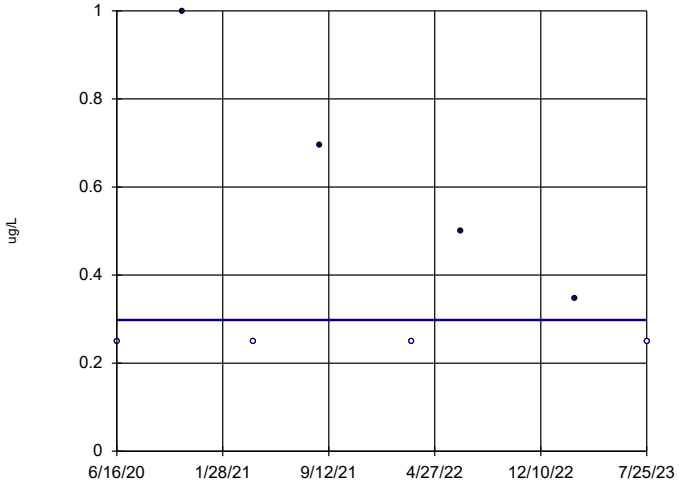
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = -4
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Benzene Analysis Run 9/18/2023 5:33 PM

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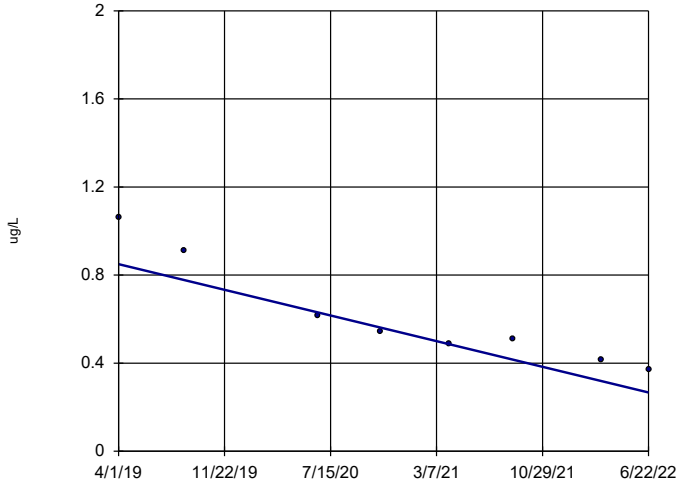
Sen's Slope Estimator

MW-73



n = 8

Slope = -0.1806 units per year.

Mann-Kendall statistic = -26
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Benzene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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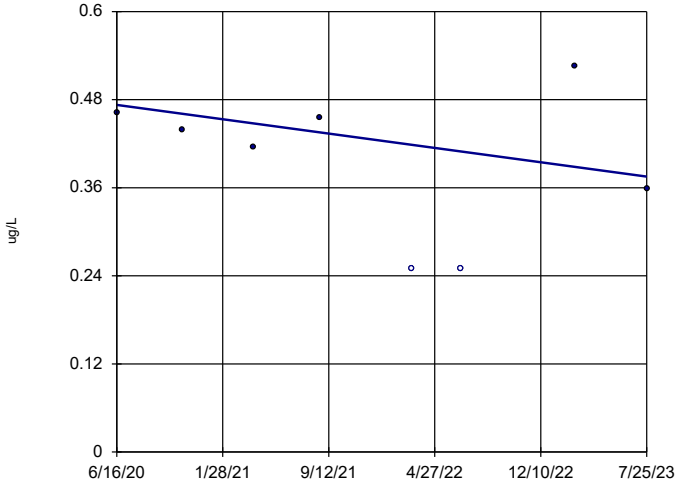
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.03143 units per year.

Mann-Kendall statistic = -7
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Benzene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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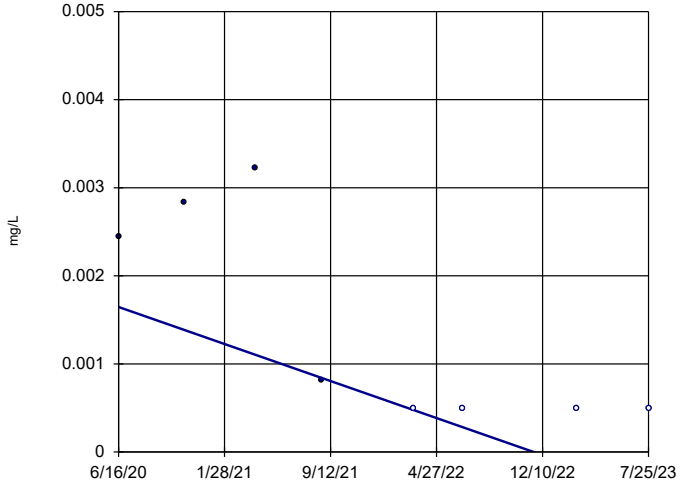
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.000677 units per year.

Mann-Kendall statistic = -16
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Beryllium Analysis Run 9/18/2023 5:33 PM

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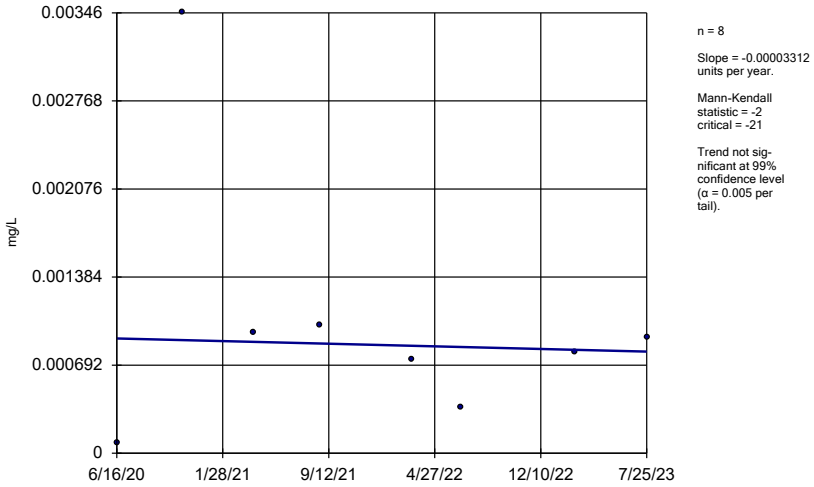
Sen's Slope Estimator

93-MW-31R



n = 8

Slope = -0.00003312 units per year.

Mann-Kendall statistic = -2
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cadmium Analysis Run 9/18/2023 5:33 PM

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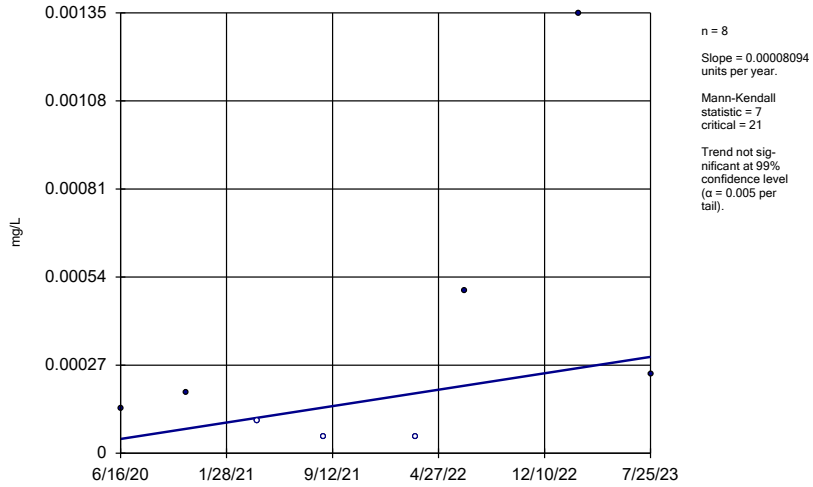
Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.00008094 units per year.

Mann-Kendall statistic = 7
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cadmium Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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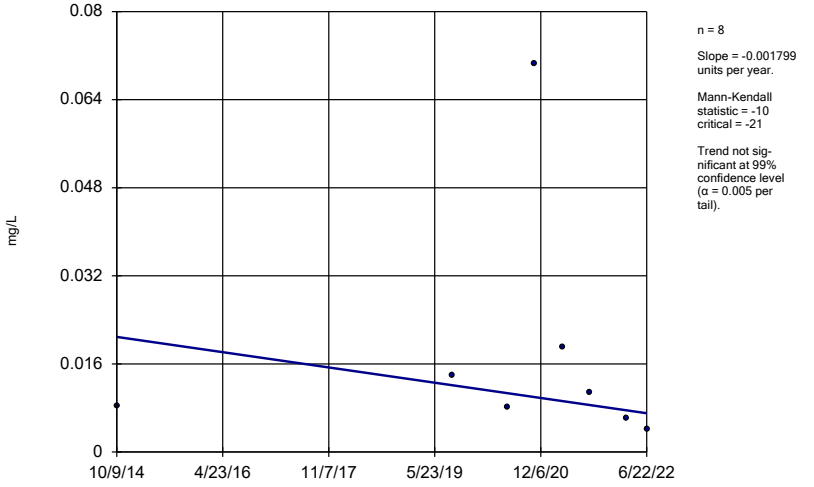
Sen's Slope Estimator

MW-73



n = 8

Slope = -0.001799 units per year.

Mann-Kendall statistic = -10
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cadmium Analysis Run 9/18/2023 5:33 PM

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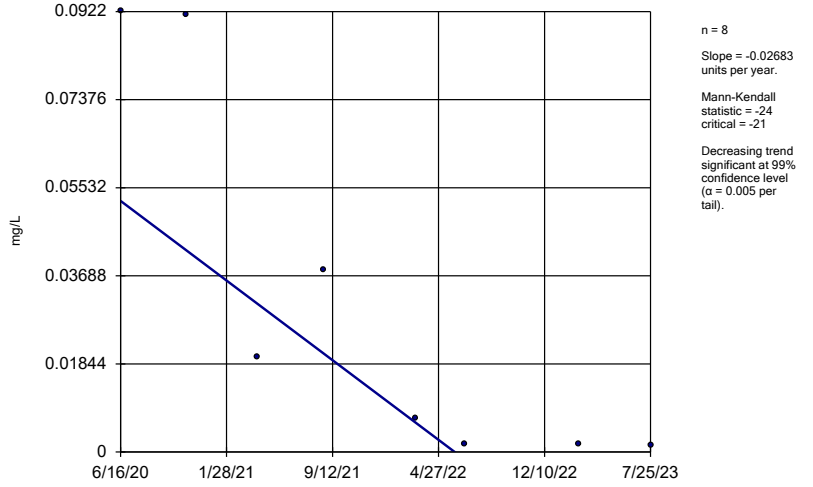
Sen's Slope Estimator

MW-79



n = 8

Slope = -0.02683 units per year.

Mann-Kendall statistic = -24
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cadmium Analysis Run 9/18/2023 5:33 PM

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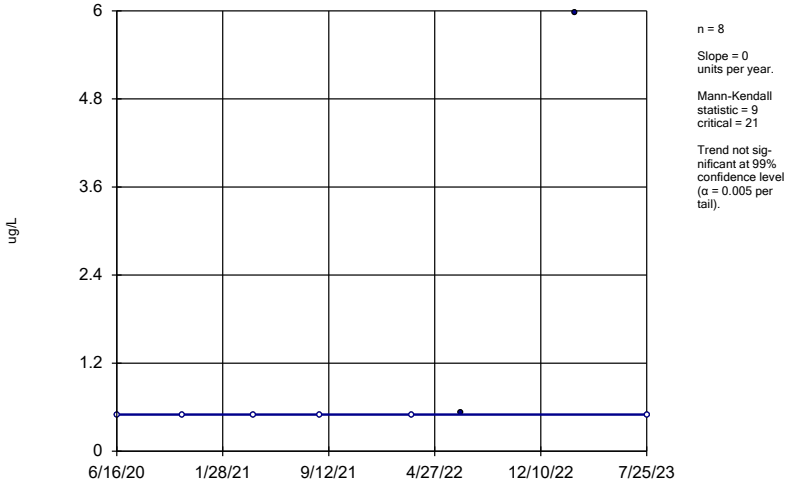
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



Constituent: Carbon disulfide Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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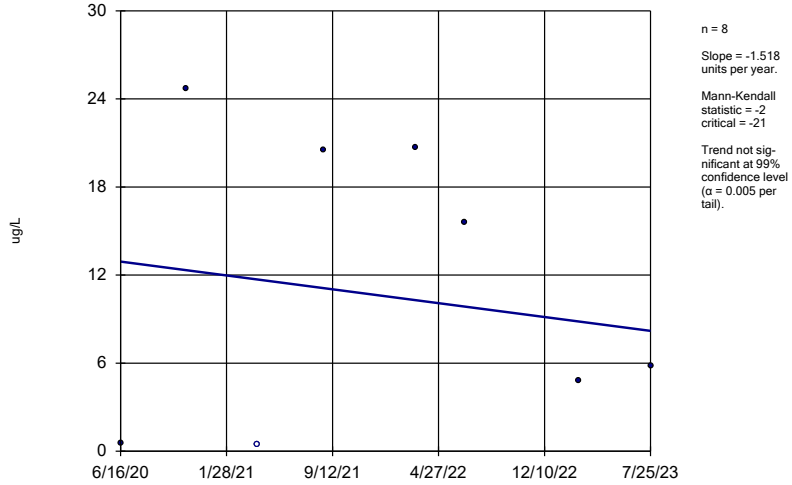
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



Constituent: cis-1,2-Dichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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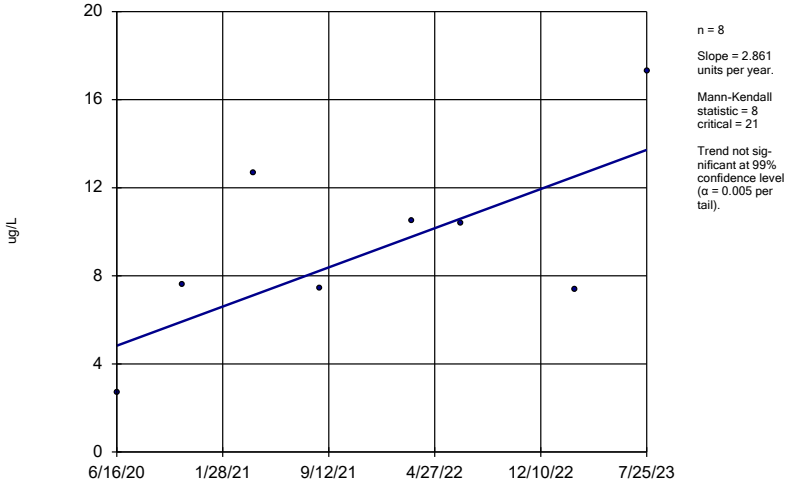
Sen's Slope Estimator

MW-61R



Constituent: cis-1,2-Dichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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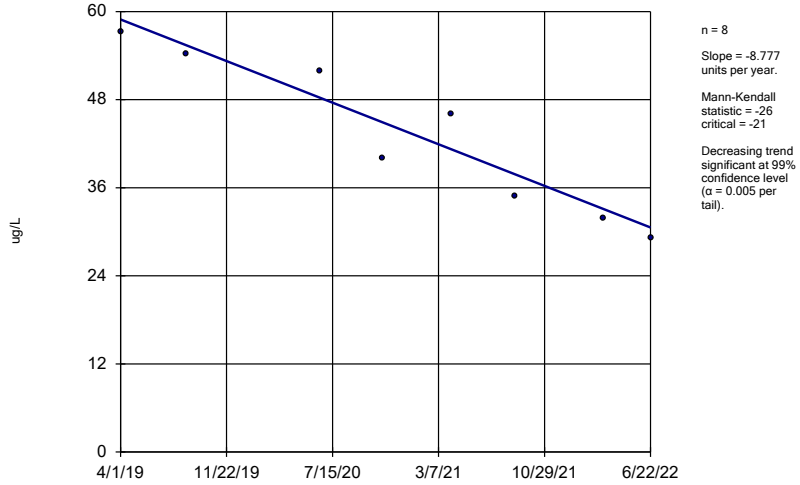
Sen's Slope Estimator

MW-73



Constituent: cis-1,2-Dichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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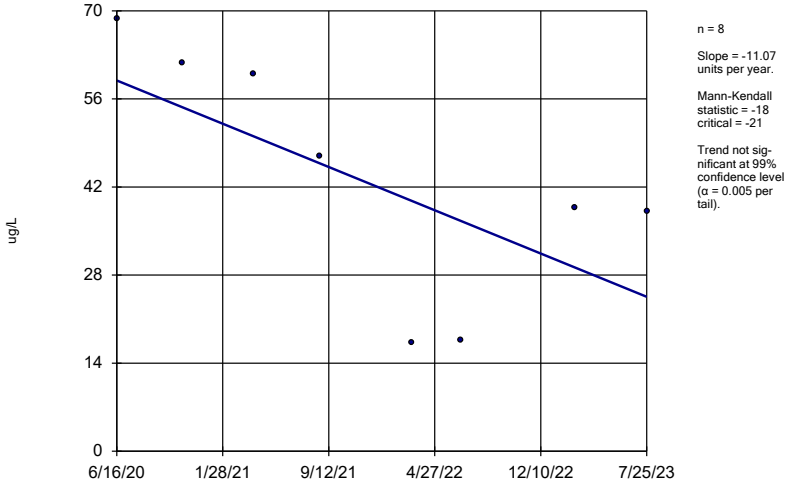
Sen's Slope Estimator

MW-79



Constituent: cis-1,2-Dichloroethene Analysis Run 9/18/2023 5:33 PM

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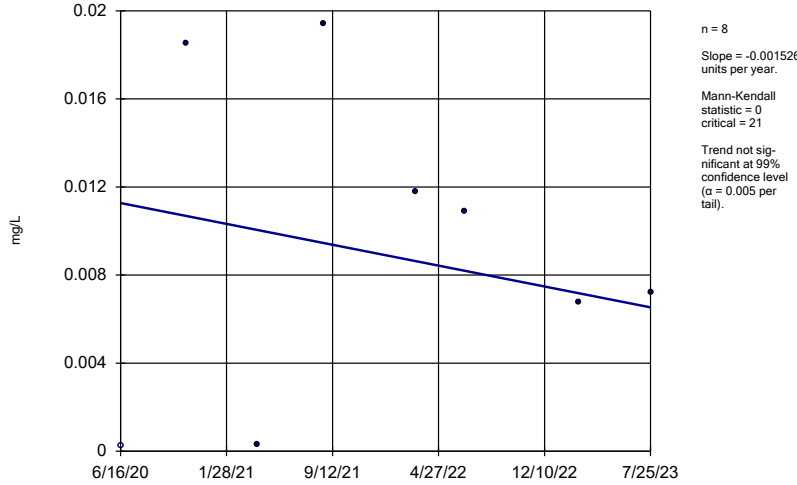
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



Constituent: Cobalt Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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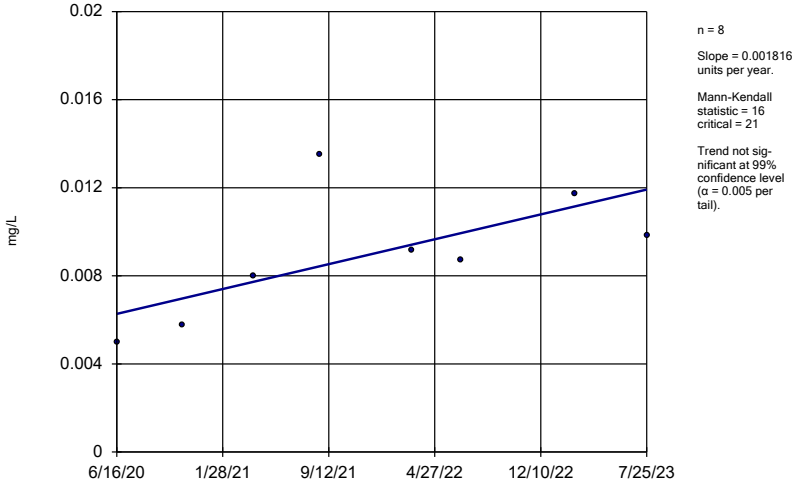
Sen's Slope Estimator

MW-61R



Constituent: Cobalt Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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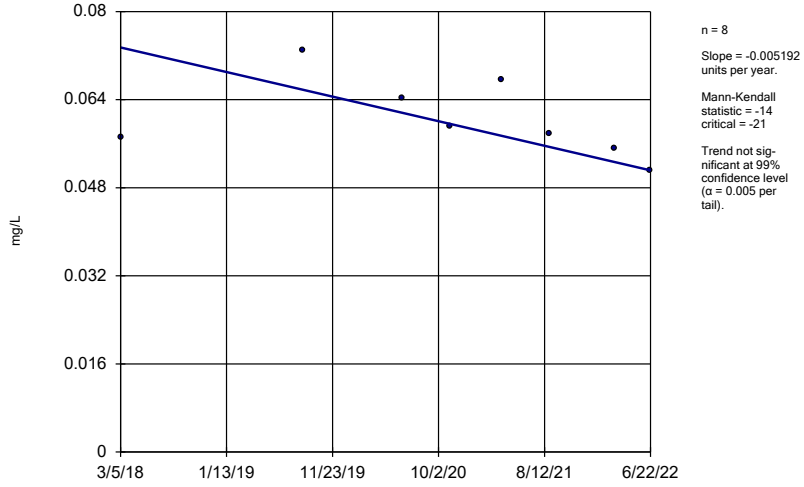
Sen's Slope Estimator

MW-73



Constituent: Cobalt Analysis Run 9/18/2023 5:33 PM

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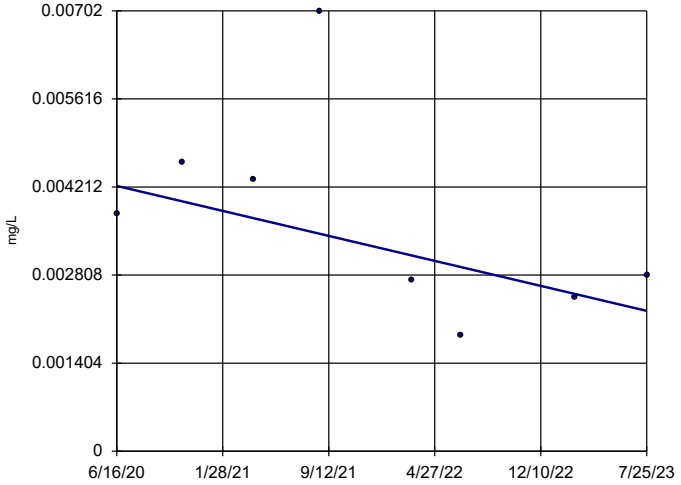
Sen's Slope Estimator

MW-79



n = 8

Slope = -0.0006406 units per year.

Mann-Kendall statistic = -10
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Cobalt Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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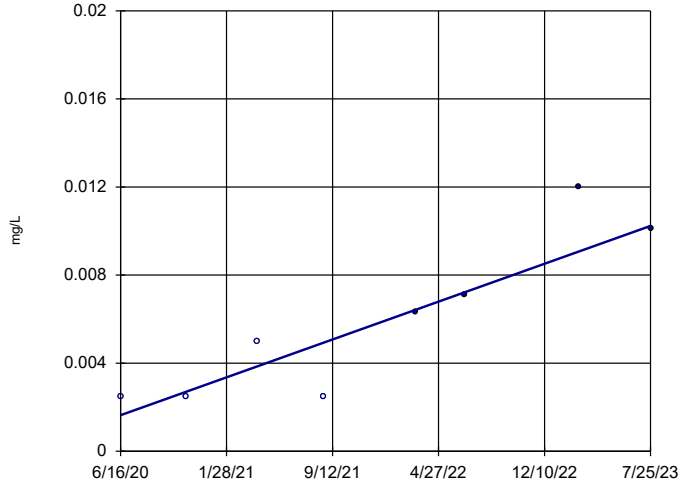
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.002766 units per year.

Mann-Kendall statistic = 21
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Copper Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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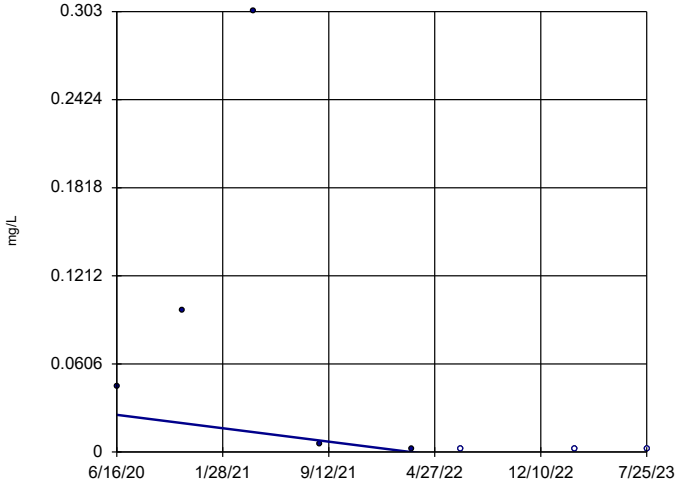
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.01486 units per year.

Mann-Kendall statistic = -13
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Copper Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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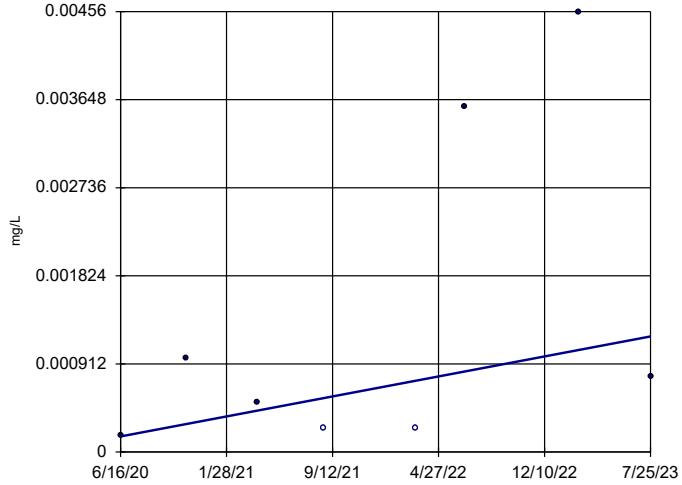
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.0003334 units per year.

Mann-Kendall statistic = 11
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Lead Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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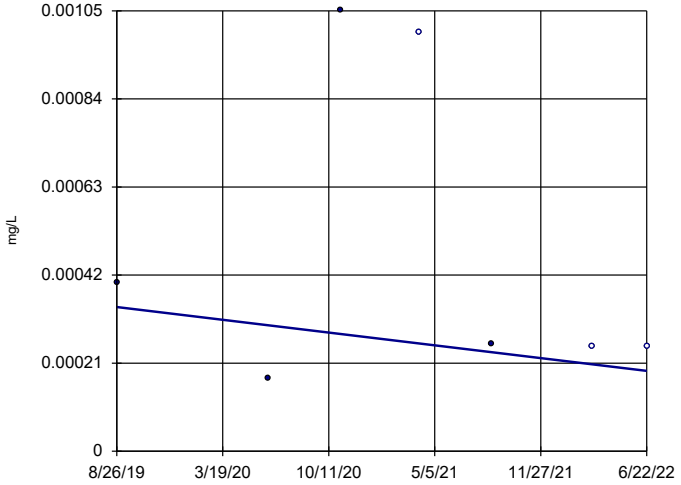
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-73



n = 7

Slope = -0.00005381 units per year.

Mann-Kendall statistic = -6
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Lead Analysis Run 9/18/2023 5:33 PM

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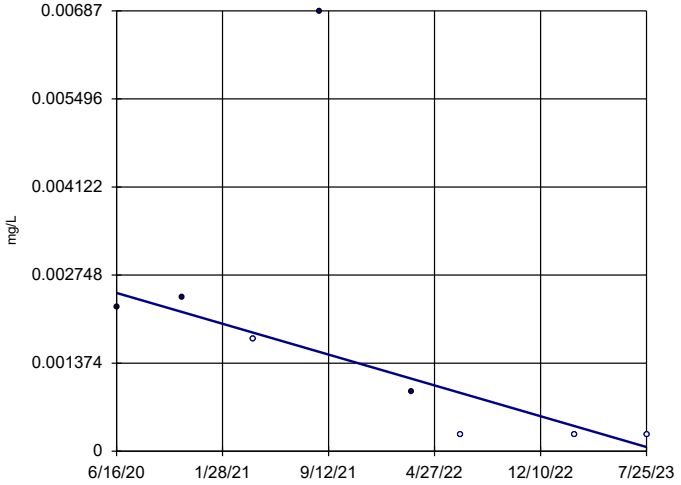
Sen's Slope Estimator

MW-79



n = 8

Slope = -0.0007734 units per year.

Mann-Kendall statistic = -17
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Lead Analysis Run 9/18/2023 5:33 PM

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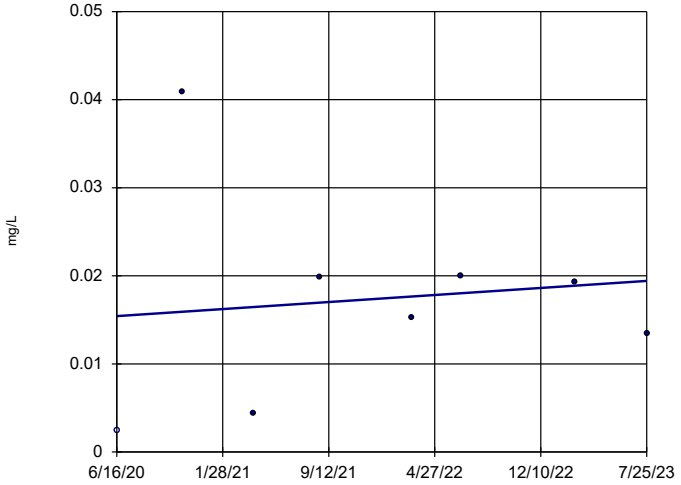
Sen's Slope Estimator

93-MW-31R



n = 8

Slope = 0.001286 units per year.

Mann-Kendall statistic = 2
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nickel Analysis Run 9/18/2023 5:33 PM

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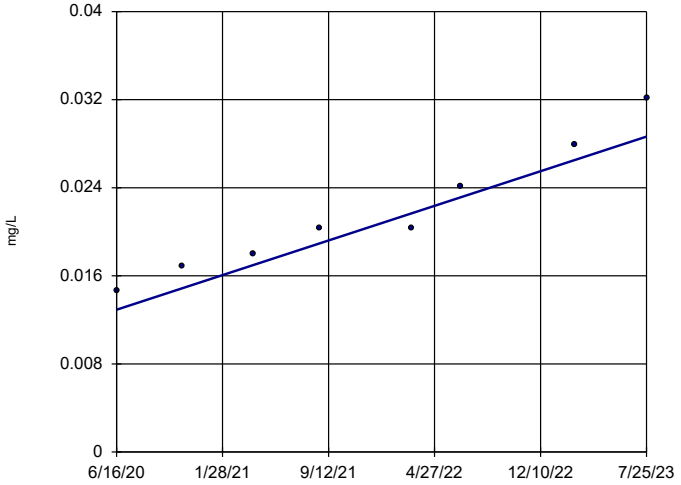
Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.005058 units per year.

Mann-Kendall statistic = 27
critical = 21

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nickel Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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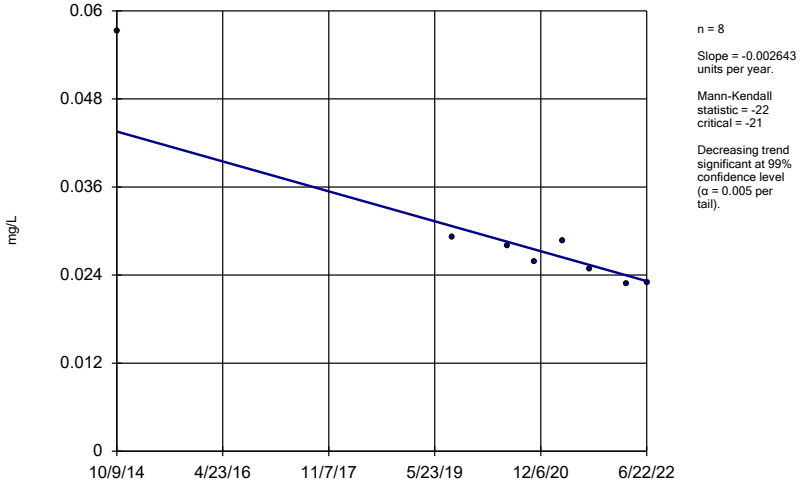
Sen's Slope Estimator

MW-73



n = 8

Slope = -0.002643 units per year.

Mann-Kendall statistic = -22
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nickel Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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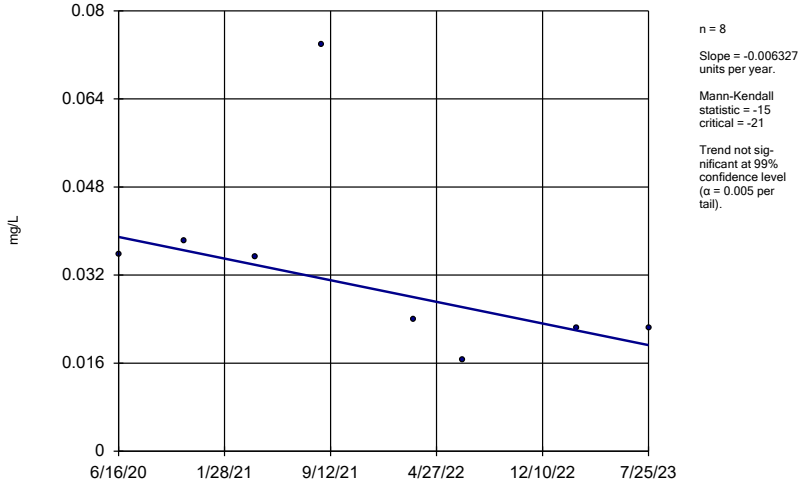
Sen's Slope Estimator

MW-79



n = 8

Slope = -0.006327 units per year.

Mann-Kendall statistic = -15
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nickel Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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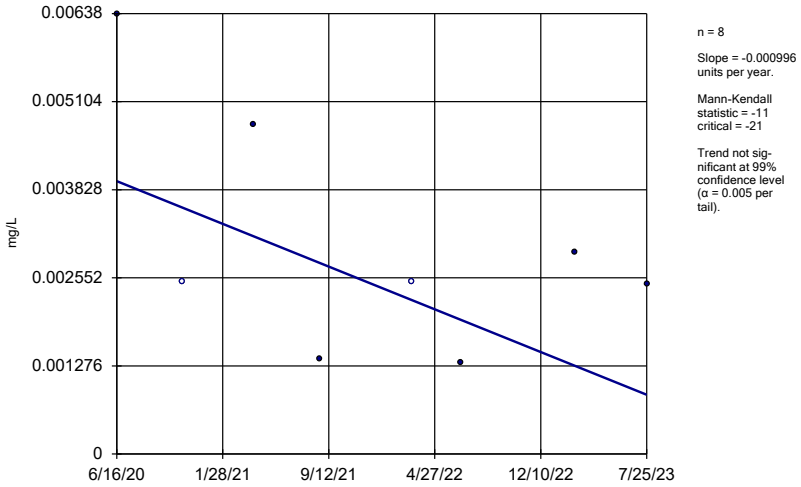
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 8

Slope = -0.000996 units per year.

Mann-Kendall statistic = -11
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Selenium Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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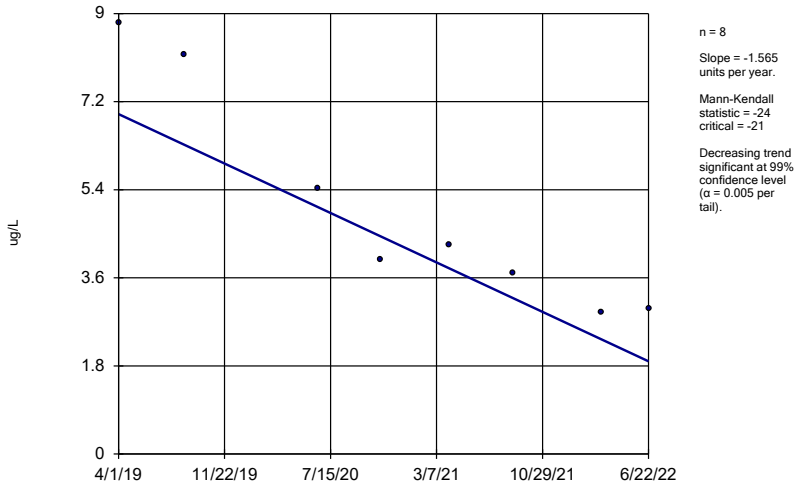
Sen's Slope Estimator

MW-73



n = 8

Slope = -1.565 units per year.

Mann-Kendall statistic = -24
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Tetrachloroethene Analysis Run 9/18/2023 5:33 PM

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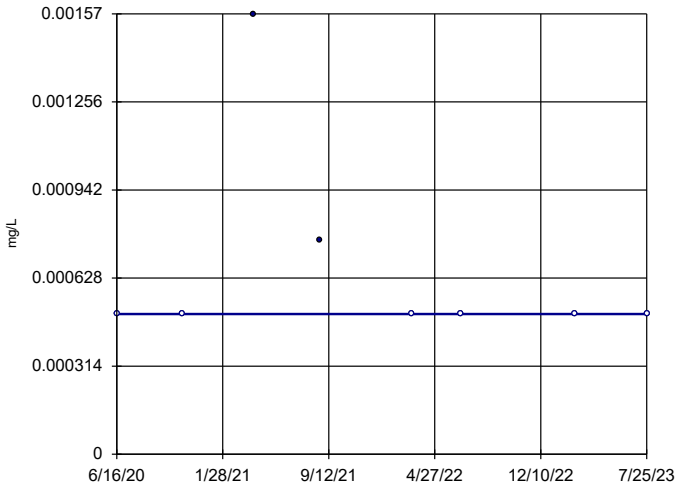
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = -5
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Thallium Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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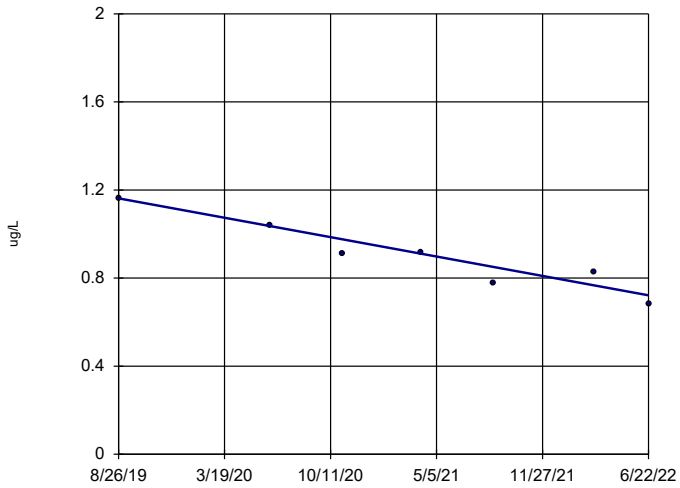
Sen's Slope Estimator

MW-73



n = 7

Slope = -0.1557 units per year.

Mann-Kendall statistic = -17
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: trans-1,2-Dichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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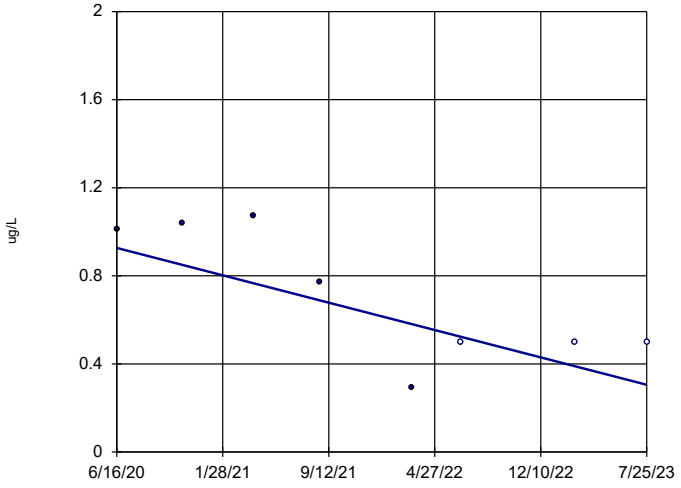
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.1998 units per year.

Mann-Kendall statistic = -13
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: trans-1,2-Dichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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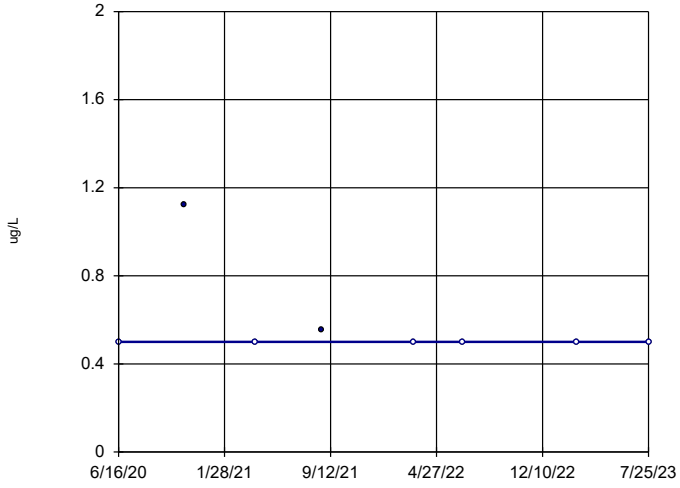
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 8

Slope = 0 units per year.

Mann-Kendall statistic = -7
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Trichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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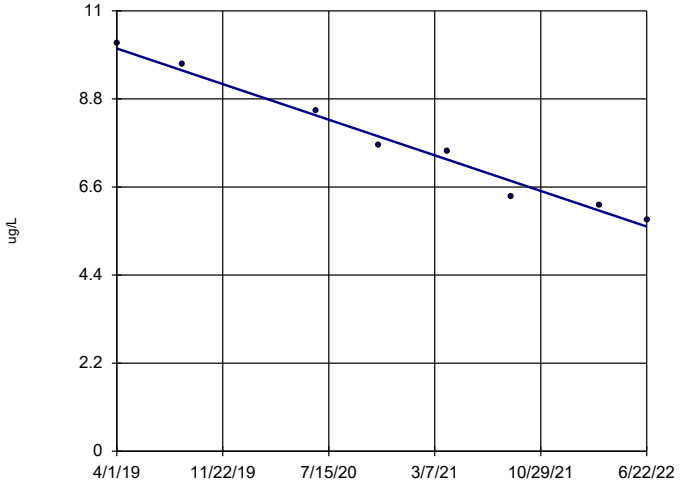
Sen's Slope Estimator

MW-73



n = 8

Slope = -1.378 units per year.

Mann-Kendall statistic = -28
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Trichloroethene Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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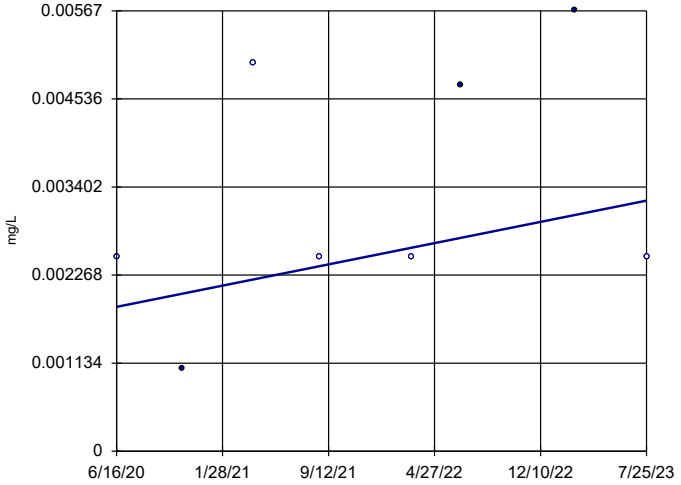
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.0004405 units per year.

Mann-Kendall statistic = 8
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Vanadium Analysis Run 9/18/2023 5:33 PM

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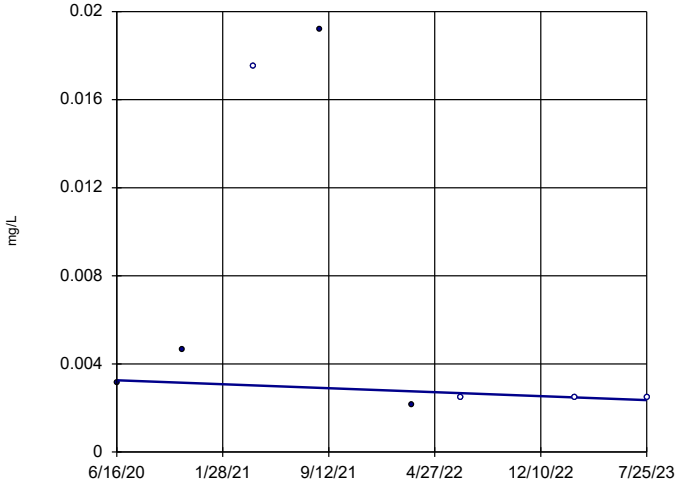
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.0002909 units per year.

Mann-Kendall statistic = -7
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Vanadium Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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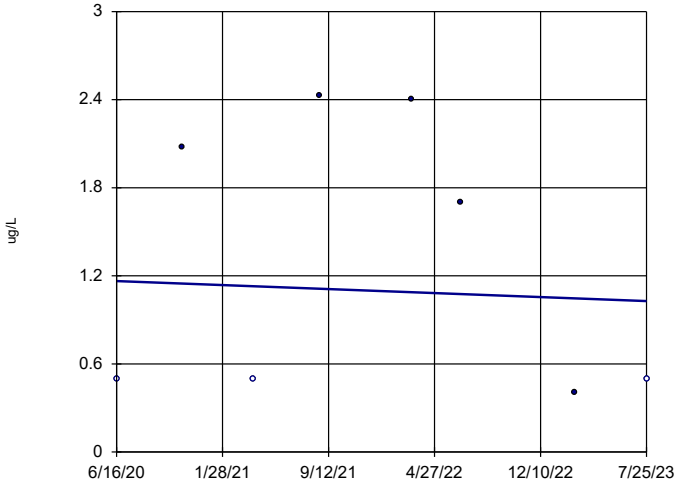
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 8

Slope = -0.04383 units per year.

Mann-Kendall statistic = -5
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Vinyl chloride Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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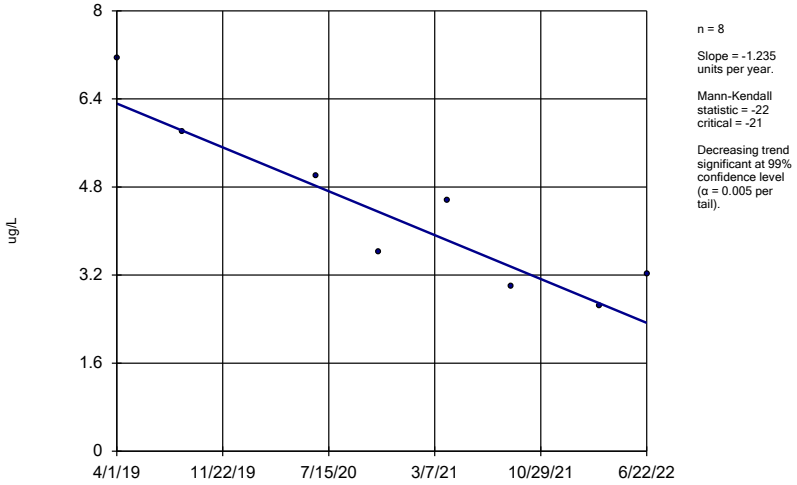
Sen's Slope Estimator

MW-73



n = 8

Slope = -1.235 units per year.

Mann-Kendall statistic = -22
critical = -21

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Vinyl chloride Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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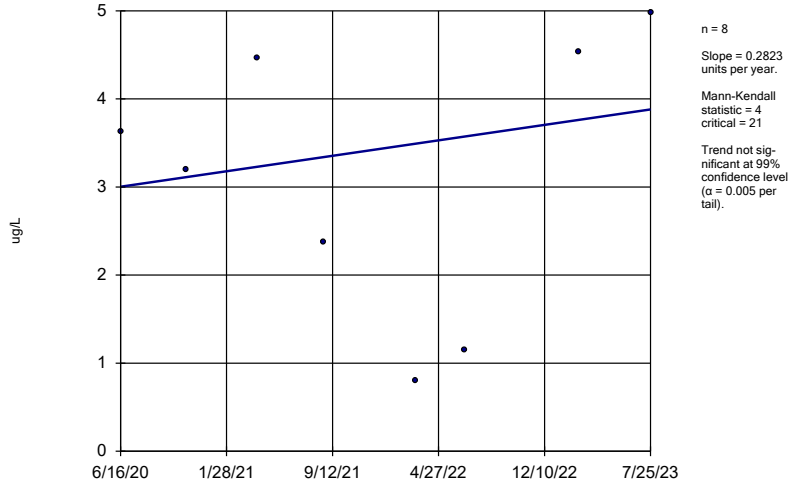
Sen's Slope Estimator

MW-79



n = 8

Slope = 0.2823 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Vinyl chloride Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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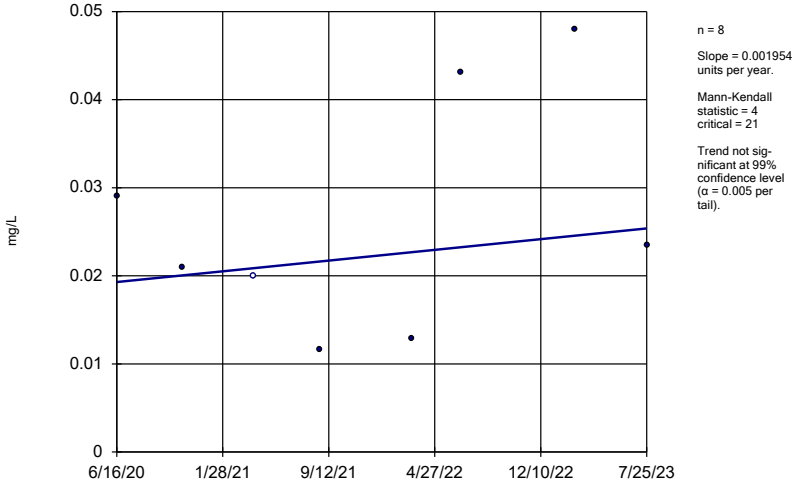
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-61R



n = 8

Slope = 0.001954 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Zinc Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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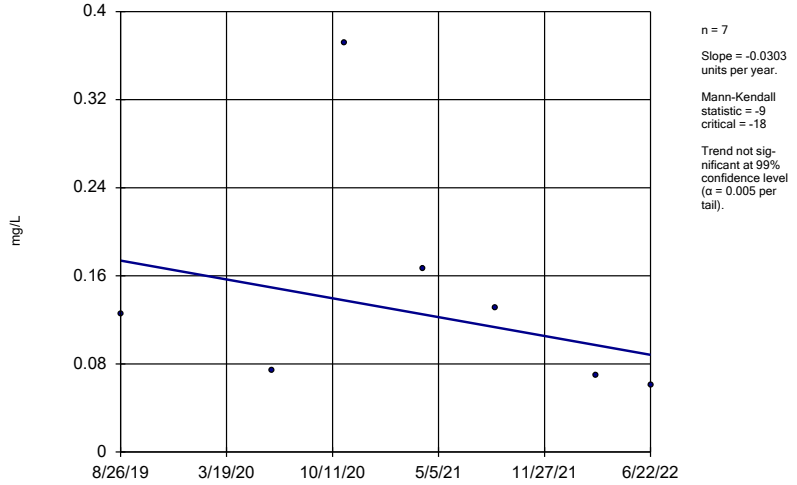
Sen's Slope Estimator

MW-73



n = 7

Slope = -0.0303 units per year.

Mann-Kendall statistic = -9
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Zinc Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

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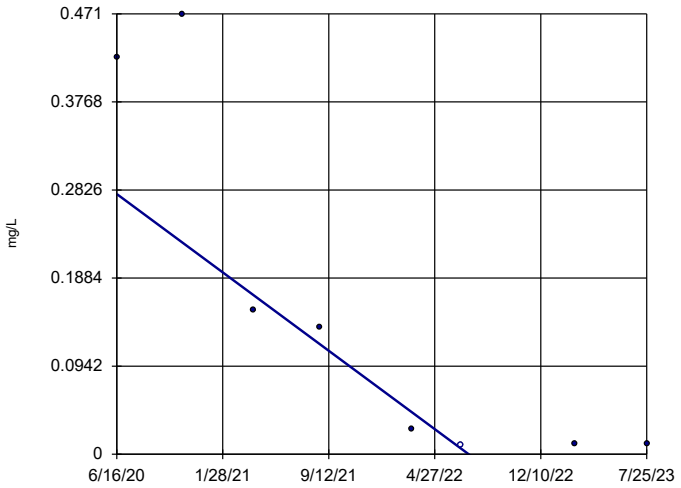
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 8

Slope = -0.1349 units per year.

Mann-Kendall statistic = -20 critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Zinc Analysis Run 9/18/2023 5:33 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source OWSWC 2023AWQR-AM

Appendix L

Acid Mine Drainage Mann-Kendall Trending Summary (α=0.01)

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells ApI OWSWC 2023AWQR-AM Printed 9/18/2023, 6:30 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Alkalinity, Total [CaCO3] (mg/L)	04-MW-56	73	17	18	No	7	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-39R	21.69	12	21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-40	21.42	10	21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-58	4.873	6	21	No	8	12.5	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-59	-37.73	-13	-18	No	7	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-63R	5.39	3	18	No	7	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	MW-64	-48.44	-4	-21	No	8	0	0.01	NP
Alkalinity, Total [CaCO3] (mg/L)	**MW-65**	**30.54**	**26**	**21**	**Yes**	**8**	**0**	**0.01**	**NP**
Aluminum (mg/L)	MW-40	0.002367	3	18	No	7	14.29	0.01	NP
Aluminum (mg/L)	MW-58	-0.04274	-10	-18	No	7	57.14	0.01	NP
Aluminum (mg/L)	MW-63R	-0.02975	-1	-14	No	6	0	0.01	NP
Aluminum (mg/L)	MW-65	-0.01911	-9	-18	No	7	57.14	0.01	NP
Iron (mg/L)	04-MW-56	-5.232	-11	-14	No	6	0	0.01	NP
Iron (mg/L)	93-MW-31R	2.651	6	12	No	5	0	0.01	NP
Iron (mg/L)	MW-39R	5.732	13	18	No	7	0	0.01	NP
Iron (mg/L)	MW-40	3.726	8	21	No	8	0	0.01	NP
Iron (mg/L)	MW-58	-0.7424	-3	-18	No	7	0	0.01	NP
Iron (mg/L)	MW-59	-2.865	-5	-14	No	6	0	0.01	NP
Iron (mg/L)	MW-61R	1.481	6	12	No	5	0	0.01	NP
Iron (mg/L)	MW-63R	0	1	14	No	6	66.67	0.01	NP
Iron (mg/L)	MW-64	-5.164	-11	-14	No	6	0	0.01	NP
Iron (mg/L)	MW-65	2.585	7	18	No	7	0	0.01	NP
Iron (mg/L)	MW-73	-0.08079	-1	-14	No	6	0	0.01	NP
Iron (mg/L)	MW-79	-0.6119	-11	-14	No	6	0	0.01	NP
Sulfate (mg/L)	04-MW-56	-60.83	-13	-18	No	7	0	0.01	NP
Sulfate (mg/L)	93-MW-31R	7.225	0	12	No	5	0	0.01	NP
Sulfate (mg/L)	MW-39R	-12.72	-2	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-40	53.8	14	21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-58	-9.608	-2	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-59	4.646	4	21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-61R	-245.9	-7	-12	No	5	0	0.01	NP
Sulfate (mg/L)	MW-63R	26.07	5	18	No	7	0	0.01	NP
Sulfate (mg/L)	MW-64	-2.654	-2	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-65	-58.76	-16	-21	No	8	0	0.01	NP
Sulfate (mg/L)	MW-73	-0.7946	-1	-18	No	7	0	0.01	NP
Sulfate (mg/L)	MW-79	-48.14	-9	-14	No	6	0	0.01	NP

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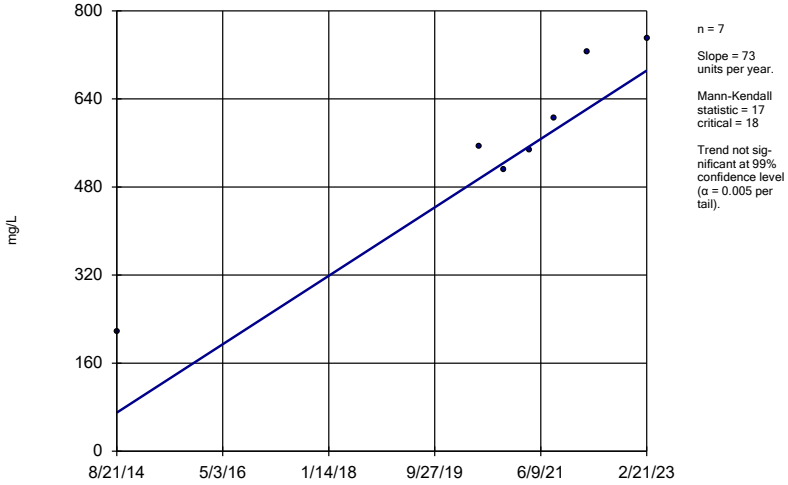
Sen's Slope Estimator

04-MW-56



n = 7

Slope = 73 units per year.

Mann-Kendall statistic = 17 critical = 18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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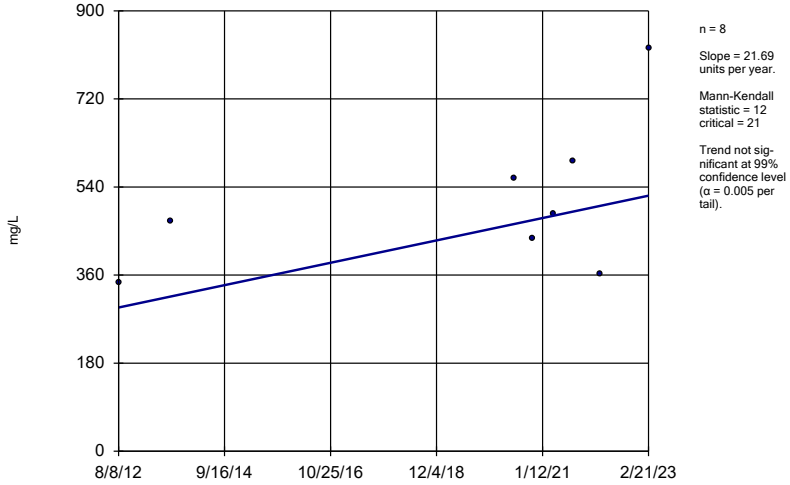
Sen's Slope Estimator

MW-39R



n = 8

Slope = 21.69 units per year.

Mann-Kendall statistic = 12 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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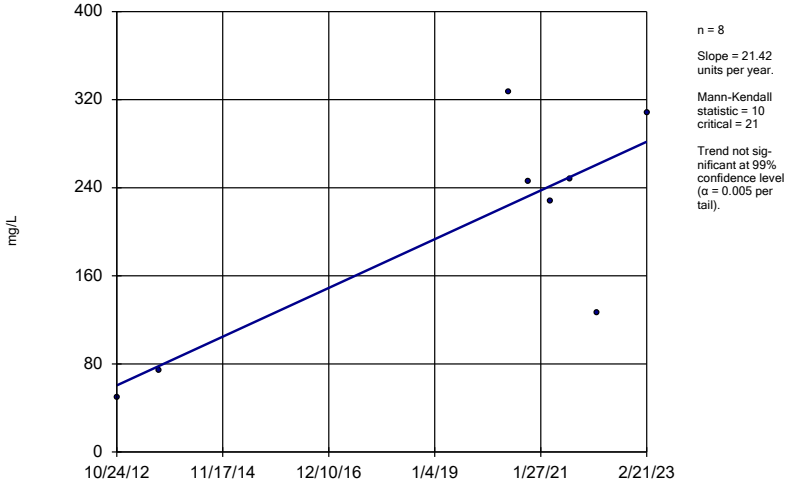
Sen's Slope Estimator

MW-40



n = 8

Slope = 21.42 units per year.

Mann-Kendall statistic = 10 critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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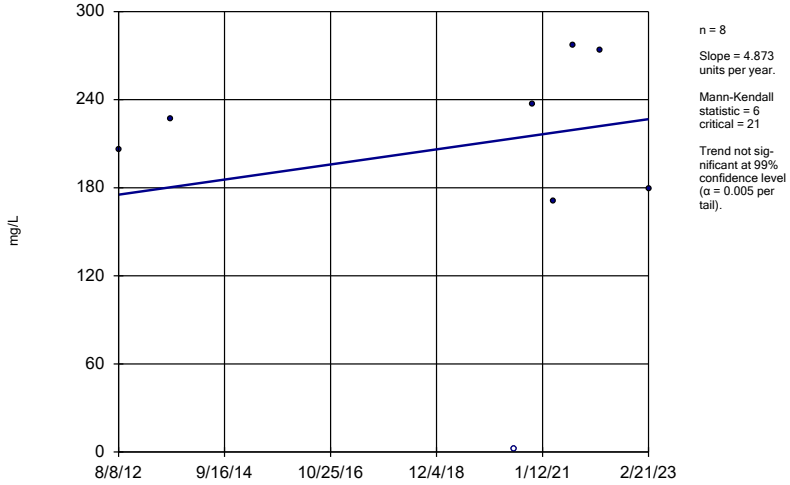
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-58



n = 8

Slope = 4.873 units per year.

Mann-Kendall statistic = 6 critical = 21

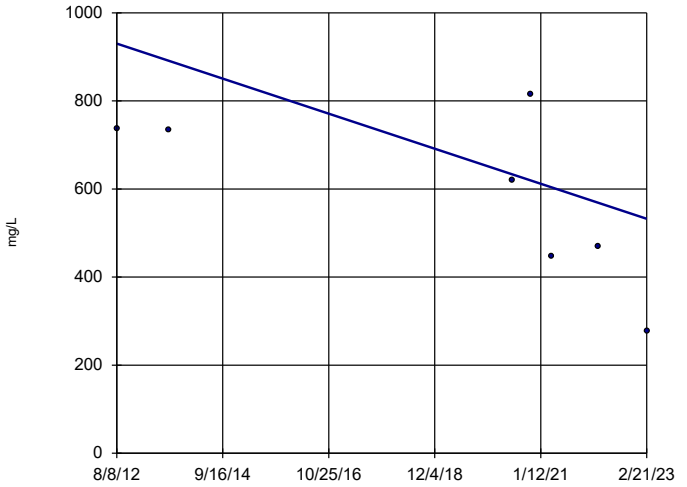
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

Sen's Slope Estimator

MW-59



n = 7

Slope = -37.73 units per year.

Mann-Kendall statistic = -13
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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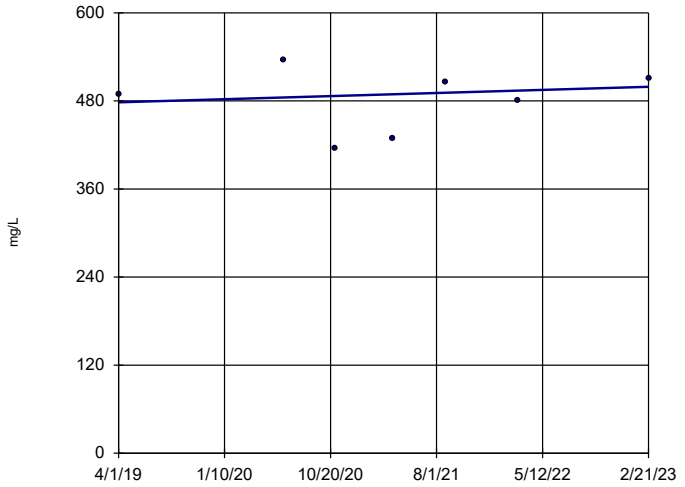
Sen's Slope Estimator

MW-63R



n = 7

Slope = 5.39 units per year.

Mann-Kendall statistic = 3
critical = 18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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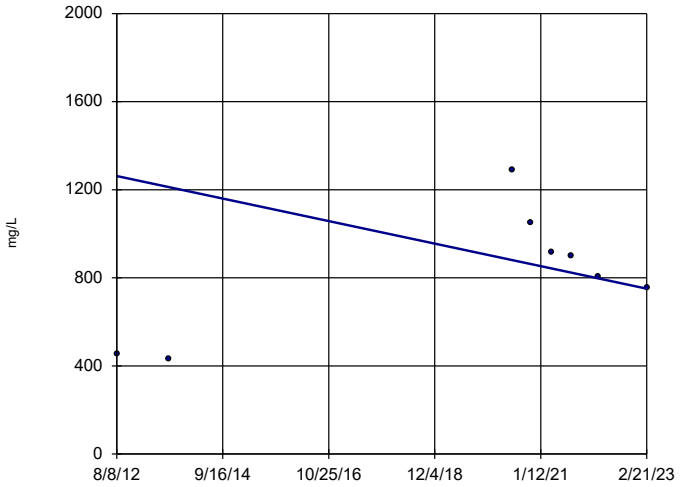
Sen's Slope Estimator

MW-64



n = 8

Slope = -48.44 units per year.

Mann-Kendall statistic = -4
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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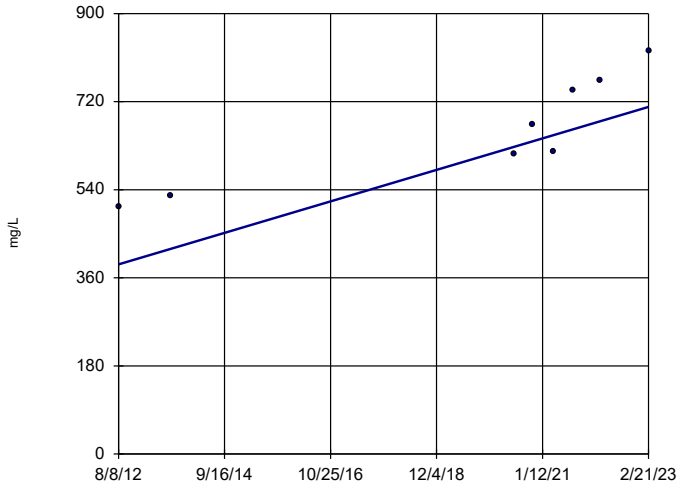
Sen's Slope Estimator

MW-65



n = 8

Slope = 30.54 units per year.

Mann-Kendall statistic = 26
critical = 21

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Alkalinity, Total [CaCO3] Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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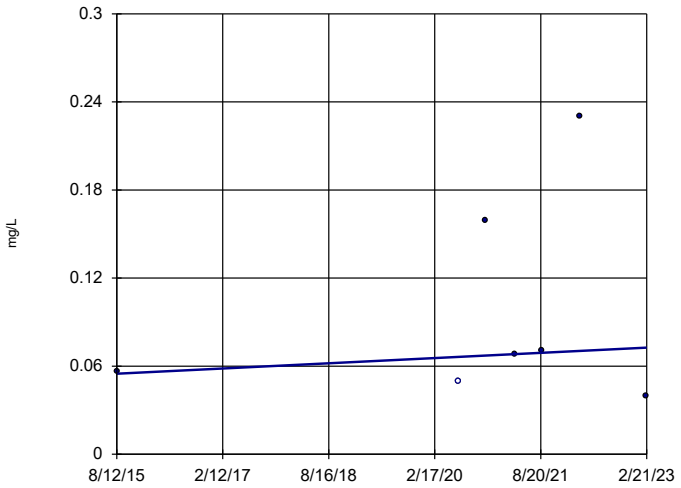
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-40



n = 7

Slope = 0.002367 units per year.

Mann-Kendall statistic = 3
critical = 18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Aluminum Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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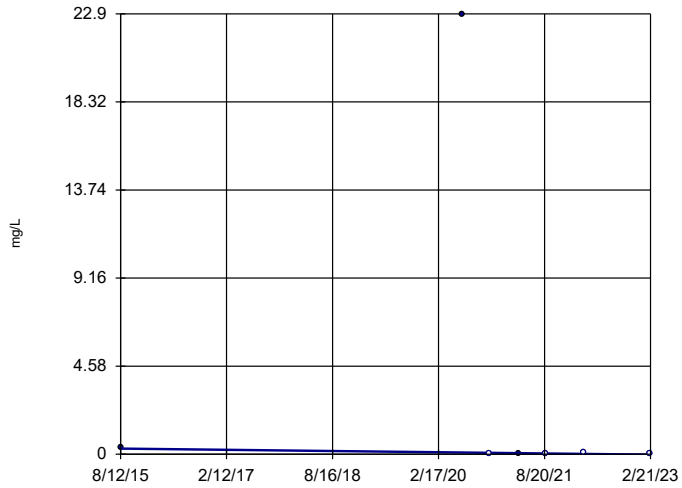
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-58



n = 7

Slope = -0.04274 units per year.

Mann-Kendall statistic = -10
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Aluminum Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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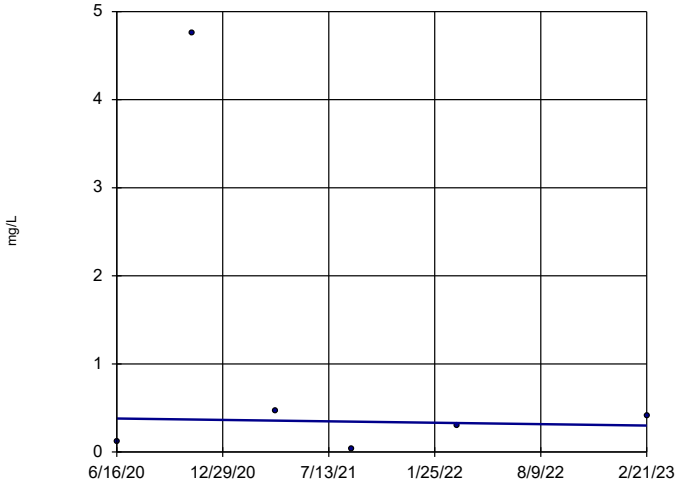
Sen's Slope Estimator

MW-63R



n = 6

Slope = -0.02975 units per year.

Mann-Kendall statistic = -1
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Aluminum Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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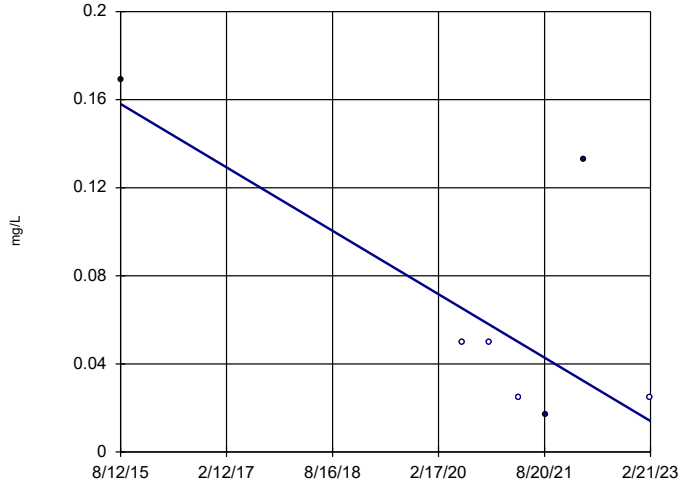
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-65



n = 7

Slope = -0.01911 units per year.

Mann-Kendall statistic = -9
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Aluminum Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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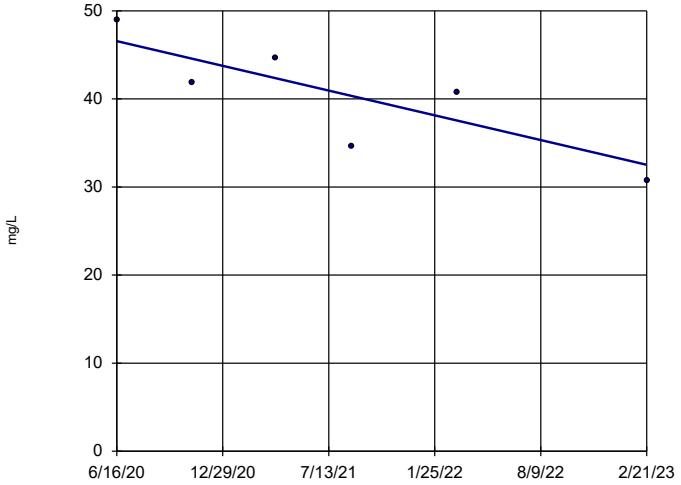
Sen's Slope Estimator

04-MW-56



n = 6

Slope = -5.232 units per year.

Mann-Kendall statistic = -11
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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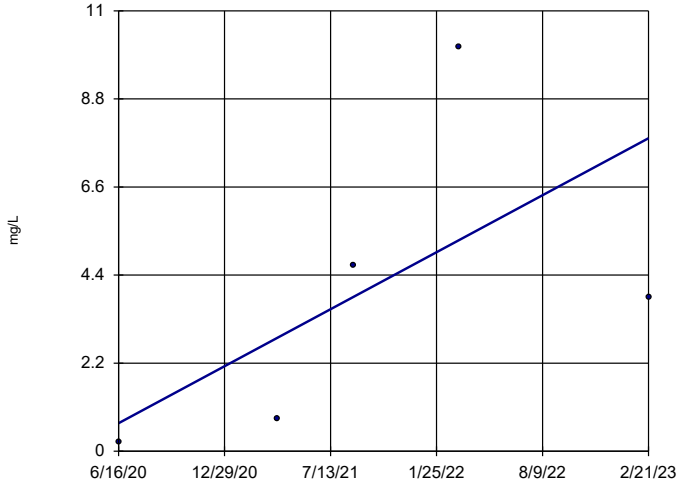
Sen's Slope Estimator

93-MW-31R



n = 5

Slope = 2.651 units per year.

Mann-Kendall statistic = 6
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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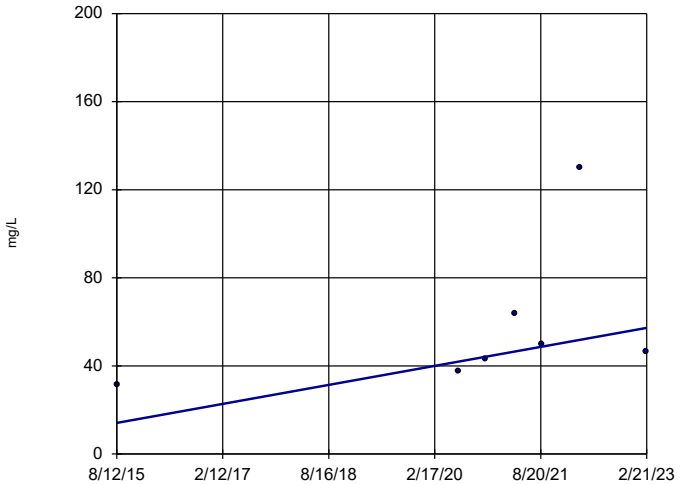
Sen's Slope Estimator

MW-39R



n = 7

Slope = 5.732 units per year.

Mann-Kendall statistic = 13
critical = 18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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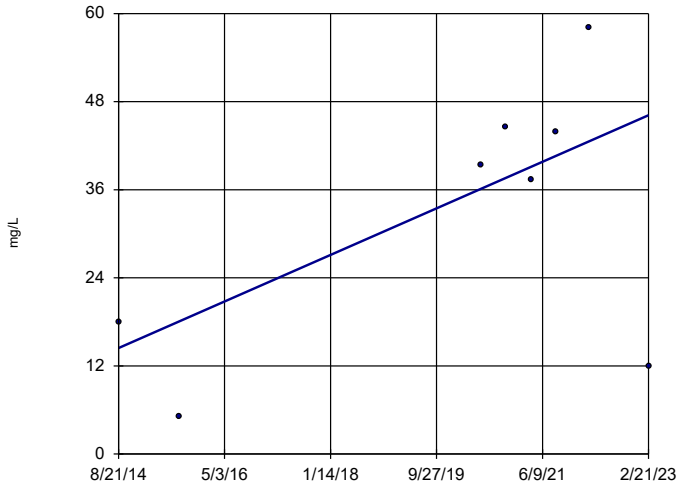
Sen's Slope Estimator

MW-40



n = 8

Slope = 3.726 units per year.

Mann-Kendall statistic = 8
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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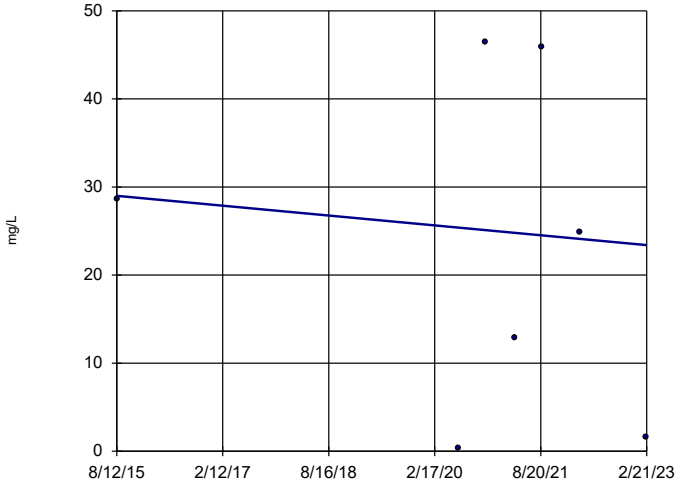
Sen's Slope Estimator

MW-58



n = 7

Slope = -0.7424 units per year.

Mann-Kendall statistic = -3
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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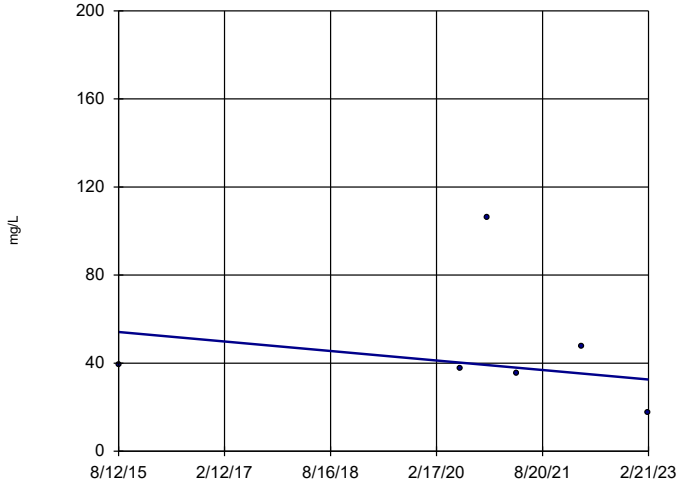
Sen's Slope Estimator

MW-59



n = 6

Slope = -2.865 units per year.

Mann-Kendall statistic = -5
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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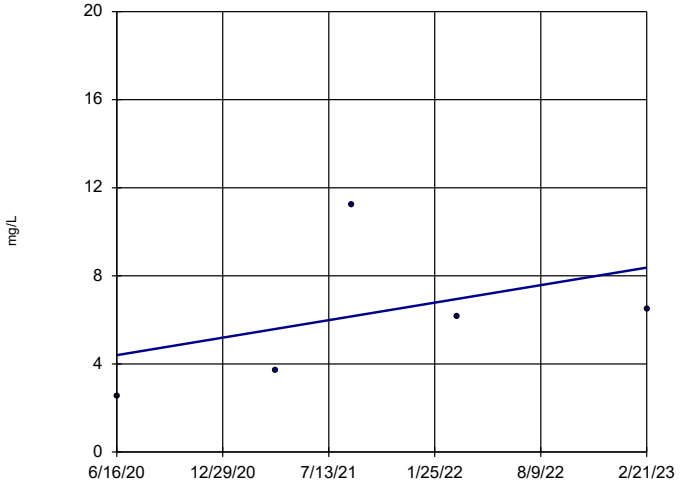
Sen's Slope Estimator

MW-61R



n = 5

Slope = 1.481 units per year.

Mann-Kendall statistic = 6
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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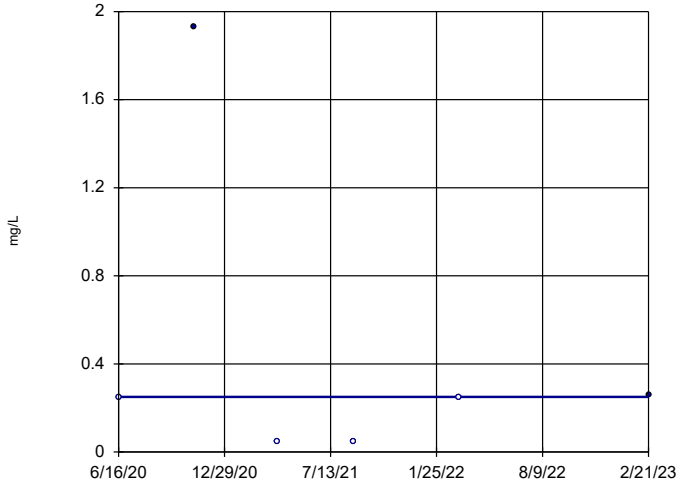
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-63R



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:28 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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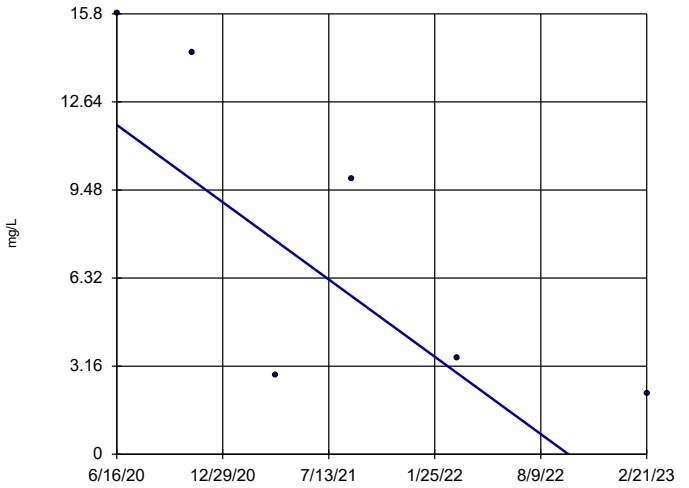
Sen's Slope Estimator

MW-64



n = 6

Slope = -5.164 units per year.

Mann-Kendall statistic = -11
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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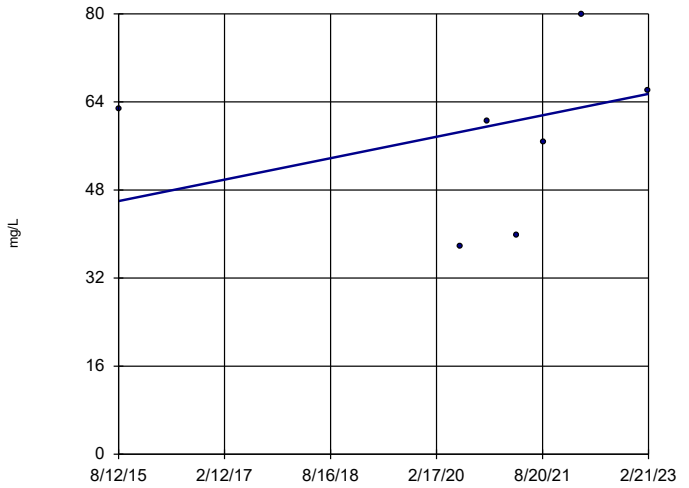
Sen's Slope Estimator

MW-65



n = 7

Slope = 2.585 units per year.

Mann-Kendall statistic = 7
critical = 18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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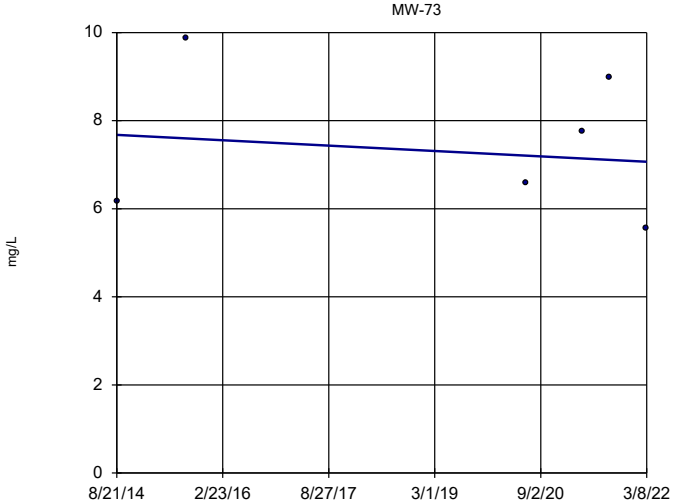
Sen's Slope Estimator

MW-73



n = 6

Slope = -0.08079 units per year.

Mann-Kendall statistic = -1
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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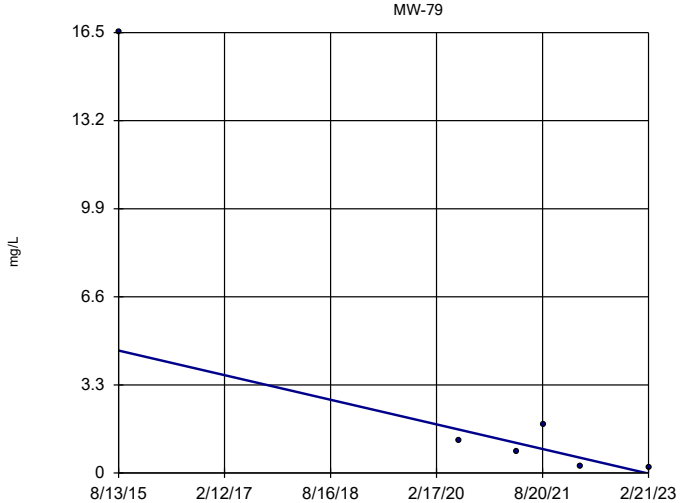
Sen's Slope Estimator

MW-79



n = 6

Slope = -0.6119 units per year.

Mann-Kendall statistic = -11
critical = -14

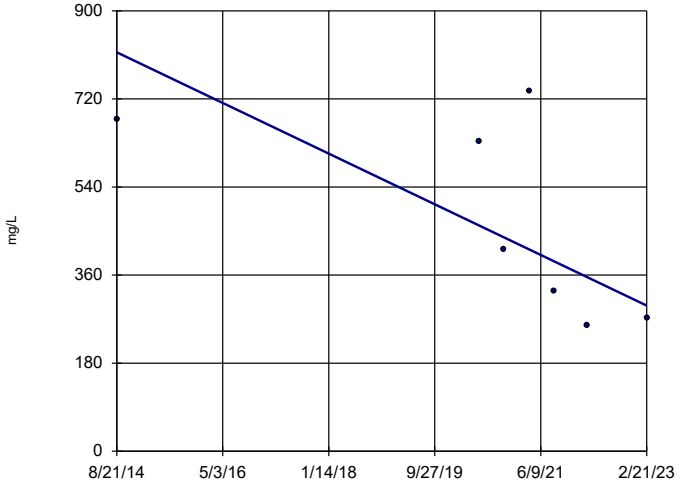
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

Sen's Slope Estimator

04-MW-56



n = 7

Slope = -60.83 units per year.

Mann-Kendall statistic = -13
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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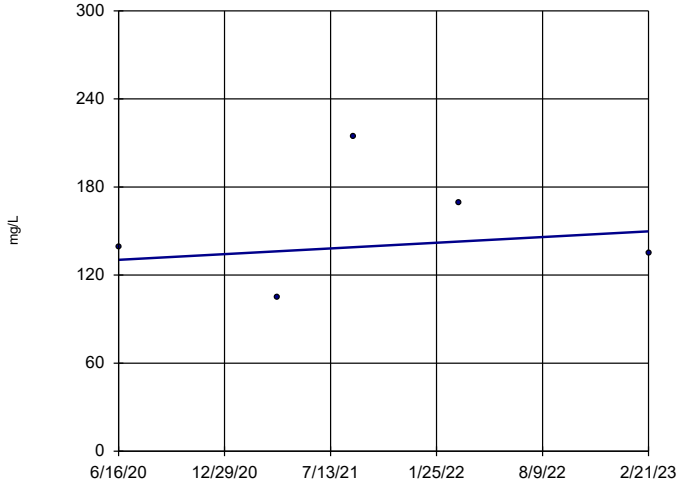
Sen's Slope Estimator

93-MW-31R



n = 5

Slope = 7.225 units per year.

Mann-Kendall statistic = 0
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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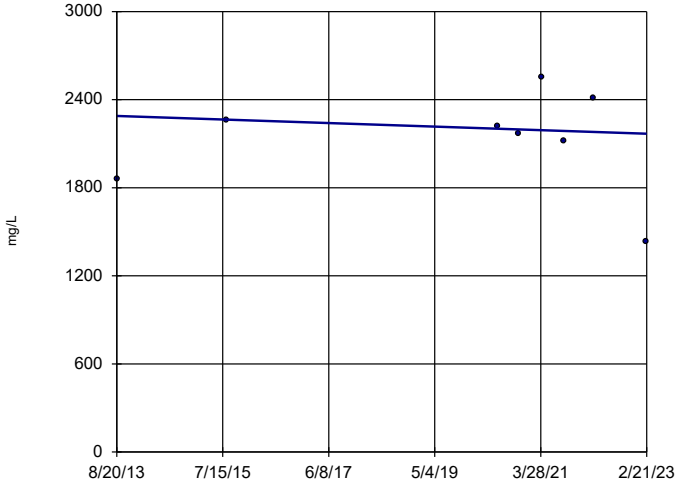
Sen's Slope Estimator

MW-39R



n = 8

Slope = -12.72 units per year.

Mann-Kendall statistic = -2
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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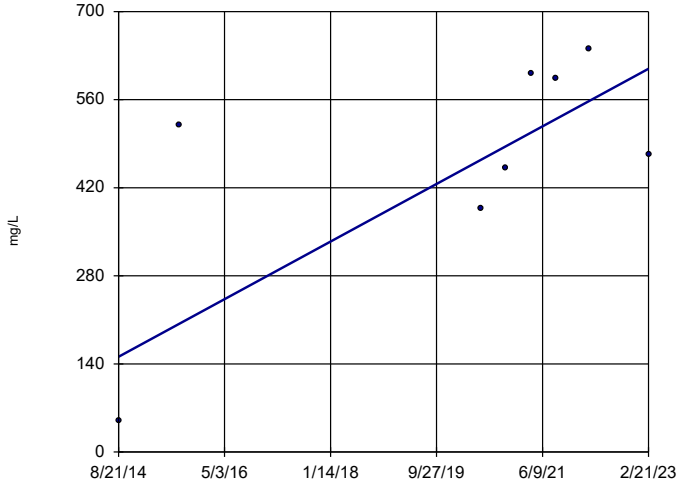
Sen's Slope Estimator

MW-40



n = 8

Slope = 53.8 units per year.

Mann-Kendall statistic = 14
critical = 21

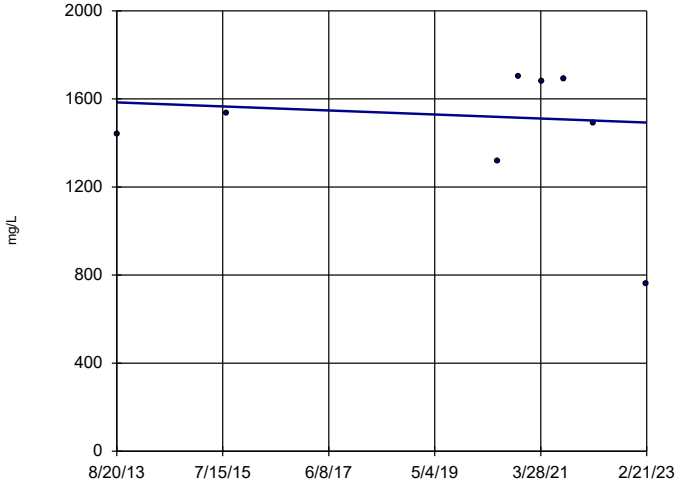
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

Sen's Slope Estimator

MW-58



n = 8

Slope = -9.608 units per year.

Mann-Kendall statistic = -2
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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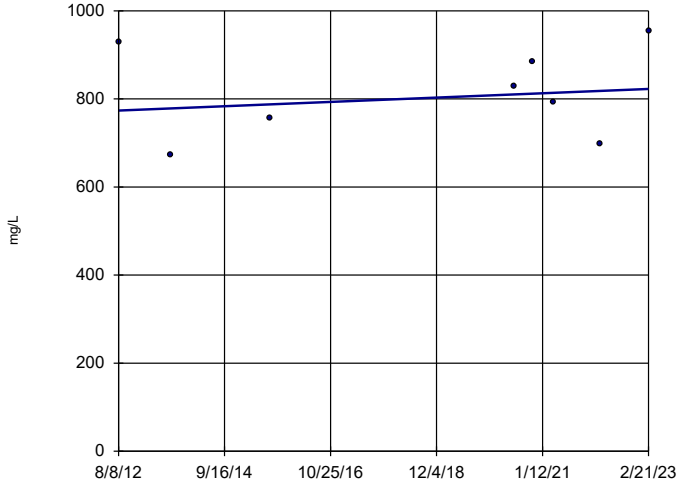
Sen's Slope Estimator

MW-59



n = 8

Slope = 4.646 units per year.

Mann-Kendall statistic = 4
critical = 21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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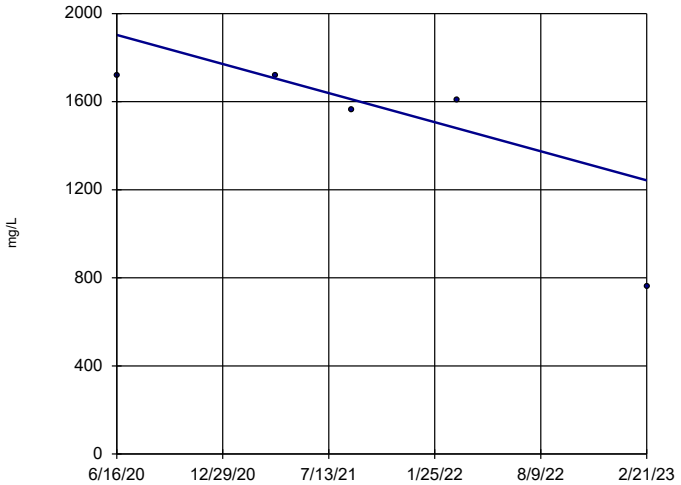
Sen's Slope Estimator

MW-61R



n = 5

Slope = -245.9 units per year.

Mann-Kendall statistic = -7
critical = -12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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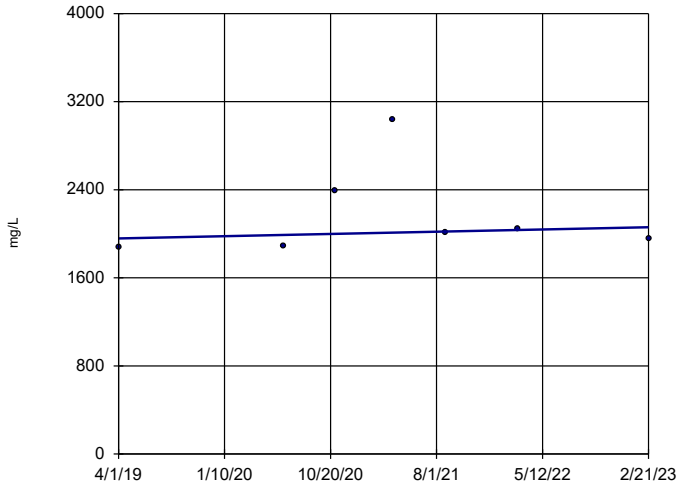
Sen's Slope Estimator

MW-63R



n = 7

Slope = 26.07 units per year.

Mann-Kendall statistic = 5
critical = 18

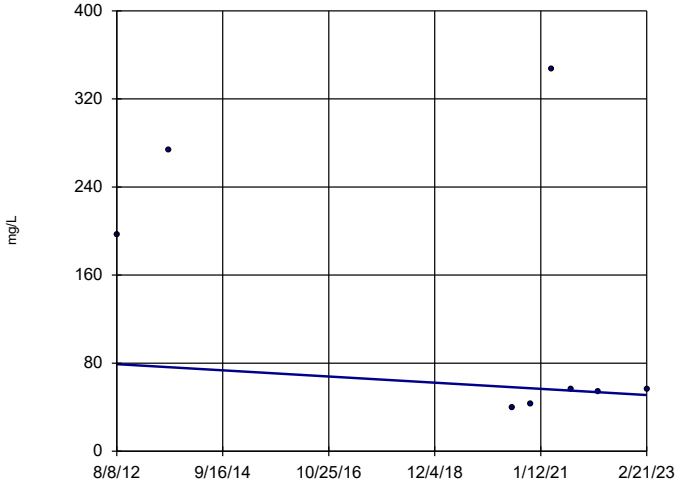
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

Sen's Slope Estimator

MW-64



n = 8

Slope = -2.654 units per year.

Mann-Kendall statistic = -2
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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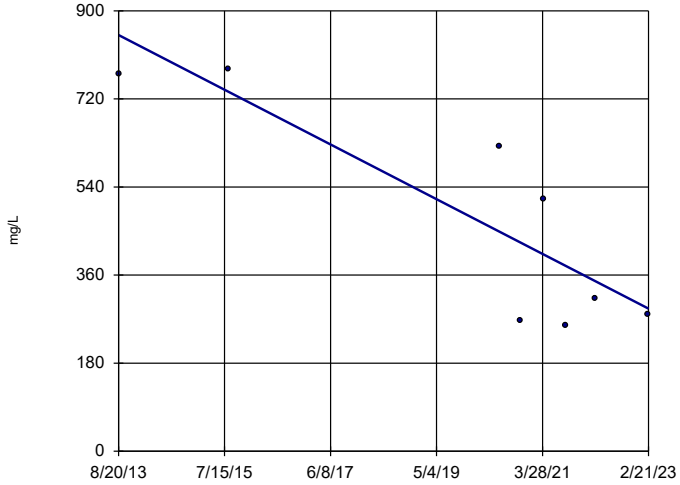
Sen's Slope Estimator

MW-65



n = 8

Slope = -58.76 units per year.

Mann-Kendall statistic = -16
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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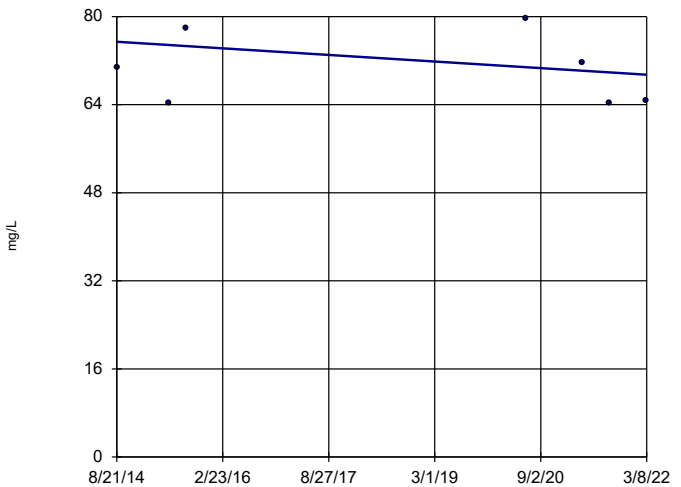
Sen's Slope Estimator

MW-73



n = 7

Slope = -0.7946 units per year.

Mann-Kendall statistic = -1
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

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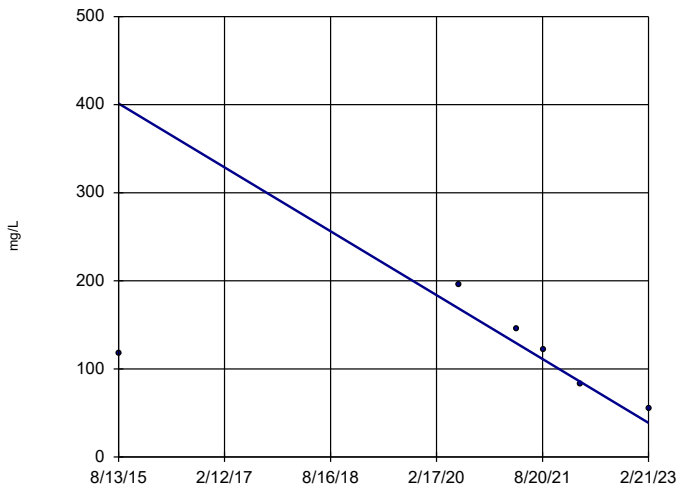
Sen's Slope Estimator

MW-79



n = 6

Slope = -48.14 units per year.

Mann-Kendall statistic = -9
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:29 PM

Ottumwa-Wapello County LF Client: SCS Engineers Data: AMD Const AMD and Source wells Apl OWSWC 2023AWQR-AM

Appendix M

Natural Attenuation Mann-Kendall Trending Summary (α=0.01)

Trend Test

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM Printed 9/18/2023, 6:20 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Alpha	Method
Iron (mg/L)	93-MW-31R	2.651	6	12	No	5	0	0.01	NP
Iron (mg/L)	MW-61R	1.481	6	12	No	5	0	0.01	NP
Iron (mg/L)	MW-73	-0.08079	-1	-14	No	6	0	0.01	NP
Iron (mg/L)	MW-79	-0.6119	-11	-14	No	6	0	0.01	NP
Manganese (mg/L)	93-MW-31R	4.011	6	12	No	5	0	0.01	NP
Manganese (mg/L)	MW-61R	-0.07535	0	12	No	5	0	0.01	NP
Manganese (mg/L)	MW-73	-0.1311	-7	-14	No	6	0	0.01	NP
Manganese (mg/L)	MW-79	1.739	7	14	No	6	0	0.01	NP
Nitrate as N (mg/L)	93-MW-31R	-1.688	-3	-8	No	4	50	0.01	NP
Nitrate as N (mg/L)	MW-61R	0	4	12	No	5	80	0.01	NP
Nitrate as N (mg/L)	MW-73	0	1	14	No	6	83.33	0.01	NP
Nitrate as N (mg/L)	MW-79	0	-1	-14	No	6	83.33	0.01	NP
Sulfate (mg/L)	93-MW-31R	7.225	0	12	No	5	0	0.01	NP
Sulfate (mg/L)	MW-61R	-245.9	-7	-12	No	5	0	0.01	NP
Sulfate (mg/L)	MW-73	-0.7946	-1	-18	No	7	0	0.01	NP
Sulfate (mg/L)	MW-79	-48.14	-9	-14	No	6	0	0.01	NP
Total Organic Carbon (mg/L)	93-MW-31R	-0.04329	0	12	No	5	0	0.01	NP
Total Organic Carbon (mg/L)	MW-61R	0.4332	4	12	No	5	0	0.01	NP
Total Organic Carbon (mg/L)	MW-73	-0.009133	-1	-14	No	6	0	0.01	NP
Total Organic Carbon (mg/L)	MW-79	0.06177	1	14	No	6	0	0.01	NP

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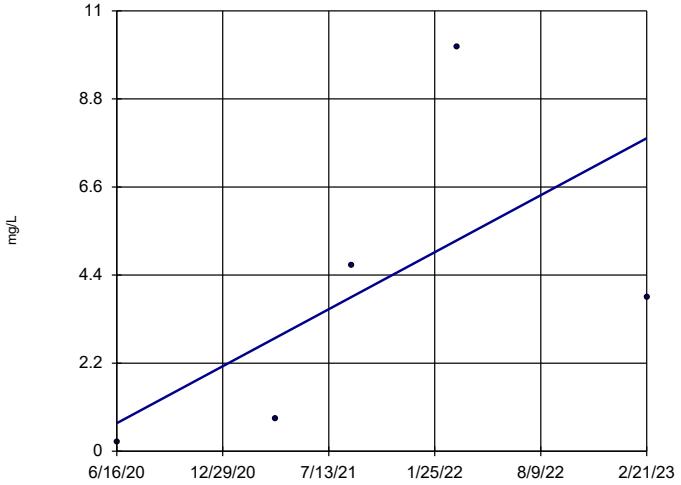
Sen's Slope Estimator

93-MW-31R



n = 5

Slope = 2.651 units per year.

Mann-Kendall statistic = 6
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

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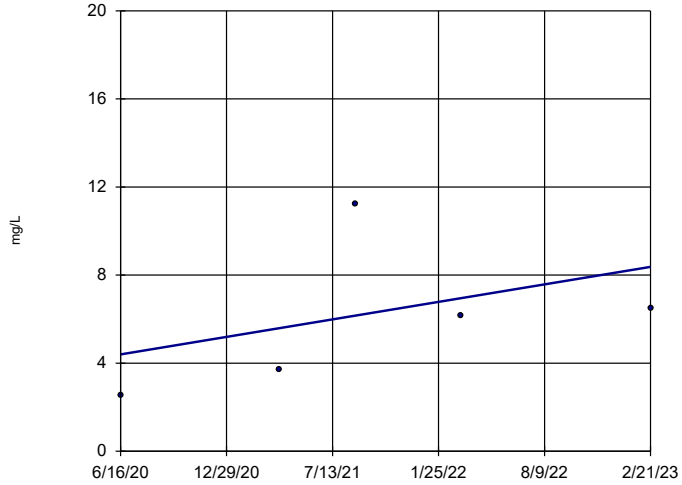
Sen's Slope Estimator

MW-61R



n = 5

Slope = 1.481 units per year.

Mann-Kendall statistic = 6
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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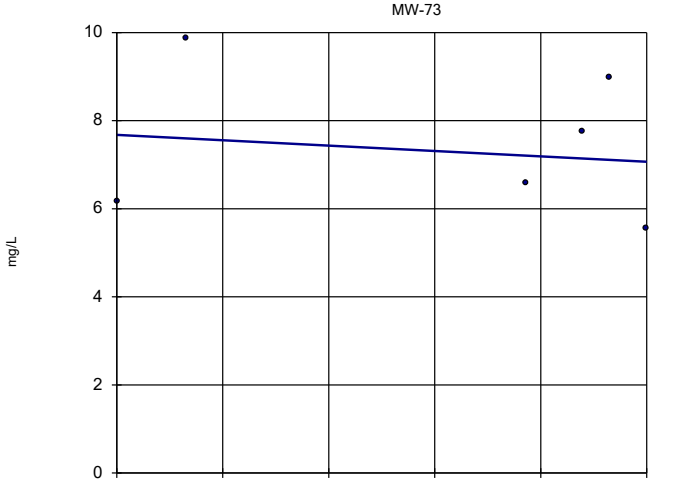
Sen's Slope Estimator

MW-73



n = 6

Slope = -0.08079 units per year.

Mann-Kendall statistic = -1
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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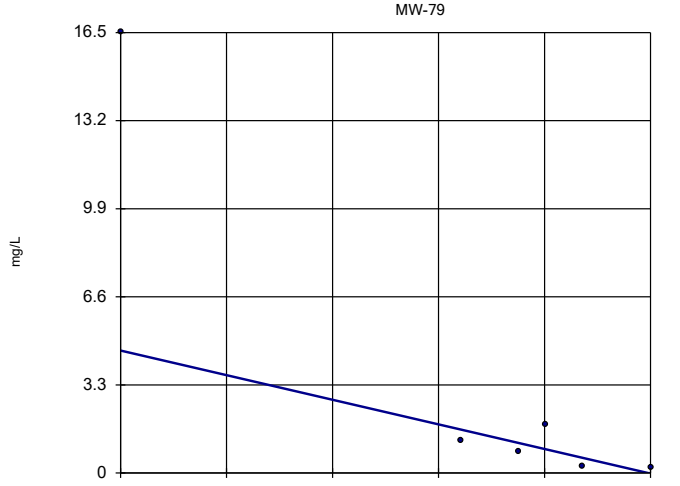
Sen's Slope Estimator

MW-79



n = 6

Slope = -0.6119 units per year.

Mann-Kendall statistic = -11
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Iron Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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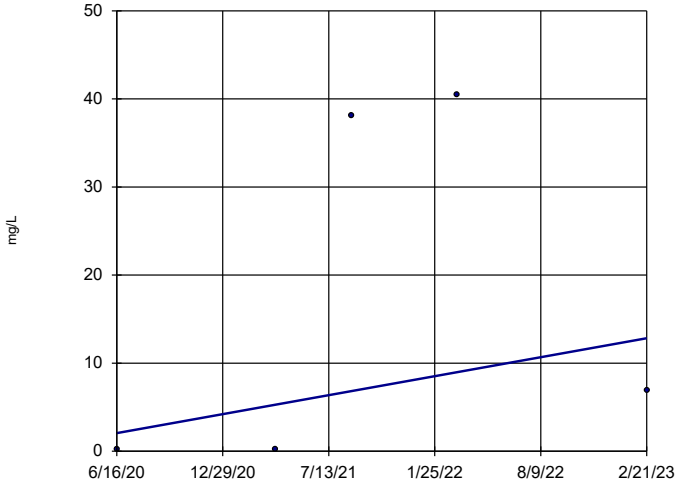
Sen's Slope Estimator

93-MW-31R



n = 5

Slope = 4.011 units per year.

Mann-Kendall statistic = 6
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Manganese Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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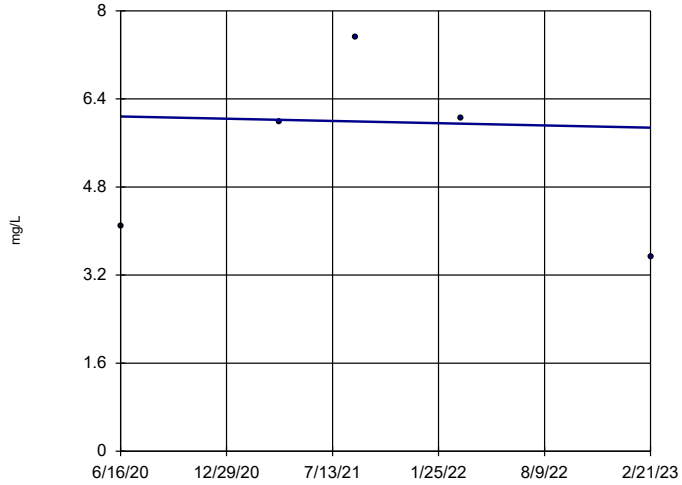
Sen's Slope Estimator

MW-61R



n = 5

Slope = -0.07535 units per year.

Mann-Kendall statistic = 0
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Manganese Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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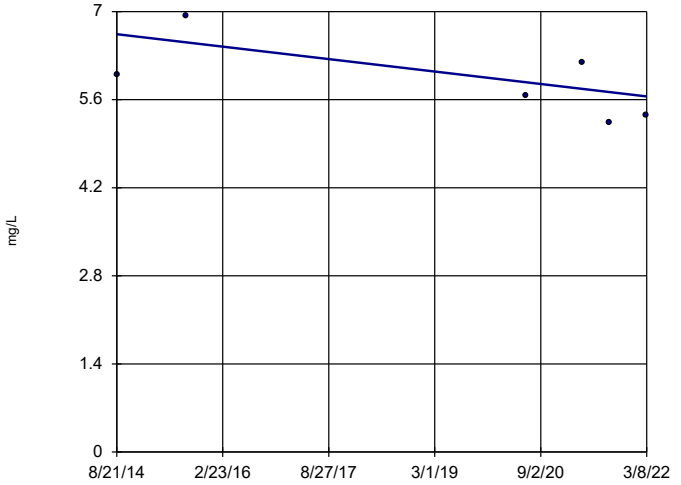
Sen's Slope Estimator

MW-73



n = 6

Slope = -0.1311 units per year.

Mann-Kendall statistic = -7
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Manganese Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

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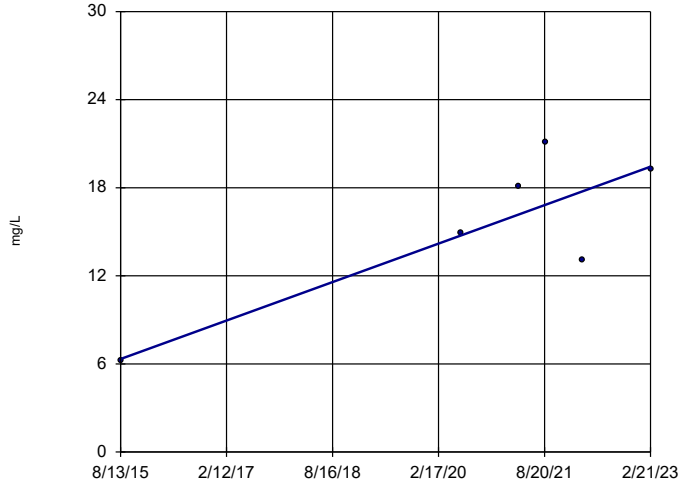
Sen's Slope Estimator

MW-79



n = 6

Slope = 1.739 units per year.

Mann-Kendall statistic = 7
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Manganese Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

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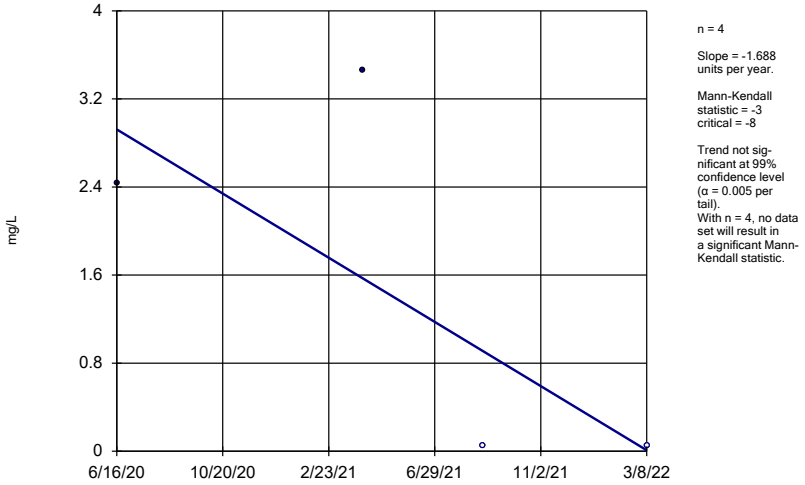
Hollow symbols indicate censored values.

Sen's Slope Estimator

93-MW-31R



n = 4

Slope = -1.688 units per year.

Mann-Kendall statistic = -3
critical = -8

Trend not significant at 99% confidence level (α = 0.005 per tail).
With n = 4, no data set will result in a significant Mann-Kendall statistic.

Constituent: Nitrate as N Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA
Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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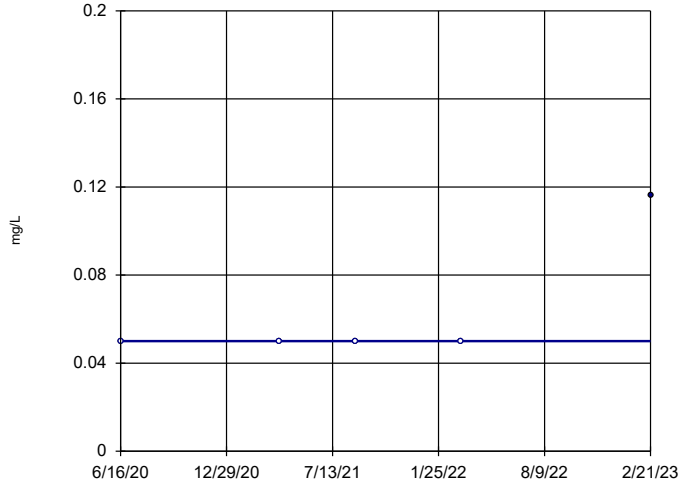
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-61R



n = 5

Slope = 0 units per year.

Mann-Kendall statistic = 4
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nitrate as N Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA
Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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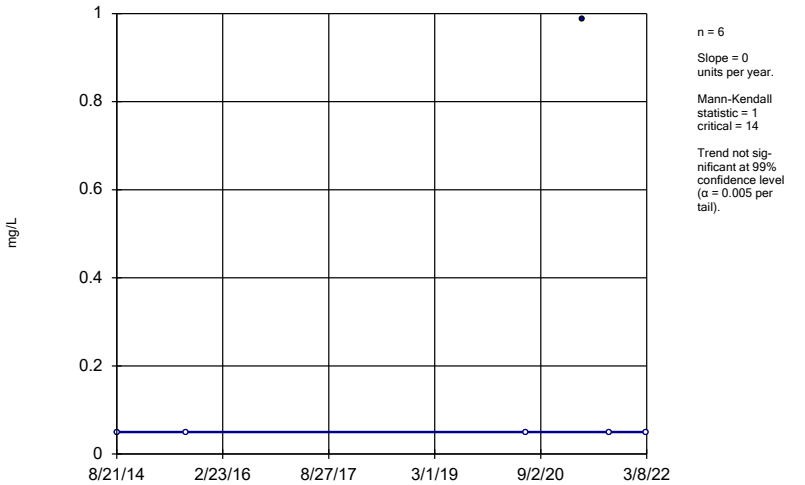
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-73



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nitrate as N Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA
Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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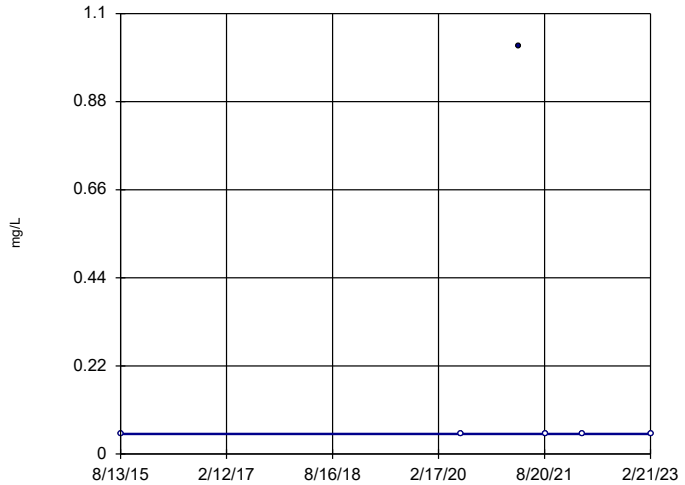
Hollow symbols indicate censored values.

Sen's Slope Estimator

MW-79



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = -1
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Nitrate as N Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA
Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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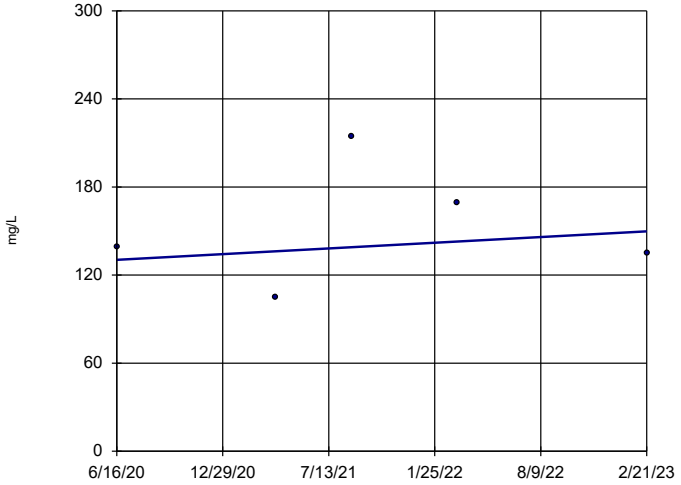
Sen's Slope Estimator

93-MW-31R



n = 5

Slope = 7.225 units per year.

Mann-Kendall statistic = 0
critical = 12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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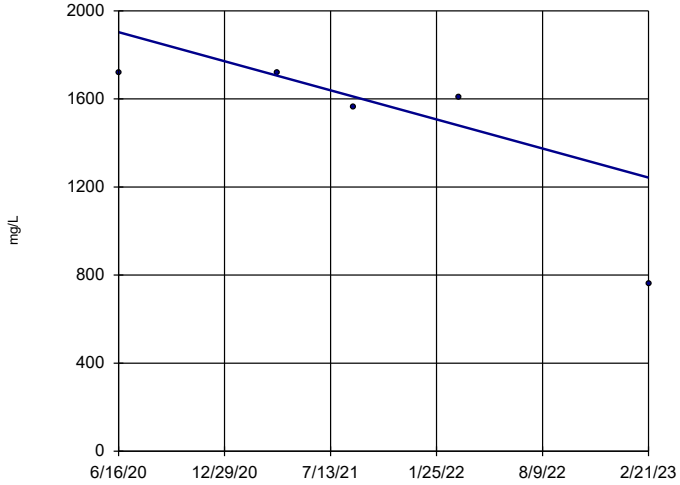
Sen's Slope Estimator

MW-61R



n = 5

Slope = -245.9 units per year.

Mann-Kendall statistic = -7
critical = -12

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

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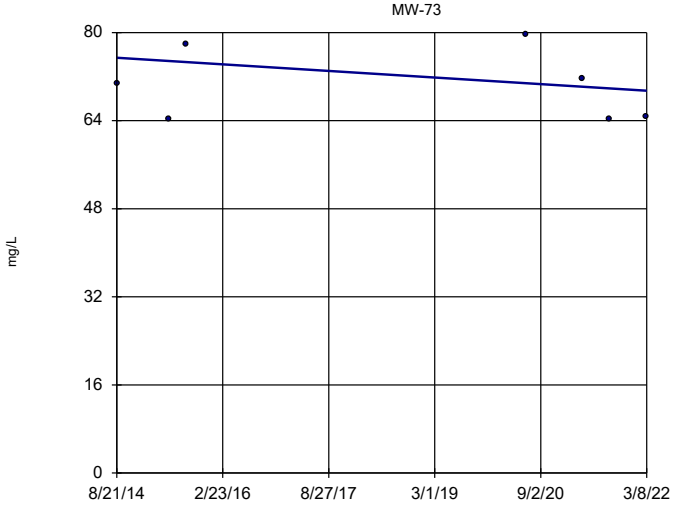
Sen's Slope Estimator

MW-73



n = 7

Slope = -0.7946 units per year.

Mann-Kendall statistic = -1
critical = -18

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

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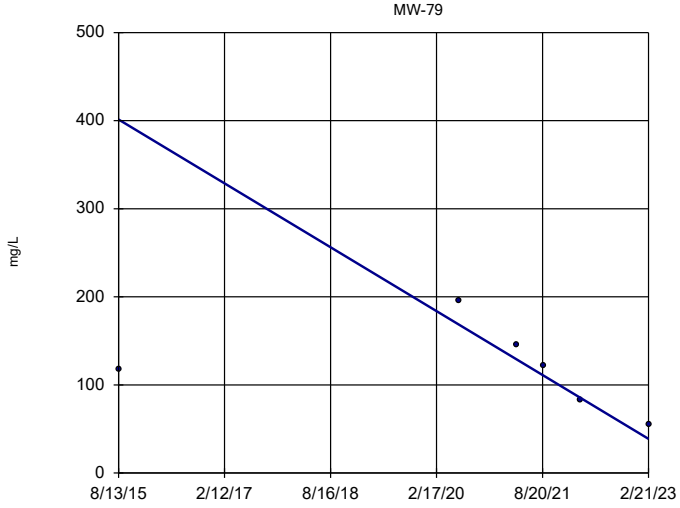
Sen's Slope Estimator

MW-79



n = 6

Slope = -48.14 units per year.

Mann-Kendall statistic = -9
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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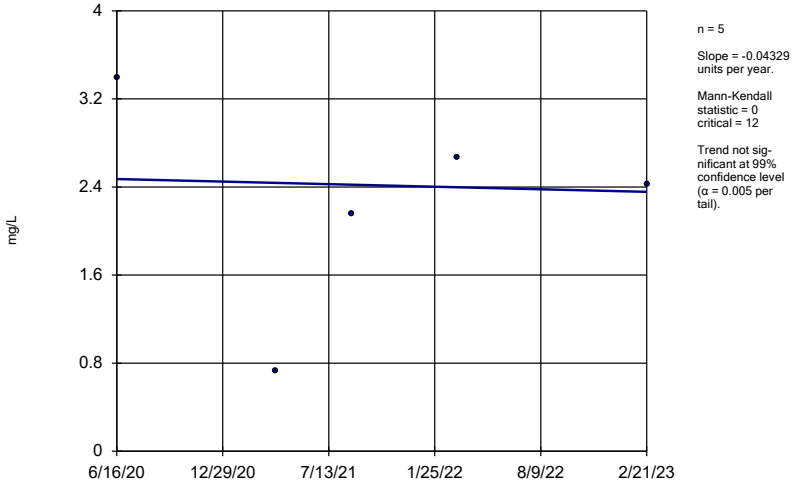
Sen's Slope Estimator

93-MW-31R



Constituent: Total Organic Carbon Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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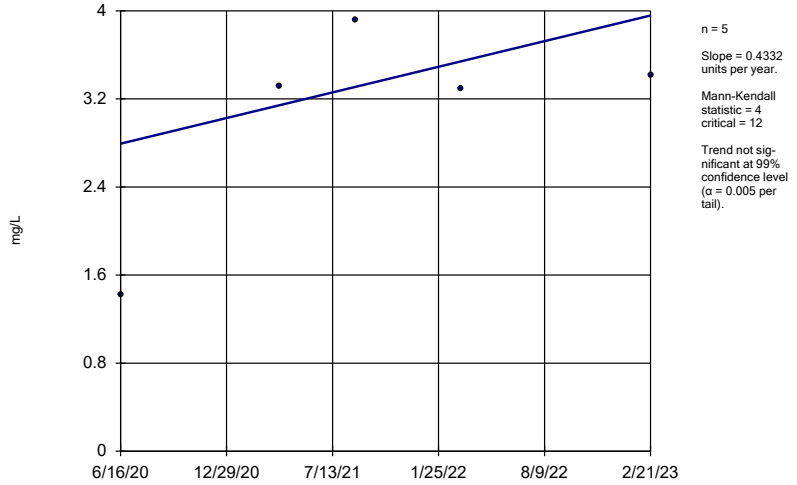
Sen's Slope Estimator

MW-61R



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Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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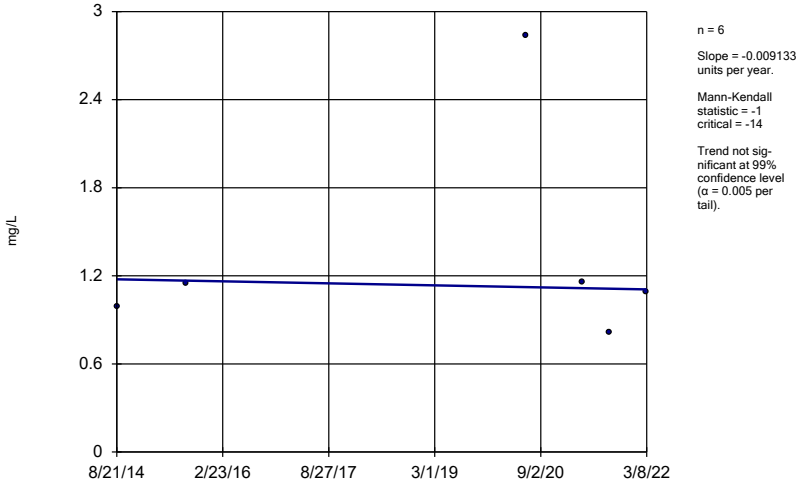
Sen's Slope Estimator

MW-73



Constituent: Total Organic Carbon Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM

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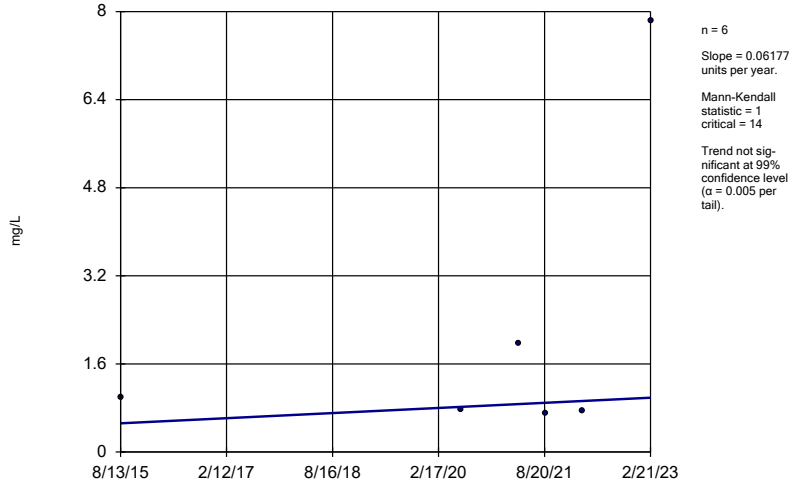
Sen's Slope Estimator

MW-79



Constituent: Total Organic Carbon Analysis Run 9/18/2023 6:19 PM View: 2023AWQR - Source wells NA

Ottumwa-Wapello County LF Client: SCS Engineers Data: Source NA parameters OWSWC 2023AWQR-AM