2024 ACM Report

Black Hawk County Landfill
Black Hawk County, Iowa
Permit #7-SDP-1-75P

Black Hawk County Solid Waste Management Commission
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December 2024

2024 ACM REPORT

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Prepared For:
Black Hawk County Solid Waste Management Commission

Prepared by:
AECOM

AECOM Project #60722882

December 2024



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the state of Iowa.

December 31, 2024

CHRISTOPHER G. OELKERS, PE Date

License No. 22053

My license renewal date is December 31, 2024.

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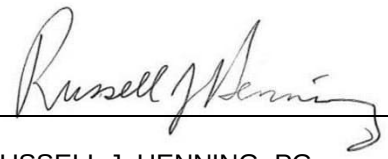
Certification page (PE or ground water scientist signature) 113.10(1)"d"

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 1Jniversity programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

Qualified Groundwater Specialist:



December 31, 2024

RUSSELL J. HENNING, PG

Date

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Executive Summary

ES.1 Period of Report Coverage

This Assessment of Corrective Measures Report (ACM) for the Black Hawk County Landfill (Landfill) includes a summary of all groundwater sampling completed as part of the ACM for calendar years 2016 – 2024.

ES.2 Report Priority

An Assessment of Corrective Measures (ACM) study began in October 2016. An ACM was requested by IDNR to investigate the consistent organic detections in shallow groundwater in the vicinity of monitoring wells OW-401B and OW-402B. IDNR also requested vertical characterization as part of the ACM.

ES.3 Remedy Selection

As a result of the review of performance, implementation, and costs of listed remedies, it is recommended the remedy consist of MNA and source control measures to address the site groundwater issues. MNA will consist of following the current HMSP groundwater monitoring program for the site. Source control measures are already being implemented. Landfill capping has reduced infiltration from precipitation and as a result less leachate is being generated. Landfill underdrains have directed groundwater flow from west side of Areas A and C toward Cell W1 groundwater drainage layer which is then with leachate from Cell W1/W2. Leachate is processed by the City of Waterloo wastewater treatment system. Landfill gas from west side of Areas A and C are directed toward the landfill gas system in Cell W1/W2. This gas is captured and directed to the landfill gas plant west of the landfill.

1. Introduction

1.1 Purpose

Groundwater sample results and statistical analyses conducted for Black Hawk County Landfill (Landfill) found organic and inorganic concentrations in groundwater above groundwater protection standards (GWPS) in 2016. This initiated the assessment of corrective measures (ACM) as outlined in the Iowa Administrative Code (IAC) 113.10(6)"g", 113.10(7), and 113.10(8).

Monitoring well OW-401B had arsenic, benzene, cobalt, 1,4-dichlorobenzene, and cis-1,2-Dichloroethylene above the reporting limit (RL) consistently from February 2011 through March 2016. Concentrations of arsenic, cobalt, and benzene also exceeded applicable GWPS.

Monitoring well OW-402B had benzene, cobalt, chloroethane, cis-1,2-Dichloroethylene, nickel, trans-1,2-dichloroethylene, and vinyl chloride above the reporting limit (RL) consistently from February 2011 through March 2016. Cobalt, nickel, and vinyl chloride also exceeded applicable GWPS.

Groundwater wells were installed to further evaluate the extent of GWPS exceedances adjacent to monitoring wells OW-401B and OW-402B. Monitoring wells P-402A and P-402C were installed to define vertical extent and OW-410B, OW-411B, OW-412B, OW-413B, and OW-414B were installed to define lateral extent in November 2016.

In addition, monitoring wells OW-220B, OW-224B, OW-225B, OW-226B, and OW-227B were installed downgradient of Area C in between 2018 and 2022 to define lateral extent on the north side of Area C. Surface water monitoring points SW-3 and SW-5 were installed as upstream and downstream monitoring points for EPA permit in May 2023. The surface water monitoring point SW-5 is downstream of Area C.

The Black Hawk County Landfill is located in rural Black Hawk County approximately 3 miles south of the City of Waterloo, Iowa, in Section 23, T. 88 N., R. 13 W (Figure 1). The street address is 1509 East Washburn Road, Waterloo, IA 50701. At the site, Area A, Area C, Area E, Cell X, Cell W1, Cell W2, Cell W3, Asbestos Cell No. 1, and Asbestos Cell No.2 are the waste disposal units regulated by the Iowa Department of Natural Resources (IDNR). Cell W3 and Asbestos Cell No. 2 are the two currently operating waste disposal units; all the other units are closed. The Neutral Trench and Co-Disposal Area units are regulated by the USEPA.

The waste disposal areas are shown on Figure 1. Information regarding the monitoring points is included in Table 1. Figure 2 presents the ACM monitoring points. Recent and historical sampling results for arsenic, barium, cobalt, nickel, benzene, cis-1,2-dichloroethelyene, and vinyl chloride are presented in Table 2. Analysis of sample data was conducted in accordance with Chapter 113 of the Iowa Administrative Code (IAC). Output from the statistical analyses is included in Appendix C. Groundwater elevation contour maps, based on data obtained in May 2024, are presented as Figures 3, 4, and 5.

The purpose of this report is to meet the requirements of IAC 567 – 113.10(6)"g" and 113.10(7) which includes:

- Characterize the nature and extent of the release of organic and inorganic constituents above GWPS by summarizing work conducted by AECOM,
- Characterize the nature and any potential risk posed by organics and inorganics above GWPS,
- Evaluate remedy alternatives in accordance with the criteria listed in IAC 113.10(7) and 113.10(8),
- Prepare recommendation based on the results.

1.2 Scope of Work and Regulatory Requirements

This report has been prepared to meet the requirements of IAC 113.10(6)"g", 113.10(7), and 113.10(8). Field activities completed as part of this scope and data evaluated in the following sections were conducted to determine the extent of organics and inorganics above an applicable GWPS in groundwater.

The remedies evaluated in Section 6 were selected based on their broad applicability to site conditions and plume characteristics for anticipated treatment alternatives for the organics and inorganics in groundwater west, north, and east of the closed landfills Area A and C.

2. Black Hawk County Landfill History and Construction

The Black Hawk County Landfill was initially developed and operated by Landfill Service Corporation in 1975. In 1984, the landfill was purchased by the Black Hawk County Solid Waste Management Commission. The landfill continued to be operated under contract by Landfill Service Corporation until 1987 when the operating contract was awarded to Denver Construction, Inc., who transferred the contract to Waste Tech, Inc., a division of Denver Construction, Inc.

At the Black Hawk County Landfill, the different cells and areas were constructed over time to different regulations, and hence there are differences in the underdrain, liner, leachate collection, and landfill gas systems. Area A, Area C, Area E, Cell X, Cell W1, Cell W2, Cell W3, Asbestos Cell No.1, and Asbestos Cell No.2 (Figure 1) are regulated by IDNR.

Waste was placed in Area A from 1975 to 1980, and Area A is now in post-closure. Area A was constructed without an underdrain, liner, or leachate and landfill gas collection system.

Waste was placed in Area C from 1986 to 1991, and Area C is also in post-closure. Area C was constructed without an underdrain, liner, or leachate and landfill gas collection system.

Waste was placed in Area E from 1991 to 1999, and Area E is in post-closure. Area E was constructed with an underdrain system, clay liner, 10 to 12-foot-deep perimeter groundwater drainage trench, and a leachate and landfill gas collection system.

Construction of Cell X began in 1999, and waste was placed until 2008. Cell X is in post-closure. It was constructed with an underdrain system, clay liner, and a leachate and landfill gas collection system.

Cell W1 was opened in 2007 and is closed. For Cell W1, Phase 1, Phase 2, Phase 3 and Phase 4 are constructed with an underdrain system, clay liner, and a leachate and landfill gas collection system. Cell W2 construction began in 2013, and it is constructed with an underdrain system, composite liner, and a leachate and landfill gas collection system. Cell W2 was closed in December 2022. Cell W3 construction began in 2020, and it is constructed with an underdrain system, composite liner, and a leachate and landfill gas collection system. Cell W3 was opened in December 2021.

Asbestos Cell No. 1 was developed from 1992 to 2008 and is in post-closure. It was constructed with a clay liner but without an underdrain or leachate collection system.

Asbestos Cell No. 2 was opened in 2008 and is currently active. It was constructed above the water table and consequently without an underdrain system. It has a clay liner and leachate collection system.

Areas A and C have passive landfill gas venting systems in-place. Area E, Cells X, W1, and W2 have active landfill gas system with permanent vertical gas extraction wells. Cell W3, is currently active, and has temporary horizontal gas extraction wells. Landfill gas venting is not needed for Asbestos Trench No. 1 and Asbestos Trench No. 2.

2.1 Black Hawk County Landfill Geology and Hydrogeology

The subsurface geologic conditions encountered during installation of site wells at the Black Hawk County Landfill are included on the boring logs and monitoring well/piezometer documentation forms (HMSP Appendix A (AECOM 2024)). Boring and well locations are shown on HMSP Figure 2-2 (AECOM 2024). The site geology and hydrogeology of the Black Hawk County Landfill has been comprehensively investigated in several studies, including the *Black Hawk County Landfill Phase 1 Site Investigation and Monitoring Well Installation Program* (Brice, Petrides-Donohue, 1987), and the *Hydrologic Investigation*

Report for Landfill Expansion, Black Hawk County Landfill (Rust Environment & Infrastructure, 1997), and is summarized here.

The Black Hawk County Landfill is situated in the Iowan Surface region of northeastern Iowa. The Iowan Surface (Prior, 1991) was glaciated several times during Pre-Illinoian-age glacial episodes leaving behind a sequence of glacial deposits that overlies bedrock. During the last glacial episode, the Wisconsin Episode, the Iowan Surface was subject to extensive erosion that has left a generally low-relief landscape with long, subtly stepped slopes.

In uplands, a relatively thin veneer of Wisconsin Episode loess and hillslope sediment mantles the Pre- Illinoian-age glacial sequence. In drainageways, Wisconsin episode and younger Holocene episode alluvium mantle the Pre-Illinoian-age glacial sequence. In borings completed at the Black Hawk County Landfill, the loess, hillslope, and alluvial sediments range from 0 to as much as 24 feet thick for the thickest alluvial deposits.

These surficial deposits overlie a thick sequence of Pre-Illinoian-age glacial deposits composed predominantly of fine-grained glacial diamictons ("tills"). At the Black Hawk County Landfill, the Pre- Illinoian-age glacial sequence includes deposits from three separate glacial advances. Deposits from the youngest Pre-Illinoian-age glacial advance are included in the Wolf Creek Formation and are designated as QWT at the site. The underlying deposits are from two older Pre-Illinoian-age glacial advances that are included in the Alburnett Formation and are designated QAT and the underlying QBT at the site.

The Wolf Creek Formation, QWT, occurs in the higher elevation summit areas at the landfill. Downslope, the Wolf Creek deposits are thin or are absent because of erosion during development of the Iowan Surface. At lower elevations of the site, the youngest Alburnett Formation deposits, QAT, locally form the surficial Pre-Illinoian-age glacial deposits because the Wolf Creek Formation deposits have been eroded away. The oldest Alburnett Formation deposits, QBT, occur only in the subsurface beneath QAT deposits.

The Pre-Illinoian-age glacial diamictons, QWT, QAT, and QBT, are all generally similar, fine-grained, low hydraulic conductivity deposits. Boundaries between the units at the Black Hawk County Landfill are marked by a variety of features including unconformities, weathering zone changes, and discontinuous meltwater deposits. Discontinuous lenses of meltwater deposits also occur infrequently within the diamictons of the three separate glacial advances. However, the limited occurrence and the isolated, discontinuous distribution of these meltwater deposits within the thick, fine-grained glacial sequence result in groundwater flow being controlled by the flow in the surrounding fine-grained Pre-Illinoian-age glacial diamictons.

Groundwater travel times in the glacial diamictons at Black Hawk County Landfill are low, on the order of feet/year. Hydrogeologic studies by Donohue (1989; 1990) calculated the groundwater flow velocity using hydraulic gradients from water elevations in site wells and hydraulic conductivity data from both laboratory tests of site samples and slug tests of site wells. The calculated groundwater flow velocity was 0.7 ft/yr.

A study of hydrogen isotopes (tritium) in site groundwater confirmed the low flow velocity. In shallow wells, a tritium isotope study indicated a velocity of 1.12 ft/yr, and in intermediate depth wells, the groundwater velocity was 0.92 ft/yr, both very similar to the calculated groundwater velocity of 0.7 ft/yr.

The bedrock surface beneath the Quaternary sediments at the Black Hawk County Landfill has low relief and undulates over a range of about 35 feet in elevation, with a north-south trending high near the center of the site (HMSP Figure 2-3 (AECOM 2024)). Top of bedrock elevations range from about 825 to 855 feet above MSL. The uppermost bedrock is thick Devonian-age Cedar Valley Group dolomite that ranges from about 120 to 160 feet thick at the site and forms the uppermost aquifer beneath the landfill.

The Cedar Valley Group at the site is underlain by an aquitard composed of sandy conglomeratic shales of the Kenwood Member of the Devonian-age Wapsipinicon Group. The Kenwood Member is reported to be between 18 to 29 feet thick in borings drilled at the site.

Underlying the Kenwood Member is a thick sequence of Silurian-age dolomite that is on the order of 120 to 135 feet thick. Below the Silurian-age dolomite in the deepest boring at the site, B-200, Ordovician-age Maquoketa Formation was encountered at a depth of over 420 feet.

2.1.1 Water Table

The water table at the Black Hawk County Landfill is shallow and occurs in the Quaternary-age sediments. Figure 3 presents the water table in May 2024 which is representative of current water table conditions at the site. The water table attains its highest elevations both north and south of Cells W1, W2 and W3, with a groundwater divide occurring through Cells W1 and W3 with groundwater flow east and west of the groundwater divide.

Natural water table elevations range from a high of approximately 952 feet MSL at MW-319B along the south-central portion of the site to a low of 891 feet MSL at OW-118B east of the Co-Disposal Area. Water table elevations decline from the groundwater divide across the central part of the site just east of Cells W1 and W2 to approximately 891 feet along the drainageway in the southeastern portion of the site that is tributary to Miller Creek and to 920 feet in the northwestern corner of the site along a drainageway that is tributary to Sink Creek.

With the construction of underdrain systems beneath Area E, Cell X, Cell W1, Cell W2 and Cell W3, the water table is locally lowered artificially by the groundwater drainage layers and creating steep inward (downward) water table gradients to each of those groundwater underdrain systems.

2.1.2 Piezometric Surface in the Uppermost Bedrock

The piezometric surface in the Devonian Cedar Valley Group at the site in May 2024 is shown on Figure 4 and is representative of the current piezometric surface in the uppermost bedrock. Groundwater flow in the Cedar Valley Group is from west to east over most of the site, with a northerly component along part of the northern site boundary. The Cedar Valley Group dolomite is an aquifer, and piezometric surface elevations vary over a narrow range from about 837 to 827 feet. The distinct difference in elevations and flow directions between the water table in the Quaternary sediment aquitard (Figure 3) and the piezometric surface in the Cedar Valley Group dolomite (Figure 4) demonstrates that the vertical gradient through the Pre-Illinoian-age glacial diamicton is strongly downward toward the Cedar Valley Group.

2.2 AREA A AND AREA C SITE CONDITIONS

Area A and Area C are the two oldest municipal solid waste units at the Black Hawk County Landfill and are currently in post-closure. They were both constructed without an underdrain system, liner, or leachate and landfill gas collection system, and site conditions are similar for both areas.

2.2.1 Topography

Area A and Area C at the Black Hawk County Landfill were constructed in the eastern part of the landfill area where pre-construction slopes drained to a southeast trending drainageway. AECOM (2025) HMSP Figure 2-6 shows the topography of the site area on a U.S.G.S. 7.5 Minute Topographic Map prior to landfill development, and HMSP Figure 2-7 shows the topography of the landfill site in 2019. Total relief of Area A and Area C prior to landfill construction varied from about 10 to 40 feet.

2.2.2 Landfill Construction

Area A was operated from 1975 to 1980 and Area C from 1988 to 1991. Both Area A and Area C were constructed without an underdrain system, liner, or a leachate and landfill gas collection system.

The base grade for Area A is at an elevation of about 920 feet MSL (HMSP Figure 2-8) with excavation depths ranging from about 20 to 40 feet.

The base grade for Area C slopes toward the drainageway to the east, and base grade elevations slope from about 900 feet above MSL on the west to about 876 feet above MSL on the east (HMSP Figure 2-9). Excavation depths ranged from about 30 to 60 feet.

Passive landfill gas vents have been installed in both Area A and Area C.

2.2.3 Local Water Table Elevations in the Vicinity of Area A and Area C

The water table in the vicinity of Area A and Area C is shallow and occurs in the Quaternary-age sediments. Figure 5 presents the water table in May 2024 which is representative of current water table conditions at the site. With later construction of groundwater underdrain systems beneath Area E to the north, Cell X to the east, and Cells W1, W2 and W3 to the west of Area A and Area C, the water table has been locally artificially lowered and there are steep inward (downward) water table gradients toward these underdrain systems.

Area A is located adjacent to a regional water table divide. Shallow water table flow east of the divide from Area A is east-northeast toward the Co-Disposal Area and Area C and then ultimately to the southeast drainageway on the eastern part of the site. There is also a groundwater divide between Area A and Cells W1, W2 and W3 created by the underdrain systems for Cells W1, W2 and W3. This divide is local to west sides of Area A and C, groundwater flow is to the west into Cell W1.

Area C was constructed with base grades directing leachate flow to the east. Shallow water table flow from the eastern part of Area C is predominantly northeast and east toward the southeast drainageway on the eastern part of the site. As noted above, there is a component of shallow water table flow from the western portion of Area C toward the Cells W1, W2 and W3 underdrain system.

The underdrain system is constructed below the Cell W1 base grades of 888 to 876 feet above MSL, Cell W2 base grades of 890 to 872 feet above MSL, and Cell W3 base grades of 954 to 872 feet above MSL, which are well below the base grade for Area A at 920 feet MSL and Area C at 900 feet MSL.

2.2.4 Conceptual Site Model for Area A and Area C

The CSM for Area A and Area C is based on the site topography, landfill construction, site geology, local water table elevations, and the piezometric surface in the uppermost bedrock aquifer discussed in the above sections.

Most of the precipitation at the site is intercepted by the landfill caps and directed to the surface water drainage system and routed to drainageways. A portion of the precipitation is lost to the atmosphere by evapotranspiration. A limited amount of precipitation infiltrates to the water table aquitard in the surficial loess and the underlying Pre-Illinoian-age glacial diamicton.

Both Area A and Area C have been constructed with base grades below the water table. Area A and Area C are constructed east of the regional water table divide at the site. East of the water table divide, shallow water table flow is east toward the southeast trending drainageway on the eastern part of the site. West of the local water table divide, shallow water table flow is west toward the Cell W1 and Cell W2 underdrain system. The Pre-Illinoian-age glacial diamicton in which both Area A and Area C are constructed is fine grained, with low hydraulic conductivity, and is classified as an aquitard. Because of high downward gradients, groundwater flow in the Pre-Illinoian glacial diamicton is predominantly downward toward the aquifer in the uppermost Cedar Valley Group bedrock.

The primary monitoring zones for Area A and Area C, therefore, are the shallow water table aquitard monitoring wells downgradient to the east and west and deeper in the Cedar Valley Group bedrock. Regional groundwater flow in the Cedar Valley Group dolomite is predominantly horizontal to the east.

2.3 Leachate Collection System

The Black Hawk County Sanitary Landfill has six (6) separate leachate systems serving various parts of the facility (Figure 1).

1. Area E. The first leachate system in a Municipal Solid Waste (MSW) cell at the Black Hawk County Sanitary Landfill was installed in Area E. This is a gravity collection pipe that flows to the east. A leachate sump with a side slope riser and leachate storage tank were initially used at this location. Since Area E was closed and capped in approximately 2000, a Windmill Pump was installed and has performed well in keeping leachate pumped from Area E.

   In 1990, a groundwater collection toe drain was constructed outside Area E. The north, west and south boundaries are drained by a continuous perforated pipe that enters GUE-2 MH No. 1 from the west. The east boundary is drained by a perforated pipe that enters GUE-2 MH No. 1 from the north.

   GUE-2 MH No. 1 initially discharged to the south to the drainageway between Area E / Cell X and Co-Disposal. GUE-2 is the sample name for the Area E Groundwater Discharge. GUE-2 exceeded the Reporting Limit (RL) for 1,1-Dichloroethane, Benzene, cis-1, 2-Dichloroethylene, Trichloroethylene and Vinyl Chloride. An Assessment of Corrective Measures (ACM) was required since a sampling point is confirmed to exceed the RL of an Appendix I analyte according to IAC 567 113.10. The Commission decided to address the ACM by installing a Bypass Manhole GUE-2 MH No. 2 with valving to divert the GUE-2 groundwater to the Cell X Leachate Riser Manhole and the Cell X Leachate Collection System.

2. Cell X. A groundwater collection system, leachate collection system, sump, side slope riser pump and storage tank were installed as part of this construction. The Windmill Pump was installed similar to Area E to pump the leachate and groundwater collection effluents to the Leachate Gravity Sewer that discharges to the City of Waterloo Wastewater Treatment Plant.

   As stated above, GUE-2 can also be diverted to the Cell X Leachate Collection and Discharge System.

3. Asbestos Cell No. 2. A leachate system was installed under this cell during the construction. It drains by gravity to the sanitary sewer at the Landfill's north property line.

4. Cell W-1. The leachate system was installed as part of the Cell W-1 construction, and extended with Phases 2, 3 and 4. The leachate collection pipe flows to the east to a leachate manhole. Leachate is pumped by a rail-mounted submersible pump to the sanitary sewer.

5. Cell W-2. The leachate system was installed as part of the Cell W-2 construction. The leachate collection pipe flows to the west to a leachate pump station inside the cell. Leachate is pumped through a 4-inch PVC force main to the sanitary sewer.

6. Cell W-3. The leachate system was installed as part of the Cell W-3, Phase I construction. The leachate collection pipe flows to the east to a leachate side slope riser pump inside the cell. Leachate is pumped through a 4-inch PVC force main to the sanitary sewer.

As noted, there are no leachate collection systems for Area A and Area C.

2.4 Landfill Gas System

At Black Hawk County Sanitary Landfill, the LFG generated is passively vented through the final cover using a series of gas vents in Cells A and C. Trenches were excavated into the waste 6 feet below the final cover. In the trenches, horizontal perforated PVC pipe surrounded by granular material or tire shreds create a path of least resistance for the LFG to collect. The final cover was placed over the trench to prevent precipitation from entering the waste mass. Vertical PVC pipes are connected to the horizontal pipes equipped with roof turbines, allowing the LFG to vent to the atmosphere.

Methane monitoring is conducted quarterly at Black Hawk County Sanitary Landfill in accordance with the permit and the Methane Monitoring Program Plan. The site perimeter and all site buildings are inspected to check for the presence of methane gas. The perimeter sample locations are sited on each side of the facility. Methane concentrations greater than 1.25% (25% of the LEL) in facility structures, or greater than 5% at the facility boundary, require immediate action as discussed in IAC 113.26(15)c(1-3). Readings are recorded and included in the annual AWQR Methane Monitoring Report.

2.5 Current Assessment Monitoring Activities

Currently, there are 11 shallow monitoring wells with ongoing and newly identified SSIs and SSLs. Table 3 presents a summary of ongoing and newly identified SSIs. Table 4 presents a summary of ongoing and newly identified SSLs. The groundwater protection standards used in the comparisons were obtained from the IDNR website at:

https://programs.iowadnr.gov/riskcalc/Home/statewidestandards

Wells OW-205B, OW-220B, OW- 224B, OW-225B, OW-226B, OW-227B, OW-401B, OW-402B, OW-410B, OW-411B, OW-412B, OW- 413B and OW-414B have constituents with SSLs.

2.6 Current Corrective Action Activities

OW-401B and OW-402B

An assessment of corrective measures (ACM) was implemented because of detected organic and inorganic constituent concentrations in wells OW-401B and OW-402B. Seven monitoring wells; five shallow (water table), one intermediate (inter-till), and one deep (bedrock) well, were installed in November 2016 as part of the ACM for the area between Areas A and C and Cell W-1. Figure 2 present the existing wells which are being used for the ACM study. The selected existing wells have been sampled 15 times for Appendix I in December 2016, April 2017, June 2017, September 2017, November 2017, March 2018, September 2018, April 2019, September 2019, April 2020, October 2020, March 2021, May 2022, March 2023, and May 2024.

Four shallow (water table) monitoring wells were installed in November 2022 as an extension of the ACM on the north side of Area C (Figure 2). The new wells, along with selected existing wells, have been sampled 7 times for Appendix I: January 2023, March 2023, August 2023, September 2023, December 2023, May 2024 and October 2024. The four wells have been sampled once for Appendix II in September 2023. Sulfide is the only Appendix II detection in two of the new shallow monitoring wells.

Historical sampling results for ACM monitoring wells are presented in Appendix B (App C3 ACM Data). The following wells are being utilized as part of the ACM:

OW-114B	OW-205B	OW-401B	OW-402B	OW-410B	OW-411B
OW-412B	OW-413B	OW-414B	P-402A	P-402C	OW-220B
OW-224B	OW-225B	OW-226B	OW-227B	OW-105B	

The groundwater elevations, groundwater flow direction and analytical results show that shallow (water table) groundwater flow is from the west side of Areas A and C toward Cell W-1 (Figure 5). The groundwater release is passively controlled through the Cell W-1 groundwater drainage layer. The Cell W-1 groundwater drainage layer is gravity fed to a sump on the east side of Cell W-1, Phase I. The groundwater is pumped from the sump to the Cell W-1 leachate wet well. From there the Cell W-1 groundwater effluent along with the Cell W-1 leachate is pumped to the City of Waterloo sanitary sewer located on the north side of the site.

The groundwater elevations, groundwater flow direction and analytical results show that shallow (water table) groundwater flow is from the north side of Area C toward the drainage ditch (Figure 5). Shallow

groundwater is discharged to the drainage ditch. Groundwater concentrations at OW-105B and OW-114B demonstrate that concentrations above applicable GWPS are not migrating off-site from Area A and Area C.

Plan view groundwater level and iso-concentration maps for arsenic, barium, cobalt, nickel, benzene, cis-1,2-dichloroethylene, and vinyl chloride (Figures 6 – 12) show that groundwater from the west side of Areas A and C is being directed downward into the groundwater drainage layer of Cell W-1 as depicted by elongation of groundwater concentrations in direction of Cell W-1. In addition, groundwater concentrations at monitoring well OW-114B demonstrate groundwater concentrations from Area A are not migrating away from Area A.

Plan view groundwater level and iso-concentration maps for arsenic, barium, cobalt, nickel, benzene, and cis-1,2-dichloroethylene, (Figures 13 – 18) show that groundwater from the north side of Areas C is being directed toward and into the drainage ditch as depicted by attenuation of the groundwater concentrations at the drainage ditch. In addition, groundwater concentrations at monitoring well OW-105B demonstrate groundwater concentrations from Area C are not migrating away from Area C.

Figures 19 through 21 show vertical view of groundwater flow along cross-sections A-A' and B-B' towards Cell W-1 groundwater drainage layer. Cross-section A-A' shows flow from Area C towards Cell W-1. Cross-section B-B' shows flow from Area A towards Cell W-1.

The remedy shows that the concentrations are contained between Area A, Area C, and the Cell W-1 groundwater drainage layer. This remedy will continue to operate through the removal of groundwater which is mixed with leachate and treated by City of Waterloo wastewater treatment plant. Through the permit requirements, this remedy will continue through the life of the permit for this facility.

The remedy on the north side of Area C shows that groundwater concentrations naturally attenuate as groundwater flows to the drainage ditch. This remedy will continue to be monitored through the life of the permit for this facility.

3. Historical Groundwater Quality

The evaluation of historical groundwater quality for the ACM report is based on data collected between December 2016 and October 2024. The following section identifies the historical detections of organics and inorganics in the monitoring wells in corrective action. The historical detections include arsenic, barium, benzene, cobalt, nickel, and vinyl chloride.

3.1 Prior Detected Metals Concentrations

Table 2 presents a list of historical detections of metals in the ACM monitoring wells. Monitoring wells OW-105B, OW-114B, OW-205B, OW-220B, OW-224B, OW-225B, OW-226B, OW-227B, OW-401B, OW-402B, OW-410B, OW-411B, OW-412B, OW-413B, OW-414B, P-402A and P-402C. Wells which have had confirmed metals concentrations in groundwater above the GWPS are highlighted.

3.1.1 Groundwater Characteristics of Metals

Potential sources for metals are the landfill, agricultural and weathering of soil and bedrock.

For agricultural, recent research has found heavy metals in glyphosate-based herbicides and other pesticides (Defarge et al., 2017). Heavy metals include arsenic, cobalt, chromium, nickel, and lead. Cobalt in glyphosate-based herbicides ranges from 50 – 150 µg/L. USDA (2018) noted for Iowa corn and soybeans that herbicide active ingredients were applied to 95% of corn acres planted. In Iowa, approximately 20% of planted acres used glyphosate as herbicide. Herbicide active ingredients were applied to 100 percent of the soybean acres planted. Glyphosate potassium salt was the most widely used pesticide on soybean acres, but glyphosate potassium salt was the active ingredient with the greatest total amount applied. In Iowa, approximately 33% of planted acres used glyphosate potassium salt. The landfill is bordered by agriculture on all four sides: north, west, south, and east. Typically, the farmland adjacent to the landfill is rotated between corn and soybeans.

Soil deposits at the landfill consist of glacial till, loess, and colluvium. Bedrock consists of limestone. The presence of heavy metals can be naturally occurring, either due to the presence of suspended sediment in groundwater samples or dissolution of metals from surrounding soil (sediments) and bedrock into groundwater. Smith, et al. (2014) produced geochemical and mineralogical maps for soils in conterminous United States. Table 5 presents a summary of metal samples obtained from planted/cultivated land from the soil A and B horizons located near the site. Measured concentrations of arsenic (1.4 – 11.9 mg/Kg), barium (298 – 790 mg/Kg), chromium (8 – 46 mg/Kg), cobalt (3 – 10 mg/Kg), lead (8 – 26 mg/Kg), nickel (7 – 28 mg/Kg), and zinc (15 – 88 mg/Kg) were detected in soil near the landfill.

Water Quality

Water quality at the Landfill is monitored by a system of active groundwater detection monitoring wells, a system of groundwater underdrains and leachate drains. There are no groundwater underdrains or leachate drains under Area A or Area C. Locations of groundwater monitoring points are shown on Figure 1.

3.2 Assessment of Corrective Measures

In November 2014, Black Hawk County Sanitary Landfill received a Letter of Inquiry (LOI) from the IDNR. The presence of a groundwater protection standard (GWPS) exceedance for vinyl chloride at OW-402B necessitated additional monitoring and development of an assessment of corrective measures (ACM) in accordance with 567 IAC 113.10(6)”g”.

A total of seven groundwater monitoring wells, one deep, one intermediate and five water table, were installed in November 2016. As noted, four shallow (water table) monitoring wells were installed in November 2022 as an extension of the ACM on the north side of Area C (Figure 2). These wells provide information on lateral migration from Areas A and C towards Cell W-1, towards the drainage way, and vertical migration towards the bedrock aquifer.

3.2.1 ACM Monitoring

Detailed information on borings, well installation, well development and aquifer testing is provided in an updated HMSP. **Refer to the current Hydrologic Monitoring System Plan (HMSP) (IDNR August, 2023 (refer to IDNR Doc No. 107543).**

3.2.2 Field Observations

Field observations consist of measurement of groundwater and surface water levels, and sampling groundwater.

3.2.2.1 Groundwater Sampling

Groundwater was sampled for Appendix I constituents from permit monitoring wells as defined by HMSP (2024).

3.2.2.2 Surface Water Flow

Surface water levels have been measured at SW-3 and SW-5 which are located downstream of Area C. Surface water has been sampled as part of EPA permit.

3.2.3 Sample Results

The ACM was started because of vinyl chloride in groundwater exceeding the GPS of 2 µg/L. Other constituents which have exceeded a GWPS are arsenic, barium, cobalt, nickel, and benzene (Table 3).

Surface water samples collected in March 2023 as part of the EPA permit were nondetect for metals and organics.

3.2.4 Iso-concentration Maps

Plan view groundwater level and iso-concentration maps for arsenic, barium, cobalt, nickel, benzene, cis-1,2-dichloroethylene, and vinyl chloride (Figures 6 – 12) show that groundwater from the west side of Areas A and C is being directed downward into the groundwater drainage layer of Cell W-1 as depicted by elongation of groundwater concentrations in direction of Cell W-1. Figures 19 through 21 show vertical view of groundwater flow along cross-sections A-A' and B-B' towards Cell W-1 groundwater drainage layer. Cross-section A-A' shows flow from Area C towards Cell W-1. Cross-section B-B' shows flow from Area A towards Cell W-1.

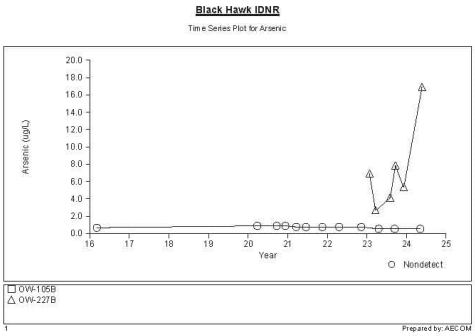
Plan view groundwater level and iso-concentration maps for arsenic, barium, cobalt, nickel, benzene, and cis-1,2-dichloroethylene(Figures 13 – 18) show that groundwater from the north side of Areas C is being directed toward and into the drainage ditch as depicted by attenuation of the groundwater concentrations at the drainage ditch. In addition, groundwater concentrations at monitoring well OW-105B demonstrate groundwater concentrations from Area C are not migrating away from Area C.

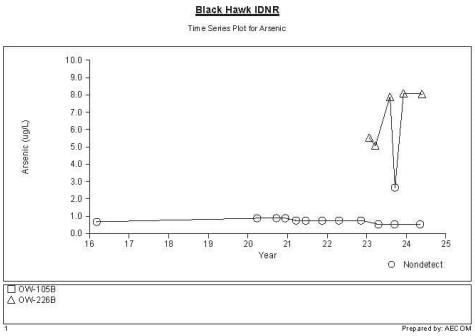
3.2.5 Groundwater Trends for Arsenic

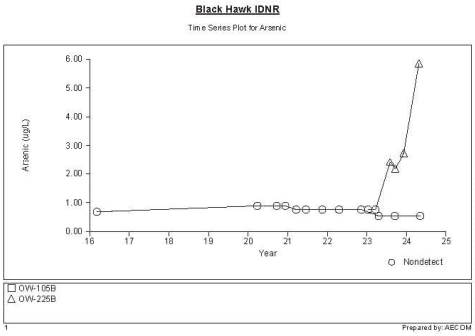
Arsenic time series plots for monitoring well groups are presented. Figure 22 represents arsenic concentrations in groundwater downgradient of Area C and arsenic concentrations in groundwater downgradient of Figure 23 represents Area A.

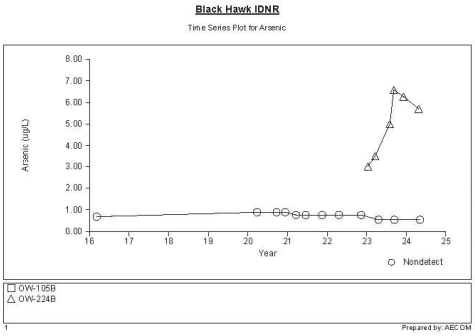
Figure 22 shows that arsenic concentrations in groundwater decrease and attenuate to below the GWPS (10 µg/L) from downgradient of Area C to monitoring well OW-105B. Figure 23 shows that arsenic concentrations in groundwater decrease and attenuate as groundwater moves from Area A downgradient to OW-114B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

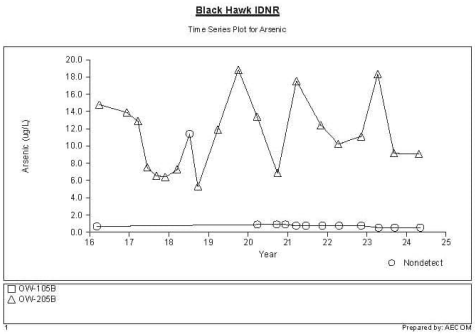
Figure 22
Arsenic Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA











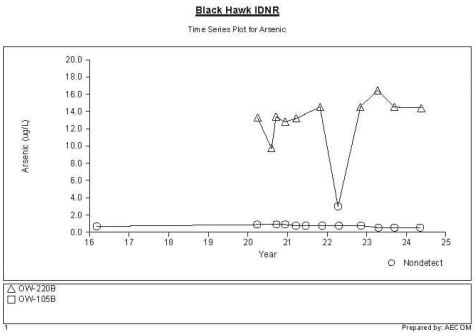
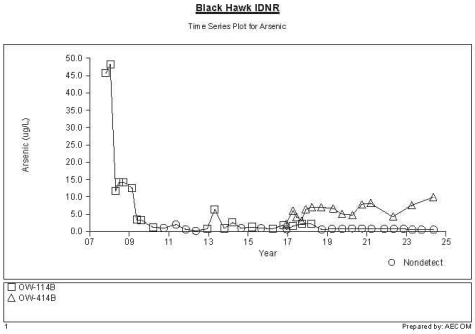
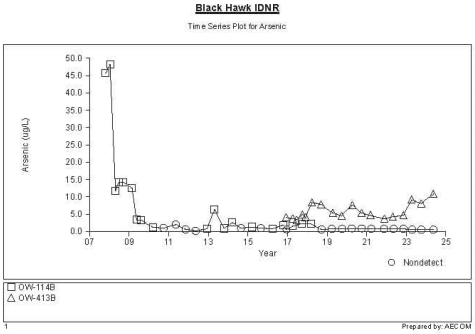
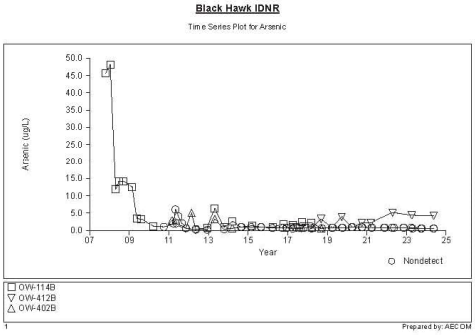
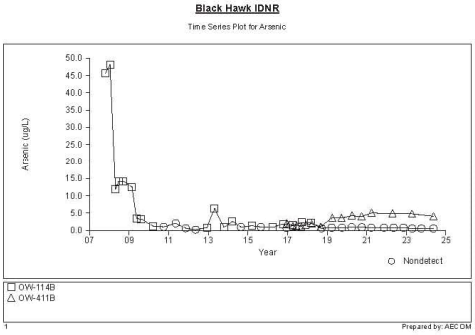


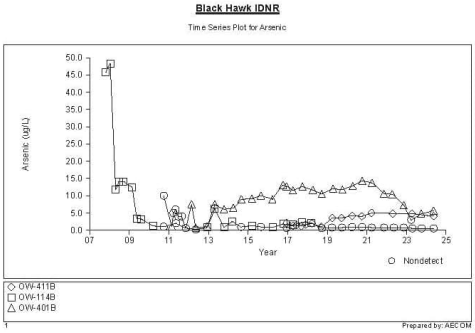
Figure 23
Arsenic Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA

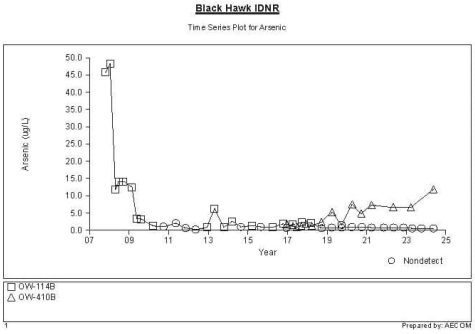










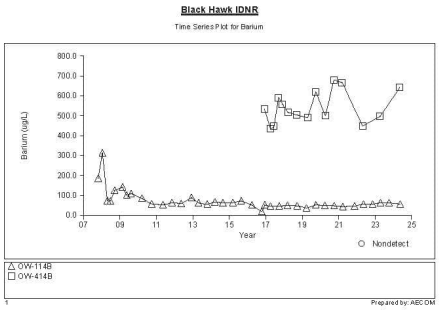


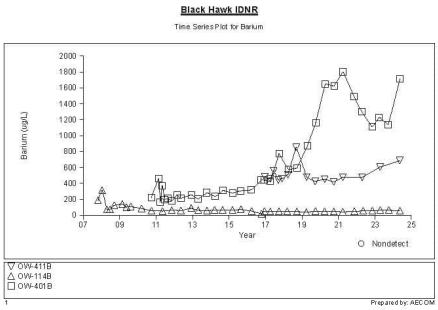
3.2.6 Groundwater Trends for Barium

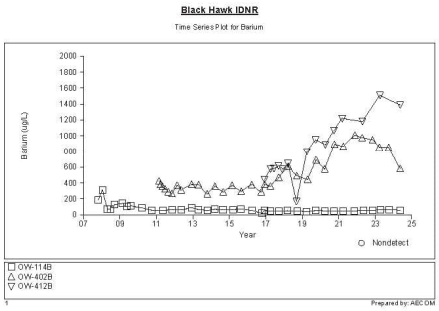
Barium time series plots for monitoring well groups are presented. Figure 24 represents barium concentrations in groundwater downgradient of Area A and barium concentrations in groundwater downgradient of Figure 25 represents Area C.

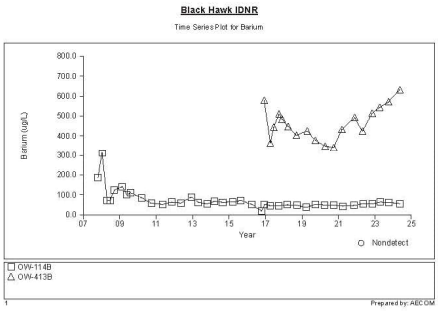
Figure 24 shows that barium concentrations in groundwater decrease and attenuate to below the GWPS (2000 µg/L) from downgradient of Area A to monitoring well OW-114B. Figure 25 shows that barium concentrations in groundwater decrease and attenuate as groundwater moves from Area C downgradient to OW-105B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

Figure 24
Barium Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA









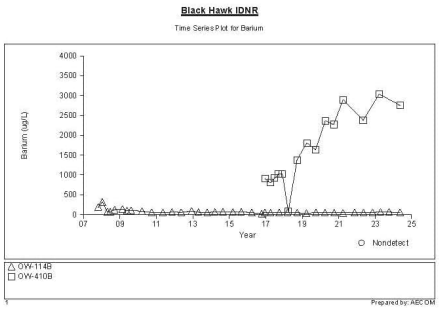
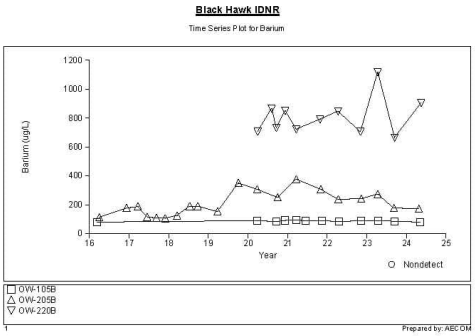
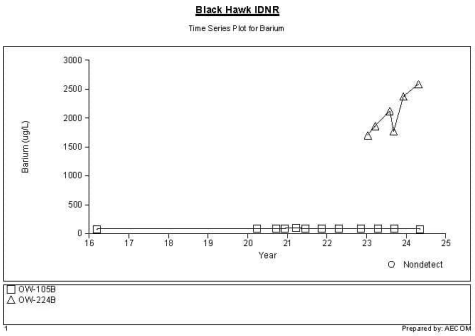
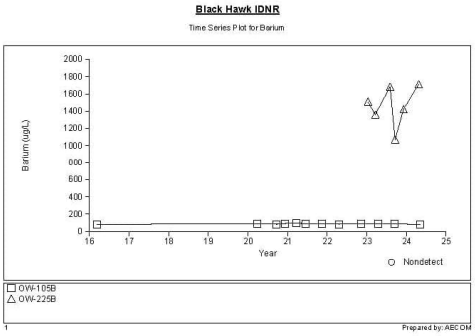
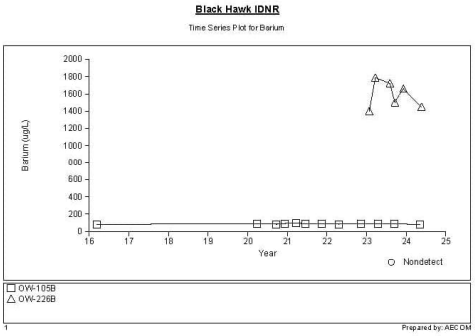


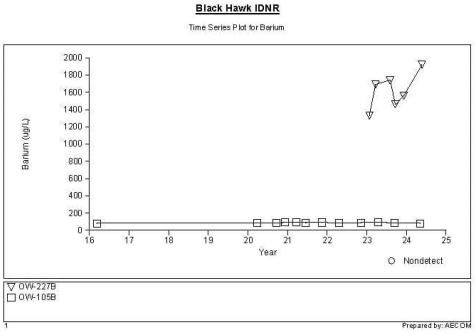
Figure 25
Barium Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA

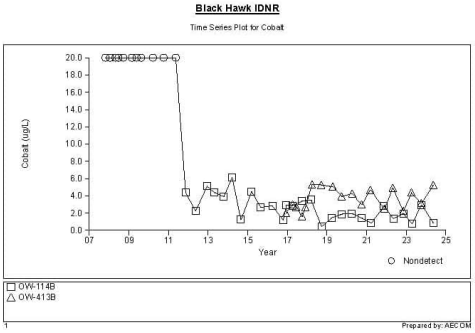










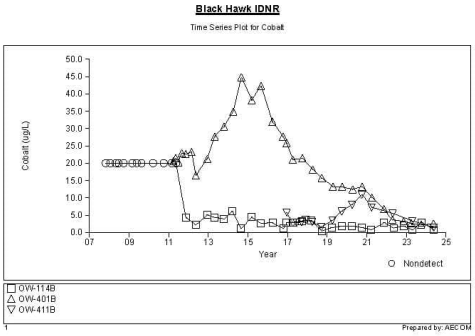


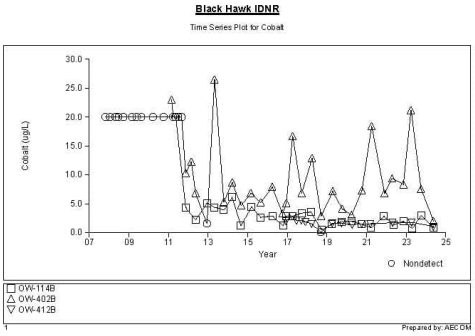
3.2.7 Groundwater Trends for Cobalt

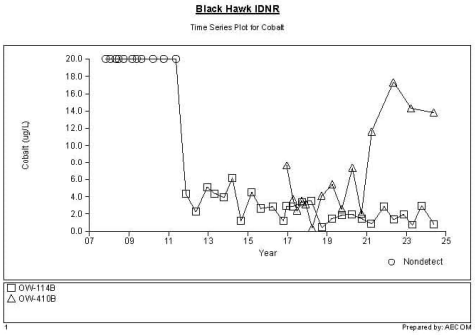
Cobalt time series plots for monitoring well groups are presented. Figure 26 represents cobalt concentrations in groundwater downgradient of Area A and cobalt concentrations in groundwater downgradient of Area C is represented in Figure 27.

Figure 26 shows that cobalt concentrations in groundwater decrease and attenuate to below the site GWPS (9.83 µg/L) from downgradient of Area A to monitoring well OW-114B. Figure 27 shows that cobalt concentrations in groundwater decrease and attenuate as groundwater moves from Area C downgradient to OW-105B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

Figure 26
Cobalt Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA







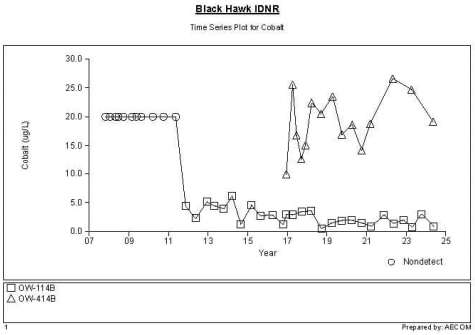
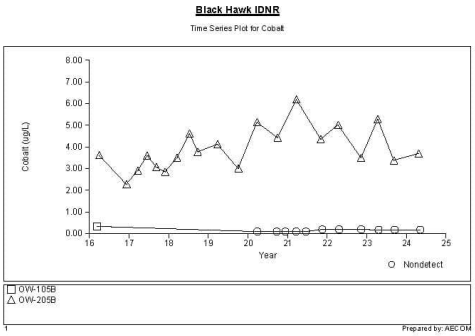
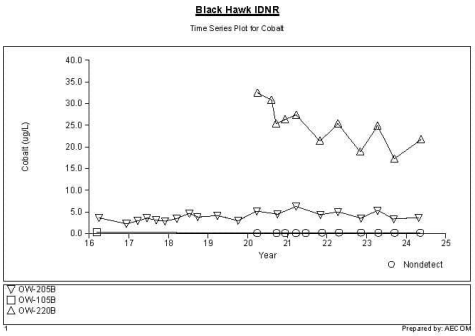
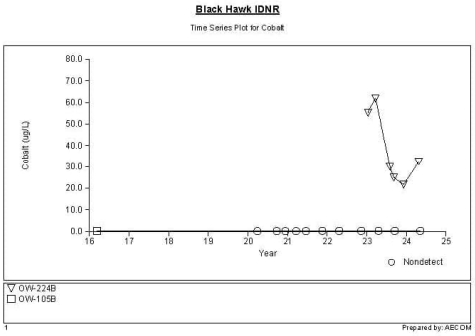
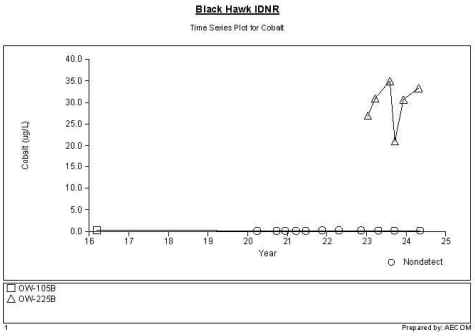


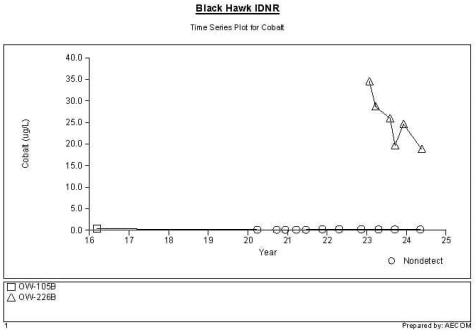
Figure 27
Cobalt Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA

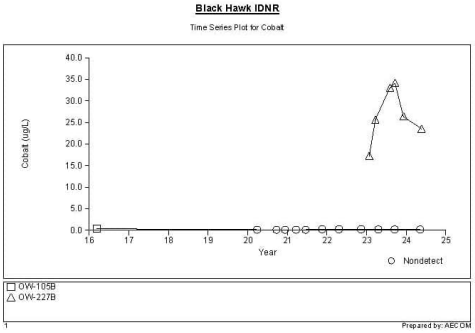










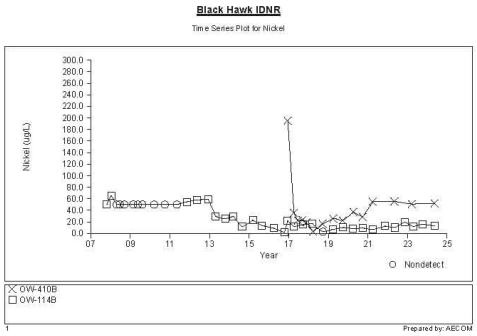


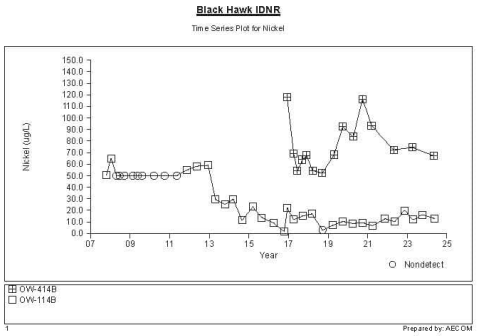
3.2.8 Groundwater Trends for Nickel

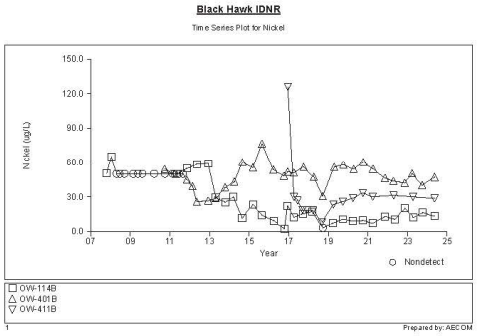
Nickel time series plots for monitoring well groups are presented. Figure 28 represents nickel concentrations in groundwater downgradient of Area A, and Figure 29 represents nickel concentrations in groundwater downgradient of Area C.

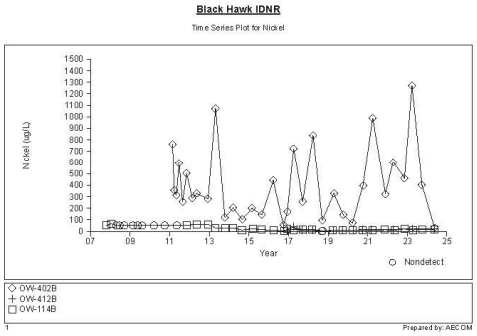
Figure 28 shows that nickel concentrations in groundwater decrease and attenuate to below the GWPS (100 µg/L) from downgradient of Area A to monitoring well OW-114B. Figure 29 shows that nickel concentrations in groundwater decrease and attenuate as groundwater moves from Area C downgradient to OW-105B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

Figure 28
Nickel Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA









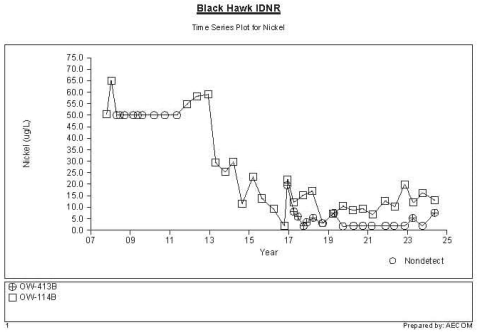
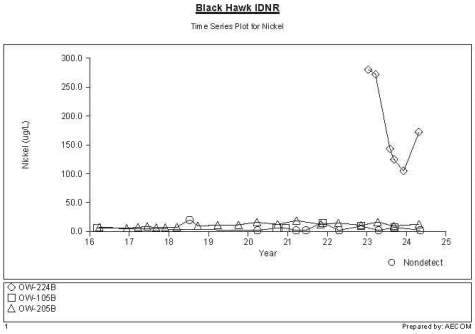
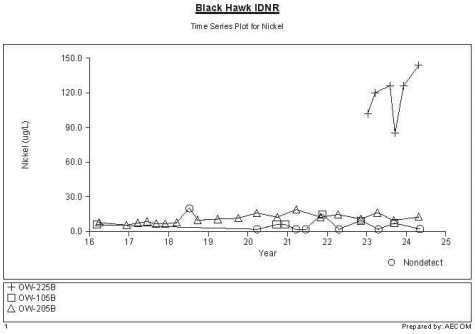
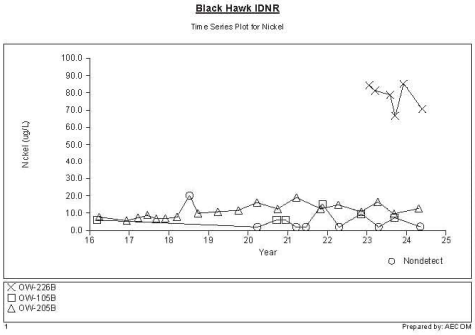
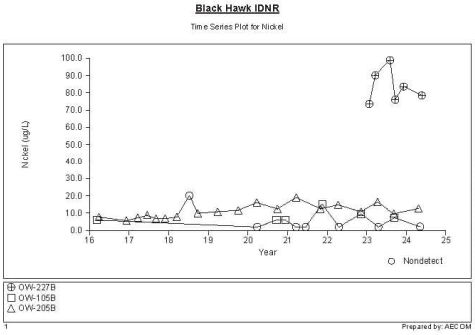


Figure 29
Nickel Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA







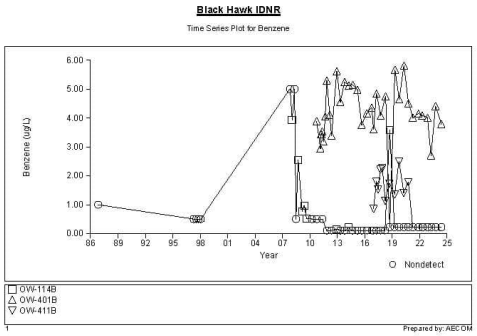


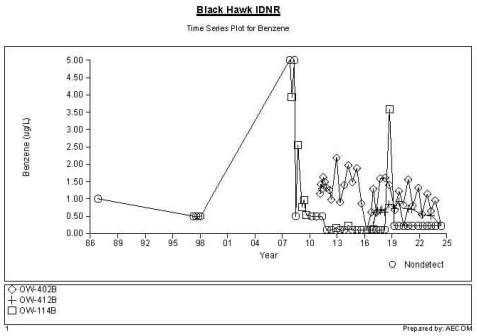
3.2.9 Groundwater Trends for Benzene

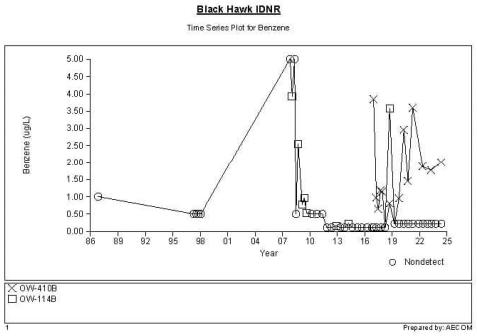
Benzene time series plots for monitoring well groups are presented. Figure 30 represents benzene concentrations in groundwater downgradient of Area A and Figure 31 represents benzene concentrations in groundwater downgradient of Area C.

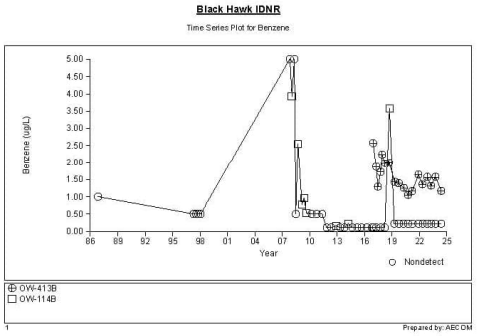
Figure 30 shows that benzene concentrations in groundwater decrease and attenuate to below the GWPS (5 µg/L) from downgradient of Area A to monitoring well OW-114B. Figure 31 shows that benzene concentrations in groundwater decrease and attenuate as groundwater moves from Area C downgradient to OW-105B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

Figure 30
Benzene Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA









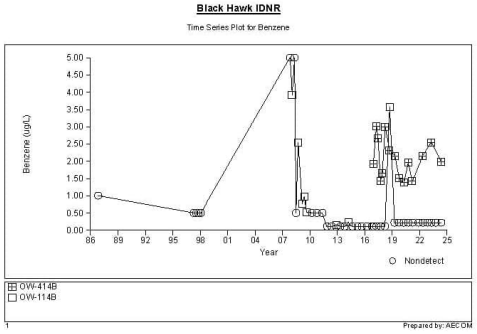
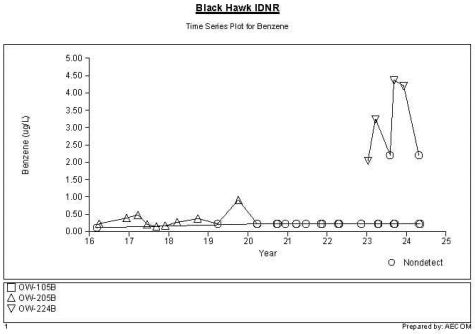
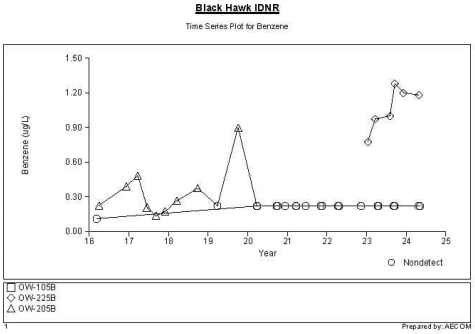
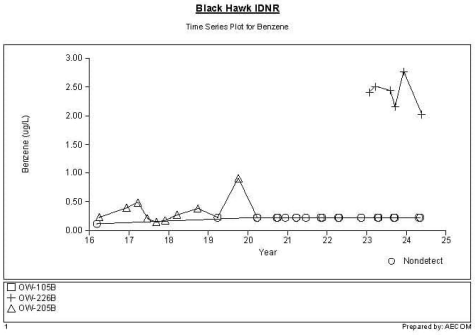
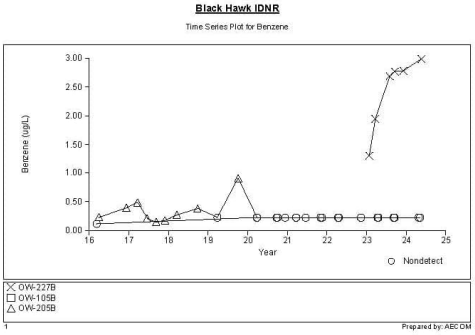


Figure 31
Benzene Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA







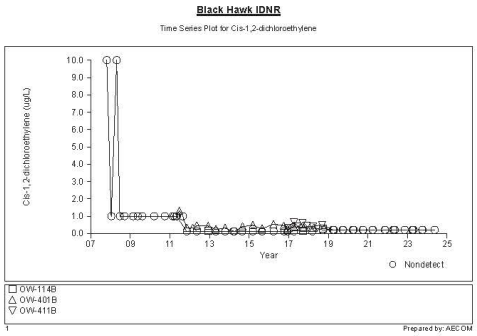


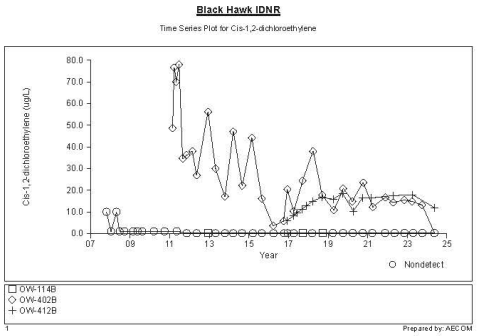
3.2.10 Groundwater Trends for cis-1,2-Dichloroethylene

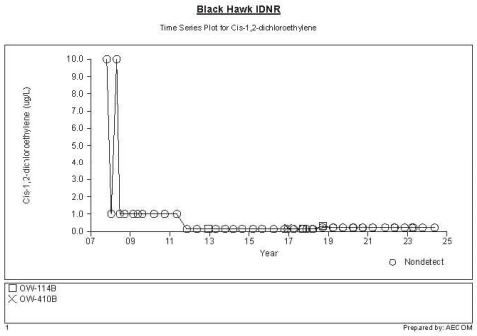
Cis-1,2-Dichloroethylene time series plots for monitoring well groups are presented. Figure 32 represents Cis-1,2-Dichloroethylene concentrations in groundwater downgradient of Area A and Figure 33 represents Cis-1,2-Dichloroethylene concentrations in groundwater downgradient of Area C.

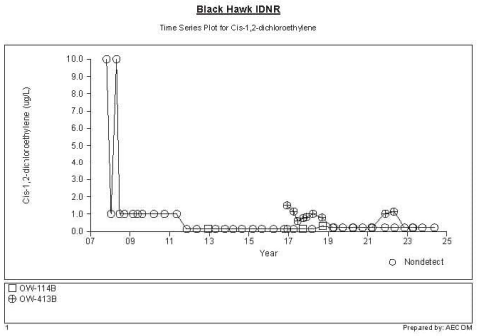
Figure 32 shows that Cis-1,2-Dichloroethylene concentrations in groundwater decrease and attenuate to below the GWPS (75 µg/L) from downgradient of Area A to monitoring well OW-114B. Figure 33 shows that Cis-1,2-Dichloroethylene concentrations in groundwater decrease and attenuate as groundwater moves from Area C downgradient to OW-105B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

Figure 32
Cis-1,2-Dichloroethylene Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA









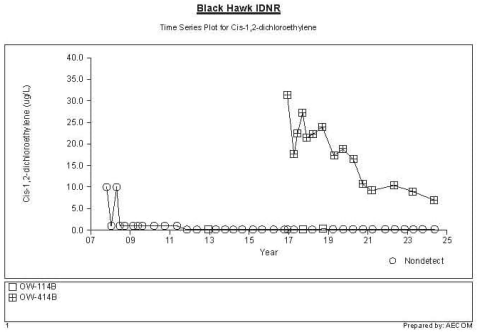
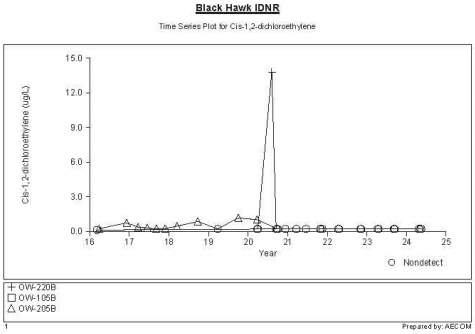
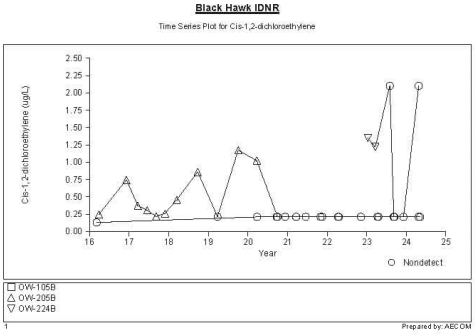
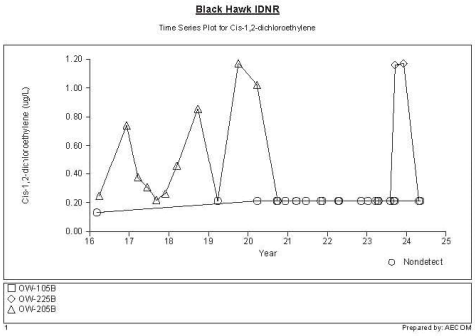
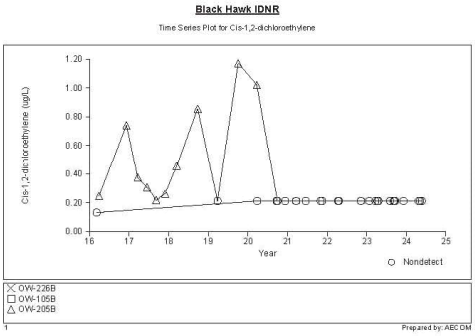


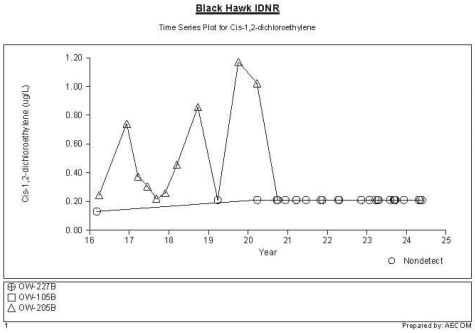
Figure 33
Cis-1,2-Dichloroethylene Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA









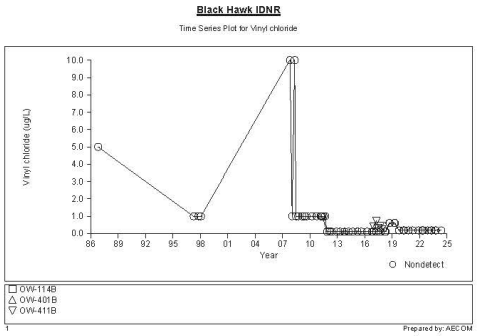


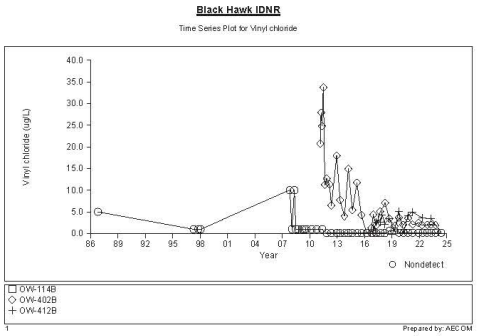
3.2.11 Groundwater Trends for Vinyl Chloride

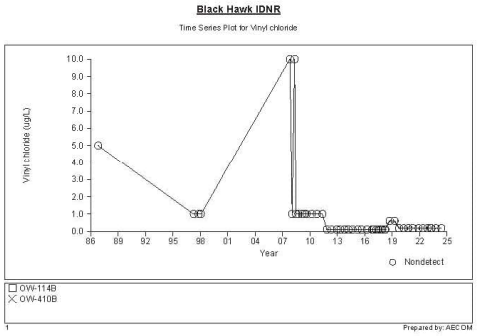
Vinyl chloride time series plots for monitoring well groups are presented. Figure 34 represents nickel concentrations in groundwater downgradient of Area A and Figure 35 represents vinyl chloride concentrations in groundwater downgradient of Area C.

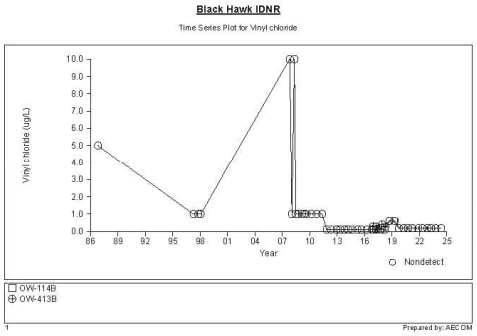
Figure 34 shows that vinyl chloride concentrations in groundwater decrease and attenuate to below the GWPS (2 µg/L) from downgradient of Area A to monitoring well OW-114B. Figure 35 shows that vinyl chloride concentrations in groundwater decrease and attenuate as groundwater moves from Area C downgradient to OW-105B. In addition, Figures 20 and 21 shows vertical attenuation between Area A and cell W1.

Figure 34
Vinyl Chloride Time Series Plot – Downgradient of Area A
Black Hawk County Landfill
Waterloo, IA









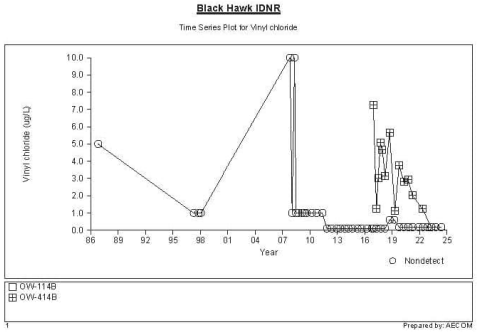
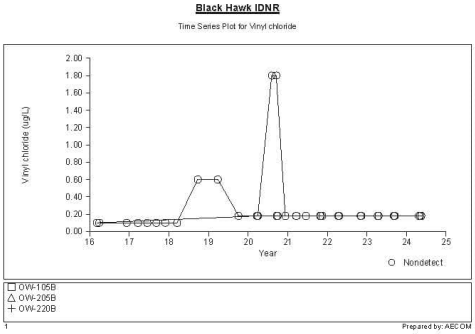
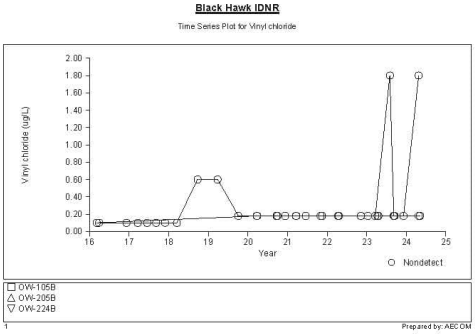
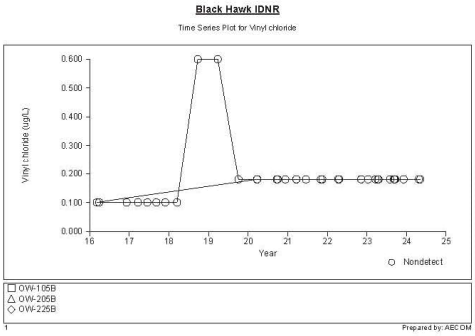
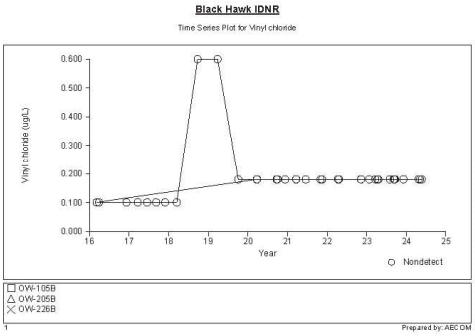


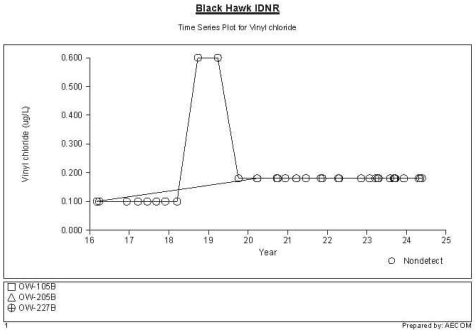
Figure 35
Vinyl Chloride Time Series Plot – Downgradient of Area C
Black Hawk County Landfill
Waterloo, IA











3.3 Leachate and Gas Migration

There are no leachate collection systems in Area A or Area C. In addition, there are no gas collection systems in these areas. There are passive gas vents in Area A and Area C. Gas monitoring probes are located around the landfill. There is no landfill gas or evidence of lateral gas migration from these areas.

4. Risk for Off-Site Impact

The water table groundwater present beneath the Landfill does not meet the IAC Chapter 137 definition of a protected groundwater source, which is defined as a saturated bed, formation, or group of formations which has a hydraulic conductivity of at least 0.44 meters per day (m/d) and a total dissolved solids concentration of less than 2,500 mg/L. Monitoring well data for hydraulic conductivity has a geometric mean of 0.028 m/d and mean TDS concentration of 1,494 mg/L. The unit is not currently or expected to be used as a potable water source. There are no current or anticipated future users of the shallow groundwater at or adjacent to the property. Existing private and public potable water sources are screened in the deeper bedrock aquifers. The following sections discuss the relative risk or likelihood for off-site impact by groundwater containing constituents at concentrations above their respective GWPS.

4.1 Off-site Impact

The potential for off-site impact from the migration of organic and inorganic constituents released due to the Landfill's presence is unlikely since it is restricted by several factors.

No confirmed statistically significant increases were noted at detection monitoring points not currently in assessment monitoring at the Landfill in 2024. All monitoring wells currently in the detection monitoring program will remain as detection monitoring points. Detections of Appendix I constituents at wells currently in the assessment monitoring program were above Iowa statewide standards for a protected groundwater source for arsenic, barium, benzene, cobalt, nickel, and vinyl chloride.

Regarding cobalt, the World Health Organization (2006) provided references noting surface water and groundwater concentrations of cobalt ranged between 1 – 10 µg/L. Natural sources include erosion (wind-blown continental dusts such as loess), weathering of rocks and soil, seawater spray, volcanoes, forest fires, extraction by plants, and continental and marine biogenic emissions. The major anthropogenic sources of environmental cobalt include mining and processing (smelting) of cobalt-bearing ores, the use of cobalt-containing sludge or phosphate fertilizers on soil, the disposal of cobalt containing waste, and atmospheric deposition from activities such as the burning of fossil fuels and smelting and refining of metals (Smith & Carson, 1981). The Black Hawk County Landfill area was farmed in the past, and the area surrounding the landfill is currently farmed; hence, the most likely source for cobalt is phosphate fertilizers and herbicides. Another possible source may be due to deposition of wind-blown silts in the form of loess during the last glaciation which occurred in the Black Hawk County area. As such, cobalt levels at this location below 10 µg/L are considered naturally occurring, also below the Non-Protected Groundwater Source statewide standard.

5. Assessment of Risk

5.1 Media of Concern

Possible corrective measures technologies are selected based on their ability to treat or control those media that may present unacceptable risks to human health or the environment. The media considered during this study are groundwater and surface water.

Concentrations of arsenic, barium, benzene, cobalt, nickel, and vinyl chloride in groundwater and surface water may pose a potential human health risk if they reach public water supply wells/sources. This could potentially happen if impacted groundwater of a sufficient volume is discharged to nearby streams or migrates off-site to residential water wells. There are no identified active drinking water wells on-site or within ½ mile downgradient of the impacted areas, screened in the water table aquitard or the bedrock aquifer. Due to impacted groundwater potentially discharging to the drainage ditch, surface water is considered a media of concern since downstream users may be impacted.

5.2 Exposure Pathways

Exposure pathways must be identified to select appropriate potential corrective measure technologies. Exposure pathways describe how a chemical can move from its source to a receptor. Components include source, release, transport, migration, and fate of the chemical.

The arsenic, barium, benzene, cobalt, nickel, and vinyl chloride concentrations detected in the groundwater at the site have been summarized in the previous sections of this report. The source of these constituents may originate from leachate and groundwater interactions beneath the unlined Area A and Area C; natural occurrence of metals in sediments and bedrock; or agricultural sources such as fertilizer, pesticides and herbicides used to grow corn and soybeans. Release mechanisms for contaminants at the site likely consist of the following:

- Mobilization of naturally occurring metals into on-site and near-site groundwater through the presence of geochemically reducing conditions near the Landfill area (i.e., landfill cap preventing infiltration of electron acceptor constituents).
- Mobilization of impacted groundwater into near-site surface water.
- Leachate discharging into the groundwater and providing an organic carbon source which aids in increasing the reducing conditions.

The primary transport mechanism for arsenic, barium, benzene, cobalt, nickel, and vinyl chloride is movement with groundwater. Oxidizing conditions or the addition of electron acceptors to impacted groundwater would sequester (precipitating) metals in site soils. However, due to the relatively short reach between the limits of waste of the Landfill and the surface water in tributary of Miller Creek, the extent of the reducing conditions in the shallow aquitard appear to attenuate between the landfill and the creek. Metals impacted groundwater is potentially discharging into the tributary of Miller Creek. Surface water samples collected as part of EPA permit downgradient of the Landfill in tributary of Miller Creek indicate low concentrations of arsenic and barium below the respective GWPSs. There were no detections of benzene, cis-1,2-dichlorethyne, or vinyl chloride. This is attributed to the following possibilities: 1) The volume of high concentrated inorganic and organic impacted groundwater is extremely small when mixing with the surface water volume which has a low concentration of inorganics and organics; and 2) The surface water has more dissolved oxygen or electron acceptor constituents which promote oxidizing conditions and cause inorganics to precipitate out of solution.

Possible exposure pathways would include dermal exposure and ingestion through contact of water with elevated inorganics and organics. Based on currently available data, arsenic, barium, benzene, cobalt, nickel, and vinyl chloride appear to be naturally attenuated at the Facility's boundary once mixed with the surface water of the tributary of Miller Creek. Continued monitoring is conducted to evaluate the extent of

human health concerns by measuring concentrations of arsenic, barium, benzene, cobalt, nickel, and vinyl chloride and evaluating for increasing trends.

5.3 Potential Receptors

A receptor survey was performed as part of the nature and extent study for the site. This assessment did not identify any drinking water wells installed in the shallow aquitard or the bedrock aquifer within ½ mile downgradient of the site. There are no domestic wells located on the site. The results of the risk assessment indicated no human receptors were identified. On-site shallow aquitard groundwater and surface water are not used as a drinking water source, and site access is restricted.

5.4 Assessment Summary

The results of previous field investigations indicated the vertical and horizontal extent of groundwater impacts have been characterized. The potential environmental risk posed by the presence of arsenic, barium, benzene, cobalt, nickel, and vinyl chloride in the groundwater impacts at the Landfill is considered to be low. The rationale for this assessment is as follows:

• Relatively low concentrations of arsenic, barium, benzene, cobalt, nickel, and vinyl chloride have been detected in the groundwater under the Facility and immediately downgradient of the landfill units of the site (refer to Figures 6 – 18).

• The tributary of Miller Creek is a discharge point for groundwater from the Facility, and arsenic, barium, benzene, cobalt, nickel, and vinyl chloride concentrations in surface water samples are below the GWPS and surface water human health criteria.

• No private drinking water wells or public water supply wells have been identified (downgradient of the impacted areas in the same hydraulic flow regime) within ½ mile of the site.

• No surface water or drinking water intakes have been identified near the site.

• No other apparent human health issues or environmental receptors have been identified, which could be affected by this impact.

6. Discussion of Remedial Technologies

This section of the report presents corrective measure technologies which have been identified and subjected to preliminary screening for feasibility. The goals of the screening process are to identify technologies that may be relevant to achieving corrective measures objectives and to eliminate from further consideration those measures which are unsuitable based on site characteristics, waste characteristics, technology, or regulatory limitations. Potential corrective measures that are eliminated will not be considered further.

6.1 Institutional Controls

Institutional controls are those actions that will control land use access to the site and access to potentially impacted groundwater. Institutional controls will not affect site remediation but will control deleterious effects by reducing the potential for public exposure. Institutional controls include monitoring groundwater and surface water quality, deed restrictions, and site access control.

Monitoring groundwater and surface water quality is the primary means of estimating the risks associated with potential groundwater and surface water impacts. Although monitoring will not accomplish remediation of site impacts, it will provide a means of evaluating the effectiveness of remedial actions. It will also keep the owners, regulators, planners, and general public informed of the location and concentrations of site-related chemicals. Black Hawk County Landfill is currently conducting groundwater sampling and analysis at the site in accordance with IAC 567—113.10, and the additional IDNR

requirements specified in the solid waste disposal permit number 7-SDP-01-75P, subsequent permit amendments, and the HMSP.

Access control restricts access to the site by humans. This is an important means of preventing human contact with impacted media. Access control is currently accomplished with locked gates at road entrances. Property access is further restricted by fencing. Access control will continue.

These institutional controls have already been implemented at the site.

6.2 Source Control Measures

Landfill gas, leachate migration, and the landfill cover system are the primary sources contributing to the release of soluble inorganics from naturally deposited sources. Although the landfill cover contributes to reducing conditions in the groundwater, it also significantly reduces the amount of leachate generation by limiting infiltration. Arsenic, barium, benzene, cobalt, nickel, and vinyl chloride contamination downgradient of the clay lined Area A and Area C may be a result of organic constituents being released via the leachate and landfill gas into the groundwater and reducing conditions developing in the shallow aquitard system since electron acceptor constituents are not readily replenished. Source control measures have been previously implemented at Black Hawk County Landfill include a landfill gas venting and landfill capping as noted in Section 3.4. The implemented source control measure is intended to reduce or eliminate landfill gas and leachate migration into groundwater.

6.2.1 Performance of Remedy

The performance of the landfill gas venting and landfill capping can be documented through long term groundwater monitoring. Groundwater monitoring at HMSP and non-HMSP monitoring wells have been statistically analyzed for decreasing trends in arsenic, barium, benzene, cobalt, nickel, and vinyl chloride concentrations. The ability to achieve cleanup standards at the point of compliance can be demonstrated through long term monitoring. The reliability of the landfill gas venting and landfill capping is site-specific but has been effective at other facilities. The source control measures would be closely linked with monitored natural attenuation (MNA) to monitor the performance and reliability. The inclusion of source control measures (i.e., landfill gas venting and landfill capping) to MNA would increase the reliability to achieve remedial goals and decrease the time to complete the remedy.

6.2.2 Implementation Criteria

No adjustments to the landfill gas venting and landfill capping are required.

6.2.3 Cost of Remedy

The landfill gas venting and landfill capping are currently implemented. There is no additional cost.

6.3 Monitored Natural Attenuation

MNA is a form of treatment that relies on natural physical, chemical, and biological processes to reduce contaminant concentrations. MNA includes natural subsurface processes such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials that reduce chemical concentrations to acceptable levels. For the arsenic, barium, benzene, cobalt, nickel, and vinyl chloride concentrations at the site, the primary mechanism of MNA is anticipated to be associated with geochemical changes (more oxidized conditions) binding and sequestering these naturally occurring compounds. Monitored natural attenuation is not the same as “no action”. As the name implies, monitored natural attenuation requires monitoring of the groundwater (and potentially surface water) during remedy implementation.

Monitoring of groundwater quality is the primary means of estimating the risks associated with groundwater impacts. Although monitoring will not accomplish any remediation of site impacts, it will

provide a means of evaluating the effectiveness of other remedial actions. It will also keep the owners, regulators, planners, and public informed of the location and concentrations of site related chemicals. The Facility is conducting groundwater sampling and analysis in accordance with an approved HMSP. Groundwater monitoring will continue.

The current HMSP groundwater monitoring network has been upgraded with additional groundwater monitoring wells and surface water monitoring being utilized to provide additional coverage and evaluate groundwater arsenic, barium, benzene, cobalt, nickel, and vinyl chloride concentrations near the Facility's property boundary. If concentrations are detected at the Facility's compliance boundary at statistically significant concentrations when compared to upstream concentrations and do not indicate a decreasing trend as a result of implemented remedial action, then further evaluation of remedial actions would be considered.

This technology does not require extraction of impacted groundwater or separate discharge of treated groundwater. In addition, groundwater remediation via natural attenuation can be less costly than other remedial technologies. This technology is retained for further consideration.

6.3.1 Performance of Potential Remedy

The performance of MNA can be documented through long term monitoring. Arsenic, barium, benzene, cobalt, nickel, and vinyl chloride concentrations measured in the most recent eight (8) samples for monitoring wells OW-4o1B, OW-402B, OW-413B, OW-224B, OW-225B, OW-226B and OW-227B indicate no significant increases in concentration. The geochemical processes driving mobilization and sequestration of metals is well documented. Detailed scientific studies conducted by and for the EPA on natural attenuation of metals have resulted in an understanding of the geochemical constituents which indicate that favorable conditions are present at a facility for natural attenuation of redox sensitive metals to occur. The ability to achieve cleanup standards at the point of compliance can be demonstrated through long term monitoring.

Implementation of MNA does not require intrusive construction which minimizes any potential safety impacts to site personnel and is compatible with on-site environmental conditions. Since intrusive construction activity is not required, residual generation of media of concern is restricted to those associated with sampling. All impacts are restricted to proximity to the Black Hawk County Landfill and are restricted to on-site property. Implementation of MNA is protective of human health and the environment and compatible with on-site environmental conditions.

The reliability of MNA is site-specific. Reliability as a remedial alternative has generally been higher at sites where the occurrence of natural attenuation has been documented, as is the case at sites where metals concentrations have been documented as decreasing. Coupled with source control measures, the long-term reliability of MNA to achieve remedial goals is expected to be good.

Evaluating the time to complete the remedy is difficult but is possible. Arsenic, barium, cobalt and nickel are naturally occurring metals in the sediment with mobility depending on the groundwater geochemical conditions, namely the groundwater redox conditions. Completion of the MNA remedy can be achieved by limiting the source into the groundwater such as leachate from the Landfill. Natural attenuation is intended to reduce the contaminant concentrations migrating from the Landfill to an acceptable level not harmful to human health or environment. MNA can be implemented immediately upon approval by the IDNR. MNA would continue for a number of years until groundwater concentrations decrease to less than the GWPS.

6.3.2 Implementation Criteria

The actual activities involved in natural attenuation monitoring are comparable to that of compliance and/or assessment monitoring, which is already required by the solid waste regulations. The Landfill is currently subject to the Iowa Solid Waste Management Regulations, which govern the Facility's permit. The MNA remedy will comply with these regulations. Implementation of MNA at the site is rated high for operational reliability, has no construction difficulties, and requires no permits from other agencies.

Implementation can begin immediately upon approval. No additional environmental or public health requirements are anticipated for monitored natural attenuation.

The MNA alternative (which includes monitoring) is a commonly implemented remedial approach that is accepted by local communities. This remedial approach will not require excavating, moving and/or management of contaminated media; therefore, implementation of the remedy will not cause an exposure safety concern.

6.3.3 Cost of Remedy

The cost to implement MNA at the site is considered very low. The only costs associated with implementation of this alternative are associated with long-term groundwater monitoring. Startup costs are limited and would consist of a MNA sampling and analysis plan. Operational costs are limited to the additional wells and surface water sampling, analysis, and reporting. Significant cost savings are recognized with this alternative since long-term groundwater monitoring is permit-required and will occur regardless of remedy selection.

6.4 Groundwater Containment Technologies

Groundwater containment technologies involve using low permeability barriers to restrict impacted groundwater flow to achieve compliance with GWPS. Containment may be coupled with pump and treat systems or source control measures to provide additional control over groundwater flow and prevent contaminant migration. Barriers which completely surround the contaminant area are typically more effective than those that only partially surround the area of concern. These technologies are particularly useful when current technologies are unable to remediate source areas. Containment technology is not considered feasible.

6.5 Groundwater Extraction Technologies

Three primary methods exist to extract impacted groundwater: vertical extraction wells, horizontal extraction wells, and interception trenches. These technologies remove impacted groundwater from the aquifer and are often paired with treatment technology (physical, chemical, or biological) to reduce toxicity, mobility and/or volume of contaminants of the extracted water prior to discharge.

- Vertical extraction wells are typically 4- to 6-inch diameter wells installed for the purposes of hydraulic containment and mass removal.
- Horizontal extraction wells are typically more effective than vertical wells for hydraulic containment and mass removal.
- Interception trenches placed below the water table are used to intercept contaminants migrating laterally in shallow aquifer systems. This method consists of a gravel filled trench with a perforated pipe used to collect and transmit water for treatment/disposal.
- Groundwater extraction technology is not considered feasible.

7. Monitored Natural Attenuation Estimated Costs

MNA is proposed to be implemented at the site are described in Section 6.3. There are no additional costs for implementing MNA.

8. Regulatory and Implementation Schedule

Pending approval of this Assessment of Corrective Measures report, the potential schedule for meeting IAC 567 Chapter 113 regulation requirements for remedy selection and implementation of the remedy is summarized on the following table.

Event/Deliverable	Regulatory Requirement	Regulatory Required Time Period	Tentative Completion/Implementation Date	Comments
ACM Report Submittal to IDNR	113.10(7)"a"	Modified	January 31, 2025	
IDNR approval of ACM	N/A	N/A	January 31, 2025	Contingent upon IDNR's review and comment(s) regarding the ACM
Public Meeting	113.10(7)"d"	Within 60 days of IDNR approval of ACM	March 1, 2025	Contingent upon approval of ACM by IDNR
Select Remedy	113.10(8)"a"	Within 60 days of holding the public meeting	April 30, 2025	Contingent upon when public meeting is conducted
Remedial Selection Report submittal to IDNR	113.10(8)"a"	Within 14 days of selecting a remedy	May 14, 2025	Contingent upon when remedy is selected
Initiation of excavation /construction of source control remedy	N/A	N/A	N/A	N/A
Completion and startup of source control remedy	N/A	N/A	N/A	N/A
Corrective action monitoring	113.10(9)	Variable	2030	Contingent upon Appendix II constituents do not exceed GWPS for 3 consecutive years per statistical procedures and performance standards

9. Summary and Conclusions

The assessment did not identify any drinking water wells installed in the same water table aquitard within 1-mile of the site. There are no domestic wells located on the site. The results indicate no human receptors. On-site water table groundwater and surface water are not used as a drinking water source, and site access is restricted. Based on current data, arsenic, barium, benzene, cobalt, nickel, and vinyl chloride in groundwater is naturally attenuated at the landfill boundary once discharged and mixed with surface water from the tributary of Miller Creek.

As a result of the review of performance, implementation, and costs of listed remedies, it is recommended the remedy consist of MNA and source control measures to address the site groundwater issues. MNA will consist of following the current HMSP groundwater monitoring program for the site. Source control measures are already being implemented. Landfill capping is reducing infiltration from precipitation and as a result less leachate is being generated. Landfill gas venting is reducing migration of landfill gas to the water table.

9.1 Monitoring and Sampling

- Continue to monitor groundwater and surface water for next 3 – 5 years. More time and samples are required to monitor attenuation in concentrations over time.
- Continue to sample ACM groundwater monitoring wells and surface water annually
- Update ACM report annually

9.2 Site-Specific Standards

Develop site-specific risk standards for arsenic, barium, cobalt, and nickel.

10. References

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Prior, J.C., 1991, Landforms of Iowa: University of Iowa Press, Iowa City, 153 p.

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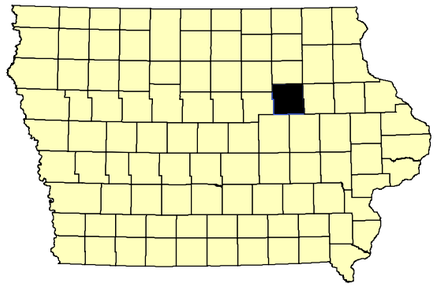
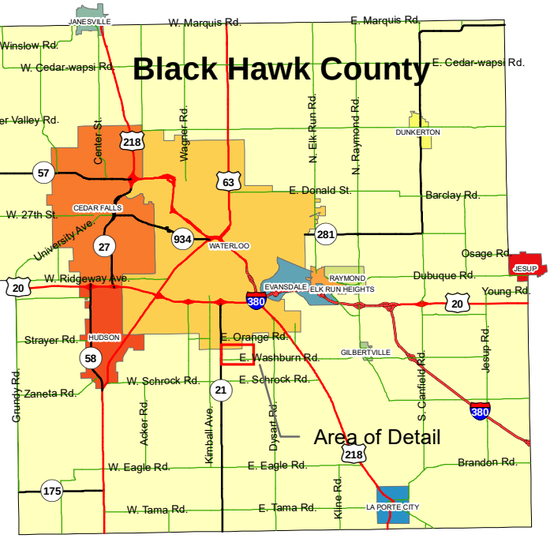
Figures





Gas Well
Shallow Detection Well
Intermediate Detection Well
Deep Detection Well
Surface

Leachate Collection
Leachate Cleanout
Manhood
Tank
Collection Line
Sideslope Riser
Force Main

0 250 500 750 1,000
Feet

N
W E
S

Basemap: Black Hawk County, IA Assessor, Spring 2024

Hammond Avenue
Hess Road
NEUTRAL TRENCH
ASBESTOS CELL NO. 1
ASBESTOS CELL NO. 2
AREA E
AREA C
AREA A
CELL X
CELL W1
CELL W2
CODISPOSAL AREA
Scale House
Washburn Road
MW-703B
P-703C
MW-704B
SG-4
SW-1
MW-705B
MW-706B
MW-707B
MW-708B
MW-709B
MW-710B
OW-101B
P-102E
P-102C
OW-102D
OW-102B
P-103A
P-103C
P-101A
P-101C
MW-711B
P-102A
P-104A
P-104C
OW-103B
OW-104B
MW-712B
MW-409B
OW-219B
OW-218B
OW-213BR
P-213C
OW-217B
OW-216BR
P-216CR
OW-215BR
P-215CR
MW-304B
MW-702B
SW-4
SG-1
MW-701B
OW-205B
OW-224B
OW-212B
OW-225B
P-113A
P-113C
GUE-1
OW-113B
OW-226B
OW-220B
OW-227B
SG-5
OW-221B
P-105C
OW-105B
P-105A
P-106C
SW-5
OW-222B
OW-214BR
P-214CR
GUE-2
GUX-1
P-106AR
OW-117B
OW-106B
P-107C
P-107A
OW-223B
OW-107BR
OW-116B
OW-209B
P-108A
P-108C
OW-108B
P-109A
P-109C
OW-109B
SW-3
SG-3
OW-115B
OW-118
P-110A
P-110C
OW-110B
SG-2
SW-2
P-111A
P-111C
OW-111B
OW-208B
P-208A
P-207A
OW-207B
MW-501B
MW-320B
P-114A
P-114C
OW-114B
OW-413B
OW-402B
P-402C
P-402A
OW-412B
OW-414B
OW-401B
OW-411B
OW-410B
OW-407B
OW-408B
GUW1-1
GUW2-1
P-604C
MW-604B
MW-603B
MW-602B
MW-606B
MW-318BR
MW-318CR
MW-319B

AECOM

Figure 1
Site Map – Monitoring Locations
Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

Jan 2025

60722882

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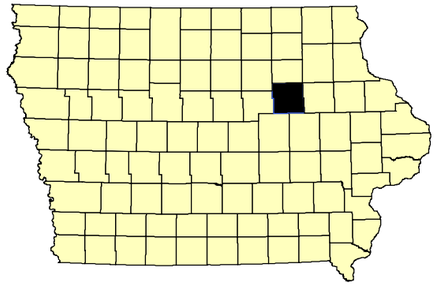

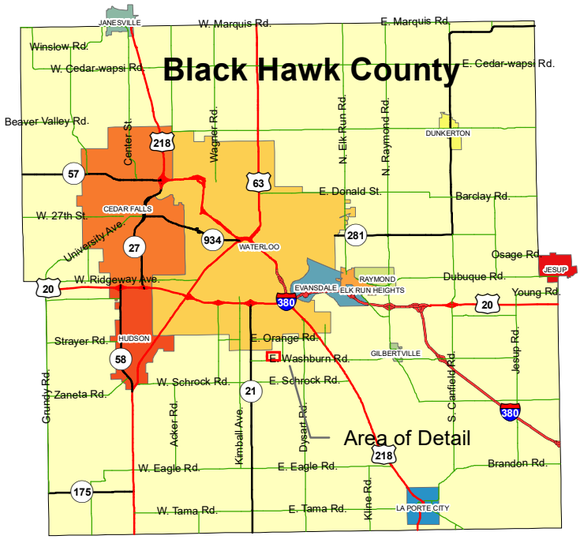

Monitoring Well

Leachate Collection

- Leachate Cleanout
- Manhole
- Tank
- Collection Line
- Sideslope Riser
- Force Main

0 100 200 300 400

Feet

N

W E

S

Basemap: Black Hawk County, IA Assessor, Spring 2024

MW-712B
OW-205B
OW-212B
P-212A
AREA E
GUE-1
OW-224B
OW-225B
OW-220B
P-113C
OW-226B
P-113A
OW-113B
OW-227B
SG-5
OW-221B
P-105A
P-105C
OW-105B
GUW1-1
AREA C
OW-413B
OW-402B
P-402A
OW-412B
SW-5
OW-414B
CELL W1
OW-411B
OW-401B
OW-410B
AREA A
CODISPOSAL AREA
CODISPOSAL AREA
P-114A
P-114C
OW-114B
MW-320B
Scale House
MW-501B

AECOM

Figure 2
ACM Groundwater Monitoring Locations

Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

Jan. 2025

60722882

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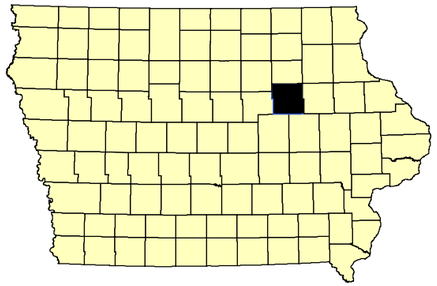

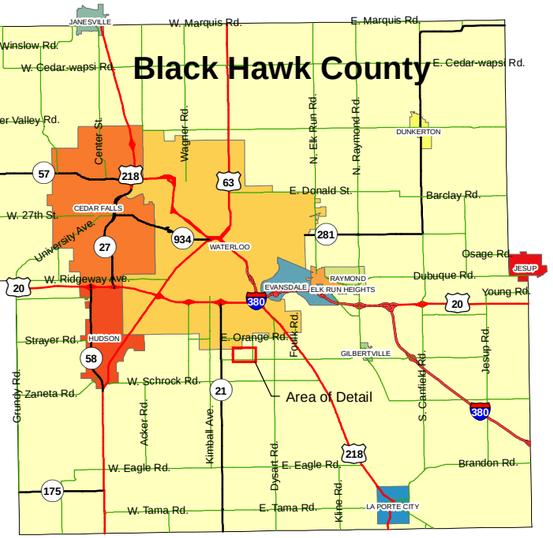

Groundwater Contour

Flow Line

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

0 250 500 750 1,000

Feet

N

W E

S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

NEUTRAL TRENCH

ASBESTOS CELL NO. 1

ASBESTOS CELL NO. 2

AREA E

AREA C

AREA A

CELL W1

CELL W2

CELL X

CODISPOSAL AREA

Scale House

Washburn Road

Hammond Avenue

Mess Road

MW-703B 923.04
MW-704B 928.97
MW-705B 926.62
SG-4 0.00
MW-706B 930.58
MW-707B 933.83
MW-708B 933.93
MW-709B 937.58
MW-710B 937.23
OW-101B 937.60
OW-102D 927.75
OW-102B 931.23
MW-711B 931.73
OW-103B 926.74
OW-104B 924.88
MW-712B 928.49
OW-205B 931.27
OW-212B 925.05
OW-224B 928.42
OW-225B 924.67
OW-220B 916.26
OW-226B 912.50
OW-113B 911.05
OW-227B 910.14
SG-5 911.56
OW-105B 908.81
OW-221B 906.99
OW-106B 905.12
OW-222B 904.18
OW-117B 903.28
OW-223B 900.15
OW-116B 901.64
OW-107BR 902.61
OW-209B 900.57
OW-108B 898.22
OW-109B 896.22
SG-3 893.76
OW-115B 892.83
OW-118B 891.21
OW-110B 900.95
SG-2 898.50
OW-208B 918.59
OW-111B 924.95
MW-501B 928.64
OW-207B 928.51
MW-320B 933.87
MW-319B 951.94
MW-318BR 939.52
MW-606B 940.58
OW-114B 934.06
OW-407B 942.25
OW-408B 946.20
MW-602B 932.47
OW-410B 938.65
OW-401B 938.05
OW-411B 933.84
OW-402B 938.33
OW-414B 938.55
OW-412B 938.23
OW-413B 937.38
MW-603B 928.85
MW-604B 922.48
MW-701B 920.73
SG-1 920.41
MW-702B 922.98
MW-304B 918.39
OW-219B 932.28
OW-218B 933.75
OW-213BR 932.19
OW-217B 927.54
OW-216BR 933.83
OW-215BR 926.08
OW-214BR 916.23

AECOM

Figure 3
Shallow Water Table Contour Map

Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

Jan. 2025

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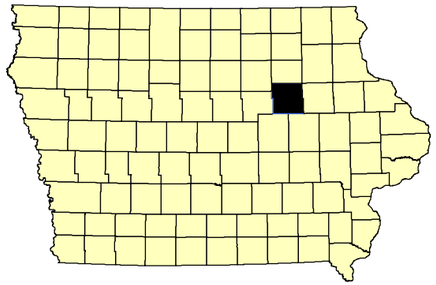

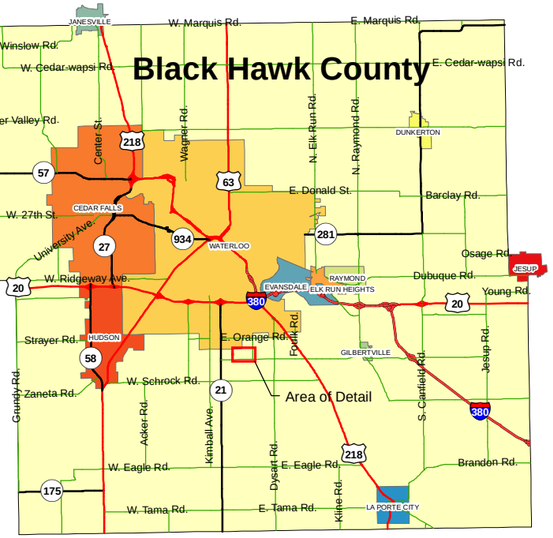

Groundwater Contours

Flow Line

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

0 250 500 750 1,000

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

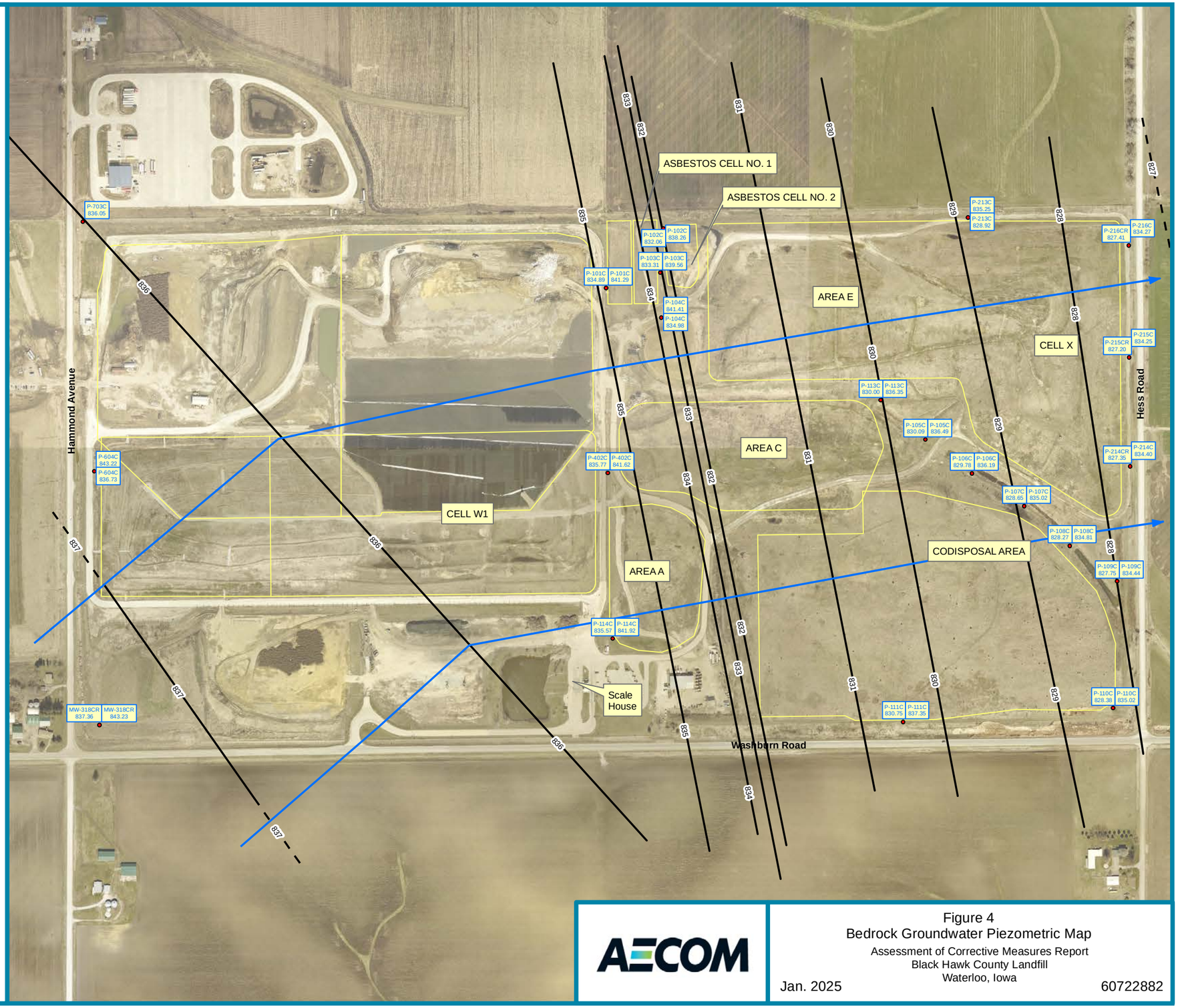

Figure 4
Bedrock Groundwater Piezometric Map
Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

Jan. 2025 60722882

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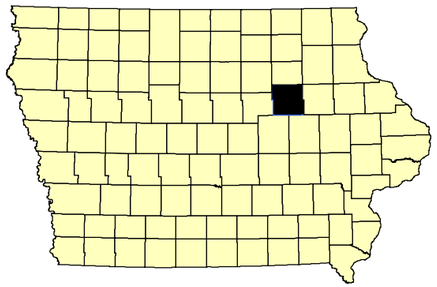

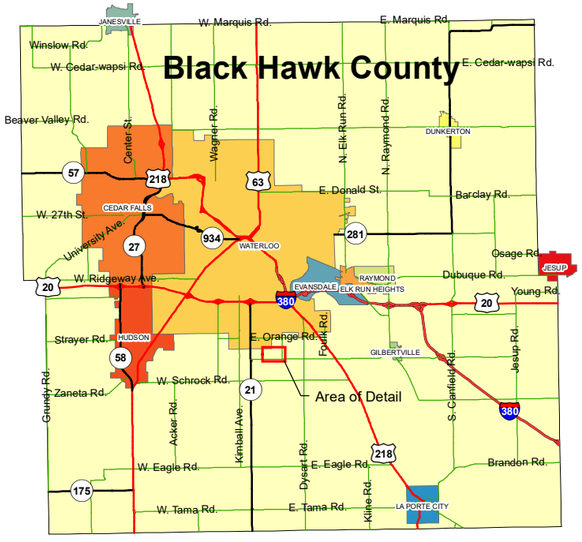

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Groundwater Elevation

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

OW-205B 931.27
OW-224B 928.42
OW-212B 925.05
OW-225B 924.67
OW-220B 916.26
OW-226B 912.50
OW-113B 911.05
OW-227B 910.14
SG-5 911.56
OW-105B 908.81
OW-413B 937.38
OW-412B 938.23
OW-402B 938.33
OW-414B 938.55
OW-411B 933.84
OW-401B 938.05
OW-410B 938.65
OW-114B 934.06

AREA C
AREA A
CODISPOSAL AREA

910
915
920
925
930
935

AECOM

Figure 5
March 2024 Area A Water Table Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025 60746421

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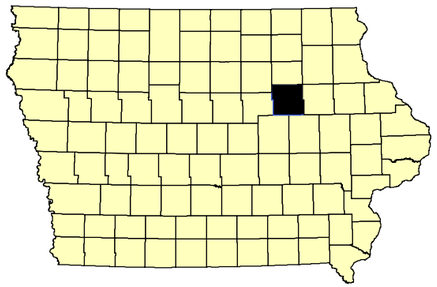
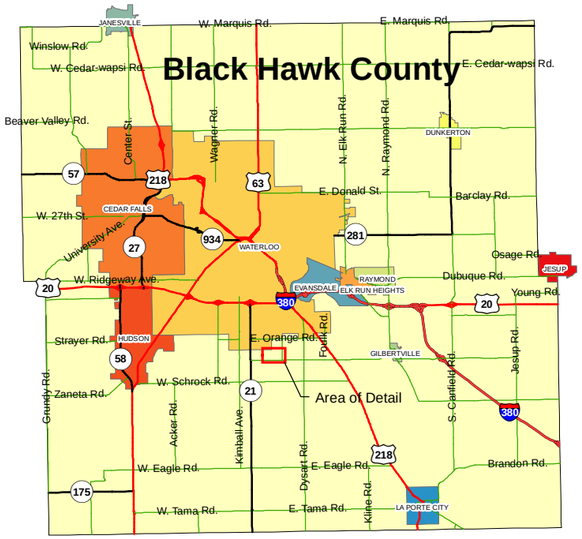




Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B <0.22

OW-413B 1.17

OW-402B <0.22

OW-412B 0.296 J

OW-414B 1.98

OW-401B 3.79

OW-411B 0.229 J

OW-410B 2.02

OW-114B <0.22

890

915

920

925

930

935

3.0 ug/L

1.0 ug/L

AECOM

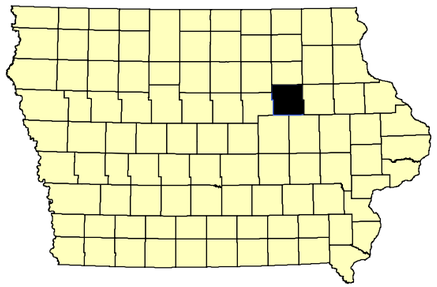
Figure 6
April 2024 Area A Benzene Iso-concentration Contour Map

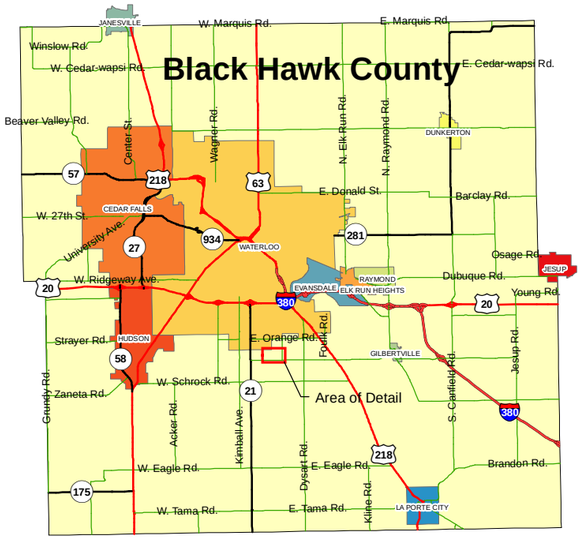
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

60746421

L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\400_Technical\435 Water Quality\01-IDNR\2024 AWQR\09-ACM Report\Fig 06.mxd





Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B <0.21

OW-413B 0.701 J

OW-402B 0.521 J

OW-412B 11.8

OW-414B 6.98

OW-401B <0.21

OW-411B <0.21

OW-410B <0.21

OW-114B <0.21

5.0 ug/L

1.0 ug/L

890

915

920

925

930

935

AECOM

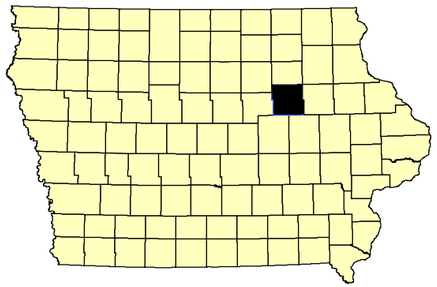
Figure 7
April 2024 Area A cis-1,2 Dichloroethylene
Iso-concentration Contour Map

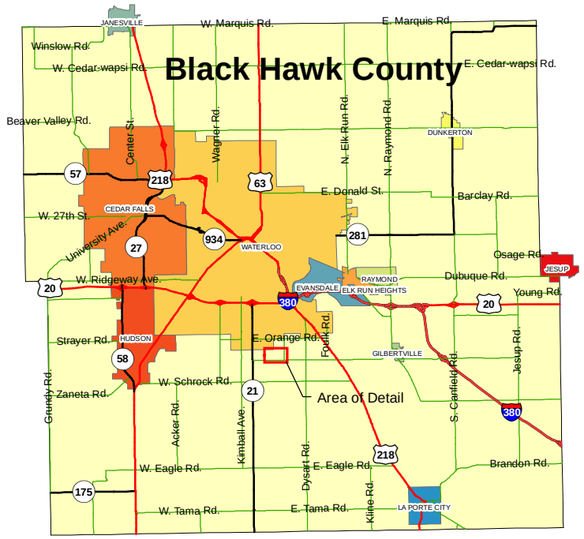
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

60746421

L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\400_Technical\435 Water Quality\01-IDNR\2024 AWQR\09-ACM Report\Fig 07.mxd





Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

890 915 920 925 930 935

OW-205B <0.18

OW-413B <0.18

OW-402B <0.18

OW-412B 0.812 J

OW-414B 0.9 J

OW-401B <0.18

OW-411B <0.18

OW-410B <0.18

OW-114B <0.18

Note: Analyte contours do not exceed the GWPS.

AECOM

Figure 8
April 2024 Area A Vinyl Chloride
Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025 60746421

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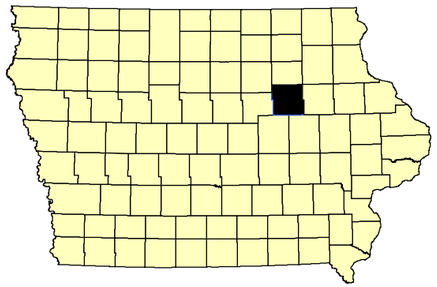

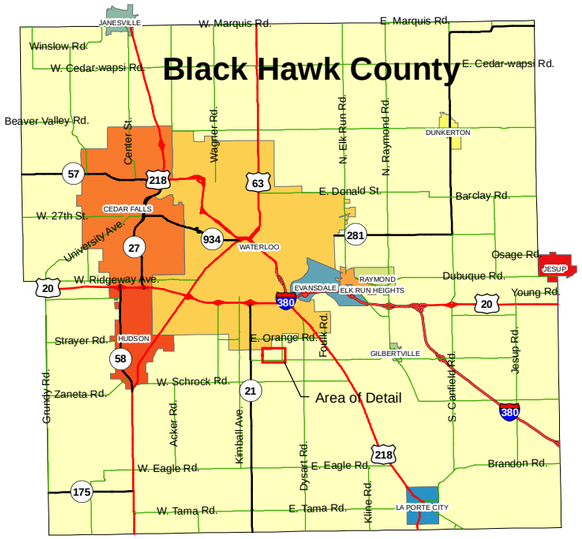

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 9.06

OW-413B 10.8

OW-402B 0.841 J

OW-412B 4.18

OW-414B 9.85

OW-401B 5.67

OW-411B 4.07

OW-410B 11.8

OW-114B <0.53

10.0 ug/L

11.0 ug/L

12.0 ug/L

890

915

920

925

930

935

AECOM

Figure 9
April 2024 Area A Arsenic Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

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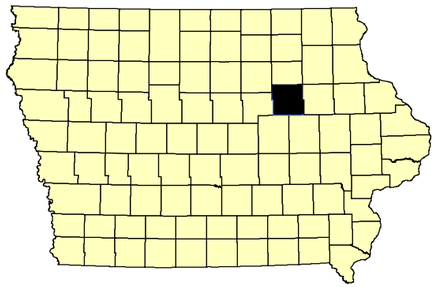
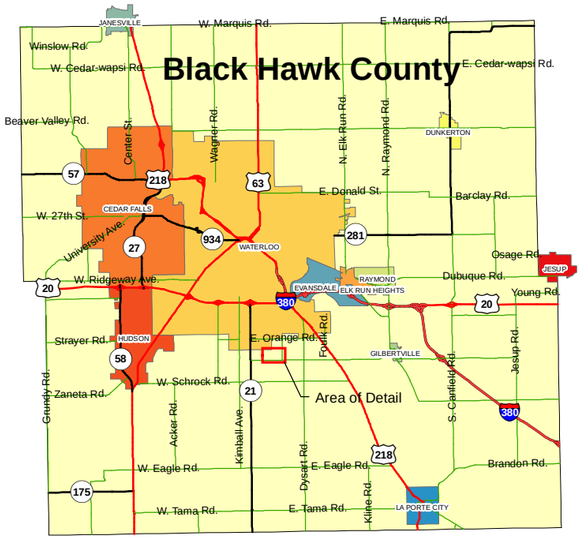




Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 3.69

OW-413B 5.23

OW-402B 2.02

OW-412B 1.03

OW-414B 19.1

OW-401B 2.5

OW-411B 1.41

OW-410B 13.8

OW-114B 0.83

890 915 920 925 930 935

3.0 ug/L 2.1 ug/L 5.0 ug/L 9.0 ug/L 12.0 ug/L

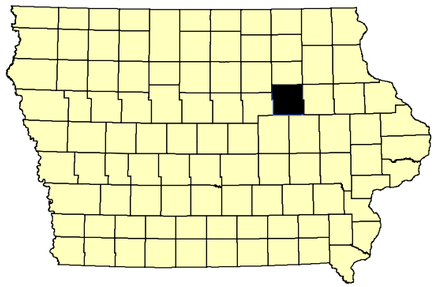
AECOM

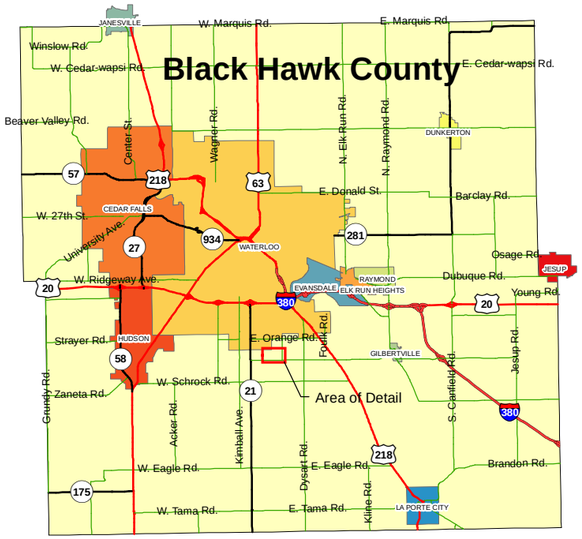
Figure 10
April 2024 Area A Cobalt Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025 60746421

L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\400_Technical\435 Water Quality\01-IDNR\2024 AWQR\09-ACM Report\Fig 10.mxd





Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 12.6

OW-413B 7.58

OW-402B 30.4

OW-412B 20.5

OW-414B 67.2

OW-401B 47

OW-411B 28.5

OW-410B 52.1

OW-114B 13

20.0 ug/L

25.0 ug/L

30.0 ug/L

40.0 ug/L

890

915

920

925

930

935

AECOM

Figure 11
April 2024 Area A Nickel Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

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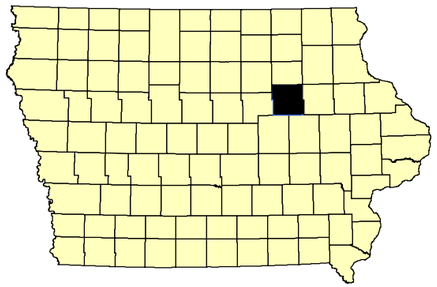
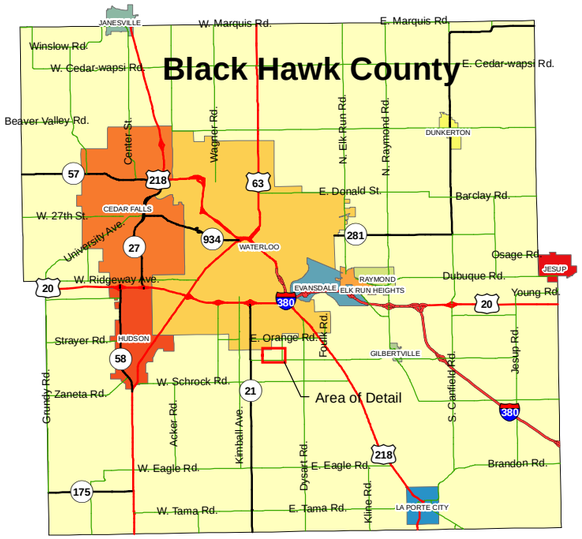
L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\400_Technical\435 Water Quality\01-IDNR\2024 AWQR\09-ACM Report\Fig 11.mxd





Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 171

OW-413B 632

OW-402B 581

OW-412B 1390

OW-414B 642

OW-401B 1710

OW-411B 687

OW-410B 2750

OW-114B 55.8

2400 ug/L

2600 ug/L

2200 ug/L

2000 ug/L

890

915

920

925

930

935

AECOM

Figure 12
April 2024 Area A Barium Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

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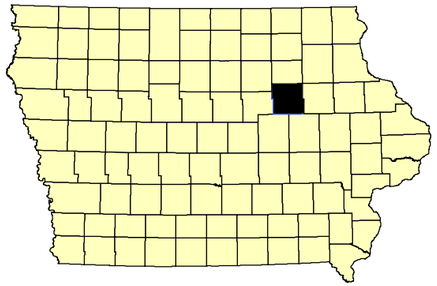
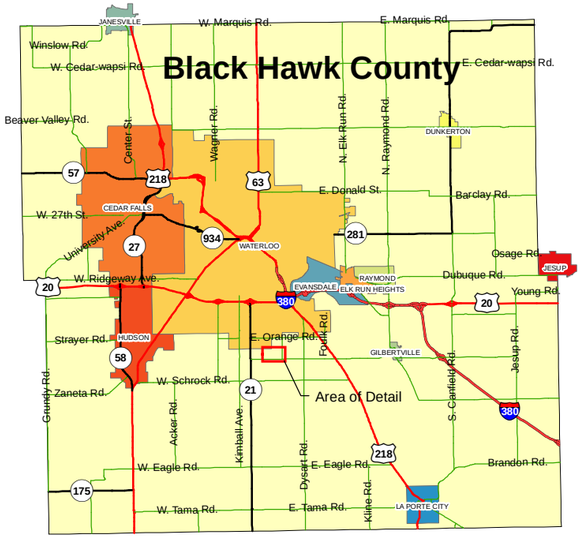
L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\400_Technical\435 Water Quality\01-IDNR\2024 AWQR\09-ACM Report\Fig 12.mxd





Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-205B <0.22

OW-224B 3.02 J

OW-212B <0.22

OW-225B 1.18

OW-220B 2.29

OW-226B 2.02

OW-113B <0.22

OW-227B 2.99

OW-105B <0.22

3.0 ug/L

890

910

920

930

925

915

935

AECOM

Figure 13
April 2024 Area C Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

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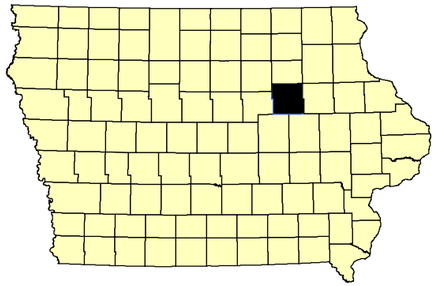
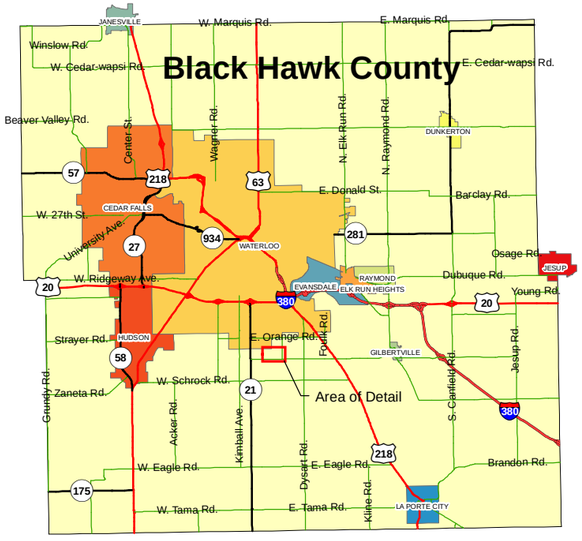




Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-205B <0.21

OW-224B <2.1

OW-212B <0.21

OW-225B 0.778 J

OW-220B 0.474 J

OW-226B <0.21

OW-113B <0.21

OW-227B <0.21

OW-105B <0.21

890 910 920 925 930 935 915

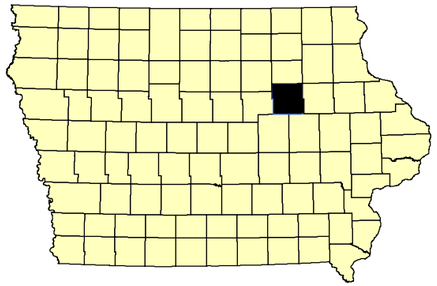
0.5 ug/L

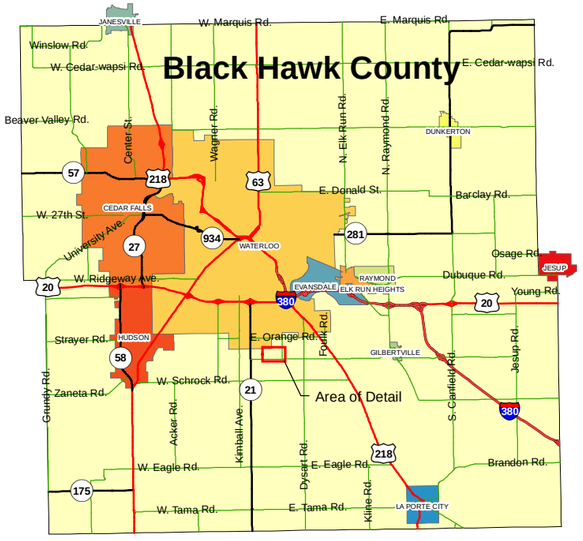
Figure 14
April 2024 Area C cis-1,2-Dichloroethylene
Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025 60746421

L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\400_Technical\435 Water Quality\01-IDNR\2024 AWQR\09-ACM Report\Fig 14.mxd





Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

AREA E

AREA C

AREA A

CODISPOSAL AREA

890 910 920 925 930 935 915

OW-205B 9.06
OW-224B 5.7
OW-212B 1.21 J
OW-225B 5.86
OW-220B 14.4
OW-226B 8.05
OW-113B 2.19
OW-227B 16.9
OW-105B <0.53

16.0 ug/L
14.0 ug/L
12.0 ug/L
10.0 ug/L

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Figure 15
April 2024 Area C Arsenic Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025

60746421

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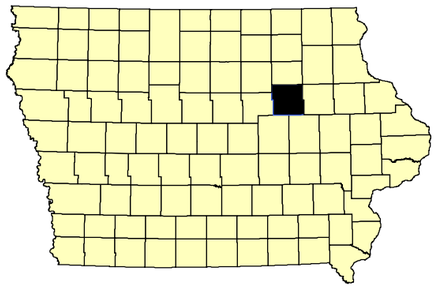

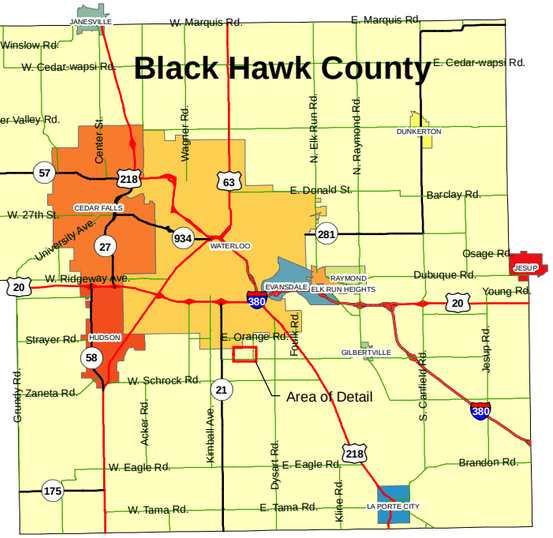

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-205B 3.69

OW-224B 32.5

OW-212B 11.9

OW-225B 33.3

OW-220B 21.7

OW-226B 18.8

OW-113B 14.4

OW-227B 23.5

OW-105B <0.17

890 910 920 925 930 935 915

15.0 ug/L 20.0 ug/L 10.0 ug/L 5.0 ug/L 25.0 ug/L 3.0 ug/L 2.1 ug/L

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Figure 16
April 2024 Area C Cobalt Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2025 60746421

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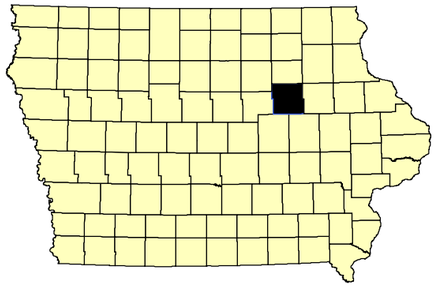

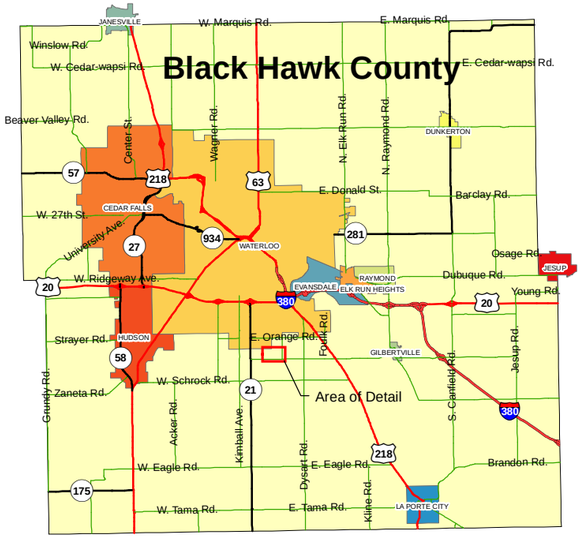

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-205B 12.6

OW-224B 172

OW-212B 44.9

OW-225B 144

OW-220B 135

OW-226B 70.5

OW-113B 20.9

OW-227B 78.4

OW-105B <2.1

100 ug/L

890

910

920

930

935

925

915

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Figure 17
April 2024 Area C Nickel Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

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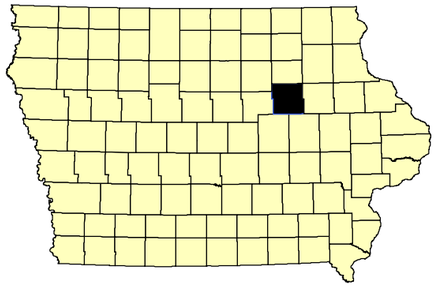

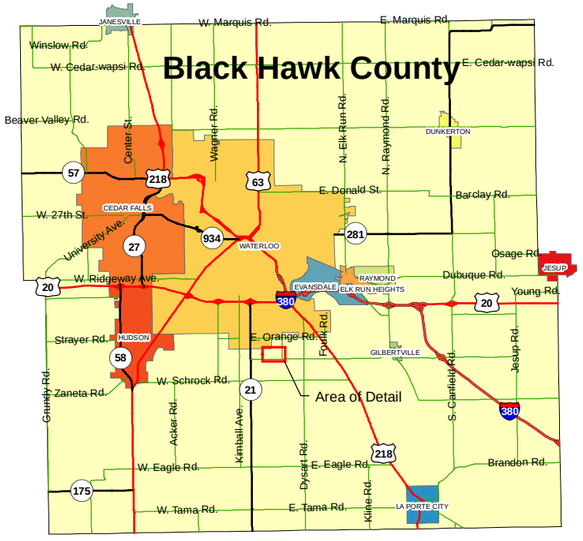

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on March 2024 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2024

AREA E

AREA C

AREA A

CODISPOSAL AREA

890 910 920 925 930 935 915

OW-205B 171

OW-224B 2580

2000 ug/L

OW-212B 27.5

OW-225B 1710

OW-220B 904

OW-226B 1450

OW-113B 14.1

OW-227B 1920

OW-105B 79.9

2200 ug/L

2000 ug/L

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Figure 18
April 2024 Area C Barium Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

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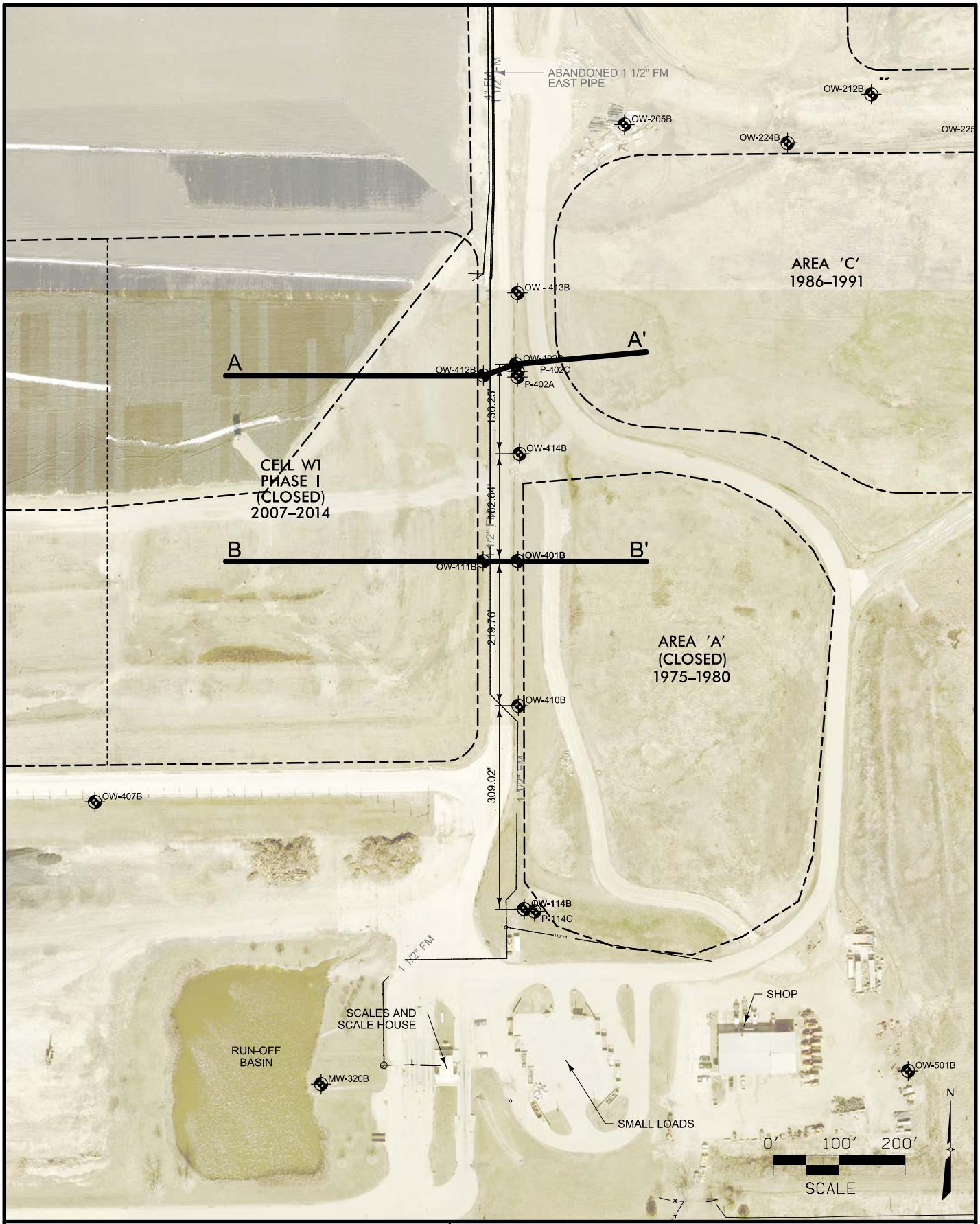


PREPARED BY:

AECOM

501 SYCAMORE STREET SUITE 222 WATERLOO, IA. 50703-4644 1-319-232-6531

FIGURE NO. 19

CROSS-SECTION ALINGMENT 2024 ACM REPORT

BLACK HAWK COUNTY SOLID WASTE MANAGEMENT COMMISSION
WATERLOO, IOWA

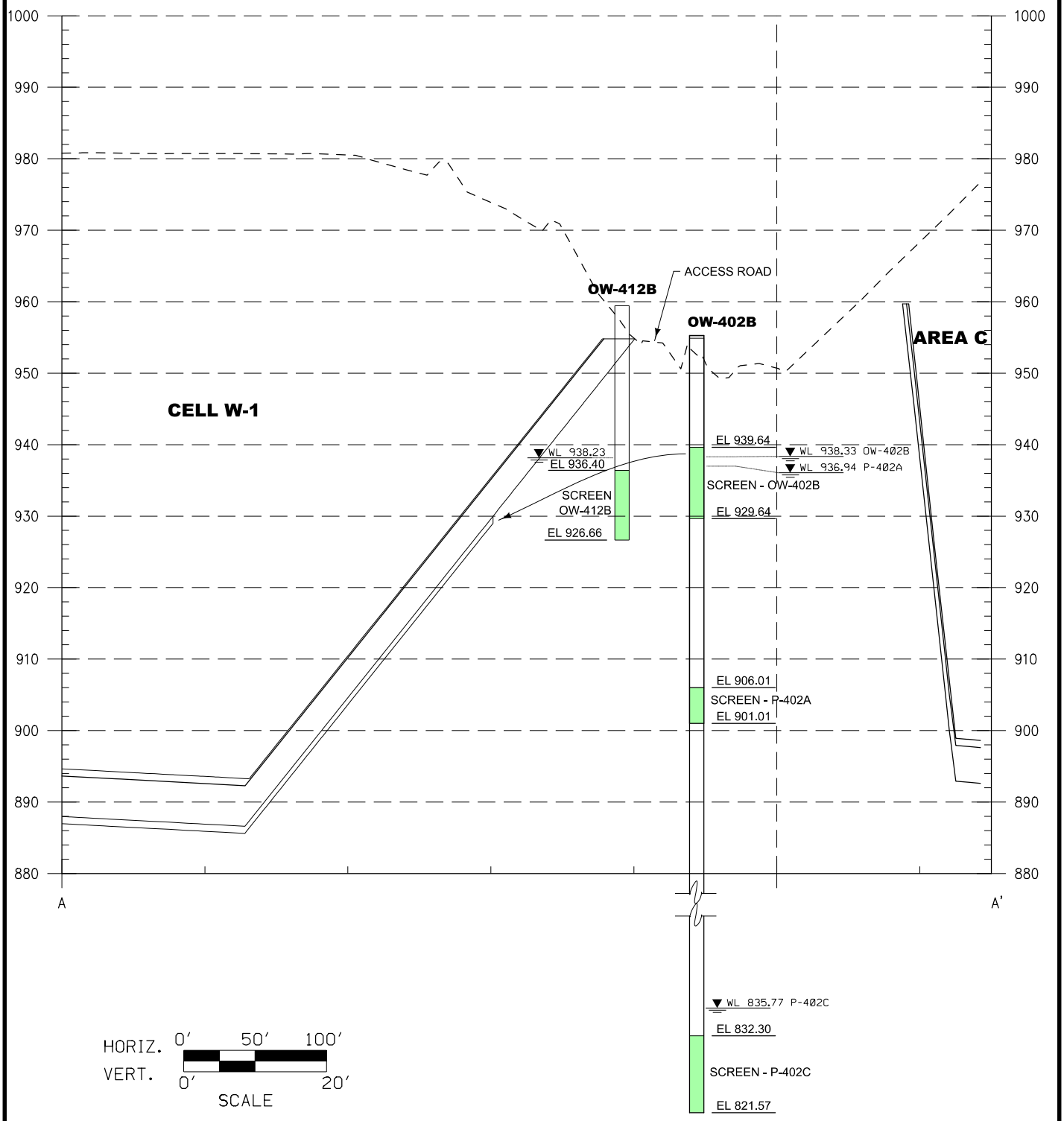
JAN 2025

60722882

Plotted: 1/24/2025, 12:04:35 PM

Waterloo, Iowa
Printed from MicroStation V8i
Design File L:\DCS\Projects\TRN\60746421_2025_BH_SWMC_Eng_Services\900_CAD_GIS\00-AWQR\ACM\BHCO ACM XSECT.Dgn, Model 19 XSECT ALIGN

Mar-24	Arsenic	Cobalt	Nickel	Benzene	cis-1,2-Dichloroethylene	Vinyl chloride
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
GPS	10	9.83	100	5	70	2
OW-402B	<0.53	2.02	30.4	<0.22	0.521 J	<0.18
P-402A	<0.53	0.172 J	7.73	<0.22	<0.21	<0.18
P-402C	<0.53	0.38 J	2.31 J	<0.22	<0.21	<0.18
OW-412B	4.18	1.03	20.5	0.296 J	11.8	0.812 J



PREPARED BY:

AECOM

501 SYCAMORE STREET SUITE 222 WATERLOO, IA. 50703-4644 1-319-232-6531

FIGURE NO. 20

CROSS-SECTION A-A' - APRIL 2024
2024 ACM REPORT

BLACK HAWK COUNTY SOLID WASTE MANAGEMENT COMMISSION
WATERLOO, IOWA

JAN 2025

60722882

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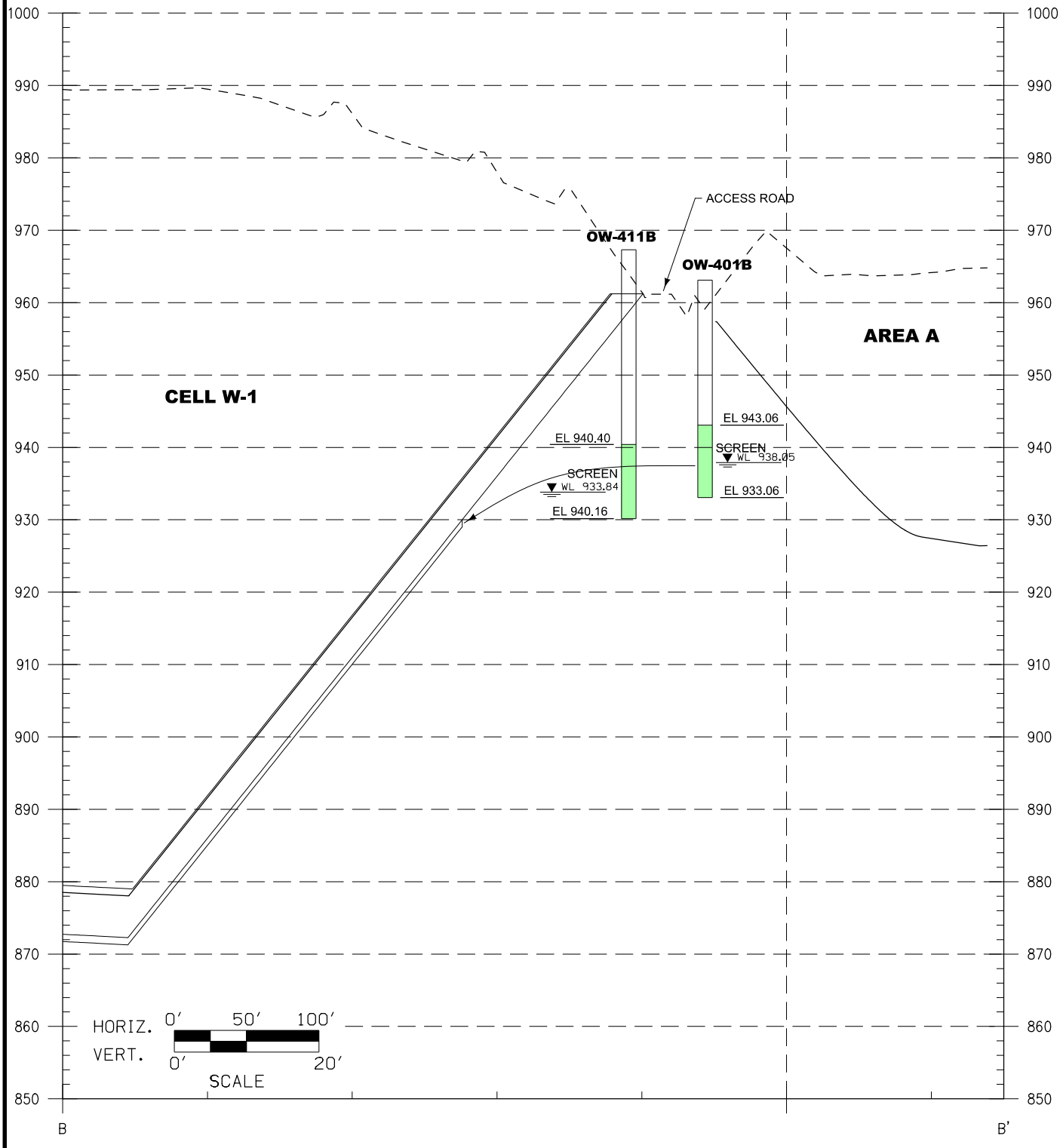
Printed from MicroStation V8i
Waterloo, Iowa

Mar-24	Arsenic	Cobalt	Nickel	Benzene	cis-1,2-Dichloroethylene	Vinyl chloride
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
GPS	10	9.83	100	5	70	2
OW-401B	5.67	2.5	47	3.79	<0.21	<0.18
OW-411B	4.07	1.41	28.5	0.229 J	<0.21	<0.18



PREPARED BY:

AECOM

501 SYCAMORE STREET SUITE 222 WATERLOO, IA. 50703-4644 1-319-232-6531

FIGURE NO. 21

CROSS-SECTION B-B' - APRIL 2024
2024 ACM REPORT

BLACK HAWK COUNTY SOLID WASTE MANAGEMENT COMMISSION
WATERLOO, IOWA

JAN 2025

60722882

Plotted: 1/24/2025, 12:06:19 PM
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Printed from MicroStation V8i
Waterloo, Iowa

Tables

TABLE 1
BLACK HAWK COUNTY LANDFILL
2024 MONITORING WELL DATA

Source:	AECOM Original Field Survey				Well Construction Data — IDNR Form 542-1277												Revised IDNR Form #542-1277 AECOM 2016-2023 FIELD SURVEY DATA									
																			FROM GROUND SURFACE ELEVATION						FROM TOC	
Well	Iowa State Plane Coordinates, North Zone Easting	Iowa State Plane Coordinates, North Zone Northing	Top of Riser Pipe Elevation	Ground Surface Elevation	Top of Screen Elevation	Bottom of Screen Elevation	Top of Filter Pack Elevation	Bottom of Filter Pack Elevation	Depth to Top of Screen	Depth to Bottom of Screen	Depth to Bottom of Filter Pack	Depth to Top of Filter Pack	Screen Length	Screened Geologic Unit	Groundwater System	Depth to Bottom of Well	Area Monitored	Top of Riser Pipe Elevation	Ground Surface Elevation	Top of Screen Elevation	Bottom of Screen Elevation	Depth to Top of Screen	Depth to Bottom of Screen	Change in Top of Riser Pipe Elevation	Change in Ground Surface Elevation	Change in Depth to Top of Screen	Change in Depth to Bottom of Screen	Depth to Bottom of Well	Change in Depth to Bottom of Well
OW-101B	5,237,815.81	3,618,719.61	946.98	942.98	924.18	913.98	936.98	913.58	18.80	29.00	29.40	6.00	10.20	QAT	Water Table	33.00	UG ASB Cells No. 1 & 2	946.51	943.62	924.18	913.98	19.44	29.64	(0.47)	0.64	0.64	0.64	32.53	(0.47)
OW-102B	5,237,943.14	3,618,434.57	940.43	940.23	915.43	905.23	933.23	905.23	24.80	35.00	35.00	7.00	10.20	QAT	Water Table	35.20	UG ASB Cell No. 2, DG ASB Cell No. 1	951.23	948.71	915.43	905.23	33.28	43.48	10.80	8.48	8.48	8.48	46.00	10.80
OW-102D	5,238,109.26	3,618,693.88	941.50	938.00	918.70	908.70	930.00	908.00	19.30	29.30	30.00	8.00	10.00	QAT	Water Table	33.00	DG Neutral Trench	941.17	938.34	918.70	908.70	19.64	29.64	(0.33)	0.34	0.34	0.34	32.88	(0.12)
OW-103B	5,237,892.83	3,618,213.25	937.12	933.22	917.52	907.32	926.52	907.22	15.70	25.90	26.00	6.70	10.20	QAT	Water Table	29.80	SG ASB Cell No. 2, UG Area E	937.44	934.90	917.52	907.32	17.38	27.58	0.32	1.68	1.68	1.68	30.12	0.32
OW-104B	5,238,051.60	3,618,224.96	932.68	929.24	914.04	903.84	922.98	903.84	15.20	25.40	25.40	6.26	10.20	QAT	Water Table	28.84	SG ASB Cell No. 2, UG Area E	933.23	930.72	914.04	903.84	16.68	26.88	0.55	1.48	1.48	1.48	29.39	0.55
OW-105B	5,239,389.10	3,617,624.69	913.98	910.66	901.96	891.76	903.76	891.06	8.70	18.90	19.60	6.90	10.20	QAT	Water Table	22.22	DG Area C & Area E	925.73	922.57	901.96	891.76	20.61	30.81	11.75	11.91	11.91	11.91	33.97	11.75
OW-106B	5,239,624.71	3,617,474.13	911.09	907.68	898.98	888.78	901.34	888.08	8.70	18.90	19.60	6.34	10.20	QAT	Water Table	22.31	DG Area C, Area E, & Cell X	914.65	911.36	898.98	888.78	12.38	22.58	3.56	3.68	3.68	3.68	25.87	3.56
OW-107BR	5,239,903.70	3,617,288.70	911.00	908.10	900.50	890.50	902.00	889.50	7.60	17.60	18.60	6.10	10.00	QAT	Water Table	20.50	DG Cell X	911.00	908.10	900.50	890.50	7.60	17.60	0.00	0.00	0.00	0.00	20.50	0.00
OW-108B	5,240,118.15	3,617,093.51	903.52	899.66	891.96	881.71	893.97	881.51	7.70	17.95	18.15	5.69	10.25	QWT/QAT	Water Table	21.81	DG Area C, Area E, & Cell X	908.03	905.50	891.96	881.71	13.54	23.79	4.51	5.84	5.84	5.84	26.32	4.51
OW-109B	5,240,306.02	3,616,906.62	902.15	898.49	890.79	880.59	892.85	880.49	7.70	17.90	18.00	5.64	10.20	QWT	Water Table	21.56	DG Cell X	902.76	900.03	890.79	880.59	9.24	19.44	0.61	1.54	1.54	1.54	22.17	0.61
OW-110B	5,240,332.85	3,616,298.74	908.90	905.20	890.40	880.20	899.05	879.90	14.80	25.00	25.30	6.15	10.20	QWT/QAT	Water Table	28.70	SG Entire Facility	908.58	905.78	890.40	880.20	15.38	25.57	(0.33)	0.57	0.57	0.57	28.37	(0.33)
OW-111B	5,239,299.18	3,616,233.55	945.92	943.32	930.62	920.42	936.32	918.32	12.70	22.90	25.00	7.00	10.20	QWT	Water Table	25.50	SG Entire Facility	945.54	942.64	930.62	920.42	12.02	22.22	(0.38)	(0.68)	(0.68)	(0.68)	25.12	(0.38)
OW-113B	5,239,186.61	3,617,819.18	917.66	914.36	907.06	896.86	909.86	893.86	7.30	17.50	20.50	4.50	10.20	QAT	Water Table	20.80	DG Area E	918.41	916.07	907.06	896.86	9.01	19.21	0.75	1.71	1.71	1.71	21.55	0.75
OW-114B	5,237,834.14	3,616,651.65	943.56	939.86	931.06	920.86	933.96	920.36	8.80	19.00	19.50	5.90	10.20	QWT	Water Table	22.70	DG Area A	943.24	940.39	931.06	920.86	9.33	19.53	(0.32)	0.53	0.53	0.53	22.38	(0.32)
OW-115B	5,240,369.85	3,616,599.63	904.72	902.10	892.10	882.10	895.10	882.10	10.00	20.00	20.00	7.00	10.00	QRA	Water Table	22.62	DG Co-Disposal Area	904.72	902.10	892.10	882.10	10.00	20.00	0.00	0.00	0.00	0.00	23.24	0.62
OW-116B	5,239,963.12	3,617,231.68	911.06	908.00	901.00	891.00	903.00	889.00	7.00	17.00	19.00	5.00	10.00	QWT	Water Table	20.06	DG Co-Disposal Area	911.06	908.00	901.00	891.00	7.00	17.00	0.00	0.00	0.00	0.00	20.23	0.17
OW-117B	5,239,822.50	3,617,337.50	913.51	910.40	900.40	890.40	902.90	889.90	10.00	20.00	20.50	7.50	10.00	QWT	Water Table	23.11	DG Co-Disposal Area	913.51	910.40	900.40	890.40	10.00	20.00	0.00	0.00	0.00	0.00	23.26	0.15
OW-118B	5,240,511.00	3,616,470.22	900.59	898.49	890.49	880.49	891.49	879.49	8.00	18.00	19.00	7.00	10.00	QRA	Water Table	21.10	DG Co-Disposal Area	900.59	898.49	890.49	880.49	8.00	18.00	0.00	0.00	0.00	0.00	21.10	0.00
OW-205B	5,237,986.69	3,617,842.60	940.58	937.38	927.08	916.88	929.38	916.18	10.30	20.50	21.20	8.00	10.20	QWT/QAT	Water Table	23.70	DG Cell W1, UG Area E	940.13	937.38	927.08	916.88	10.30	20.50	(0.45)	(0.00)	(0.00)	(0.00)	23.25	(0.45)
OW-207B	5,238,749.85	3,616,070.11	936.65	933.25	918.65	908.45	925.95	907.75	14.60	24.80	25.50	7.30	10.20	QWT/QAT	Water Table	28.20	SG Entire Facility	936.46	933.39	918.65	908.45	14.74	24.94	(0.19)	0.14	0.14	0.14	28.01	(0.19)
OW-208B	5,239,936.90	3,616,082.02	929.45	926.55	914.45	904.25	918.55	903.55	12.10	22.30	23.00	8.00	10.20	QWT/QAT	Water Table	25.20	SG Entire Facility	929.11	926.60	914.45	904.25	12.15	22.35	(0.34)	0.05	0.05	0.05	24.86	(0.34)
OW-209B	5,240,339.89	3,617,169.34	908.34	905.04	895.14	884.94	897.04	884.24	9.90	20.10	20.80	8.00	10.20	QAT	Water Table	23.40	DG Cell X	910.99	908.21	895.14	884.94	13.07	23.27	2.65	3.17	3.17	3.17	26.05	2.65
OW-212B	5,238,361.55	3,617,888.43	934.73	932.23	924.23	914.03	925.73	914.03	8.00	18.20	18.20	6.50	10.20	QAT	Water Table	20.70	DG Cell W1 & Area C	935.24	931.94	924.23	914.03	7.71	17.91	0.51	(0.29)	(0.29)	(0.29)	21.21	0.51
OW-213BR	5,239,586.40	3,618,730.93	945.32	942.10	932.10	922.10	934.10	919.60	10.00	20.00	22.50	8.00	10.00	QWT/QAT	Water Table	23.22	UG Area E	945.32	942.10	932.10	922.10	10.00	20.00	0.00	0.00	0.00	0.00	23.25	0.03
OW-214BR	5,240,405.93	3,617,542.42	925.36	922.89	913.89	903.89	915.39	902.89	9.00	19.00	20.00	7.50	10.00	QAT	Water Table	21.47	SG Cell X	925.36	922.89	913.89	903.89	9.00	19.00	0.00	0.00	0.00	0.00	21.47	0.00
OW-215BR	5,240,401.53	3,618,102.44	935.64	933.13	924.13	914.13	925.63	913.13	9.00	19.00	20.00	7.50	10.00	QAT	Water Table	21.51	SG Cell X	935.64	933.13	924.13	914.13	9.00	19.00	0.00	0.00	0.00	0.00	21.51	0.00
OW-216BR	5,240,397.51	3,618,630.93	943.03	940.66	931.66	921.66	933.16	920.66	9.00	19.00	20.00	7.50	10.00	QWT/QAT	Water Table	21.37	UG Cell X	943.03	940.66	931.66	921.66	9.00	19.00	0.00	0.00	0.00	0.00	21.37	0.00
OW-217B	5,240,098.85	3,618,735.48	942.44	939.90	929.90	919.90	931.90	918.90	10.00	20.00	21.00	8.00	10.00	QWT/QAT	Water Table	22.54	UG Cell X	942.44	939.90	929.90	919.90	10.00	20.00	0.00	0.00	0.00	0.00	22.54	0.00
OW-218B	5,239,114.22	3,618,733.31	946.37	943.00	930.00	920.00	933.00	918.50	13.00	23.00	24.50	10.00	10.00	QWT/QAT	Water Table	26.37	UG Area E	946.37	943.00	930.00	920.00	13.00	23.00	0.00	0.00	0.00	0.00	26.37	0.00
OW-219B	5,238,570.30	3,618,749.15	939.90	936.90	929.90	919.90	931.90	918.40	7.00	17.00	18.50	5.00	10.00	QWT/QAT	Water Table	20.00	UG Area E	939.90	936.90	929.90	919.90	7.00	17.00	0.00	0.00	0.00	0.00	20.00	0.00
OW-220B	5,238,789.55	3,617,831.65	931.15	928.00	918.00	908.00	920.00	905.50	10.00	20.00	22.50	8.00	10.00	QWT/QAT	Water Table	23.15	DG Area C	931.15	928.00	918.00	908.00	10.00	20.00	0.00	0.00	0.00	0.00	23.15	0.00
OW-221B	5,239,595.28	3,617,659.33	924.15	921.20	911.20	901.20	913.20	900.70	10.00	20.00	20.50	8.00	10.00	QWT/QAT	Water Table	22.95	DG Cell X	924.15	921.20	911.20	901.20	10.00	20.00	0.00	0.00	0.00	0.00	22.95	0.00
OW-222B	5,239,825.68	3,617,468.03	919.37	916.20	909.20	899.20	911.20	893.70	7.00	17.00	22.50	5.00	10.00	QWT/QAT	Water Table	20.17	DG Cell X	919.37	916.20	909.20	899.20	7.00	17.00	0.00	0.00	0.00	0.00	20.17	0.00
OW-223B	5,240,081.60	3,617,313.92	917.45	914.60	907.60	897.60	909.60	896.10	7.00	17.00	18.50	5.00	10.00	QWT/QAT	Water Table	19.85	DG Cell X	917.45	914.60	907.60	897.60	7.00	17.00	0.00	0.00	0.00	0.00	19.85	0.00
OW-224B	5,238,234.23	3,617,814.51	941.29	939.54	929.04	919.04	930.54	918.54	10.50	20.50	21.00	9.00	10.00	QWT/QAT	Water Table	22.25	DG Area C	941.29	939.54	929.04	919.04	10.50	20.50	0.00	0.00	0.00	0.00	22.25	0.00
OW-225B	5,238,540.53	3,617,826.98	936.36	933.93	924.93	914.93	926.43	913.93	9.00	19.00	20.00	7.50	10.00	QWT/QAT	Water Table	21.43	DG Area C	936.36	933.93	924.93	914.93	9.00	19.00	0.00	0.00	0.00	0.00	21.43	0.00
OW-226B	5,239,033.29	3,617,800.80	924.97	922.41	913.41	903.41	914.91	902.41	9.00	19.00	20.00	7.50	10.00	QWT/QAT	Water Table	21.56	DG Area C	924.97	922.41	913.41	903.41	9.00	19.00	0.00	0.00	0.00	0.00	21.56	0.00
OW-227B	5,239,195.46	3,617,704.81	919.96	917.44	908.44	898.44	909.94	897.44	9.00	19.00	20.00	7.50	10.00	QWT/QAT	Water Table	21.52	DG Area C	919.96	917.44	908.44	898.44	9.00	19.00	0.00	0.00	0.00	0.00	21.52	0.00
MW-304B	5,235,219.45	3,618,415.07	926.36	924.00	918.00	908.00	920.00	907.00	6.00	16.00	17.00	4.00	10.00	QWT	Water Table	18.36	SG Cell W1	926.72	923.48	918.00	908.00	5.48	15.48	0.36	(0.52)	(0.52)	(0.52)	18.72	0.36
MW-318BR	5,235,313.09	3,616,217.57	952.77	950.50	943.10	933.10	944.50	932.50	7.40	17.40	18.00	6.00	10.00	QWT	Water Table	19.67	SG Cell W1	952.77	950.50	943.10	933.10	7.40	17.40	0.00	0.00	0.00	0.00	19.67	0.00
MW-319B	5,236,476.34	3,616,165.32	963.75	961.30	954.30	944.30	956.30	943.30	7.00	17.00	18.00	5.00	10.00	QWT	Water Table	19.45	UG Cell W1, Area A, & Area C	963.01	960.71	954.30	944.30	6.41	16.41	(0.74)	(0.59)	(0.59)	(0.59)	18.71	(0.74)
MW-320B	5,237,525.92	3,616,385.90	940.07	937.70	930.70	920.70	932.70	919.70	7.00	17.00	18.00	5.00	10.00	QWT/QAT	Water Table	19.37	SG Entire Facility	939.78	937.41	930.70	920.70	6.71	16.71	(0.29)	(0.29)	(0.29)	(0.29)	19.08	(0.29)
OW-401B	5,237,824.52	3,617,180.26	963.10	960.56	943.06	933.06	944.56	932.06	17.50	27.50	28.50	16.00	10.00	QI/QWT	Water Table	30.04	DG Cell W1, UG Area A	963.10	960.56	943.06	933.06	17.50	27.50	0.00	0.00	0.00	0.00	30.04	0.00
OW-402B	5,237,821.85	3,617,479.15	954.89	952.64	939.64	929.64	941.14	929.64	13.00	23.00	23.00	11.50	10.00	QI/QWT/QAT	Water Table	25.25	DG Cell W1, UG Area C	954.89	952.64	939.64	929.64	13.00	23.00	0.00	0.00	0.00	0.00	25.25	0.00
OW-407B	5,237,182.48	3,616,814.39	950.69	948.23	940.73	930.73	942.23	929.73	7.50	17.50	18.50	6.00	10.00	QWT/QAT	Water Table	19.96	SG Cell W1, UG Area A	950.69	948.23	940.73	930.73	7.50	17.50	0.00	0.00	0.00	0.00	19.96	0.00
OW-408B	5,236,509.88	3,616,803.12	954.34	952.24	943.24	933.24	946.24	932.24	9.00	19.00	20.00	6.00	10.00	QWT	Water Table	21.10	UG Cell W1	954.34	952.24	943.24	933.24	9.00	19.00	0.00	0.00	0.00	0.00	21.10	0.00
MW-409B	5,238,306.68	3,618,345.05	942.80	940.16	927.16	917.16	928.96	916.16	13.00	23.00	24.00	11.19	10.00	QI/QWT	Water Table	25.64	DG ASB Cells 1 & 2, UG Area E	942.80	940.16	927.16	917.16	13.00	23.00	0.00	0.00	0.00	0.00	25.64	0.00
OW-410B	5,237,825.50	3,616,960.50	952.85	949.90	937.90	927.90	939.90	923.40	12.00	22.00	26.50	10.00	10.00	QI/QWT	Water Table	24.95	UG Cell W1	952.85	949.90	937.90	927.90	12.00	22.00	0.00	0.00	0.00	0.00	24.95	0.00
OW-411B	5,237,771.90	3,617,179.60	967.30	964.40	940.40	930.40	942.40	929.90	24.00	34.00	34.50	22.00	10.00	QI/QWT	Water Table	36.90	UG Cell W1	967.30	964.40	940.40	930.40	24.00	34.00	0.00	0.00	0.00	0.00	36.90	0.00
OW-412B	5,237,772.50	3,617,461.70	959.45	956.40	936.40	926.40	938.40	921.90	20.00	30.00	34.50	18.00	10.00	QI/QWT	Water Table	33.05	UG Cell W1	959.45	956.40	936.40	926.40	20.00	30.00	0.00	0.00	0.00	0.00	33.05	0.00
OW-413B	5,237,824.00	3,617,586.90	948.60	946.00	937.00	927.00	939.00	926.00	9.00	19.00	20.00	7.00	10.00	QI/QWT	Water Table	21.60	UG Cell W1	948.60	946.00	937.00	927.00	9.00	19.00	0.00	0.00	0.00	0.00	21.60	0.00
OW-414B	5,237,827.20	3,617,342.90	962.40	959.40	940.40	930.40	942.40	928.90	19.00	29.00	30.50	17.00	10.00	QI/QWT	Water Table	32.00	UG Cell W1	962.40	959.40	940.40	930.40	19.00	29.00	0.00	0.00	0.00	0.00	32.00	0.00
MW-501B	5,238,417.54	3,616,406.00	938.10	935.87	916.87	906.87	918.37	905.87	19.00	29.00	30.00	17.50	10.00	QWT/QAT	Water Table	31.23	DG Area A	938.10	935.87	916.87	906.87	19.00	29.00	0.00	0.00	0.00	0.00	31.23	0.00
MW-602B	5,235,288.80	3,616,897.30	944.95	942.30	932.30	922.30	933.80	913.80	10.00	20.00	28.50	8.50	10.00	QWT/QAT	Water Table	22.65	DG Cell W2	944.95	942.30	932.30	922.30	10.00	20.00	0.00	0.00	0.00	0.00	22.65	0.00
MW-603B	5,235,287.90	3,617,198.50	940.42	937.80	920.80	910.80	922.30	910.80	17.00	27.00	27.00	15.50	10.00	QWT/QAT	Water Table	29.62	DG Cell W2	940.42	937.80	920.80	910.80	17.00	27.00	0.00	0.00	0.00	0.00	29.62	0.00
MW-604B	5,235,286.80	3,617,467.80	934.80	932.20	917.20	907.20	919.20	906.20	15.00	25.00	26.00	13.00	10.00	QWT/QAT	Water Table	27.60	DG Cell W2	934.80	932.20	917.20	907.20	15.00	25.00	0.00	0.00	0.00	0.00	27.60	0.00
MW-606B	5,235,271.97	3,616,543.81	947.18	944.71	935.71	925.71	937.21	924.71	9.00	19.00	20.00	7.50	10.00	QWT/QAT	Water Table	21.47	DG Cell W2	947.18	944.71	935.71	925.71	9.00	19.00	0.00	0.00	0.00	0.00	21.47	0.00
MW-701B	5,235,235.75	3,617,829.70	928.36	925.80	918.80	908.80	920.80	907.80	7.00	17.00	18.00	5.00	10.00	QWT/QAT	Water Table	20.02	DG Cells W3/W4	928.36	925.80	918.80	908.80	7.00	17.00	0.00	0.00	0.00	0.00	20.02	0.00
MW-702B	5,235,253.47	3,618,128.33	928.96	925.99	918.99	908.99	920.99	907.99	7.00	17.00	18.00	5.00	10.00	QWT/QAT	Water Table	20.25	DG Cells W3/W4	928.96	925.99	918.99	908.99	7.00	17.00	0.00	0.00	0.00	0.00	20.25	0.00
MW-703B	5,235,231.33	3,618,716.73	930.50	927.51	920.51	910.51	922.51	907.51	7.00	17.00	20.00	5.00	10.00	QWT/QAT	Water Table	20.29	DG Cells W3/W4	930.50	927.51	920.51	910.51	7.00	17.00	0.00	0.00	0.00	0.00	20.29	0.00
MW-704B	5,235,619.47	3,618,648.41	953.61	950.89	930.89	920.89	932.89	915.89	20.00	30.00	35.00	18.00	10.00	QWT/QAT	Water Table	32.95	DG Cell W4	953.61	950.89	930.89	920.89	20.00	30.00	0.00	0.00	0.00	0.00	32.95	0.00
MW-705B	5,235,926.05	3,618,654.99	951.92	949.01	924.01	914.01	926.01	910.01	25.00	35.00	39.00	23.00	10.00	QWT/QAT	Water Table	38.11	DG Cell W4	951.92	949.01	924.01	914.01	25.00	35.00	0.00	0.00	0.00	0.00	38.11	0.00
MW-706B	5,236,223.67	3,618,672.27	953.27	950.25	935.25	925.25	937.25	920.25	15.00	25.00	30.00	13.00	10.00	QWT/QAT	Water Table	28.30	DG Cell W4	953.27	950.25	935.25	925.25	15.00	25.00	0.00	0.00	0.00	0.00	28.30	0.00
MW-707B	5,236,514.51	3,618,692.84	951.64	948.67	936.67	926.67	938.67	923.67	12.00	22.00	25.00	10.00	10.00	QWT/QAT	Water Table	24.95	DG Cell W4	951.64	948.67	936.67	926.67	12.00	22.00	0.00	0.00	0.00	0.00	24.95	0.00
MW-708B	5,236,826.11	3,618,696.54	954.25	951.13	934.13	924.13	936.13	921.13	17.00	27.00	30.00	15.00	10.00	QWT/QAT	Water Table	30.23	DG Cell W4	954.25	951.13	934.13	924.13	17.00	27.00	0.00	0.00	0.00	0.00	30.23	0.00
MW-709B	5,237,139.81	3,618,699.41	957.32	954.32	940.32	930.32	942.32	924.32	14.00	24.00	30.00	12.00	10.00	QWT/QAT	Water Table	27.33	UG Cell W3	957.32	954.32	940.32	930.32	14.00	24.00	0.00	0.00	0.00	0.00	27.33	0.00
MW-710B	5,237,477.63	3,618,702.50	955.19	952.19	937.15	927.15	939.15	927.15	15.04	25.04	25.04	13.04	10.00	QWT/QAT	Water Table	28.00	UG Cells W3/W4	955.19	952.19	937.15	927.15	15.04	25.04	0.00	0.00	0.00	0.00	28.00	0.00
MW-711B	5,237,815.65	3,618,391.76	942.91	940.10	931.10	921.10	933.10	920.10	9.00	19.00	20.00	7.00	10.00	QWT/QAT	Water Table	23.50	DG Cell W3	942.91	940.10	931.10	921.10	9.00	19.00	0.00	0.00	0.00	0.00	23.50	0.00
MW-712B	5,237,812.77	3,618,053.73	943.24	940.41	931.41	921.41	933.41	920.41	9.00	19.00	20.00	7.00	10.00	QWT/QAT	Water Table	22.66	DG Cell W3	943.24	940.41	931.41	921.41	9.00	19.00	0.00	0.00	0.00	0.00	22.66	0.00

TABLE 1
BLACK HAWK COUNTY LANDFILL
2024 MONITORING WELL DATA

Source:	AECOM Original Field Survey				Well Construction Data IDNR Form 542-1277													Revised IDNR Form #542-1277 AECOM 2016-2023 FIELD SURVEY DATA									
																		FROM GROUND SURFACE ELEVATION						FROM TOC	
Well	Iowa State Plane Coordinates, North Zone Easting	Northing	Top of Riser Pipe Elevation	Ground Surface Elevation	Top of Screen Elevation	Bottom of Screen Elevation	Top of Filter Pack Elevation	Bottom of Filter Pack Elevation	Depth to Top of Screen	Depth to Bottom of Screen	Depth to Bottom of Filter Pack	Depth to Top of Filter Pack	Screen Length	Screened Geologic Unit	Groundwater System	Depth to Bottom of Well	Area Monitored	Top of Riser Pipe Elevation	Ground Surface Elevation	Top of Screen Elevation	Bottom of Screen Elevation	Depth to Top of Screen	Depth to Bottom of Screen	Change in Top of Riser Pipe Elevation	Change in Ground Surface Elevation	Change in Depth to Top of Screen	Change in Depth to Bottom of Screen	Depth to Bottom of Well	Change in Depth to Bottom of Well
Intermediate																												
P-101A	5,237,814.22	3,618,433.56	940.04	937.20	896.72	891.72	899.40	890.42	40.48	45.48	46.78	37.80	5.00	QAT	Intermediate	47.30	UG Neutral Trench	943.98	940.76	896.72	891.72	44.04	49.04	**3.94**	**3.56**	**3.56**	**3.56**	52.31	**5.01**
P-102A	5,237,938.89	3,618,442.47	940.50	939.95	884.95	879.65	884.75	875.95	55.00	60.30	64.00	55.20	5.30	QAT	Intermediate	60.30	DG Neutral Trench	950.71	947.85	884.95	879.65	62.90	68.20	**10.21**	**7.90**	**7.90**	**7.90**	71.35	**11.05**
P-102E	5,238,103.16	3,618,682.94	940.60	937.55	884.35	879.35	889.55	879.35	53.20	58.20	58.20	48.00	5.00	QAT	Intermediate	61.50	DG Neutral Trench	940.56	938.05	884.35	879.35	53.70	58.70	**(0.04)**	**0.50**	**0.50**	**0.50**	61.40	**(0.10)**
P-103A	5,238,082.13	3,618,435.96	938.91	932.81	884.91	879.91	890.61	882.31	47.90	52.90	50.50	42.20	5.00	QAT	Intermediate	52.30	DG Neutral Trench	938.85	936.11	884.91	879.91	51.20	56.20	**(0.06)**	**3.30**	**3.30**	**3.30**	56.02	**3.72**
P-104A	5,238,062.07	3,618,226.13	932.59	930.22	874.22	869.02	876.02	864.72	56.00	61.20	65.50	54.20	5.20	QAT	Intermediate	65.00	DG Neutral Trench	932.95	930.12	874.22	869.02	55.90	61.10	**0.36**	**(0.10)**	**(0.10)**	**(0.10)**	65.09	**0.09**
P-105A	5,239,406.42	3,617,615.55	914.74	911.18	883.68	878.68	885.28	878.68	27.50	32.50	32.50	25.90	5.00	QAT	Intermediate	32.50	DG Area C	926.83	923.96	883.68	878.68	40.28	45.28	**12.09**	**12.78**	**12.78**	**12.78**	48.25	**15.75**
P-106AR	5,239,599.60	3,617,472.80	916.30	913.80	880.30	875.30	881.80	873.80	33.50	38.50	40.00	32.00	5.00	QAT	Intermediate	38.50	DG Co-Disposal Area	916.30	913.80	880.30	875.30	33.50	38.50	**0.00**	**0.00**	**0.00**	**0.00**	42.10	**3.60**
P-107A	5,239,899.64	3,617,297.99	905.98	902.74	842.54	837.24	845.24	835.84	60.20	65.50	66.90	57.50	5.30	QAT	Intermediate	68.74	DG Co-Disposal Area	910.63	907.69	842.54	837.24	65.15	70.45	**4.65**	**4.95**	**4.95**	**4.95**	73.62	**4.88**
P-108A	5,240,102.94	3,617,102.41	903.37	900.23	869.73	864.73	871.73	864.53	30.50	35.50	35.70	28.50	5.00	QAT	Intermediate	36.84	DG Co-Disposal Area	909.11	906.54	869.73	864.73	36.81	41.81	**5.74**	**6.31**	**6.31**	**6.31**	44.61	**7.77**
P-109A	5,240,317.16	3,616,902.60	902.68	899.93	869.93	864.93	870.93	864.92	30.00	35.00	35.01	29.00	5.00	QAT	Intermediate	37.50	DG Co-Disposal Area	903.20	899.93	869.93	864.93	30.00	35.00	**0.52**	**0.00**	**0.00**	**0.00**	40.01	**2.51**
P-110A	5,240,330.47	3,616,285.18	908.89	906.01	855.47	850.47	860.51	845.51	50.54	55.54	60.50	45.50	5.00	QAT	Intermediate	55.54	DG Co-Disposal Area	908.78	906.01	855.47	850.47	50.54	55.54	**(0.11)**	**0.00**	**0.00**	**0.00**	55.53	**(0.01)**
P-111A	5,239,311.61	3,616,231.73	945.10	942.19	874.69	869.39	879.69	867.10	67.50	72.80	75.09	62.50	5.30	QAT	Intermediate	72.80	DG Co-Disposal Area	945.02	942.19	874.69	869.39	67.50	72.80	**(0.08)**	**0.00**	**0.00**	**0.00**	72.80	**0.00**
P-113A	5,239,194.00	3,617,805.50	917.69	915.12	889.77	884.77	892.92	884.62	25.35	30.35	30.50	22.20	5.00	QAT	Intermediate	30.35	DG Area E	917.70	915.12	889.77	884.77	25.35	30.35	**0.01**	**0.00**	**0.00**	**0.00**	33.13	**2.78**
P-114A	5,237,833.19	3,616,637.44	943.04	939.50	899.69	894.69	902.41	893.11	39.81	44.81	46.39	37.09	5.00	QAT	Intermediate	45.00	UG Co-Disposal Area; Area A	942.72	940.21	899.69	894.69	40.52	45.52	**(0.32)**	**0.71**	**0.71**	**0.71**	48.44	**3.44**
P-207A	5,238,717.92	3,616,070.98	936.71	933.00	873.63	868.43	875.63	861.13	59.37	64.57	71.87	57.37	5.20	QAT	Intermediate	68.61	SG Co-Disposal Area	936.10	933.41	873.63	868.43	59.78	64.98	**(0.61)**	**0.41**	**0.41**	**0.41**	67.85	**(0.76)**
P-208A	5,239,948.21	3,616,081.10	929.09	926.40	879.02	873.82	880.82	872.82	47.38	52.58	53.58	45.58	5.20	QAT	Intermediate	55.20	SG Co-Disposal Area	928.63	926.58	879.02	873.82	47.56	52.76	**(0.46)**	**0.18**	**0.18**	**0.18**	55.20	**0.00**
P-212A	5,238,372.27	3,617,889.60	935.36	932.43	882.43	877.43	883.93	876.43	50.00	55.00	56.00	48.50	5.00	QAT	Intermediate	55.00	DG Area E	934.91	932.43	882.43	877.43	50.00	55.00	**(0.45)**	**0.00**	**0.00**	**0.00**	58.01	**3.01**
P-402A	5,237,824.20	3,617,459.50	955.27	952.80	906.80	901.80	909.30	900.80	46.00	51.00	52.00	43.50	5.00	QAT	Intermediate	53.47	DG Cell W2	955.27	952.80	906.80	901.80	46.00	51.00	**0.00**	**0.00**	**0.00**	**0.00**	53.47	**0.00**
Deep																												
P-101C	5,237,816.01	3,618,381.36	939.10	936.30	835.60	825.30	848.40	824.90	100.70	111.00	111.40	87.90	10.30	Dcv	Uppermost Bedrock	113.83	UG ASB Cells No. 1 & 2	938.57	935.73	835.60	825.30	100.13	110.43	**(0.53)**	**(0.57)**	**(0.57)**	**(0.57)**	113.27	**(0.56)**
P-102C	5,238,099.10	3,618,675.88	940.96	937.96	838.16	827.86	848.16	826.96	99.80	110.10	111.00	89.80	10.30	Dcv	Uppermost Bedrock	113.74	DG ASB Cells No. 1 & 2	940.53	938.18	838.16	827.86	100.02	110.32	**(0.43)**	**0.22**	**0.22**	**0.22**	112.67	**(1.07)**
P-103C	5,238,083.90	3,618,457.09	936.71	933.01	838.31	828.01	850.41	826.71	94.70	105.00	106.30	82.60	10.30	Dcv	Uppermost Bedrock	108.84	DG ASB Cells No. 1 & 2	939.29	936.24	838.31	828.01	97.93	108.23	**2.58**	**3.23**	**3.23**	**3.23**	111.28	**2.44**
P-104C	5,238,089.37	3,618,236.01	932.15	928.45	833.75	823.45	844.95	822.45	94.70	105.00	106.00	83.50	10.30	Dcv	Uppermost Bedrock	108.83	UG Area E & Cell X, DG Cell W1	932.35	930.60	833.75	823.45	96.85	107.15	**0.20**	**2.15**	**2.15**	**2.15**	108.90	**0.07**
P-105C	5,239,395.15	3,617,632.01	915.01	911.66	811.46	801.26	823.16	799.66	100.20	110.40	112.00	88.50	10.20	Dcv	Uppermost Bedrock	113.82	DG Area C, UG Cell X	925.05	922.82	811.46	801.26	111.36	121.56	**10.04**	**11.16**	**11.16**	**11.16**	123.79	**9.97**
P-106C	5,239,625.20	3,617,466.10	911.21	907.51	810.21	800.01	822.51	799.51	97.30	107.50	108.00	85.00	10.20	Dcv	Uppermost Bedrock	111.32	DG Area C, UG Cell X	914.40	910.60	810.21	800.01	100.39	110.59	**3.19**	**3.09**	**3.09**	**3.09**	114.39	**3.07**
P-107C	5,239,883.44	3,617,303.17	906.10	902.30	810.50	800.30	819.50	796.30	91.80	102.00	106.00	82.80	10.20	Dcv	Uppermost Bedrock	105.84	DG Area A & Area C, UG Cell X	910.73	908.32	810.50	800.30	97.82	108.02	**4.63**	**6.02**	**6.02**	**6.02**	110.43	**4.59**
P-108C	5,240,107.87	3,617,107.44	903.72	900.12	816.82	806.62	832.22	806.42	83.30	93.50	93.70	67.90	10.20	Dcv	Uppermost Bedrock	97.19	DG Area A	908.49	905.99	816.82	806.62	89.17	99.37	**4.77**	**5.87**	**5.87**	**5.87**	101.87	**4.68**
P-109C	5,240,341.56	3,616,932.17	902.94	899.24	819.34	809.14	830.64	808.24	79.90	90.10	91.00	68.60	10.20	Dcv	Uppermost Bedrock	93.88	DG Area A	903.75	901.10	819.34	809.14	81.76	91.96	**0.81**	**1.86**	**1.86**	**1.86**	94.61	**0.73**
P-110C	5,240,320.45	3,616,305.23	909.24	905.54	829.84	819.54	832.54	818.54	75.70	86.00	87.00	73.00	10.30	Dcv	Uppermost Bedrock	89.75	SG Entire Facility	908.90	906.05	829.84	819.54	76.21	86.51	**(0.34)**	**0.51**	**0.51**	**0.51**	89.36	**(0.39)**
P-111C	5,239,285.21	3,616,237.64	946.50	942.70	832.00	821.70	845.30	812.50	110.70	121.00	130.20	97.40	10.30	Dcv	Uppermost Bedrock	124.03	SG Entire Facility	946.09	943.21	832.00	821.70	111.21	121.51	**(0.41)**	**0.51**	**0.51**	**0.51**	124.39	**0.36**
P-113C	5,239,173.37	3,617,826.65	917.96	914.26	819.56	809.26	833.56	808.26	94.70	105.00	106.00	80.70	10.30	Dcv	Uppermost Bedrock	108.76	DG Cell W1 & Area C, SG Area E, UG Cell X	918.56	916.33	819.56	809.26	96.77	107.07	**0.60**	**2.07**	**2.07**	**2.07**	109.30	**0.54**
P-114C	5,237,849.66	3,616,648.42	942.61	939.11	815.31	805.11	827.31	803.11	123.80	134.00	136.00	111.80	10.20	Dcv	Uppermost Bedrock	137.69	UG Area A	942.28	939.90	815.31	805.11	124.59	134.79	**(0.33)**	**0.79**	**0.79**	**0.79**	137.17	**(0.52)**
P-213C	5,239,604.25	3,618,731.33	943.95	939.60	823.95	813.75	824.45	810.75	115.65	125.85	128.85	115.15	10.20	Dcv	Uppermost Bedrock	130.20	DG Cell X	943.29	941.36	823.95	813.75	117.41	127.61	**(0.66)**	**1.76**	**1.76**	**1.76**	129.54	**(0.66)**
P-214CR	5,240,406.26	3,617,501.09	924.65	922.17	826.17	816.17	829.17	814.17	96.00	106.00	108.00	93.00	10.00	Dcv	Uppermost Bedrock	108.48	DG Cell W1, Area A, Area C, & Cell X	924.65	922.17	826.17	816.17	96.00	106.00	**0.00**	**0.00**	**0.00**	**0.00**	108.48	**0.00**
P-215CR	5,240,401.16	3,618,038.43	934.53	932.26	824.26	814.26	827.26	812.26	108.00	118.00	120.00	105.00	10.00	Dcv	Uppermost Bedrock	120.27	DG Area E & Cell X	934.53	932.26	824.26	814.26	108.00	118.00	**0.00**	**0.00**	**0.00**	**0.00**	120.27	**0.00**
P-216CR	5,240,399.69	3,618,592.39	943.28	941.13	820.13	810.13	825.63	807.13	121.00	131.00	134.00	115.50	10.00	Dcv	Uppermost Bedrock	133.15	DG Area E & Cell X	943.28	941.13	820.13	810.13	121.00	131.00	**0.00**	**0.00**	**0.00**	**0.00**	133.15	**0.00**
MW-318CR	5,235,312.64	3,616,222.82	952.82	950.43	814.43	809.43	816.93	803.43	136.00	141.00	147.00	133.50	5.00	Dcv	Uppermost Bedrock	143.39	UG Entire Facility	952.82	950.43	814.43	809.43	136.00	141.00	**0.00**	**0.00**	**0.00**	**0.00**	143.39	**0.00**
P-402C	5,237,824.00	3,617,467.90	955.25	952.30	832.30	822.30	834.30	819.30	120.00	130.00	133.00	118.00	10.00	Dcv	Uppermost Bedrock	132.95	DG Cell W2	955.25	952.30	832.30	822.30	120.00	130.00	**0.00**	**0.00**	**0.00**	**0.00**	132.95	**0.00**
P-604C	5,235,286.40	3,617,474.80	934.71	932.00	818.00	813.00	820.00	810.50	114.00	119.00	121.50	112.00	5.00	Dcv	Uppermost Bedrock	121.71	UG Entire Facility	934.71	932.00	818.00	813.00	114.00	119.00	**0.00**	**0.00**	**0.00**	**0.00**	121.71	**0.00**
P-703C	5,235,229.84	3,618,709.58	930.31	927.52	819.52	809.52	821.52	807.52	108.00	118.00	120.00	106.00	10.00	Dcv	Uppermost Bedrock	121.14	UG Entire Facility	930.31	927.52	818.00	813.00	114.00	119.00	**0.00**	**0.00**	**0.00**	**0.00**	121.14	**0.00**
Abandoned Wells																												
P-106A	5239609.778	3617468.448	911.32	908.16	880.56	875.26	882.36	875.16	27.60	32.90	33.00	25.80	5.2	QAT	Intermediate	36.36	Abandoned 2013	915.68	913.34	880.56	875.26	32.78	38.08	4.36	5.18	5.18	5.18	40.42	4.06
MW-107B	5239891.04	3617303.56	905.71	903.21	893.46	883.26	896.36	882.56	9.75	19.95	20.65	6.85	10.2	QWT	Water Table	22.80	Abanoned 2013	910.74	907.63	893.46	883.26	14.17	24.37	5.03	4.42	4.42	4.42	27.48	4.68
OW-112B	5,239,688.84	3,618,227.28	935.55	931.50	914.20	904.00	924.40	902.50	17.30	27.50	29.00	7.10	10.20	QWT	Water Table	31.50	Abandoned 2004	935.55	931.50	914.20	904.00	17.30	27.50	**0.00**	**0.00**	**(0.00)**	**0.00**	31.55	**0.05**
P-112A	5,239,670.78	3,618,194.36	934.17	931.50	879.40	874.40	881.50	874.20	52.10	57.10	57.30	50.00	5.00	QAT	Intermediate	60.42	Abandoned 2004	934.17	931.50	879.40	874.40	52.10	57.10	**0.00**	**0.00**	**0.00**	**0.00**	59.77	**(0.65)**
P-112C	5,239,693.40	3,618,184.65	934.18	931.50	797.35	787.15	803.90	785.50	134.15	144.35	146.00	127.60	10.00	Dcv	Uppermost Bedrock	148.01	Abandoned 2004	934.18	931.50	797.35	787.15	134.15	144.35	**0.00**	**0.00**	**0.00**	**0.00**	147.03	**(0.98)**
OW-203B	5,237,504.19	3,618,649.09	943.53	941.03	928.40	918.20	932.70	917.20	12.63	22.83	23.83	8.33	10.20	QWT	Water Table	25.33	Abanoned 2020	943.11	941.08	928.40	918.20	12.68	22.88	**(0.42)**	**0.05**	**0.05**	**0.05**	25.21	**(0.12)**
P-203A	5,237,505.66	3,618,635.45	943.27	940.92	909.92	904.72	912.52	900.92	31.00	36.20	40.00	28.40	5.20	QAT	Intermediate	36.20	Abanoned 2020	943.26	940.92	909.92	904.72	31.00	36.20	**(0.01)**	**0.00**	**0.00**	**0.00**	34.43	**(1.77)**
OW-206B	5,237,511.95	3,617,045.96	953.65	951.60	931.30	921.10	943.80	920.80	20.30	30.50	30.80	7.80	10.20	QWT	Water Table	33.27	Abanoned 2004	953.65	951.60	931.30	921.10	20.30	30.50	**0.00**	**0.00**	**(0.00)**	**0.00**	32.55	**(0.72)**
P-206A	5,237,513.07	3,617,031.20	953.45	950.00	909.00	904.00	911.10	903.00	41.00	46.00	47.00	38.90	5.00	QAT	Intermediate	49.29	Abanoned 2004	953.45	950.00	909.00	904.00	41.00	46.00	**0.00**	**0.00**	**0.00**	**0.00**	49.45	**0.16**
OW-210B	5,239,563.52	3,617,881.94	930.90	928.40	913.40	903.40	914.90	902.40	15.00	25.00	26.00	13.50	10.00	QWT	Water Table	27.96	Abanoned 2004	930.90	928.40	913.40	903.40	15.00	25.00	**0.00**	**0.00**	**0.00**	**0.00**	27.50	**(0.46)**
P-210A	5,239,568.51	3,617,870.48	929.05	926.60	879.10	874.10	880.60	873.10	47.50	52.50	53.50	46.00	5.00	QAT	Uppermost Bedrock	55.37	Abanoned 2004	929.05	926.60	879.10	874.10	47.50	52.50	**0.00**	**0.00**	**0.00**	**0.00**	54.95	**(0.42)**
OW-213B	5,239,606.16	3,618,643.60	943.10	940.80	933.30	923.30	934.30	922.30	7.50	17.50	18.50	6.50	10.00	QAT	Water Table	20.29	Abanoned 2004	943.10	940.80	933.30	923.30	7.50	17.50	**0.00**	**0.00**	**0.00**	**0.00**	19.80	**(0.49)**
P-213A	5,239,606.43	3,618,632.11	943.30	941.50	909.00	904.00	936.50	903.00	32.50	37.50	38.50	5.00	5.00	QAT	Intermediate	40.34	Abanoned 2004	943.30	941.50	909.00	904.00	32.50	37.50	**0.00**	**0.00**	**0.00**	**0.00**	39.30	**(1.04)**
OW-214B	5,240,402.58	3,617,506.11	923.93	920.93	911.93	901.93	913.93	900.53	9.00	19.00	20.40	7.00	10.00	QAT	Water Table	22.00	Abanoned 2022	924.86	922.81	911.93	901.93	10.88	20.88	**0.93**	**1.88**	**1.88**	**1.88**	22.93	**0.93**
OW-215B	5,240,401.60	3,618,062.86	931.69	929.39	922.39	912.39	924.39	911.39	7.00	17.00	18.00	5.00	10.00	QAT	Water Table	19.30	Abanoned 2022	935.04	932.74	922.39	912.39	10.35	20.35	**3.35**	**3.35**	**3.35**	**3.35**	22.65	**3.35**
OW-216B	5,240,395.77	3,618,604.37	943.17	940.47	933.47	923.47	935.47	922.97	7.00	17.00	17.50	5.00	10.00	QWT/QAT	Water Table	19.70	Abanoned 2022	942.83	941.03	933.47	923.47	7.56	17.56	**(0.34)**	**0.56**	**0.56**	**0.56**	19.36	**(0.34)**
P-214A	5,240,402.17	3,617,512.37	925.24	923.14	876.70	871.70	878.70	869.70	46.44	51.44	53.44	44.44	5.00	QAT	Intermediate	51.44	Abanoned 2022	925.24	923.14	876.70	871.70	46.44	51.44	**0.00**	**0.00**	**0.00**	**0.00**	55.13	**3.69**
P-215A	5,240,402.02	3,618,071.13	935.07	932.82	871.95	866.95	876.22	866.95	60.87	65.87	65.87	56.60	5.00	QAT	Intermediate	65.87	Abanoned 2022	935.07	932.82	871.95	866.95	60.87	65.87	**0.00**	**0.00**	**0.00**	**0.00**	65.20	**(0.67)**
P-216A	5,240,395.73	3,618,611.72	942.70	941.06	881.06	876.06	883.06	876.06	60.00	65.00	65.00	58.00	5.00	QAT	Intermediate	66.30	Abanoned 2022	942.36	941.06	881.06	876.06	60.00	65.00	**(0.34)**	**0.00**	**0.00**	**0.00**	66.96	**0.66**
P-214C	5,240,401.87	3,617,520.17	924.00	921.20	825.10	815.10	827.10	814.60	96.10	106.10	106.60	94.10	10.00	Dcv	Uppermost Bedrock	108.90	Abanoned 2022	925.32	923.20	825.10	815.10	98.10	108.10	**1.32**	**2.00**	**2.00**	**2.00**	110.22	**1.32**
P-215C	5,240,402.14	3,618,077.58	932.05	929.75	821.75	811.75	823.75	811.15	108.00	118.00	118.60	106.00	10.00	Dcv	Uppermost Bedrock	120.30	Abanoned 2022	935.57	933.05	821.75	811.75	111.30	121.30	**3.52**	**3.30**	**3.30**	**3.30**	123.82	**3.52**
P-216C	5,240,396.25	3,618,619.09	943.33	940.43	816.23	806.23	817.83	805.63	124.20	134.20	134.80	122.60	10.00	Dcv	Uppermost Bedrock	137.10	Abanoned 2022	943.10	941.10	816.23	806.23	124.87	134.87	**(0.23)**	**0.67**	**0.67**	**0.67**	136.87	**(0.23)**
MW-301B	5,235,927.46	3,618,708.96	932.10	930.40	924.40	914.40	926.40	913.40	6.00	16.00	17.00	4.00	10.00	QWT	Water Table	21.97	Abanoned 2021	932.10	931.50	924.40	914.40	7.10	17.10	**(0.00)**	**1.10**	**1.10**	**1.10**	17.70	**(4.27)**
MW-301A	5,235,922.14	3,618,709.01	932.36	931.76	881.76	876.76	883.76	876.76	50.00	55.00	55.00	48.00	5.00	QAT	Intermediate	61.53	Abanoned 2021	932.36	931.76	881.76	876.76	50.00	55.00	**0.00**	**0.00**	**0.00**	**0.00**	61.53	**0.00**
MW-301E	5,235,917.33	3,618,708.95	932.75	932.15	861.15	856.15	863.15	855.65	71.00	76.00	76.50	69.00	5.00	QAT	Intermediate	82.44	Abanoned 2021	932.75	932.15	861.15	856.15	71.00	76.00	**0.00**	**0.00**	**0.00**	**0.00**	82.39	**(0.05)**
MW-302B	5,237,140.48	3,618,724.57	946.56	944.00	937.00	927.00	939.00	926.00	7.00	17.00	18.00	5.00	10.00	QWT	Water Table	19.56	Abanoned 2021	946.05	943.75	937.00	927.00	6.75	16.75	**(0.51)**	**(0.25)**	**(0.25)**	**(0.25)**	19.05	**(0.51)**
MW-307B	5,235,226.10	3,617,849.02	928.26	926.30	920.30	910.30	922.30	909.30	6.00	16.00	17.00	4.00	10.00	QWT/QAT	Water Table	17.96	Abanoned 2021	927.81	925.84	920.30	910.30	5.54	15.54	**(0.45)**	**(0.46)**	**(0.46)**	**(0.46)**	17.51	**(0.45)**
MW-307A	5,235,226.18	3,617,844.33	827.67	925.82	895.82	890.82	897.82	890.32	30.00	35.00	35.50	28.00	5.00	QAT	Intermediate	36.50	Abanoned 2021	827.67	925.82	895.82	890.82	30.00	35.00	**0.00**	**0.00**	**0.00**	**0.00**	37.55	**1.05**
MW-307E	5,235,226.83	3,617,839.93	928.15	925.80	870.80	865.80	872.80	865.30	55.00	60.00	60.50	53.00	5.00	QAT	Intermediate	62.35	Abanoned 2021	928.15	925.80	870.80	865.80	55.00	60.00	**0.00**	**0.00**	**0.00**	**0.00**	63.08	**0.73**
MW-308B	5,236,472.11	3,617,858.17	949.37	946.60	940.60	930.60	942.60	929.60	6.00	16.00	17.00	4.00	10.00	QWT	Water Table	18.77	Abanoned 2020	948.94	946.67	940.60	930.60	6.07	16.07	**(0.43)**	**0.07**	**0.07**	**0.07**	18.34	**(0.43)**
MW-308A	5,236,479.97	3,617,857.62	948.43	946.53	896.53	891.53	898.53	891.03	50.00	55.00	55.50	48.00	5.00	QAT	Intermediate	56.90	Abanoned 2020	948.43	946.53	896.53	891.53	50.00	55.00	**0.00**	**0.00**	**0.00**	**0.00**	57.53	**0.63**
MW-312B	5,237,752.36	3,617,690.80	950.44	943.50	935.50	925.50	937.50	924.50	8.00	18.00	19.00	6.00	10.00	QWT/QAT	Water Table	24.94	Abanoned 2020	949.94	944.30	935.50	925.50	8.80	18.80	**(0.50)**	**0.80**	**0.80**	**0.80**	24.44	**(0.50)**
MW-313B	5,235,460.00	3,617,073.09	934.44	932.00	925.00	915.00	927.00	914.00	7.00	17.00	18.00	5.00	10.00	QWT/QAT	Water Table	19.44	Abanoned 2013	933.94	931.68	925.00	915.00	6.68	16.68	**(0.50)**	**(0.32)**	**(0.32)**	**(0.32)**	18.94	**(0.50)**
MW-315B	5,236,931.94	3,617,077.92	961.49	959.09	953.09	943.09	955.09	942.09	6.00	16.00	17.00	4.00	10.00	QWT	Water Table	17.00	Abanoned 2013	961.49	959.09	953.09	943.09	6.00	16.00	**0.00**	**0.00**	**0.00**	**0.00**	18.40	**1.40**
MW-318A	5,235,232.25	3,616,170.71	957.12	954.72	899.72	894.72	901.72	894.22	55.00	60.00	60.50	53.00	5.00	QAT	Intermediate	60.50	Abanoned 2013	957.12	954.72	899.72	894.72	55.00	60.00	**0.00**	**0.00**	**0.00**	**0.00**	62.40	**1.90**
MW-318B	5,235,234.12	3,616,155.76	957.10	954.70	947.70	937.70	949.70	936.70	7.00	17.00	18.00	5.00	10.00	QWT	Water Table	18.00	Abanoned 2013	957.10	954.70	947.70	937.70	7.00	17.00	**0.00**	**0.00**	**0.00**	**0.00**	19.40	**1.40**
MW-318C	5,235,233.18	3,616,161.33	957.14	954.74	818.74	813.74	820.74	813.24	136.00	141.00	141.50	134.00	5.00	Dcv	Uppermost Bedrock	141.50	Abanoned 2013	957.14	954.74	818.74	813.74	136.00	141.00	**0.00**	**0.00**	**0.00**	**0.00**	143.40	**1.90**
MW-318E	5,235,232.42	3,616,165.64	957.15	954.65	869.65	864.65	871.65	864.15	85.00	90.00	90.50	83.00	5.00	QAT	Intermediate	90.50	Abanoned 2013	957.15	954.65	869.65	864.65	85.00	90.00	**0.00**	**0.00**	**0.00**	**0.00**	92.50	**2.00**
MW-319A	5,236,491.17	3,616,164.92	963.30	961.20	898.20	893.20	900.70	892.70	63.00	68.00	68.50	60.50	5.00	QAT	Intermediate	70.00	Abanoned 2022	962.95	961.20	898.20	893.20	63.00	68.00	**(0.35)**	**

TABLE 2
Summary of Organic and Inorganic Groundwater Concentrations
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter Name	Units	GPS	Fall 2010	Feb 2011	Mar 2011	Spring 2011	June 2011	Aug 2011	Fall 2011	Feb 2012	Spring 2012	Fall 2012	Spring 2013
	Appendix I Inorganics and Organics													
OW-401B				<10	1.04	<5	<6	<4	<4	<0.6	7.54	***0.62 J***	***1.08 J***	7.45
OW-402B					2.87	<2	<6	<4	<2	<0.6	4.98	<0.37	<0.185	***3.22 J***
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**Arsenic**	**µg/L**	**10**	<1			<2			<0.6		<0.185	***0.757 J***	6.27
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														
OW-401B				220	462	167	373	198	209	183	256	214	256	207
OW-402B					423	383	355	324	287	266	370	310	380	374
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**Barium**	**µg/L**	**2000**	56.8			51.9			62.9		58.5	88.7	61.2
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														

TABLE 2
Summary of Organic and Inorganic Groundwater Concentrations
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter Name	Units	GPS	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Dec 2016	Spring 2017	June 2017	Fall 2017
	Appendix I Inorganics and Organics													
OW-401B				6.04	6.42	8.94	9.13	10	8.98	***13.1***	***12.7***	***11.5***		***12.6***
OW-402B				<0.33	***0.606 J***	<0.945	<0.945	<0.945	<0.672	<0.672	<0.672	<0.505		***0.708 J***
OW-410B											***1.76 J***	***1.12 J***	***0.917 J***	***1.22 J***
OW-411B											2.03	***1.23 J***	***1.38 J***	***1.17 J***
OW-412B											<0.672	***0.934 J***	***0.647 J***	***0.584 J***
OW-413B											4.03	3.71	3.36	4.85
OW-414B											2.24	5.99	4.18	3.05
OW-105B														
OW-114B	**Arsenic**	**µg/L**	**10**	***0.897 J***	***2.55 J***	<0.945	***1.3 J***	<0.945	***0.823 J***	***1.84 J***	<0.672	***1.58 J***		2.26
OW-205B									***14.8***		***13.9***	***12.9***	7.5	6.55
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											<0.672	***0.52 J***		***0.655 J***
P-402C											<0.672	***0.53 J***	<0.505	<0.505
OW-401B				283	235	312	280	307	317	442	441	427		775
OW-402B				260	357	284	365	294	378	283	381	358		469
OW-410B											902	809	921	1020
OW-411B											483	459	558	441
OW-412B											444	574	582	614
OW-413B											578	364	444	510
OW-414B											533	434	447	591
OW-105B														
OW-114B	**Barium**	**µg/L**	**2000**	54.4	66.7	62	63.6	71.3	51.7	18.6	51.3	45.3		45.2
OW-205B									112		177	186	115	108
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											100	97		116
P-402C											71.7	90.6	81.8	87.6

TABLE 2
Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Nov 2017	Dec 2017	Jan 2018	Spring 2018	July 2018	Fall 2018	Dec 2018	Spring 2019	June 2019	Fall 2019	Nov 2019
	Appendix I Inorganics and Organics													
OW-401B							***11.6***		***10.5***		***12***		***11.7***	
OW-402B							***0.694 J***		***0.615 J***		<0.75		<0.75	
OW-410B				***1.88 J***			***1.23 J***		2.29		5.24		***3.42 J***	
OW-411B				***1.62 J***			***1.94 J***		***0.966 J***		3.57		3.52	
OW-412B				***0.725 J***			<0.57		3.29		***1.15 J***		3.91	
OW-413B				4.13			8.33		7.79		5.36		4.57	
OW-414B				6.38			6.99		6.99		6.65		5.02	
OW-105B														
OW-114B	**Arsenic**	**µg/L**	**10**				2.14		<0.57		<0.75		***0.924 J***	
OW-205B				6.4	2.63		7.25	<11.4	5.31		***11.9***		***18.8***	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							<0.57		<0.57		<0.75	--	<0.75	
P-402C				<0.505			<0.57				<0.75			
OW-401B							575		591		870		1160	
OW-402B							609		489		444		691	
OW-410B				1030			86.9		1370		1800		1630	
OW-411B				459			510		856		480		425	
OW-412B				574			643		167		797		951	
OW-413B				484			447		403		425		378	
OW-414B				558			517		504		490		618	
OW-105B														
OW-114B	**Barium**	**µg/L**	**2000**				49.6		47.1		36.7		51.7	
OW-205B				106	107		125	189	190		151		350	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							116		94.5		83.7	--	108	
P-402C				84.3			78.4				74.8			

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Well	Parameter Name	Units	GPS	Spring 2020	Aug 2020	Fall 2020	Dec 2020	Spring 2021	June 2021	Fall 2021	Feb 2022	Spring 2022	July 2022	Fall 2022
	Appendix I Inorganics and Organics													
OW-401B				***12.8***		***14.3***		***13.7***		***10.6***		***10.4***		7.2
OW-402B				<0.88		***1 J***		<0.75	--	***0.845 J***		***0.847 J***		***0.782 J***
OW-410B				7.48		4.82		7.25				6.57		
OW-411B				4.2		3.97		4.98				4.85		
OW-412B				***1.34 J***		2.15		2.16				5.14		
OW-413B				7.65		5.31		4.62		3.68		4.22		4.64
OW-414B				4.74		7.87		8.11				4.24		
OW-105B				<0.88		<0.88	<0.88	<0.75	<0.75	<0.75		<0.75		<0.75
OW-114B	**Arsenic**	**µg/L**	**10**	<0.88		<0.88		<0.75		<0.75		<0.75		<0.75
OW-205B				***13.4***		6.85		***17.5***		***12.4***		***10.2***		***11.1***
OW-220B				***13.3***	9.74	***13.4***	***12.8***	***13.2***		***14.5***		***4.87 J***		***14.5***
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C				<0.88										
OW-401B				1650		1620		1800		1490		1300		1110
OW-402B				573		892		866	--	1010		979		949
OW-410B				**2360**		**2270**		**2890**				**2370**		
OW-411B				454		420		479				477		
OW-412B				890		1070		1220				1180		
OW-413B				349		341		432		492		423		514
OW-414B				501		680		666				449		
OW-105B				88.5		82.6	91.4	93.9	87	89.4		81.9		88.7
OW-114B	**Barium**	**µg/L**	**2000**	48.5		47.2		42.7		46.4		55.9		54.8
OW-205B				307		250		376		307		237		240
OW-220B				706	867	732	853	722		792		847		706
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C				83.1										

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Well	Parameter Name	Units	GPS	Jan 2023	Spring 2023	Aug 2023	Fall 2023	Dec 2023	Spring 2024	Fall 2024
	Appendix I Inorganics and Organics									
OW-401B					***5.96 J***		4.75		5.67	8.77
OW-402B					***0.826 J***		***0.962 J***		<0.53	***0.841 J***
OW-410B					6.53				***11.8***	NS
OW-411B					4.74				4.07	NS
OW-412B					4.35				4.18	NS
OW-413B					9.14		8.08		***10.8***	6.37
OW-414B					7.54				9.85	NS
OW-105B					<0.53		<0.53		<0.53	*<0.53*
OW-114B	**Arsenic**	**µg/L**	**10**		***0.681 J***		***0.929 J***		<0.53	***0.697 J***
OW-205B					***18.3***		9.14		9.06	NS
OW-220B					***16.4***		***14.5***		***14.4***	**25.3**
OW-224B				2.98	3.51	4.99	6.57	6.26	5.7	7.7
OW-225B				***1.45 J***	***1.68 J***	2.42	2.16	2.74	5.86	6.29
OW-226B				5.53	5.08	7.88	***8.57 J***	8.09	8.05	**10**
OW-227B				6.91	2.67	4.14	7.85	5.32	***16.9***	**16.2**
P-402A									<0.53	NS
P-402C									<0.53	NS
OW-401B					1230		1140		1710	1760
OW-402B					857		850		581	988
OW-410B					**3030**				**2750**	NS
OW-411B					605				687	NS
OW-412B					1510				1390	NS
OW-413B					543		571		632	544
OW-414B					497				642	NS
OW-105B					90.5		84.4		79.9	89
OW-114B	**Barium**	**µg/L**	**2000**		62.7		62.1		55.8	56.6
OW-205B					273		177		171	NS
OW-220B					1120		664		904	1010
OW-224B				1700	1860	**2120**	1770	**2370**	**2580**	**2570**
OW-225B				1510	1360	1680	1070	1420	1710	1380
OW-226B				1400	1790	1720	1500	1660	1450	1830
OW-227B				1330	1690	1740	1460	1560	1920	**2080**
P-402A									4.08	NS
P-402C									70.3	NS

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Well	Parameter Name	Units	GPS	Fall 2010	Feb 2011	Mar 2011	Spring 2011	June 2011	Aug 2011	Fall 2011	Feb 2012	Spring 2012	Fall 2012	Spring 2013
	Appendix I Inorganics and Organics													
OW-401B				*<20*	<20	***20.7***	***21.5***	***20.3***	***22.9***	***22.6***	***23.2***	***16.4 J***	***21.2***	***27.7***
OW-402B					***23***	<20	<20	<20	<20	***10.3 J***	***12.3***	***6.82 J***	<1.55	***26.5***
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**Cobalt**	**µg/L**	**9.83**	<20			<20			***4.37 J***		***2.25 J***	***5.1 J***	4.37
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														
OW-401B				54.1	*<50*	*<50*	*<50*	*<50*	*<50*	*44.6 J*	39.1	*25.5 J*	*26.5 J*	28.5
OW-402B					**761**	**354**	**313**	**594**	**256**	**505**	**288**	**328**	**282**	**1070**
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**Nickel**	**µg/L**	**722**	*<50*			*<50*			54.7		58.2	59	29.4
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														

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Well	Parameter Name	Units	GPS	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Dec 2016	Spring 2017	June 2017	Fall 2017
	Appendix I Inorganics and Organics													
OW-401B				***30.5***	***34.9***	***44.8***	***38.1***	***42.3***	***31.9***	***27.7***	***25.7***	***21***		***21.4***
OW-402B				5.33	8.69	4.7	6.85	5.23	7.93	3.3	5.11	***16.7***		6.83
OW-410B											7.6	3.65	2.38	3.48
OW-411B											5.74	2.83	2.86	3
OW-412B											2	2.82	2.09	2.14
OW-413B											1.98	2.98	2.7	1.58
OW-414B											***9.91***	***25.5***	***16.8***	***12.6***
OW-105B														
OW-114B	**Cobalt**	**µg/L**	**9.83**	3.91	6.15	1.24	4.5	2.65	2.82	1.21	2.9	2.86		3.38
OW-205B									3.62		2.27	2.9	3.6	3.07
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											0.801	0.566		***0.099 J***
P-402C											0.805	1.18	0.559	***0.382 J***
OW-401B				37.8	42.8	60.2	55.4	76.5	53.4	48.2	51.6	50.9		55.7
OW-402B				**121**	**205**	**105**	**200**	**143**	**441**	55	**171**	**722**		**258**
OW-410B											**195**	35.8	22.4	23
OW-411B											**126**	30	26.7	18.5
OW-412B											10.5	37.3	19.5	11.7
OW-413B											19.5	7.99	6.02	*1.76 J*
OW-414B											**118**	69	54.3	63.9
OW-105B														
OW-114B	**Nickel**	**µg/L**	**722**	25.3	29.8	11.6	23.2	13.8	9.25	*1.99 J*	22.1	12.2		15.3
OW-205B									7.66		5.57	7.27	8.67	6.65
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											6.55	8.25		*2.8 J*
P-402C											16.4	37.9	16.1	5.77

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Well	Parameter Name	Units	GPS	Nov 2017	Dec 2017	Jan 2018	Spring 2018	July 2018	Fall 2018	Dec 2018	Spring 2019	June 2019	Fall 2019	Nov 2019
	Appendix I Inorganics and Organics													
OW-401B							***18.1***		***15.7***		***13.2***		***13.1***	
OW-402B							***12.9***		2.89		7.13		4.12	
OW-410B				3.1			***0.379 J***		4.1		5.4		2.52	
OW-411B				3.61			3.13		1.6		3.56		6.11	
OW-412B				1.84			1.51		<0.061		1.61		1.61	
OW-413B				2.67			5.28		5.26		5.03		3.9	
OW-414B				***15.1***			***22.4***		***20.5***		***23.5***		***16.9***	
OW-105B														
OW-114B	**Cobalt**	**µg/L**	**9.83**				3.53		***0.447 J***		1.45		1.87	
OW-205B				2.85	3.16		3.48	***4.62 J***	3.77		4.12		3	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							***0.156 J***		<0.061		<0.091	--	***0.186 J***	
P-402C				***0.296 J***			***0.285 J***				***0.356 J***			
OW-401B							47.2		*30.4 J*		55.7		57.9	
OW-402B							**836**		97.3		**328**		**144**	
OW-410B				19.1			*3.75 J*		*16.6 J*		26.3		22.6	
OW-411B				18.3			18		7.63		23.3		25.7	
OW-412B				10.2			7.81		*<1*		9.67		8.95	
OW-413B				*3.42 J*			5.37		*<3*		7.47		*3.7 J*	
OW-414B				67.6			54.6		52.2		68.2		92.9	
OW-105B														
OW-114B	**Nickel**	**µg/L**	**722**				17		*<3*		7.17		10.5	
OW-205B				6.69	8.12		7.62	*<20*	*9.79 J*		10.7		11.5	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							5.26		*<3*		*2.3 J*	--	5.96	
P-402C				5.05			*3.54 J*				*3.44 J*			

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Well	Parameter Name	Units	GPS	Spring 2020	Aug 2020	Fall 2020	Dec 2020	Spring 2021	June 2021	Fall 2021	Feb 2022	Spring 2022	July 2022	Fall 2022
	Appendix I Inorganics and Organics													
OW-401B				***12.4***		***13.2***		***10***		6.7		3.69		3.22
OW-402B				3.03		7.26		***18.4***	--	6.74		9.35		8.33
OW-410B				7.34		2.04		***11.6***				***17.3***		
OW-411B				8.02		***10.9***		7.26				5.47		
OW-412B				1.36		1.53		1.53				1.69		
OW-413B				4.24		2.97		4.66		2.46		4.91		2.22
OW-414B				***18.6***		***14.2***		***18.8***				***26.6***		
OW-105B				***0.136 J***		<0.091	***0.099 J***	<0.091	<0.091	***0.282 J***		<0.19		***0.282 J***
OW-114B	**Cobalt**	**µg/L**	**9.83**	1.94		1.43		0.842		2.85		1.34		1.95
OW-205B				5.14		4.43		6.19		4.35		5.01		3.49
OW-220B				***32.5***	***30.9***	***25.4***	***26.3***	***27.4***		***21.4***		***25.4***		***18.9***
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C				***0.252 J***										
OW-401B				53.9		60.4		54.2		46.3		43.5		42
OW-402B				73.1		**396**		**988**	--	**322**		**602**		**460**
OW-410B				37.2		28.8		54.9				55.5		
OW-411B				28.9		33.3		29.9				31.2		
OW-412B				10.1		12.4		14.4				16.6		
OW-413B				*3.89 J*		*3.7 J*		*4.9 J*		*3.6 J*		*4.59 J*		*3.01 J*
OW-414B				83.7		**116**		93.3				72.5		
OW-105B				*4.75 J*		5.82	5.81	*4.73 J*	*4.3 J*	15		*3.04 J*		9.39
OW-114B	**Nickel**	**µg/L**	**722**	8.69		9.32		6.85		12.8		10.3		19.9
OW-205B				15.9		12.3		18.8		12.3		14.6		10.7
OW-220B				**123**	**106**	**108**	**109**	**124**		**108**		**147**		99.7
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C				*2.19 J*										

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Well	Parameter Name	Units	GPS	Jan 2023	Spring 2023	Aug 2023	Fall 2023	Dec 2023	Spring 2024	Fall 2024
	Appendix I Inorganics and Organics									
OW-401B					2.58		2.21		2.5	2.87
OW-402B					***21.2***		7.52		2.02	7.99
OW-410B					***14.3***				***13.8***	NS
OW-411B					3.37				1.41	NS
OW-412B					1.75				1.03	NS
OW-413B					4.37		3.14		5.23	2.82
OW-414B					***24.7***				***19.1***	NS
OW-105B					***0.217 J***		<0.17		<0.17	<0.17
OW-114B	**Cobalt**	**µg/L**	**9.83**		0.753		2.92		0.83	1.92
OW-205B					5.28		3.37		3.69	NS
OW-220B					***24.9***		***17.3***		***21.7***	***15.8***
OW-224B				***55.4***	***62***	***29.9***	***24.8***	***21.7***	***32.5***	***23***
OW-225B				***26.9***	***30.9***	***34.9***	***21***	***30.6***	***33.3***	***30***
OW-226B				***34.5***	***28.7***	***26***	***19.7***	***24.6***	***18.8***	***25***
OW-227B				***17.2***	***25.6***	***33***	***34.1***	***26.4***	***23.5***	***22.1***
P-402A									***0.172 J***	NS
P-402C									***0.38 J***	NS
OW-401B					50.1		40		47	38.3
OW-402B					**1270**		**402**		30.4	**353**
OW-410B					50.9				52.1	NS
OW-411B					29.9				28.5	NS
OW-412B					21.3				20.5	NS
OW-413B					5.23		*2.03 J*		7.58	5.01
OW-414B					74.5				67.2	NS
OW-105B					*2.71 J*		7.04		*<2.1*	***3.61 J***
OW-114B	**Nickel**	**µg/L**	**722**		12		16.2		13	14
OW-205B					16.2		9.57		12.6	NS
OW-220B					**141**		**106**		**135**	**130**
OW-224B				**280**	**272**	**143**	**125**	**105**	**172**	**116**
OW-225B				**102**	**120**	**126**	85	**126**	**144**	**124**
OW-226B				84.3	81.2	78.9	66.6	85.1	70.5	94.7
OW-227B				73.5	90.1	98.9	76	83.6	78.4	87
P-402A									7.73	NS
P-402C									*2.31 J*	NS

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Well	Parameter Name	Units	GPS	Fall 2010	Feb 2011	Mar 2011	Spring 2011	June 2011	Aug 2011	Fall 2011	Feb 2012	Spring 2012	Fall 2012	Spring 2013
	Appendix I Inorganics and Organics													
OW-401B				3.89	2.94	3.44	3.54	3.18	4.05	**5.3**	4.11	3.39	**5.62**	4.54
OW-402B					1.15	1.42	1.29	1.63	1.49	1.32	1.25	0.98	2.19	0.908
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**Benzene**	**µg/L**	**5**	*<0.5*			*<0.5*			*<0.11*		*<0.11*	*0.16 J*	*<0.11*
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														
OW-401B				*<1*	*<1*	*<1*	*<1*	1.3	*<1*	*0.34 J*	*0.32 J*	*0.45 J*	*0.43 J*	*0.231 J*
OW-402B					48.6	**76.6**	**70**	**78**	34.6	36.2	38	26.9	56.1	29.9
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**cis-1,2-Dichloroethylene**	**µg/L**	**70**	*<1*			*<1*			*<0.13*		*<0.13*	*0.14 J*	*<0.13*
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														

TABLE 2
Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Dec 2016	Spring 2017	June 2017	Fall 2017
	Appendix I Inorganics and Organics													
OW-401B				**5.24**	**5.12**	**5.14**	4.96	3.75	4.16	4.35	3.6	4.84		4.07
OW-402B				1.4	1.97	1.48	1.88	0.866	*<0.11*	0.622	1.29	0.609		1.59
OW-410B											3.85	0.973	0.65	1.18
OW-411B											0.859	1.8	1.53	2.22
OW-412B											*0.235 J*	0.605	0.668	0.653
OW-413B											2.57	1.87	1.29	1.72
OW-414B											1.92	3.02	2.66	1.43
OW-105B														
OW-114B	**Benzene**	**µg/L**	**5**	*<0.11*	*0.229 J*	*<0.11*	*<0.11*	*<0.11*	*<0.11*	*<0.11*	*<0.11*	*<0.11*		*<0.11*
OW-205B									*0.225 J*		*0.387 J*	*0.482 J*	*0.207 J*	*0.138 J*
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											*0.167 J*	*<0.11*		*<0.11*
P-402C											*<0.11*	*<0.11*	*<0.11*	*<0.11*
OW-401B				*0.314 J*	*<0.13*	*0.403 J*	*0.475 J*	*0.28 J*	*0.541 J*	*0.452 J*	*0.257 J*	*0.402 J*		*0.313 J*
OW-402B				17	47	22.1	44	16.2	3.63	5.75	20.4	10.3		24.4
OW-410B											*0.202 J*	*<0.13*	*0.14 J*	*<0.13*
OW-411B											*0.342 J*	*0.654 J*	*0.389 J*	*0.622 J*
OW-412B											5.9	8.1	9.47	11.3
OW-413B											1.49	1.15	*0.588 J*	*0.748 J*
OW-414B											31.3	17.6	22.5	27.3
OW-105B														
OW-114B	**cis-1,2-Dichloroethylene**	**µg/L**	**70**	*<0.13*	*<0.13*	*<0.13*	*<0.13*	*<0.13*	*<0.13*	*<0.13*	*<0.13*	*<0.13*		*0.153 J*
OW-205B									*0.243 J*		*0.74 J*	*0.371 J*	*0.304 J*	*0.217 J*
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											*<0.13*	*<0.13*		*<0.13*
P-402C											*<0.13*	*<0.13*	*<0.13*	*<0.13*

TABLE 2
Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Nov 2017	Dec 2017	Jan 2018	Spring 2018	July 2018	Fall 2018	Dec 2018	Spring 2019	June 2019	Fall 2019	Nov 2019
	Appendix I Inorganics and Organics													
OW-401B							4.75		*<0.22*		**5.67**		4.64	
OW-402B							1.6		1.4		0.679		1.22	
OW-410B				1.15			*<0.11*		0.81		*0.495 J*		0.953	
OW-411B				2.27			1.14		1.74		1.35		2.5	
OW-412B				0.706			0.616		0.852		0.719		0.921	
OW-413B				2.24			1.98		2		1.43		1.39	
OW-414B				1.66			3		2.32		2.15		1.51	
OW-105B														
OW-114B	**Benzene**	**µg/L**	**5**				*<0.11*		3.58		*<0.22*		*<0.22*	
OW-205B				*0.173 J*	*0.235 J*		*0.264 J*	--	*0.374 J*		*0.225 J*		0.898	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							*0.377 J*		*<0.22*		*<0.22*	--	*<0.22*	
P-402C				*<0.11*			*<0.11*				*<0.22*			
OW-401B							*0.332 J*		*<0.21*		*0.266 J*		*0.245 J*	
OW-402B							38		17.7		10.9		20.7	
OW-410B				*<0.13*			*<0.13*		*<0.21*		*<0.21*		*<0.21*	
OW-411B				*0.426 J*			*0.412 J*		*0.495 J*		*0.616 J*		*0.648 J*	
OW-412B				12.7			14.8		16.7		15.8		18.4	
OW-413B				*0.825 J*			1.01		*0.788 J*		*0.851 J*		*0.835 J*	
OW-414B				21.5			22.3		24		17.3		18.9	
OW-105B														
OW-114B	**cis-1,2-Dichloroethylene**	**µg/L**	**70**			*<0.13*		*0.296 J*		*<0.21*		*<0.21*		*<0.21*
OW-205B				*0.259 J*	*0.261 J*		*0.454 J*	--	*0.855 J*		*0.498 J*		1.17	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							*<0.13*		*<0.21*		*<0.21*	--	*<0.21*	
P-402C				*<0.13*			*<0.13*				*<0.21*			

TABLE 2
Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Spring 2020	Aug 2020	Fall 2020	Dec 2020	Spring 2021	June 2021	Fall 2021	Feb 2022	Spring 2022	July 2022	Fall 2022
	Appendix I Inorganics and Organics													
OW-401B				**5.81**		4.5		4.01		4.15		4.08		4.01
OW-402B				0.824		1.56		0.8	--	1.32		0.564		1.14
OW-410B				2.96		1.45		3.6				1.88		
OW-411B				1.42		1.78		*0.356 J*				*0.271 J*		
OW-412B				*0.271 J*		0.724		0.692				0.542		
OW-413B				1.26		1.05		1.16		1.64		1.36		1.57
OW-414B				1.39		1.97		1.42				2.15		
OW-105B				*<0.22*		*<0.22*	*<0.22*	*<0.22*	*<0.22*	*<0.22*		*<0.22*		*<0.22*
OW-114B	**Benzene**	**µg/L**	**5**	*<0.22*		*<0.22*		*<0.22*		*<0.22*		*<0.22*		*<0.22*
OW-205B				*0.446 J*		*0.242 J*		*0.471 J*		*0.493 J*		*0.256 J*		*0.354 J*
OW-220B				3.91	**32.5**	2.98	2.78	2.75		2.32		2.42		1.91
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C				*<0.22*										
OW-401B				*<0.21*		*0.214 J*		*0.217 J*		*<0.21*		*<0.21*		*<0.21*
OW-402B				14.8		23.5		12.2	--	16.6		14.3		15.4
OW-410B				*<0.21*		*0.256 J*		*<0.21*				*<0.21*		
OW-411B				*0.503 J*		*<0.21*		*<0.21*				*<0.21*		
OW-412B				10.2		16.3		16.4				17.5		
OW-413B				*0.83 J*		*0.33 J*		*0.897 J*		1.02		1.13		*0.899 J*
OW-414B				16.5		10.7		9.21				10.4		
OW-105B				*<0.21*		*<0.21*	*<0.21*	*<0.21*	*<0.21*	*<0.21*		*<0.21*		*<0.21*
OW-114B	**cis-1,2-Dichloroethylene**	**µg/L**	**70**	*<0.21*			*<0.21*		*<0.21*		*<0.21*		*<0.21*	
OW-205B				1.02		*0.224 J*		*0.685 J*		*0.571 J*		*0.52 J*		*0.44 J*
OW-220B				*0.772 J*	13.8	*0.698 J*	*0.574 J*	*0.573 J*		*0.507 J*		*0.703 J*		*<0.21*
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C				*<0.21*										

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Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Jan 2023	Spring 2023	Aug 2023	Fall 2023	Dec 2023	Spring 2024	Fall 2024
	Appendix I Inorganics and Organics									
OW-401B					2.7		4.41		3.79	3.46
OW-402B					0.646		0.955		*<0.22*	0.947
OW-410B					1.77				2.02	NS
OW-411B					*0.309 J*				*0.229 J*	NS
OW-412B					0.525				*0.296 J*	NS
OW-413B					1.32		1.57		1.17	1.9
OW-414B					2.54				1.98	NS
OW-105B					*<0.22*		*<0.22*		*<0.22*	*<0.22*
OW-114B	**Benzene**	**µg/L**	**5**		*<0.22*		*<0.22*		*<0.22*	*<0.22*
OW-205B					*0.334 J*		*0.464 J*		*<0.22*	NS
OW-220B					2.64		1.77		2.29	2.29
OW-224B				2.05	3.24	*4.34 J*	4.36	4.2	*3.02 J*	4.21
OW-225B				0.777	0.972	1	1.28	1.2	1.18	0.983
OW-226B				2.41	2.51	2.44	2.16	2.77	2.02	2.59
OW-227B				1.31	1.95	2.69	2.77	2.78	2.99	2.92
P-402A									*<0.22*	NS
P-402C									*<0.22*	NS
OW-401B					*<0.21*		*<0.21*		*<0.21*	*<0.21*
OW-402B					14.8		13.1		*0.521 J*	10.4
OW-410B					*<0.21*				*<0.21*	NS
OW-411B					*<0.21*				*<0.21*	NS
OW-412B					17.8				11.8	NS
OW-413B					*0.814 J*		*0.824 J*		*0.701 J*	***0.755 J***
OW-414B					8.99				6.98	NS
OW-105B					*<0.21*		*<0.21*		*<0.21*	*<0.21*
OW-114B	**cis-1,2-Dichloroethylene**	**µg/L**	**70**	*<0.21*		*<0.21*		*<0.21*		*<0.21*
OW-205B					*0.366 J*		*<0.21*		*<0.21*	NS
OW-220B					*0.345 J*		*<0.21*		*0.474 J*	***0.407 J***
OW-224B				1.35	1.22	*<2.1*	*<0.21*	*<0.21*	*<2.1*	***0.26 J***
OW-225B				*0.844 J*	*0.749 J*	*<0.21*	1.16	1.17	*0.778 J*	***0.842 J***
OW-226B				*<0.21*	*<0.21*	*<0.21*	*<0.21*	*<0.21*	*<0.21*	*<0.21*
OW-227B				*<0.21*	*<0.21*	*<0.21*	*<0.21*	*0.285 J*	*<0.21*	***0.242 J***
P-402A									*<0.21*	NS
P-402C									*<0.21*	NS

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Well	Parameter Name	Units	GPS	Fall 2010	Feb 2011	Mar 2011	Spring 2011	June 2011	Aug 2011	Fall 2011	Feb 2012	Spring 2012	Fall 2012	Spring 2013
	Appendix I Inorganics and Organics													
OW-401B				*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*
OW-402B					**20.7**	**27.9**	**24.8**	**33.7**	**11.2**	**12.7**	**11.4**	**6.48**	**18**	**7.67**
OW-410B														
OW-411B														
OW-412B														
OW-413B														
OW-414B														
OW-105B														
OW-114B	**Vinyl Chloride**	**µg/L**	**2**	*<1*			*<1*			*<0.1*		*<0.1*	*<0.1*	*<0.1*
OW-205B														
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														

Notes:
Detections at or above the GWPS are shown in bold on gray background.
Detections greater than the MDL but less than the RL are shown in italics on white background with a J.
Detections less than the MDL in italics on white background with a <.

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Well	Parameter Name	Units	GPS	Fall 2013	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Dec 2016	Spring 2017	June 2017	Fall 2017
	Appendix I Inorganics and Organics													
OW-401B				*0.11 J*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*		*<0.1*
OW-402B				**4.01**	**14.9**	**5.42**	**11.7**	**4.22**	*<0.1*	1.27	**4.35**	1.9		**5.08**
OW-410B											*<0.1*	*<0.1*	*<0.1*	*<0.1*
OW-411B											*0.405 J*	*0.717 J*	*0.321 J*	*0.444 J*
OW-412B											*0.695 J*	**2.56**	**3.11**	**2.54**
OW-413B											*0.287 J*	*0.266 J*	*0.129 J*	*<0.1*
OW-414B											**7.25**	1.23	**3.02**	**5.08**
OW-105B														
OW-114B	**Vinyl Chloride**	**µg/L**	**2**	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*	*<0.1*		*<0.1*
OW-205B									*<0.1*		*<0.1*	*<0.1*	*<0.1*	*<0.1*
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A											*<0.13*	*<0.13*		*<0.13*
P-402C														

Notes:
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Detections greater than the MDL but less than the RL are shown in itali
Detections less than the MDL in italics on white background with a <.

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Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Nov 2017	Dec 2017	Jan 2018	Spring 2018	July 2018	Fall 2018	Dec 2018	Spring 2019	June 2019	Fall 2019	Nov 2019
	Appendix I Inorganics and Organics													
OW-401B							*<0.1*		*<0.6*		*<0.6*		*<0.18*	
OW-402B							**7.06**		**3.49**		1.76		**3.65**	
OW-410B				*<0.1*			*<0.1*		*<0.6*		*<0.6*		*<0.18*	
OW-411B				*0.255 J*			*<0.1*		*<0.6*		*<0.6*		*0.785 J*	
OW-412B				**4.33**			**2.16**		**3.39**		*<0.6*		**5.06**	
OW-413B				*0.395 J*			*0.251 J*		*<0.6*		*<0.6*		*0.287 J*	
OW-414B				**4.66**			**3.14**		**5.65**		1.12		**3.77**	
OW-105B														
OW-114B	**Vinyl Chloride**	**µg/L**	**2**				*<0.1*		*<0.6*		*<0.6*		*<0.18*	
OW-205B				*<0.1*	*<0.1*		*<0.1*	--	*<0.6*		*<0.6*		*<0.18*	
OW-220B														
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A							*<0.13*		*<0.21*		*<0.21*	--	*<0.21*	
P-402C														

Notes:
Detections at or above the GWPS are shown in bold on gray backgrour
Detections greater than the MDL but less than the RL are shown in itali
Detections less than the MDL in italics on white background with a <.

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Well	Parameter Name	Units	GPS	Spring 2020	Aug 2020	Fall 2020	Dec 2020	Spring 2021	June 2021	Fall 2021	Feb 2022	Spring 2022	July 2022	Fall 2022
	Appendix I Inorganics and Organics													
OW-401B				*<0.18*		*<0.18*		*<0.18*		*<0.18*		*<0.18*		*<0.18*
OW-402B				**2.02**		**3.56**		**2.06**	--	**2.45**		1.99		1.96
OW-410B				*<0.18*		*<0.18*		*<0.18*				*<0.18*		
OW-411B				*0.475 J*		*0.643 J*		*<0.18*				*<0.18*		
OW-412B				*0.81 J*		**4.14**		**4.86**				**3.63**		
OW-413B				*0.284 J*		*<0.18*		*0.19 J*		*0.23 J*		*<0.18*		*<0.18*
OW-414B				**2.82**		**2.92**		**2.04**				1.24		
OW-105B				*<0.18*		*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*		*<0.18*		*<0.18*
OW-114B	**Vinyl Chloride**	**µg/L**	**2**	*<0.18*		*<0.18*		*<0.18*		*<0.18*		*<0.18*		*<0.18*
OW-205B				*<0.18*		*<0.18*		*<0.18*		*<0.18*		*<0.18*		*<0.18*
OW-220B				*<0.18*	*<1.8*	*<1.8*	*<0.18*	*<0.18*		*<0.18*		*<0.18*		*<0.18*
OW-224B														
OW-225B														
OW-226B														
OW-227B														
P-402A														
P-402C														

Notes:
Detections at or above the GWPS are shown in bold on gray backgrour
Detections greater than the MDL but less than the RL are shown in itali
Detections less than the MDL in italics on white background with a <.

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Summary of Organic and Inorganic Groundwater Concentrations
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Well	Parameter Name	Units	GPS	Jan 2023	Spring 2023	Aug 2023	Fall 2023	Dec 2023	Spring 2024	Fall 2024
	Appendix I Inorganics and Organics									
OW-401B					*<0.18*		*<0.18*		*<0.18*	*<0.18*
OW-402B					**2.07**		1.9		*<0.18*	1.55
OW-410B					*<0.18*				*<0.18*	NS
OW-411B					*<0.18*				*<0.18*	NS
OW-412B					**3.37**				*0.812 J*	NS
OW-413B					*<0.18*		*<0.18*		*<0.18*	*<0.18*
OW-414B					*0.926 J*				*0.9 J*	NS
OW-105B					*<0.18*		*<0.18*		*<0.18*	*<0.18*
OW-114B	**Vinyl Chloride**	**µg/L**	**2**		*<0.18*		*<0.18*		*<0.18*	*<0.18*
OW-205B					*<0.18*		*<0.18*		*<0.18*	NS
OW-220B					*<0.18*		*<0.18*		*<0.18*	*<0.18*
OW-224B				*<0.18*	*<0.18*	*<1.8*	*<0.18*	*<0.18*	*<0.18*	*<0.18*
OW-225B				*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*
OW-226B				*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*
OW-227B				*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*	*<0.18*
P-402A									*<0.18*	NS
P-402C									*<0.18*	NS

Notes:
Detections at or above the GWPS are shown in bold on gray backgrour
Detections greater than the MDL but less than the RL are shown in itali
Detections less than the MDL in italics on white background with a <.

Table 3
Summary Table of Ongoing and Newly Identified SSIs
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter	Units	Spring 2024	Fall 2024	Total Number Sample Events (n)	Percent Nondetects	LCL	IDNR Statewide Standard	Exceeds Standard?	Upgradient Background Prediction Limit	Sample Dates		
											Initial Exceedance	2nd, 3rd, and 4th assessment samples	5th background sample
Area A - ACM													
OW-401B	Barium	µg/l	1710	1760	21	0.0	1002	2000	No	484 NPL	8/26/2015	10/3/2016; 9/29/2017; 9/20/2018	10/3/2019
	Benzene	µg/l	3.79	3.46	21	4.8	3.49	5	No	0.229 NPL	8/26/2015	10/3/2016; 9/29/2017; 9/20/2018	10/3/2019
	beta-BHC	µg/l	<0.0402	<0.0407	19	52.6	0.03	0.042	No	0.0177 NPL	8/26/2015	10/3/2016; 9/29/2017; 9/20/2018	10/3/2019
OW-410B	Barium	µg/l	2750	NS	15	0.0	1277.00	2000	No	484 NPL	12/15/2016	4/8/2017; 6/21/2017; 9/14/2017	11/30/2017
	Cobalt	µg/l	13.8	NS	15	0.0	4.22	9.83	No	5.3144 LnPL	12/15/2016	4/8/2017; 6/21/2017; 9/14/2017	11/30/2017
Area C													
OW-205B	Arsenic	µg/l	9.06	NS	21	4.8	9.08	10	No	4.18 NPL	3/29/2016	12/7/2016; 3/21/2017; 6/15/2017	9/7/2017
OW-220B	Arsenic	µg/l	14.4	25.3	11	9.1	9.60	10	No	4.18 NPL	3/31/2020	8/6/2020; 9/16/2020; 12/9/2020	3/22/2021
	Barium	µg/l	904	1010	11	0.0	729.16	2000	No	484 NPL	3/31/2020	8/6/2020; 9/16/2020; 12/9/2020	3/22/2021
	Benzene	µg/l	2.29	2.29	11	0.0	1.91	5	No	0.229 NPL	3/31/2020	8/6/2020; 9/16/2020; 12/9/2020	3/22/2021
	Nickel	µg/l	135	130	11	0.0	109.14	722	No	49.5241 LnPL	3/31/2020	8/6/2020; 9/16/2020; 12/9/2020	3/22/2021
OW-224B	Arsenic	µg/l	5.7	7.7	7	0.0	4.15	10	No	4.18 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Barium	µg/l	2580	2570	7	0.0	1863.78	2000	No	484 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Cobalt	µg/l	32.5	23	7	0.0	23.63	9.83	Yes	5.3144 LnPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Nickel	µg/l	172	116	7	0.0	120.75	722	No	49.5241 LnPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023

Table 3
Summary Table of Ongoing and Newly Identified SSIs
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter	Units	Spring 2024	Fall 2024	Total Number Sample Events (n)	Percent Nondetects	LCL	IDNR Statewide Standard	Exceeds Standard?	Upgradient Background Prediction Limit	Sample Dates		
											Initial Exceedance	2nd, 3rd, and 4th assessment samples	5th background sample
	Benzene	µg/l	3.02 J	4.21	7	28.6	0.93	5	No	0.229 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	1,4-Dichlorobenzene	µg/l	<2.30	3.52	7	28.6	1.70	75	No	0.4270 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
OW-225B	Arsenic	µg/l	5.86	6.29	7	28.6	1.64	10	No	4.18 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Barium	µg/l	1710	1380	7	0.0	1264.74	2000	No	484 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Cobalt	µg/l	33.3	30	7	0.0	26.30	9.83	Yes	5.3144 LnPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Nickel	µg/l	144	124	7	0.0	100.18	722	No	49.5241 LnPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
	Benzene	µg/l	1.18	0.983	7	0.0	0.93	5	No	0.229 NPL	1/11/2023	3/20/23; 8/1/2023; 9/7/2023	12/5/2023
OW-226B	Arsenic	µg/l	8.05	10	7	14.3	4.90	10	No	4.18 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Barium	µg/l	1450	1830	7	0.0	1456.36	2000	No	484 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Cobalt	µg/l	18.8	25	7	0.0	21.41	9.83	Yes	5.3144 LnPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Nickel	µg/l	70.5	94.7	7	0.0	71.536	722	No	49.5241 LnPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Benzene	µg/l	2.02	2.59	7	0.0	2.228	5	No	0.229 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
OW-227B	Arsenic	µg/l	16.9	16.2	7	0.0	4.376	10	No	4.18 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023

Table 3
Summary Table of Ongoing and Newly Identified SSIs
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter	Units	Spring 2024	Fall 2024	Total Number Sample Events (n)	Percent Nondetects	LCL	IDNR Statewide Standard	Exceeds Standard?	Upgradient Background Prediction Limit	Sample Dates		
											Initial Exceedance	2nd, 3rd, and 4th assessment samples	5th background sample
	Barium	µg/l	1920	2080	7	0.0	1491.77	2000	No	484 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Benzene	µg/l	2.99	2.92	7	0.0	2.03	5	No	0.229 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Chromium	µg/l	6.53	7.49	7	0.0	3.82	100	No	27 NPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Cobalt	µg/l	23.5	22.1	7	0.0	21.60	9.83	Yes	5.3144 LnPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
	Nickel	µg/l	78.4	87	7	0.0	77.40	722	No	49.5241 LnPL	1/24/2023	3/21/2023; 8/3/2023; 9/18/2023	12/5/2023
OW-402B	Barium	µg/l	581	988	23	0.0	430	2000	No	484 NPL	8/26/2015	9/30/2016; 9/17/2017; 9/14/2018	10/7/2019
	Benzene	µg/l	*<0.220*	0.947	23	8.7	0.80	5	No	0.229 NPL	8/26/2015	9/30/2016; 9/17/2017; 9/14/2018	10/7/2019
	cis-1,2-Dichloroethylene	µg/l	*0.521 J*	10.4	23	4.3	12.48	70	No	0.296 NPL	8/26/2015	9/30/2016; 9/17/2017; 9/14/2018	10/7/2019
	Cobalt	µg/l	2.02	7.99	23	0.0	6.43	9.83	No	5.3144 LnPL	8/26/2015	9/30/2016; 9/17/2017; 9/14/2018	10/7/2019
	Nickel	µg/l	30.4	353	23	0.0	302.21	722	No	49.5241 LnPL	8/26/2015	9/30/2016; 9/17/2017; 9/14/2018	10/7/2019
	Vinyl Chloride	µg/l	*<0.180*	1.55	23	8.7	1.95	2	No	0.18 NPL	8/26/2015	9/30/2016; 9/17/2017; 9/14/2018	10/7/2019
OW-412B	Vinyl Chloride		*0.812 J*	NS	15	13.3	1.89	2	No	0.18 NPL	4/7/2017	6/13/2017; 9/13/2017; 11/28/2017	3/22/2018
OW-414B	Cobalt		19.1	NS	15	0.0	16.78	9.83	Yes	5.3144 LnPL	12/7/2016	4/7/2017; 6/14/2017; 9/13/2017	11/29/2017
	Vinyl Chloride		*0.9 J*	NS	15	13.3	2.00	2	Yes	0.18 NPL	12/7/2016	4/7/2017; 6/14/2017; 9/13/2017	11/29/2017

Notes:
All analytical results given in µg/L.

Table 3
Summary Table of Ongoing and Newly Identified SSIs
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter	Units	Spring 2024	Fall 2024	Total Number Sample Events (n)	Percent Nondetects	LCL	IDNR Statewide Standard	Exceeds Standard?	Upgradient Background Prediction Limit	Sample Dates		
											Initial Exceedance	2nd, 3rd, and 4th assessment samples	5th background sample
	LnPL = lognormal prediction limit												
	NS = No statewide standard exists.												
	NT = No statistical test necessary.												
	NPL = Nonparametric prediction limit												
	PL = Parametric prediction limit												
	RL = Reporting limit												
	NA = Not applicable or not established.												
	GPS exceedances are in red font												
	Prediction limit exceedances shown on gray background.												
	Detections are in bold font												
	Estimated values are designated with a J												
	False positive rate for all comparisons to statewide standards is 1.0%.												
	Only 2024 data is presented here; refer to AWQR appendices for complete historical data used in the statistical tests.												
	60722882/400/435/01-IDNR/2024 AWQR/09-ACM Report/IDNR Table 3.xlsx												

Table 4
Summary Table of Ongoing and Newly Identified SSLs
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter	Units	Spring 2024	Fall 2024	Total Number Sample Events (n)	Percent Nondetects	UCL	IDNR GWPS	Initial Exceedance	Consecutive Compliance Dates UCL < GWPS		
										1st Occurance	Most Recent	Duration
Area A - ACM												
OW-401B	Arsenic	µg/l	5.67	8.77	34	17.6	11.27	10	8/26/2015	--	--	--
	Cobalt	µg/l	2.5	2.87	34	5.9	13.12	9.83	8/26/2015	--	--	--
	beta-BHC	µg/l	<0.0402	<0.0407	19	52.6	0.056	0.0420	8/26/2015	2024	--	1 year
OW-410B	Barium	µg/l	2750	NS	15	0.0	2088.67	2000.0000	4/8/2020	--	--	--
	Cobalt	µg/l	13.8	NS	15	0.0	8.98	9.8300	3/30/2021	2024	--	1 year
OW-411B	Cobalt	µg/l	1.41	NS	15	0.0	5.79	9.8300	9/17/2020	2024		1 year
Area C - ACM												
OW-205B	Arsenic	µg/l	9.06	NS	21	4.8	12.59	10	3/29/2016	--	--	--
OW-220B	Arsenic	µg/l	14.4	25.3	12	9.1	16.38	10	3/31/2020	--	--	--
	Benzene	µg/l	2.29	2.29	12	0.0	9.54	5	8/6/2020	--	--	--
	Nickel	µg/l	135	130	12	0.0	127.89	722	3/31/2020	2024	--	1 year
	Cobalt	µg/l	21.7	15.8	12	0.0	26.66	9.83	3/31/2020	--	--	--
OW-224B	Barium	µg/l	2580	2570	7	0.0	2413.36	2000	12/5/2023	--	--	--
	Cobalt	µg/l	32.5	23	7	0.0	47.60	9.83	1/11/2023	--	--	--
	Nickel	µg/l	172	116	7	0.0	227.17	722	4/23/2024	2024	--	1 year
OW-225B	Cobalt	µg/l	33.3	30	7	0.0	33.02	9.83	1/11/2023	--	--	--
	Nickel	µg/l	144	124	7	0.0	132.16	722	1/11/2023	2024		1 year
OW-226B	Cobalt	µg/l	18.8	25	7	0.0	29.25	9.83	9/18/2023	--	--	--
OW-227B	Arsenic	µg/l	16.9	16.2	7	0.0	12.76	10	5/23/2024	--	--	--
	Barium	µg/l	1920	2080	7	0.0	1873.95	2000	10/9/2024	2024	--	1 year
	Cobalt	µg/l	23.5	22.1	7	0.0	30.37	9.83	9/20/2023	--	--	--

Table 4
Summary Table of Ongoing and Newly Identified SSLs
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

Well	Parameter	Units	Spring 2024	Fall 2024	Total Number Sample Events (n)	Percent Nondetects	UCL	IDNR GWPS	Initial Exceedance	Consecutive Compliance Dates UCL < GWPS		
										1st Occurance	Most Recent	Duration
OW-402B	Cobalt	µg/l	2.02	7.99	34	17.6	11.37	9.83	8/26/2015	--	--	--
	Nickel	µg/l	30.4	353	34	0.0	608.02	722	8/26/2015	2024	--	1 year
	Vinyl Chloride	µg/l	<0.18	1.55	34	5.88	3.37	2	8/26/2015	--	--	--
OW-412B	Vinyl Chloride	µg/l	0.812 J	NS	15	13.33	3.46	2	4/5/2019	--	--	--
OW-414B	Cobalt	µg/l	19.1	NS	15	0.0	21.25	9.83	12/7/2016	--	--	--
	Vinyl Chloride	µg/l	0.9 J	NS	15	13.3	3.89	2	4/5/2019	--	--	--

All analytical results given in µg/L.
NS = No statewide standard exists.
NT = No statistical test necessary.
NPL = Nonparametric prediction limit
PL = Parametric prediction limit
RL = Reporting limit
NA = Not applicable or not established.
GPS exceedances are in red font
Prediction limit exceedances shown on gray background.
Detections are in bold font
Estimated values are designated with a J
False positive rate for all comparisons to statewide standards is 1.0%.
Only 2024 data is presented here; refer to AWQR appendices for complete historical data used in the statistical tests.
* This well/contaminant pair has been compliant for 3 years and no longer has an SSL
60722882/400/435/01-IDNR/2024 AWQR/09-ACM Report/IDNR Table 4.xlsx

Table 5
Summary of USGS Soil Geochemistry
Black Hawk County
2024 ACM Report
Black Hawk County Landfill
Permit No. 7-SDP-1-75P

USGS Sample No.	C222308	C222135	C223329	C222200	C236437	C236313	C236430	C236368	C223209	C222468	
Horizon	A	B	A	B	B	A	B	A	A	A	
Depth	7-in	20-in	8-in	22-in	23-in	8-in	24-in	8-in	8-in	22-in	
Constituent											Units
Beryllium	<1	1	1	<1	2	1	2	2	1	<1	mg/Kg
Arsenic	7.4	7.9	6.7	1.4	11.9	8.1	9.7	7.8	6.9	6.4	mg/Kg
Barium	573	552	578	298	618	600	460	549	776	790	mg/Kg
Cadmium	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	mg/Kg
Calcium	1180	1080	3760	650	520	890	610	1210	650	630	mg/Kg
Cobalt	10	9	8	3	10	9	9	9	9	9	mg/Kg
Copper	15	15	21	2	19	16	15	14	17	16	mg/Kg
Cromium	32	46	44	8	21	20	17	23	37	34	mg/Kg
Iron	3190	3790	2860	680	2830	2350	2890	2390	2190	2340	mg/Kg
Lead	23	19	26	8	14	18	13	18	18	20	mg/Kg
Magnesium	550	570	1100	1400	640	560	530	600	420	500	mg/Kg
Manganese	90	70	80	20	60	80	30	60	50	30	mg/Kg
Mercury	0.03	0.04	0.05	<0.02	0.04	0.03	0.03	0.04	0.02	0.02	mg/Kg
Nickel	21	21	23	7	28	22	24	19	17	22	mg/Kg
Potassium	1270	1300	1560	870	1590	1670	1260	1530	1710	1670	mg/Kg
Selenium	0.7	1	0.8	<0.2	0.7	0.6	0.5	0.5	0.4	0.2	mg/Kg
Silver	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	mg/Kg
Sodium	830	790	740	840	680	730	610	730	750	800	mg/Kg
Vanadium	76	89	83	18	106	86	87	84	81	89	mg/Kg
Zinc	71	74	88	15	63	69	50	58	70	72	mg/Kg

Notes: Smith, D.B., Cannon, W.F., Woodruff, L.G., Solano, Federico, Kilburn, J.E., and Fey, D.L., 2013, Geochemical and mineralogical data for soils of the conterminous United States: U.S. Geological Survey Data Series 801, 19 p., http://pubs.usgs.gov/ds/801/.

APPENDICES

APPENDIX A - Statistical Reports

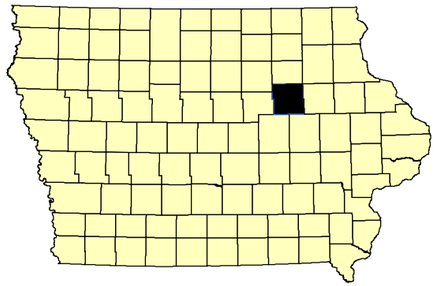
APPENDIX B-1 - Laboratory Reports

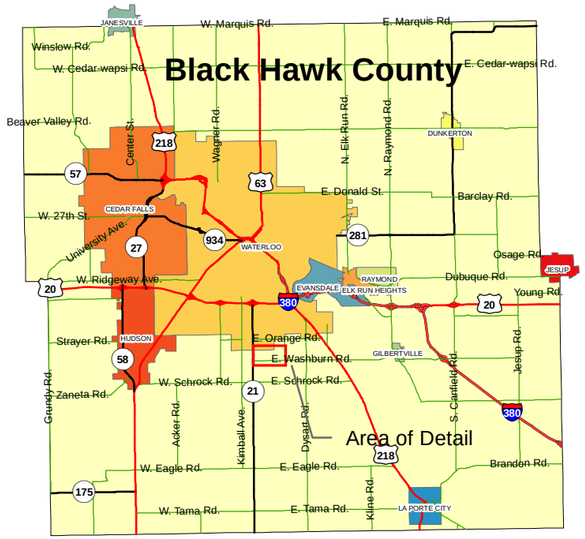
APPENDIX B-2 - Analytical Data Summary Tables

APPENDIX C - Confidence Limits (Assessment) Statistical Results

Appendix A – Statistical Reports

APPENDIX A - 2018





Unit Monitored

- Shallow Detection Well
- Shallow Assessment Well
- Deep Detection Well
- Deep Assessment Well
- Surface Water Point

Leachate Collection

- Leachate Cleanout
- Manhole
- Tank
- Collection Line
- Sideslope Riser
- Force Main

0 250 500 750 1,000

Feet

N W E S

Basemap: Black Hawk County, IA Assessor, Spring 2017

NEUTRAL TRENCH

ASBESTOS CELL NO. 1

ASBESTOS CELL NO. 2

Hammond Avenue

Hess Road

MW-409B

P-104C

P-213C

OW-216B

P-216C

AREA E

CELL X

P-215C

GUE-1

OW-113B

MW-308B

MW-605B

OW-406B

OW-405B

OW-403B

MW-312B

GUW1-1

AREA C

GUW2-1

P-604C

MW-604B

P-402A

P-402C

OW-106B

GUE-2

GUX-1

P-214C

OW-412B

OW-414B

CELL W2

CELL W1

MW-603B

OW-401B

OW-411B

OW-209B

OW-108B

MW-602B

OW-410B

AREA A

MW-601B

CODISPOSAL AREA

OW-114B

P-114C

MW-501B

Scale House

MW-318CR

MW-319B

Washburn Road

Figure 1
Site Location

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377

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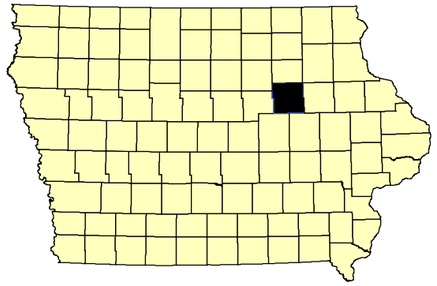
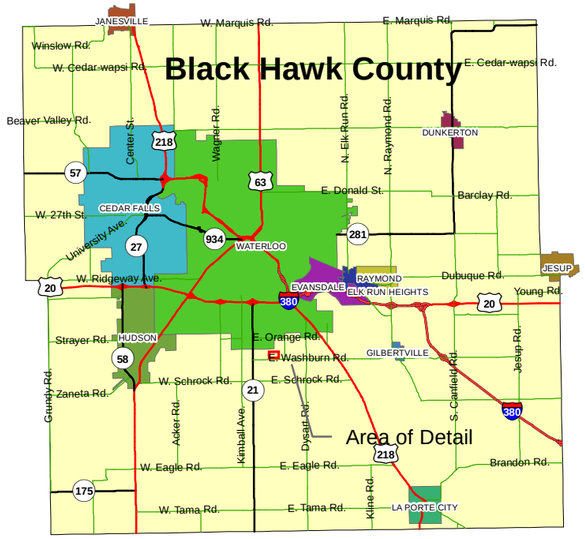




ACM Well Location

MW/PZ Well

0 75 150 225 300

Feet

N

W E

S

Basemap: Black Hawk County, IA Assessor, Spring 2013

AREA E

OW-212B

P-212A

OW-205B

OW-403B

MW-312B

GUW1-1

OW-413B

AREA C

OW-402B

OW-412B

P-402C

P-402A

OW-414B

CELL W1

OW-411B

OW-401B

AREA A

OW-410B

CODISPOSAL AREA

OW-114B

P-114C

P-114A

AECOM

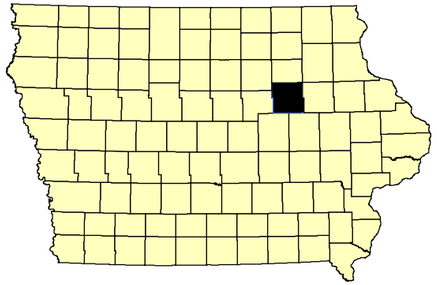
Figure 2
Boring and Well Locations

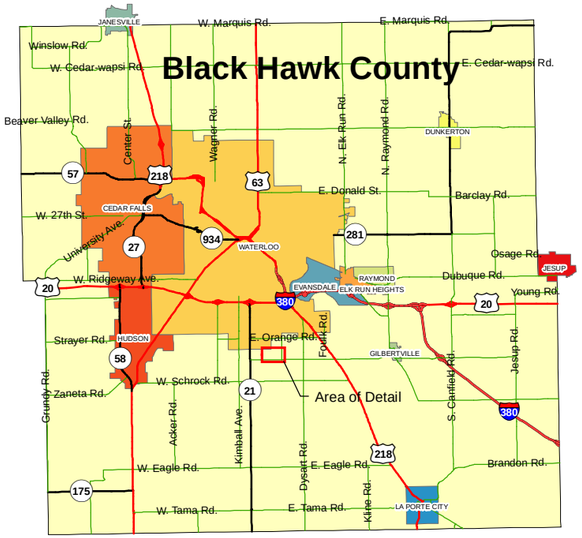
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig2.mxd





Groundwater Contour

Flow Line

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

0 250 500 750 1,000

Feet

N

W E

S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2017

NEUTRAL TRENCH

ASBESTOS CELL NO. 1

ASBESTOS CELL NO. 2

AREA E

AREA C

AREA A

CELL X

CELL W1

CELL W2

CODISPOSAL AREA

Scale House

Hammond Avenue

Hess Road

Washburn Road

MW-301B 926.98
MW-302B 941.06
OW-203B 941.40
OW-101B 941.05
OW-102D 927.99
OW-216B 937.75
MW-304B 920.94
OW-102B 932.15
MW-409B 922.49
OW-103B 928.25
OW-104B 925.64
OW-215B 927.66
MW-307B 921.50
MW-308B 944.77
OW-205B 933.32
OW-212B 926.82
OW-113B 913.07
MW-605B 934.90
OW-406B 941.23
OW-405B 945.60
OW-403B 938.98
MW-312B 939.05
OW-105B 908.44
OW-413B 939.91
OW-214B 915.01
MW-604B 921.64
OW-106B 904.59
OW-402B 940.52
OW-412B 940.43
OW-107B 902.47
MW-603B 928.61
OW-414B 940.39
OW-209B 901.80
OW-411B 934.48
OW-401B 938.96
OW-108B 897.33
MW-602B 933.25
OW-410B 939.95
OW-109B 896.31
MW-601B 939.86
OW-408B 951.31
OW-407B 943.77
OW-114B 936.87
MW-320B 934.16
MW-501B 928.52
OW-111B 927.48
MW-318BR 946.02
MW-319B 957.31
OW-207B 929.86
OW-208B 920.85
OW-110B 901.91

AECOM

Figure 3
Water Table Elevations

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

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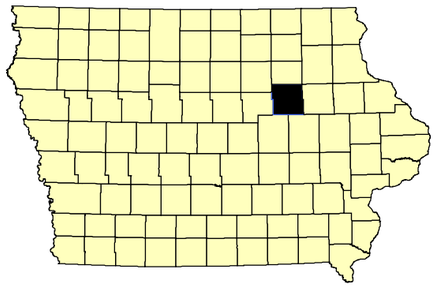
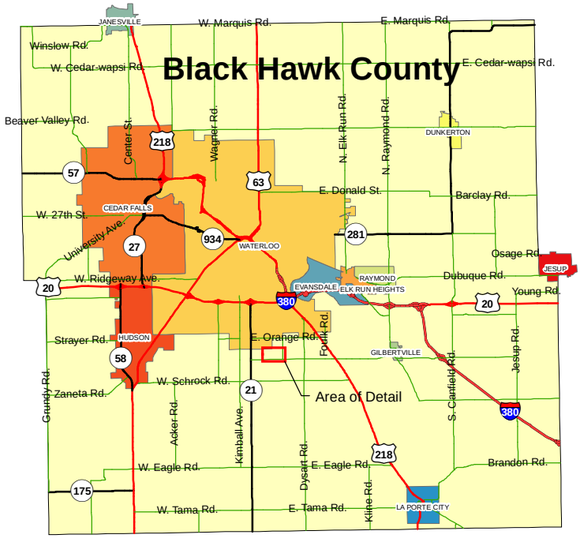




Groundwater Contours

Flow Line

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

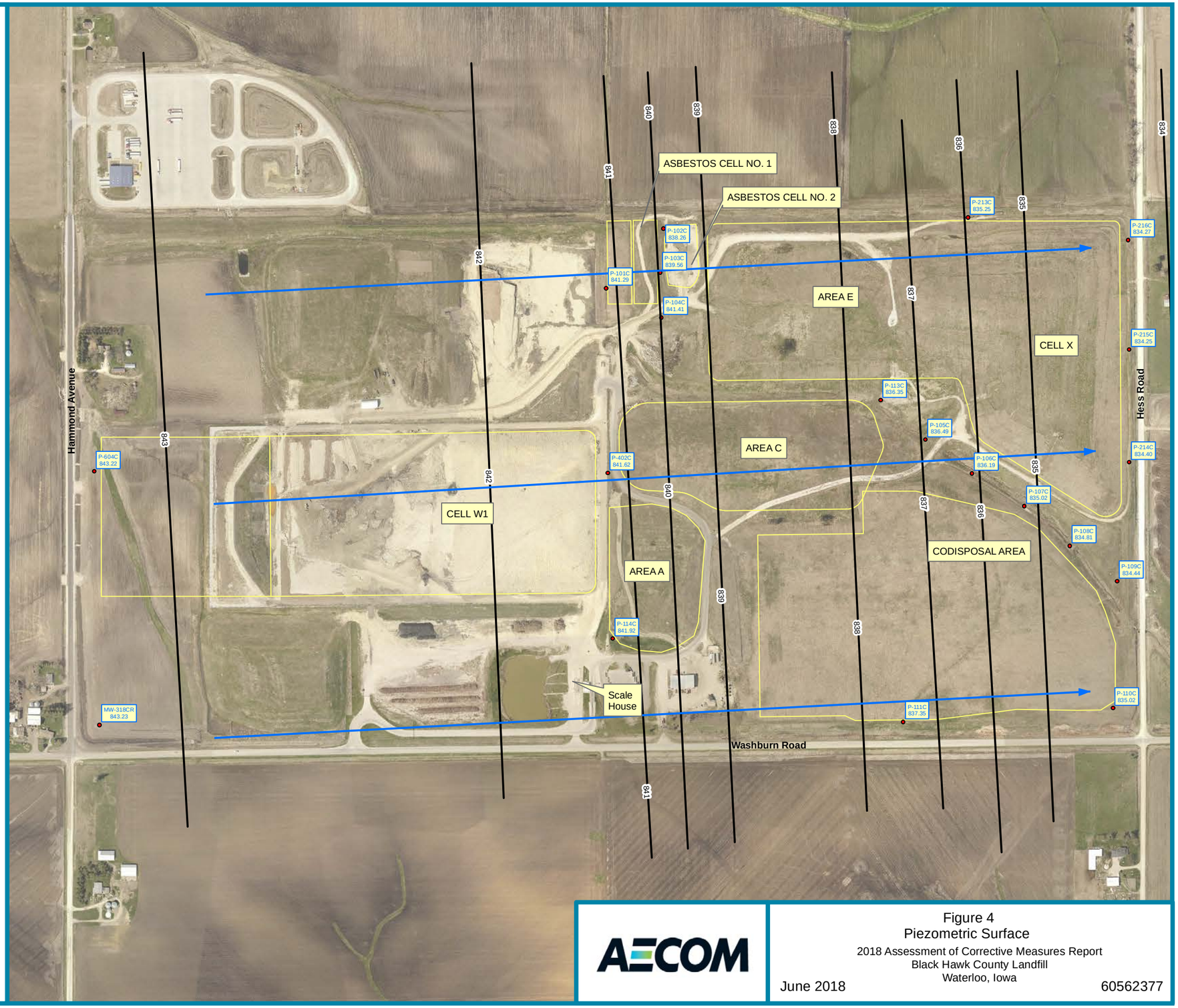
0 250 500 750 1,000

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2017

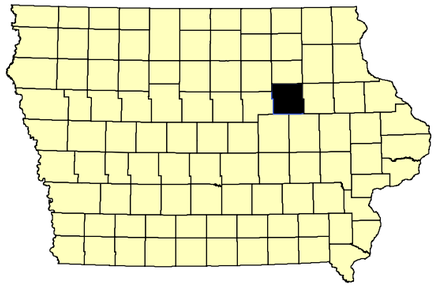


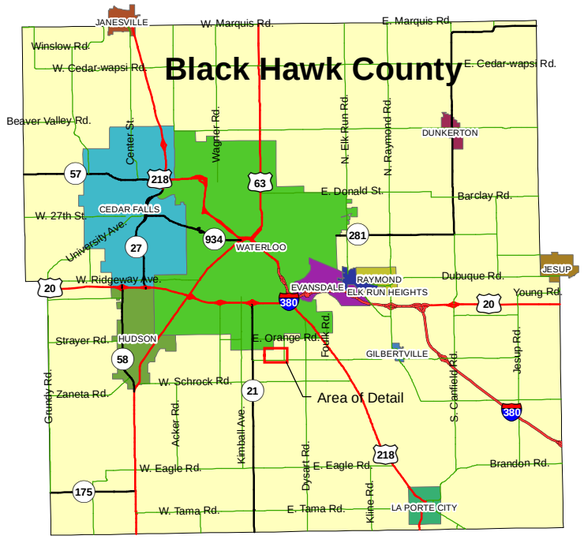
AECOM

Figure 4
Piezometric Surface
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACMEVSIFig4.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2013

OW-212B 926.82

OW-205B 933.32

OW-403B 938.98

MW-312B 939.05

OW-413B 939.91

OW-412B 940.43

OW-402B 940.52

OW-414B 940.39

OW-411B 934.48

OW-401B 938.96

OW-410B 939.95

OW-114B 936.87

928 930 932 934 936 938 940

AREA C

AREA A

AECOM

Figure 5
April 2017 ACM Area Water Table Contour Map

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

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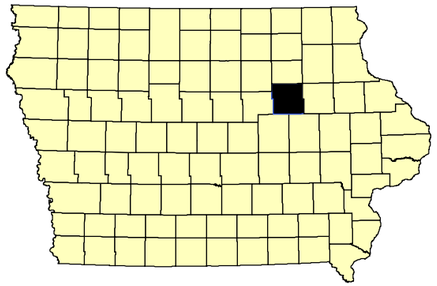
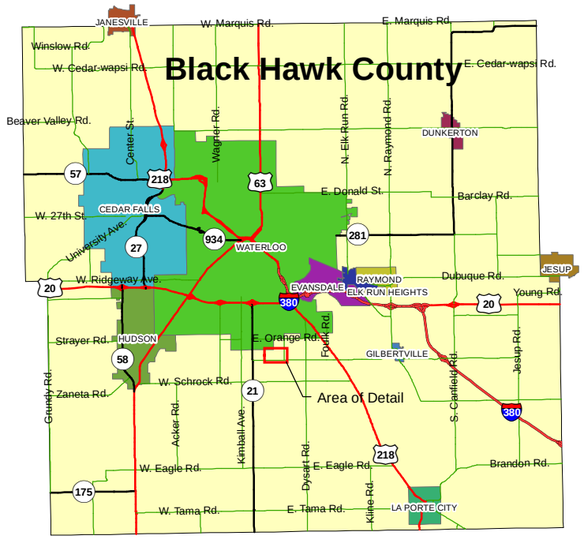




Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, Spring 2013

OW-212B 922.83

OW-205B 931.72

OW-403B 937.86

MW-312B 936.05

OW-413B 938.34

OW-402B 938.1

OW-412B 938.59

OW-414B 939.42

OW-411B 934.41

OW-401B 936.79

OW-410B 938.88

OW-114B 933.96

924 926 928 930 932 934 936 938

AREA C

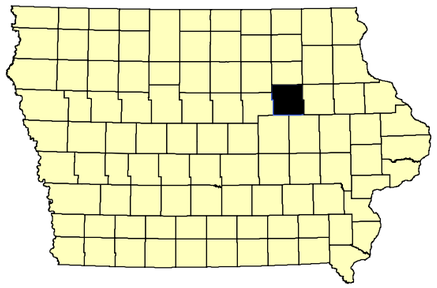
AREA A

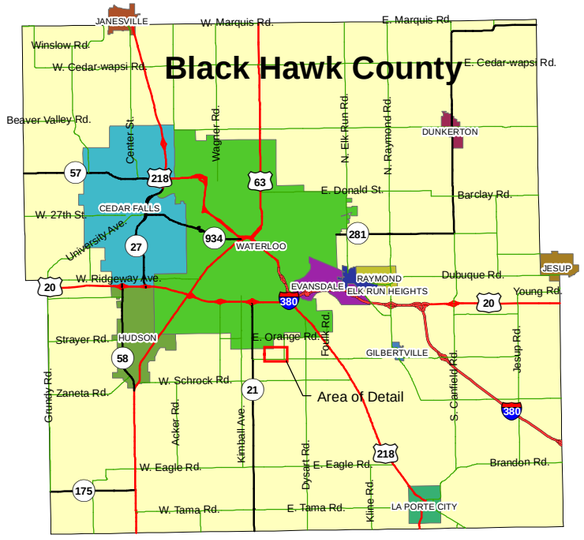
AECOM

Figure 6
September 2017 ACM Area Water Table Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVSIFig6.mxd





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

P:\60562377\400_Technical\411 ACM\EVS\Fig7.mxd

AREA E

AREA C

CELL W1

AREA A

CODISPOSAL AREA

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-402B

OW-412B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

0.5 ug/L

1.0 ug/L

2.0 ug/L

3.0 ug/L

928

930

932

934

936

938

940

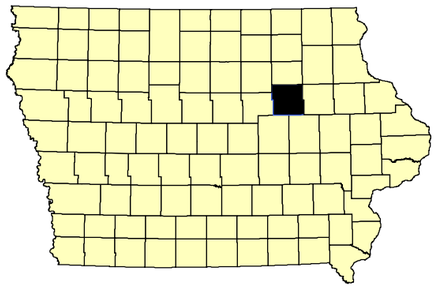
AECOM

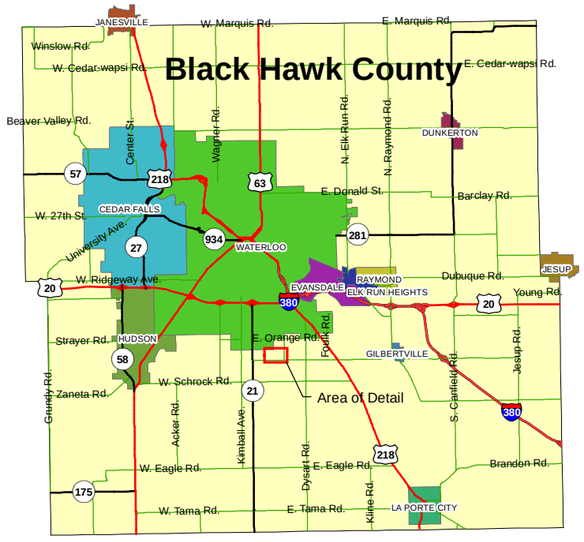
Figure 7
December 2016 Benzene Iso-concentration Contour Map

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

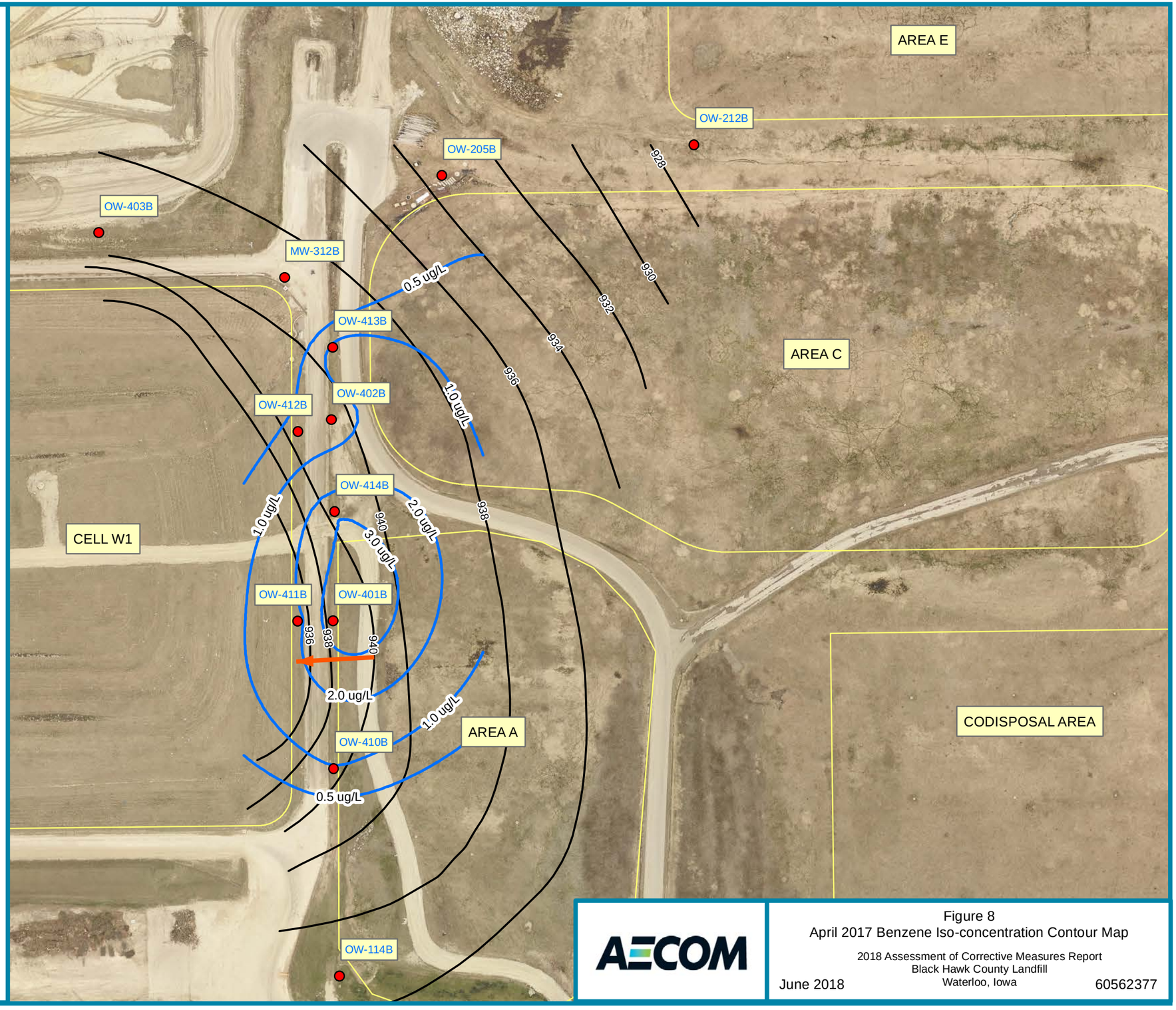
0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017



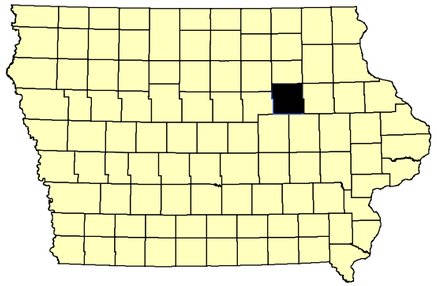
AECOM

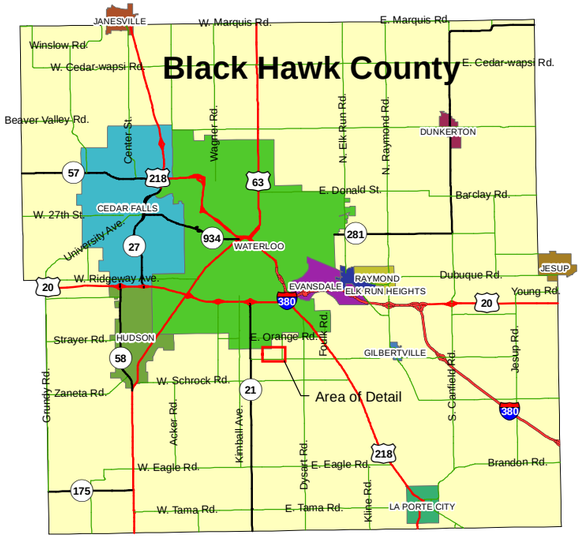
Figure 8
April 2017 Benzene Iso-concentration Contour Map

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig8.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

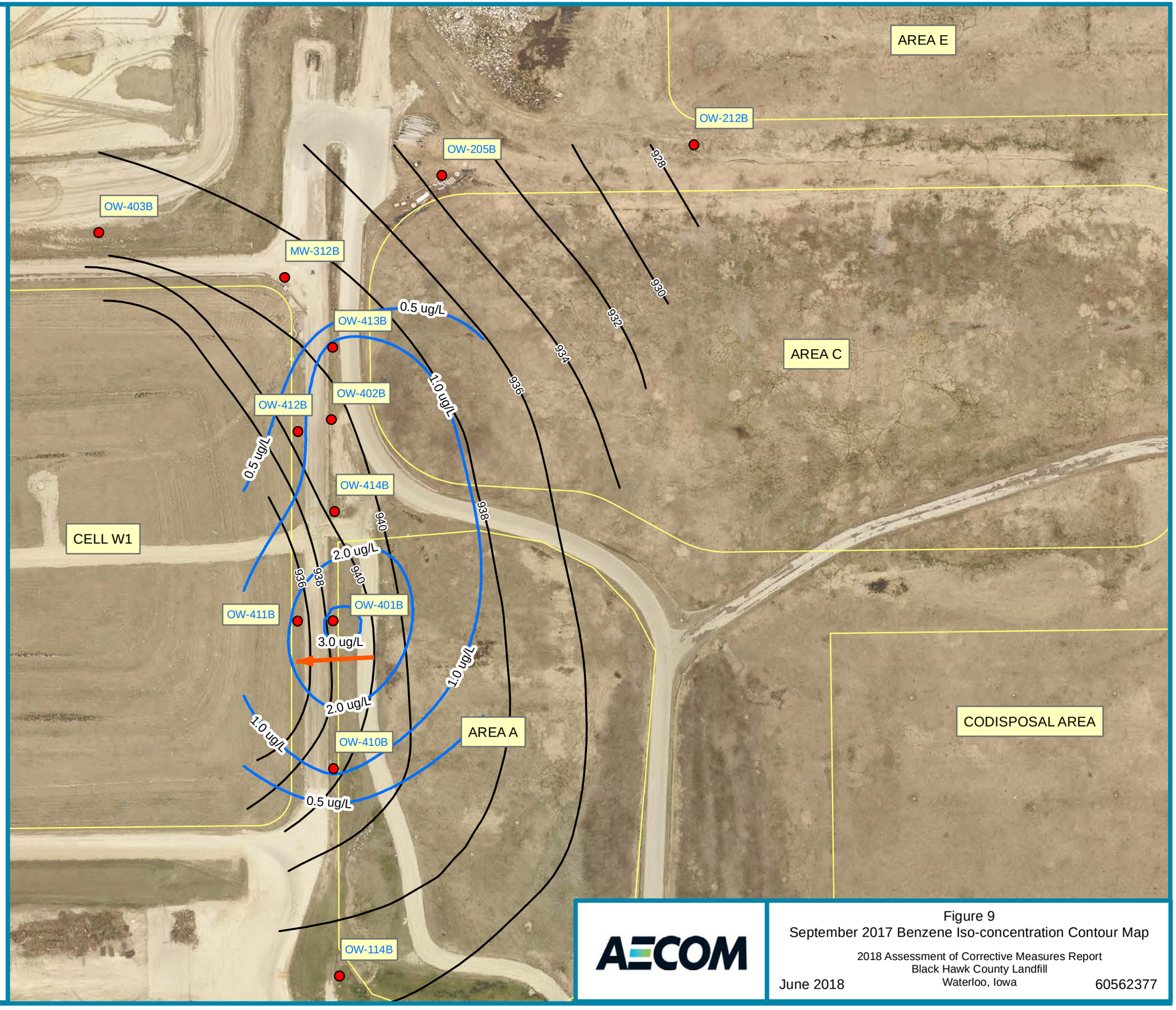
0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017



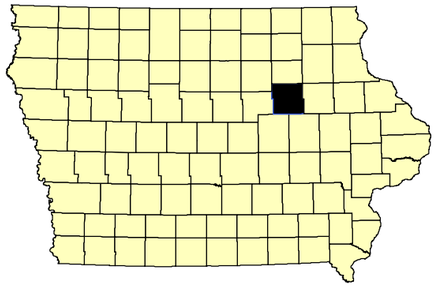
AECOM

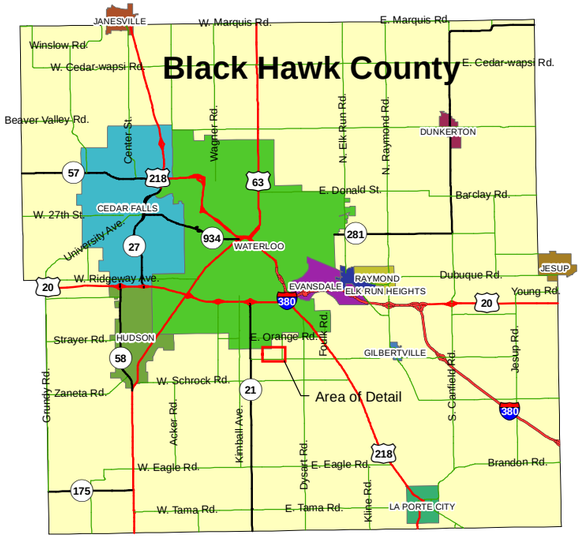
Figure 9
September 2017 Benzene Iso-concentration Contour Map

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig9.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N

W E

S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CELL W1

CODISPOSAL AREA

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

928

930

932

934

936

938

940

0.5 ug/L

1.0 ug/L

2.0 ug/L

3.0 ug/L

AECOM

Figure 10
March 2018 Benzene Iso-concentration Contour Map

2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

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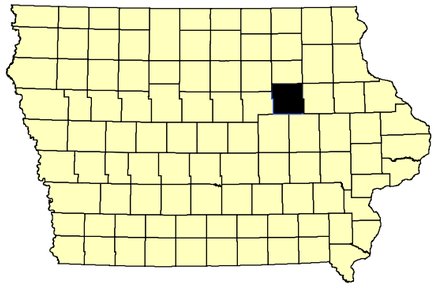
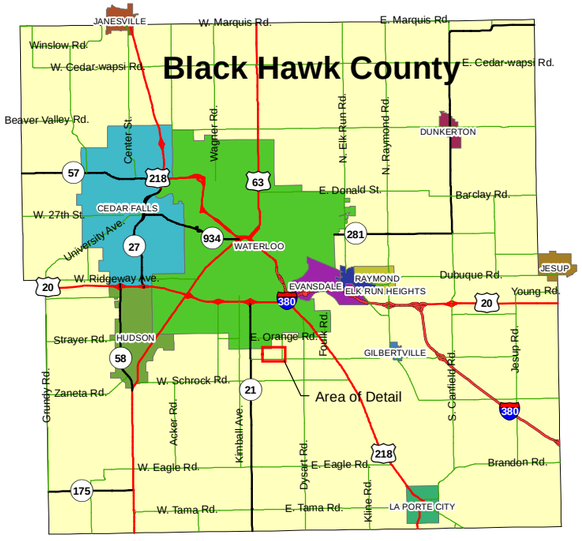
P:\60562377\400_Technical\411 ACM\EVS\Fig10.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

P:\60562377\400_Technical\411 ACM\EVS\Fig11.mxd

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

928

930

932

934

936

938

940

1.0 ug/L

5.0 ug/L

10.0 ug/L

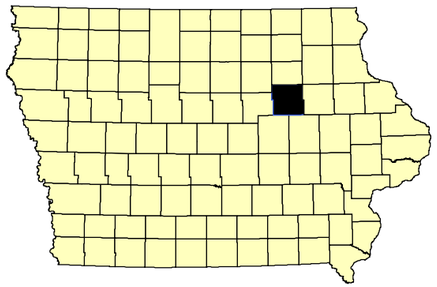
20.0 ug/L

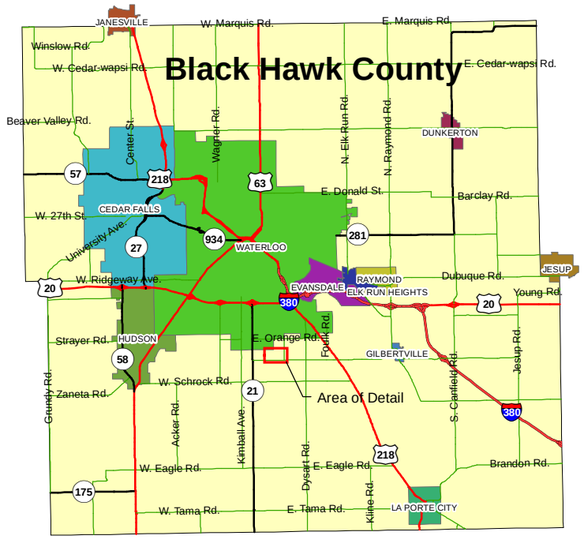
AECOM

Figure 11
December 2016 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

928 930 932 934 936 938 940

1.0 ug/L

5.0 ug/L

10.0 ug/L

AECOM

Figure 12
April 2017 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377

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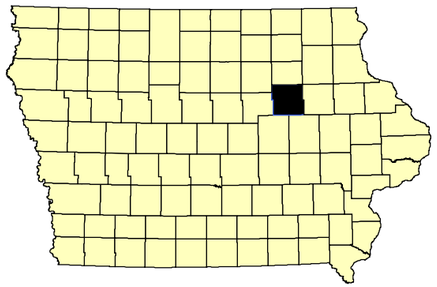

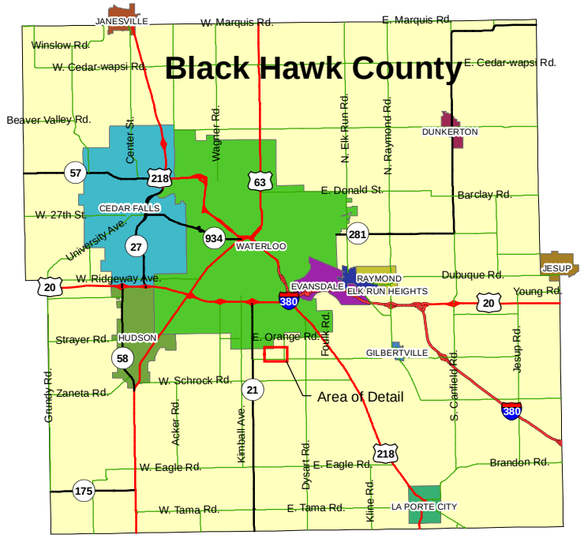

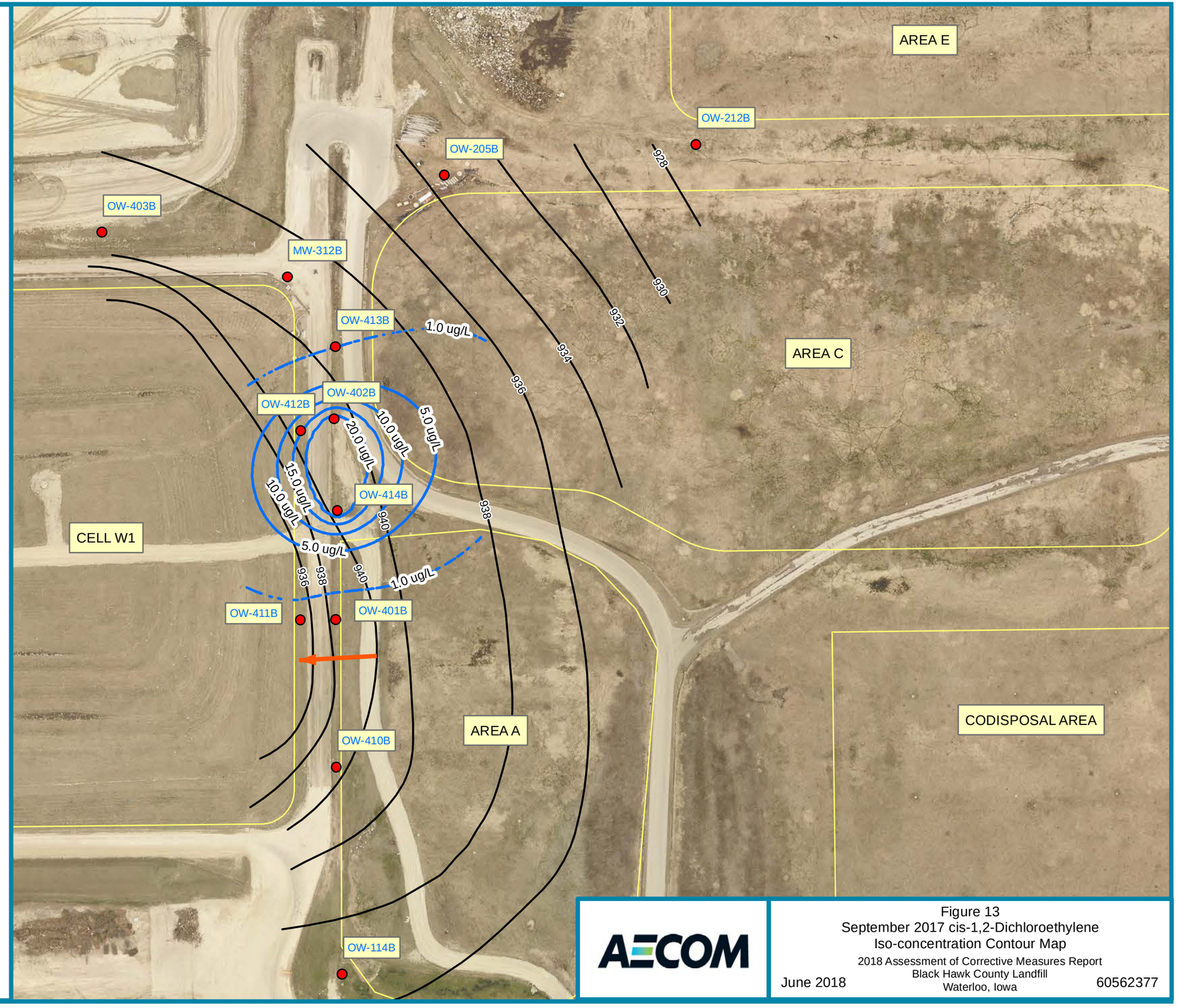

Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

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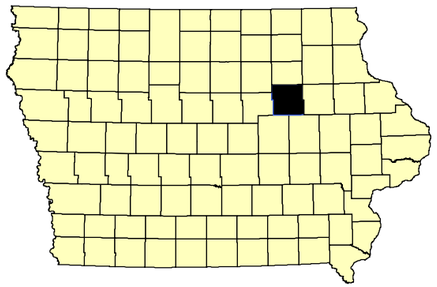
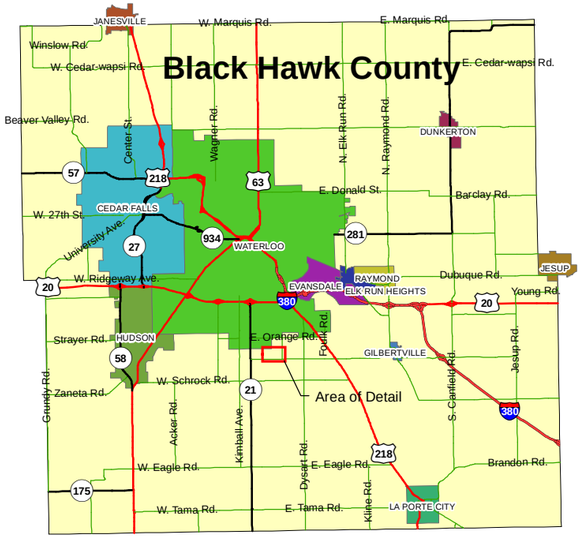
AECOM

Figure 13
September 2017 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

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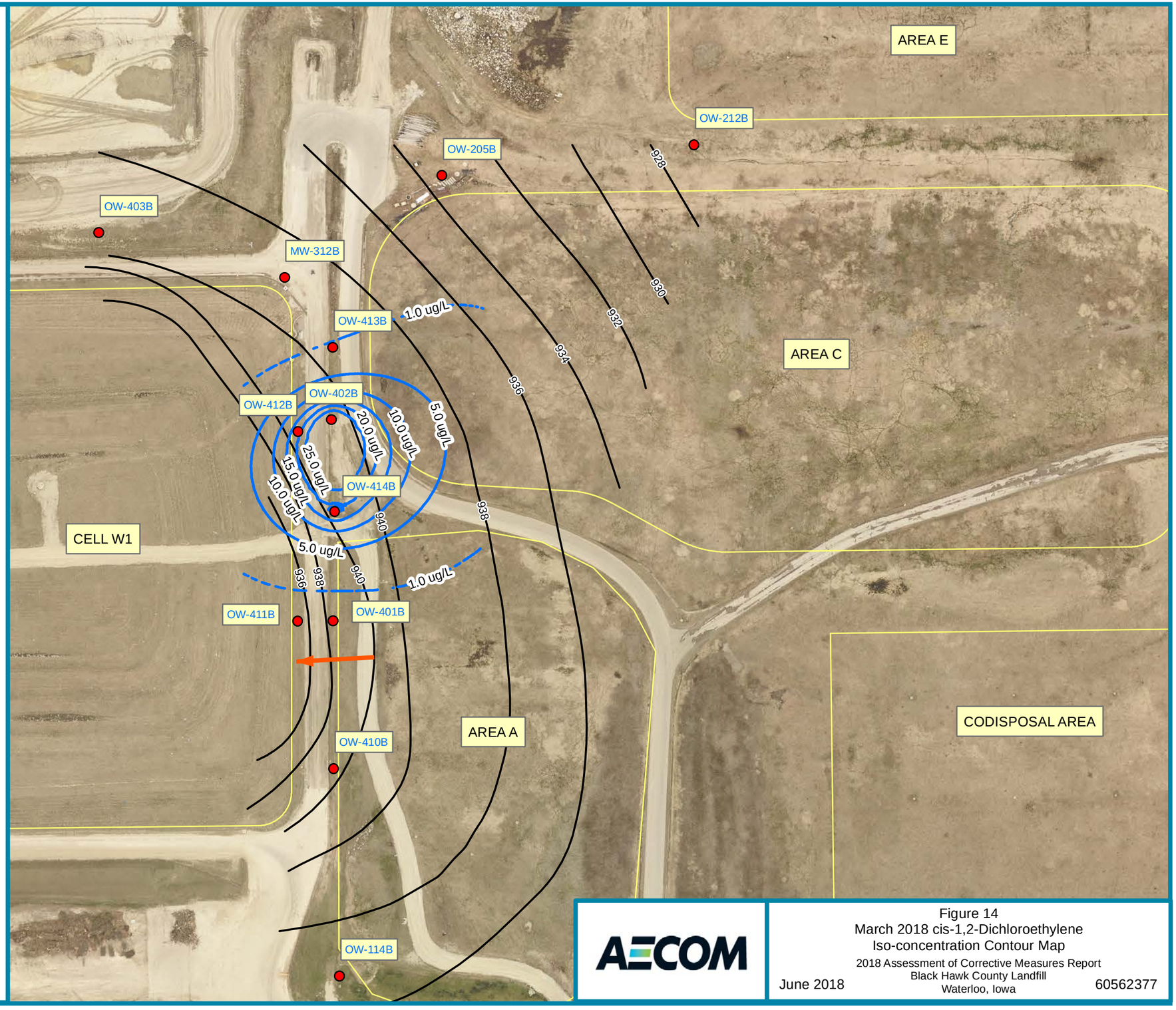
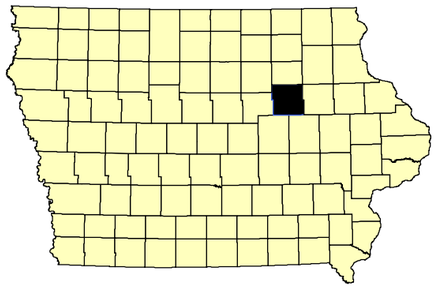


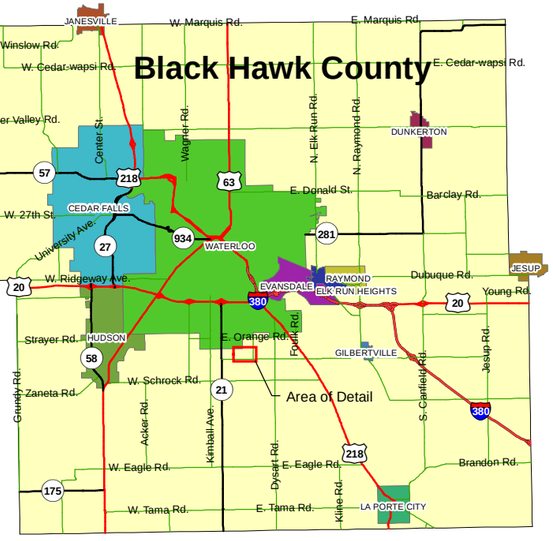
AECOM

Figure 14
March 2018 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

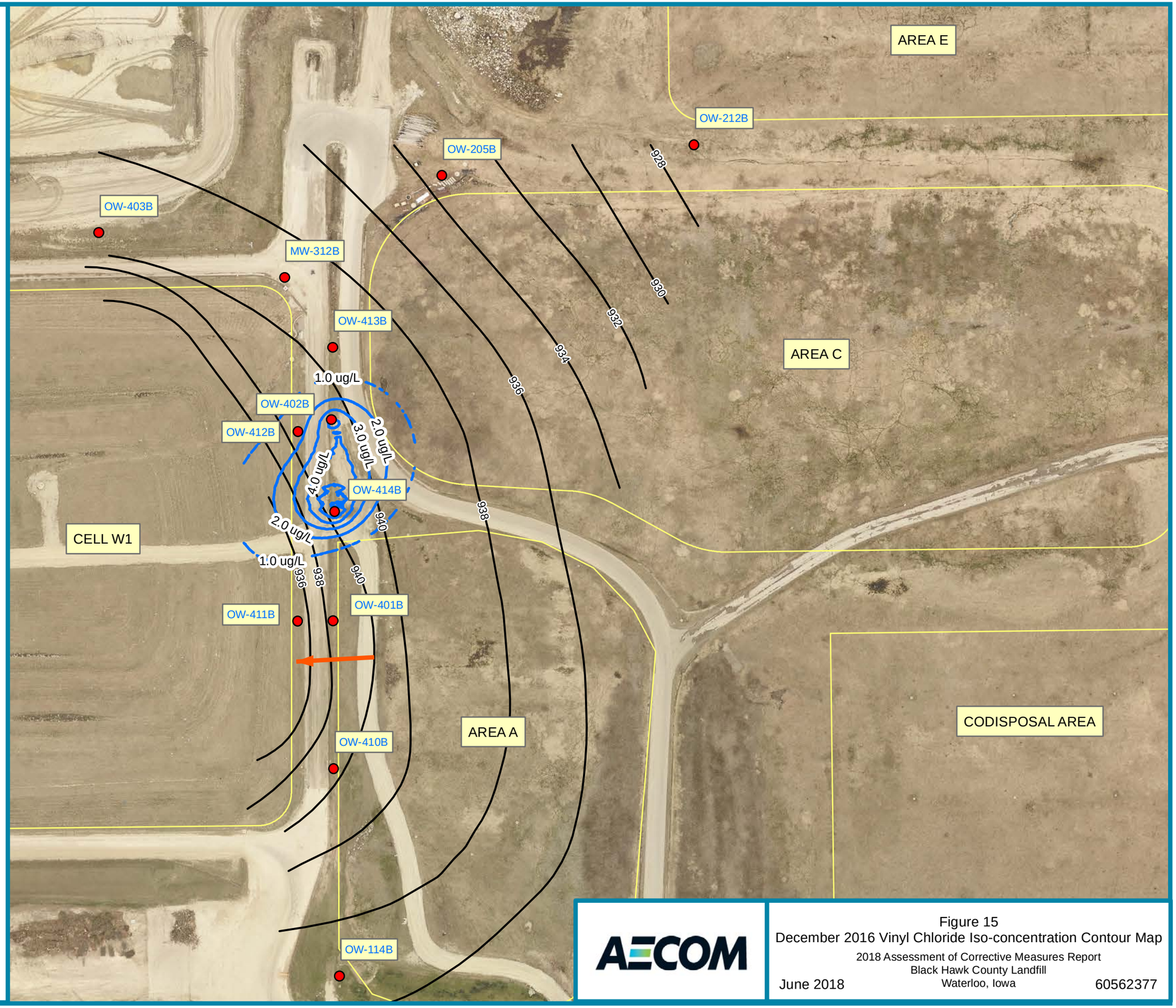
Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

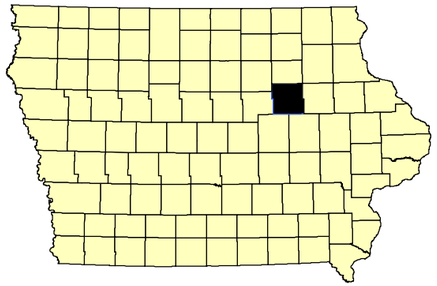
P:\60562377\400_Technical\411 ACM\EVS\Fig15.mxd

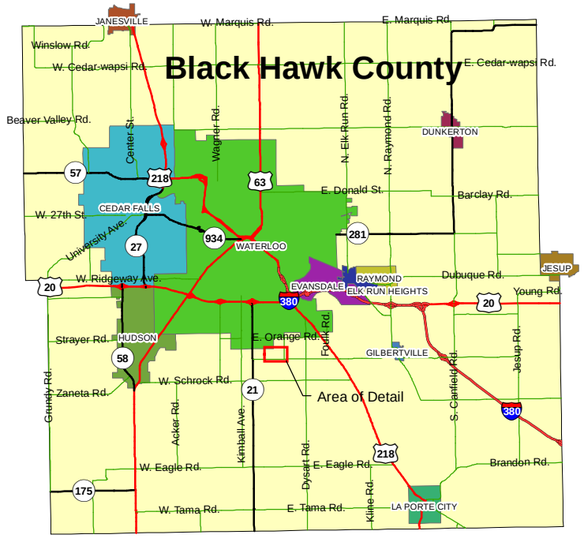


AECOM

Figure 15
December 2016 Vinyl Chloride Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

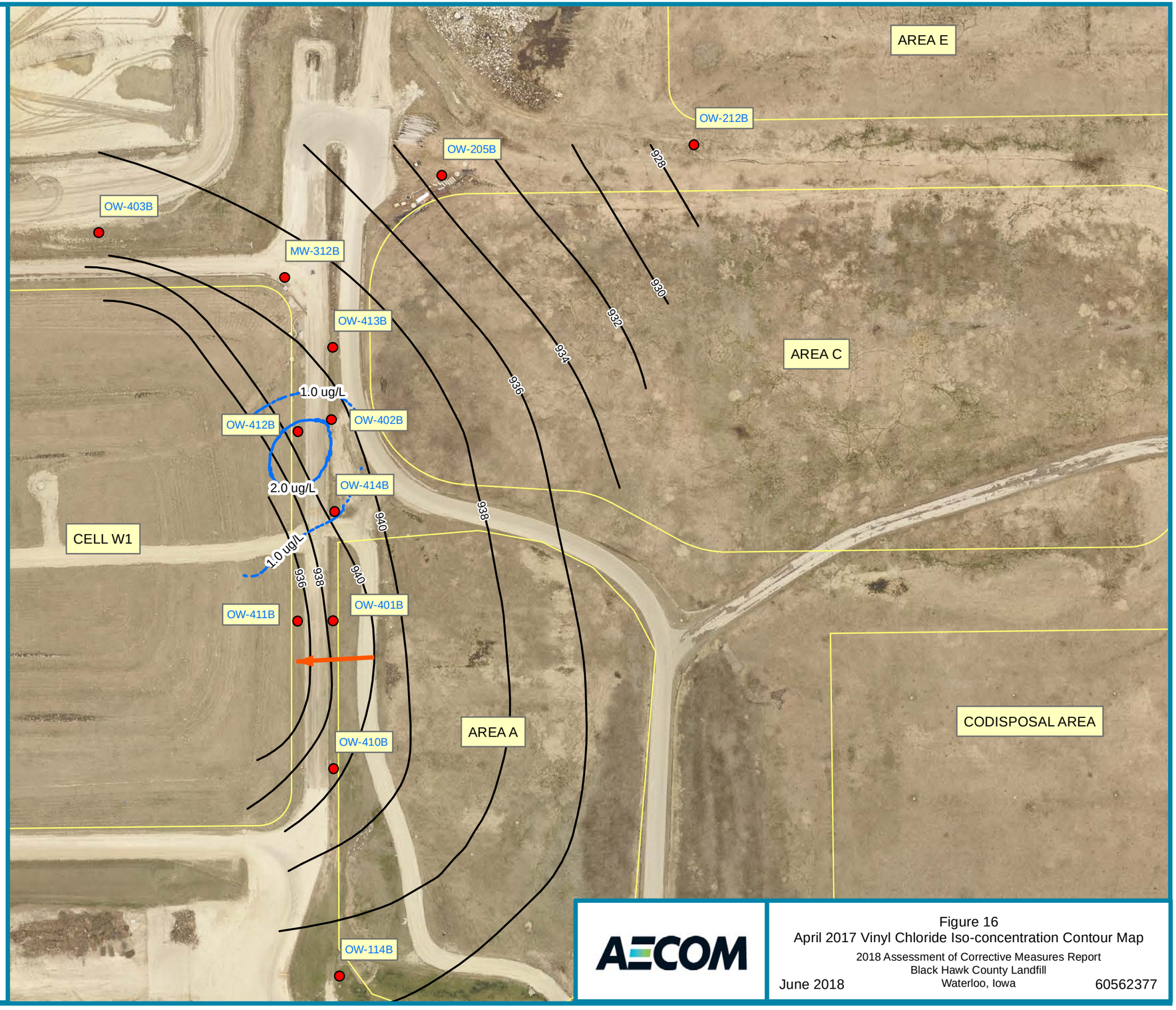
N

W E

S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

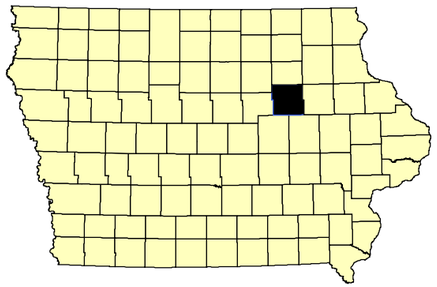


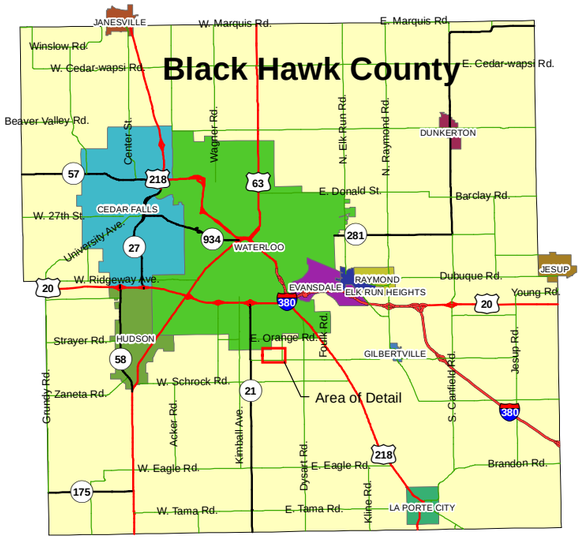
AECOM

Figure 16
April 2017 Vinyl Chloride Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig16.mxd





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

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AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-402B
OW-412B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

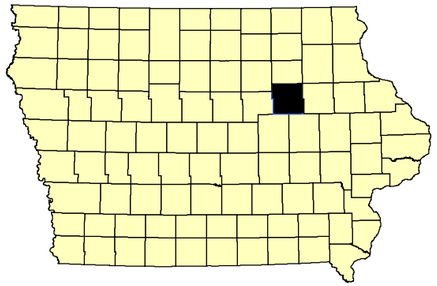
928
930
932
934
936
938
940

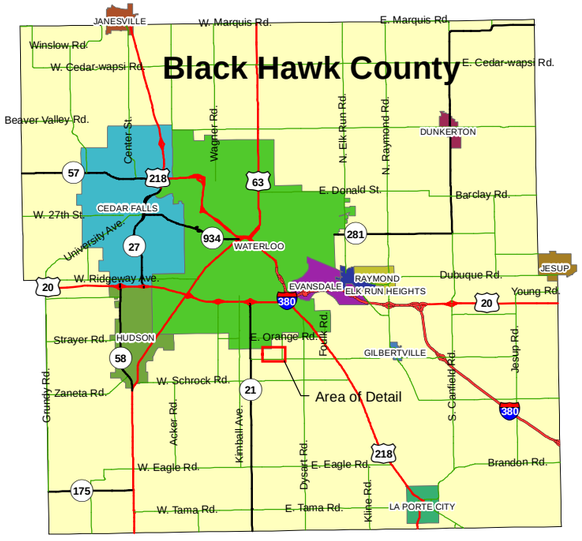
1.0 ug/L
2.0 ug/L
4.0 ug/L
3.0 ug/L
2.0 ug/L
1.0 ug/L

AECOM

Figure 17
September 2017 Vinyl Chloride Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

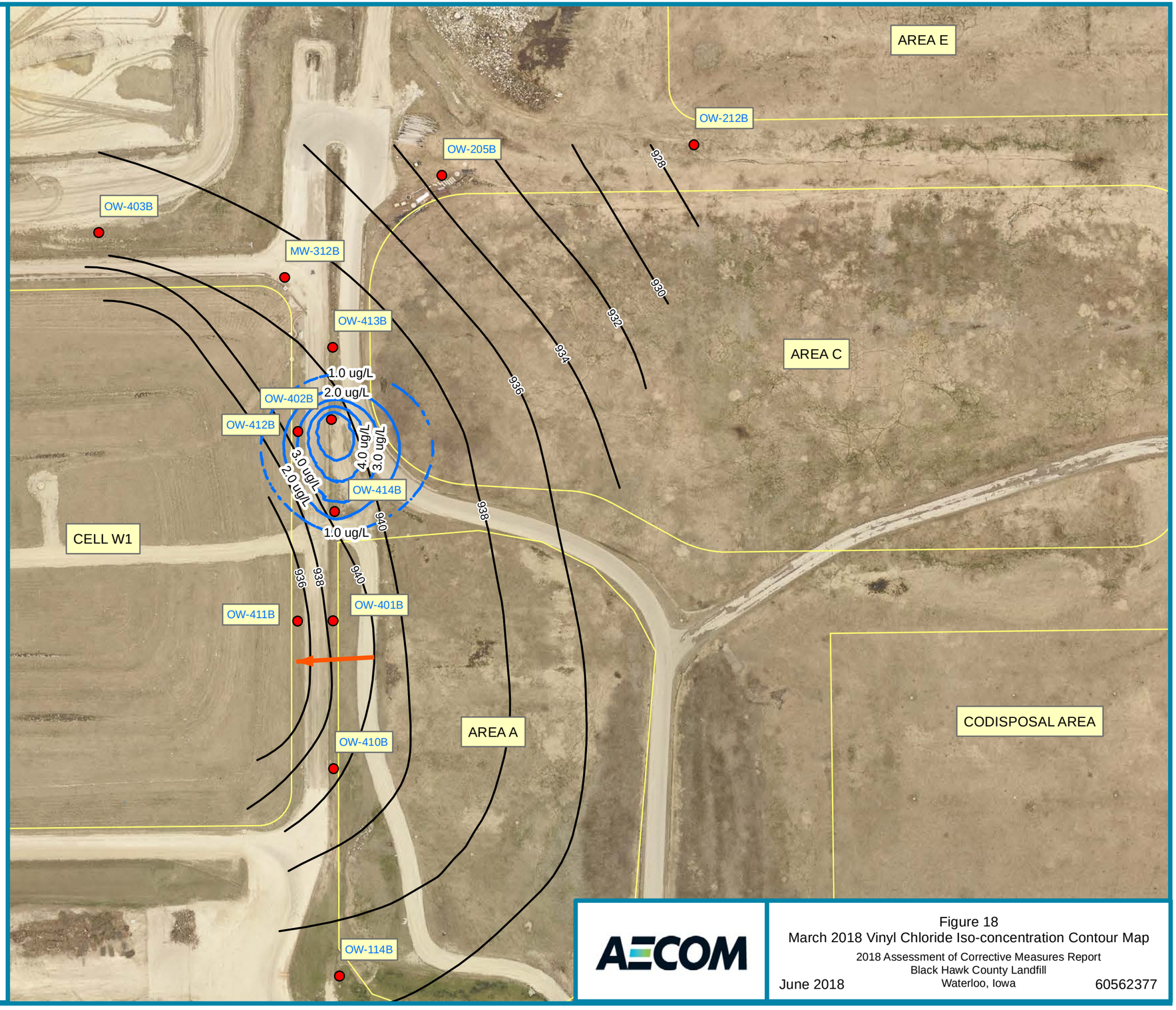
0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

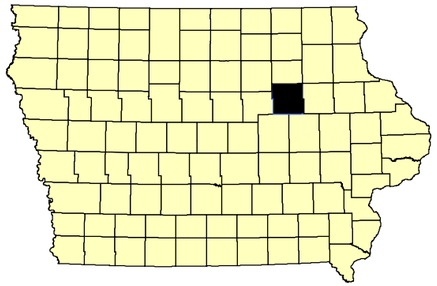


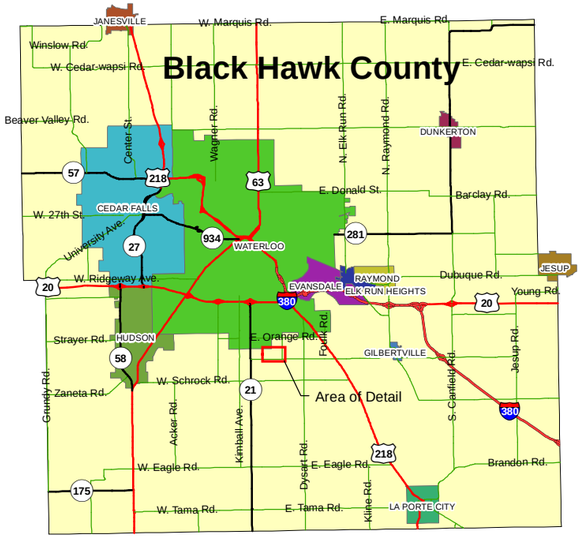
AECOM

Figure 18
March 2018 Vinyl Chloride Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig18.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

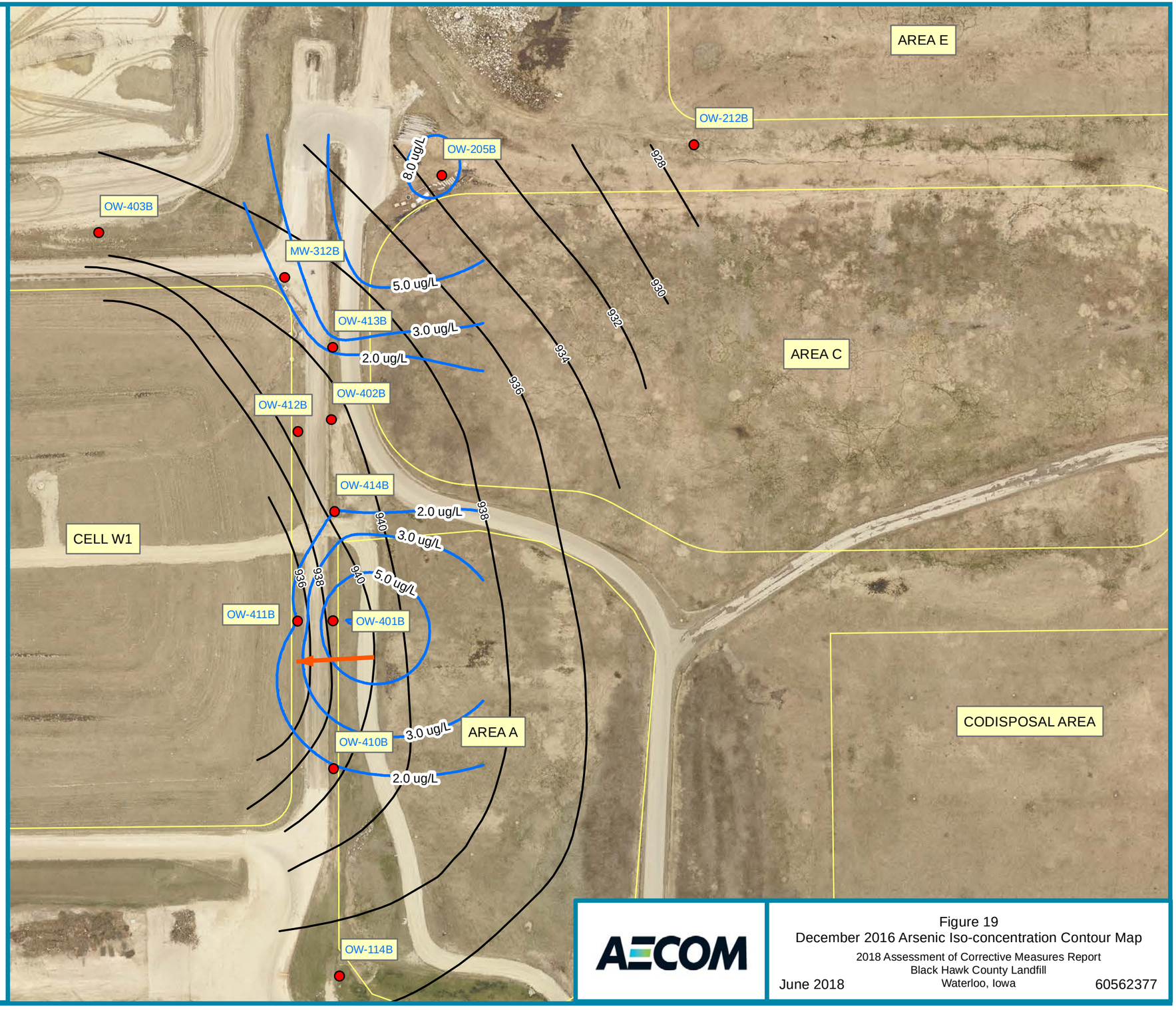
0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017



AECOM

Figure 19
December 2016 Arsenic Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

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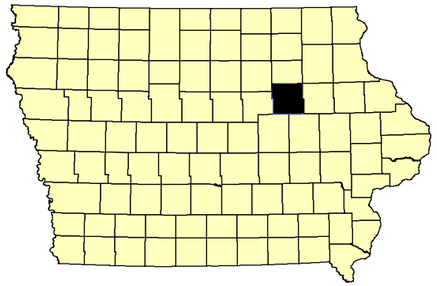

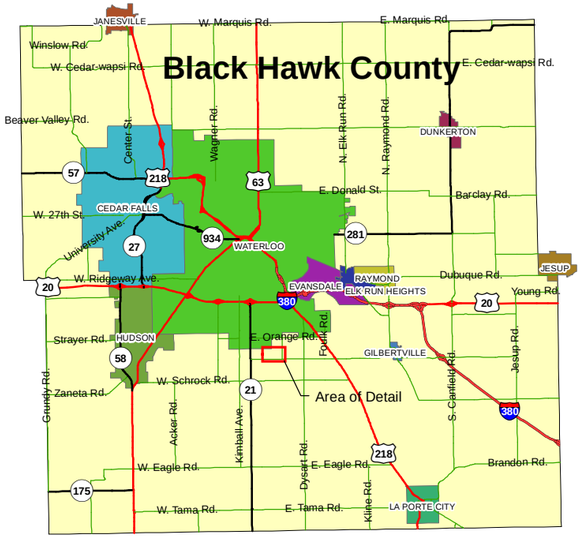

Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-402B
OW-412B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

928
930
932
934
936
938
940

3.0 ug/L
2.0 ug/L
5.0 ug/L

AECOM

Figure 20
April 2017 Arsenic Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

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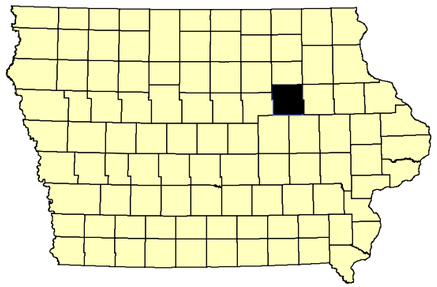

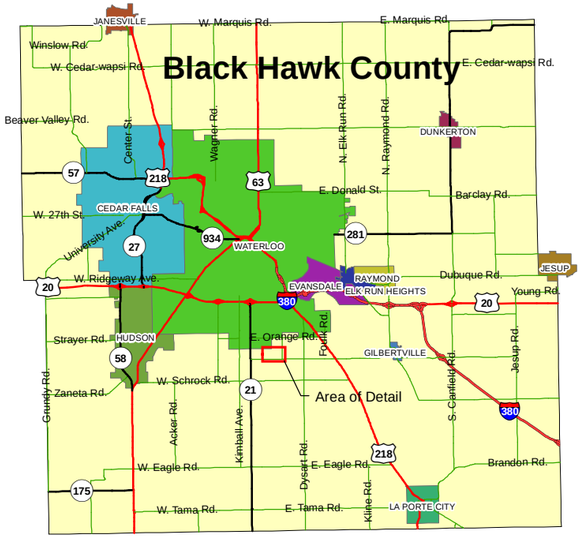

Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

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AREA E

AREA C

AREA A

CELL W1

CODISPOSAL AREA

OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-402B
OW-412B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

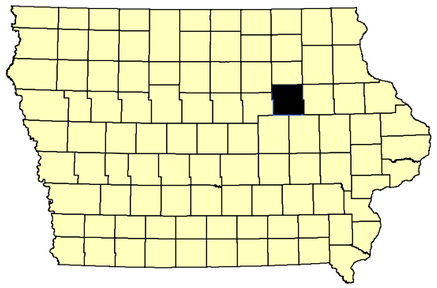
928
930
932
934
936
938
940

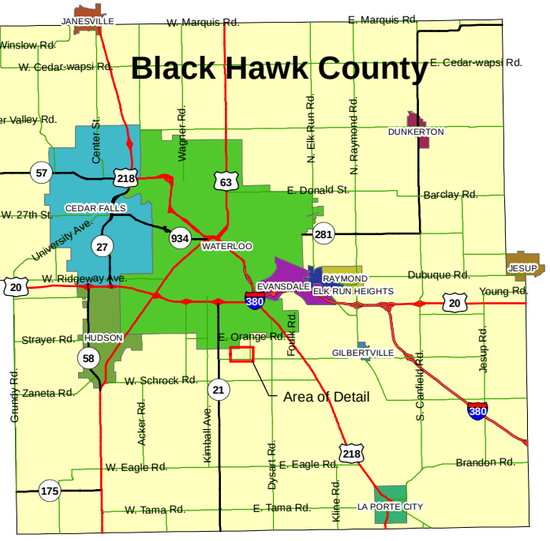
2.0 ug/L
3.0 ug/L
5.0 ug/L

AECOM

Figure 21
September 2017 Arsenic Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377





Groundwater Contour

OW-207B
919.08
Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N
W E
S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

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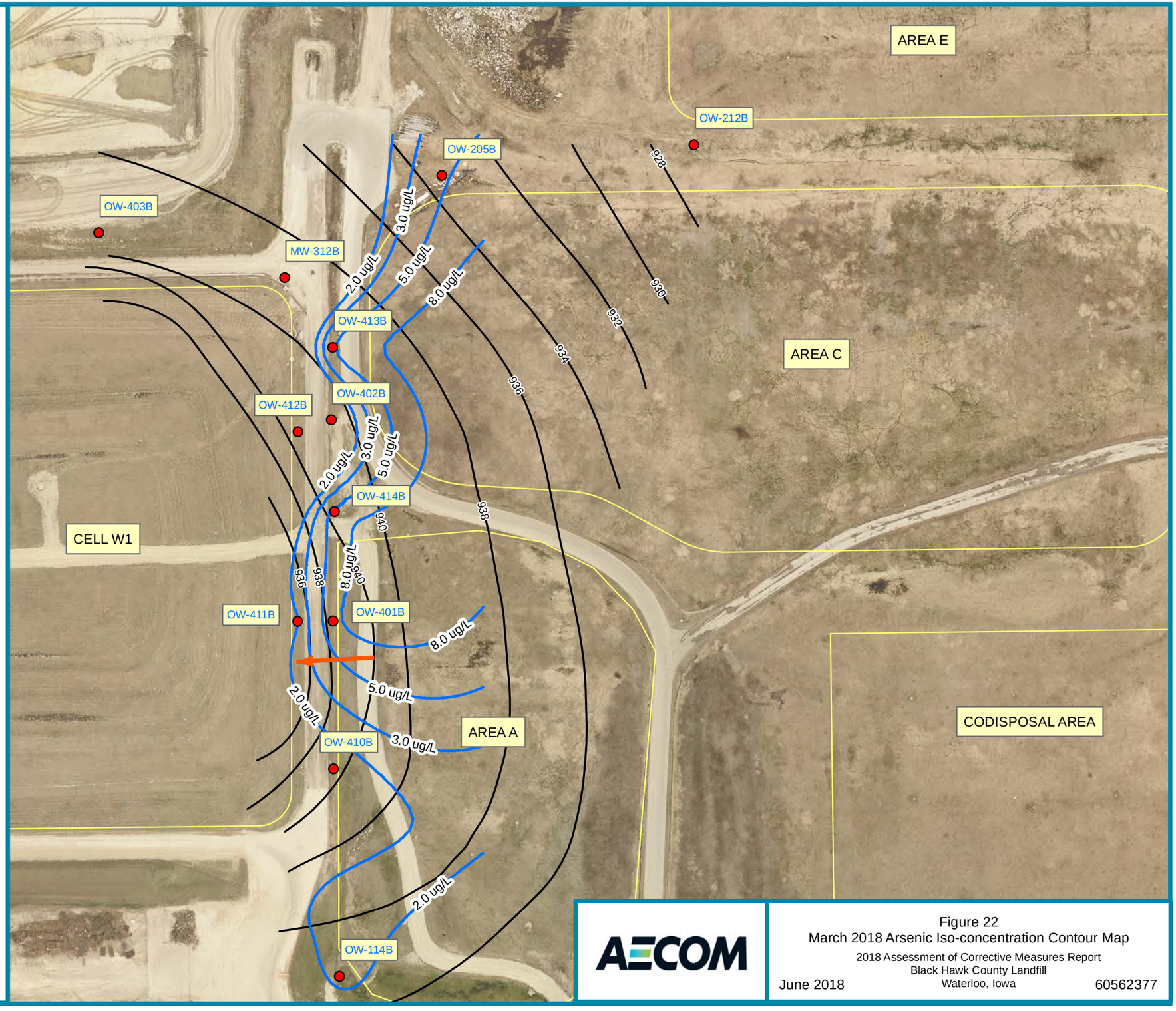
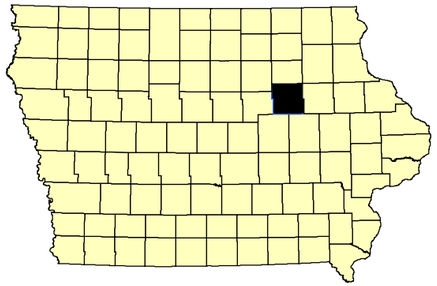
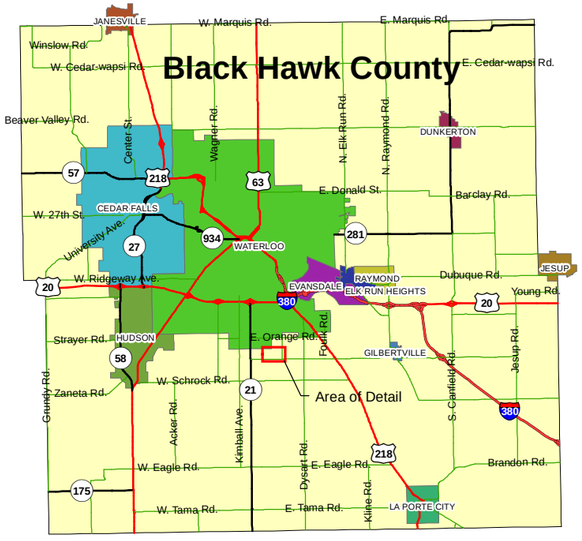


AECOM

Figure 22
March 2018 Arsenic Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CELL W1

CODISPOSAL AREA

OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-412B
OW-402B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

928
930
932
934
936
938
940

2.8 ug/L
5.0 ug/L
10.0 ug/L
15.0 ug/L

AECOM

Figure 23
December 2016 Cobalt Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

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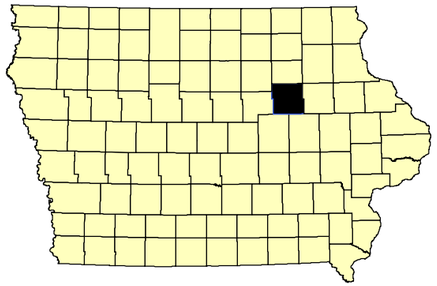

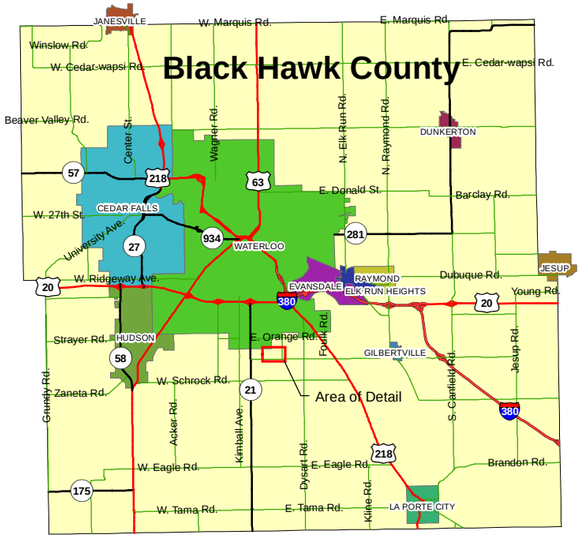

Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

928 930 932 934 936 938 940

2.8 ug/L 5.0 ug/L 10.0 ug/L 15.0 ug/L 18.0 ug/L

AECOM

Figure 24
April 2017 Cobalt Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

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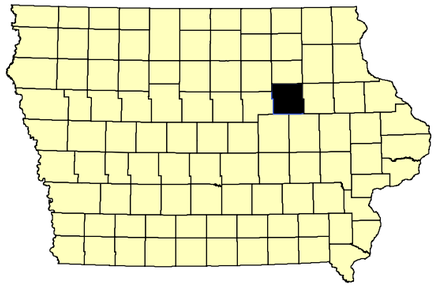

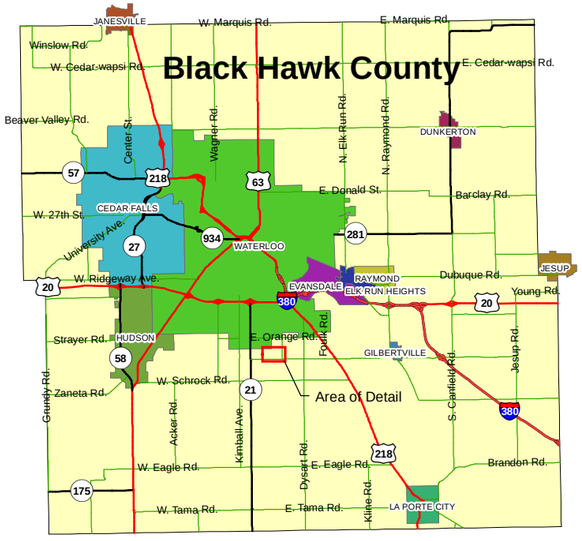

Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N

W E

S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

OW-212B

OW-205B

OW-403B

MW-312B

928

930

932

934

936

938

940

OW-413B

2.8 ug/L

OW-412B

OW-402B

5.0 ug/L

10.0 ug/L

OW-414B

CELL W1

OW-411B

OW-401B

AREA C

AREA A

OW-410B

CODISPOSAL AREA

OW-114B

AECOM

Figure 25
September 2017 Cobalt Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018

60562377

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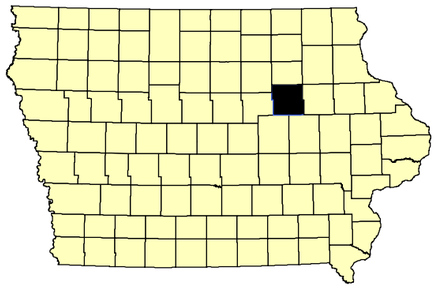

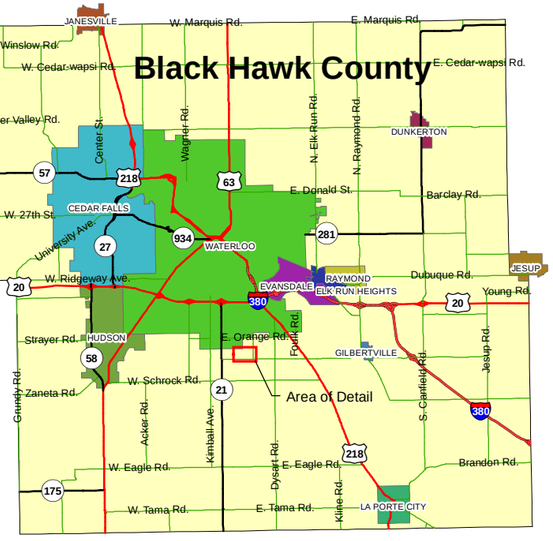

Groundwater Contour

OW-207B
919.08
Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300
Feet

N
W E
S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E
OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-412B
OW-402B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B
AREA C
AREA A
CODISPOSAL AREA
CELL W1
2.8 ug/L
5.0 ug/L
10.0 ug/L
15.0 ug/L
18.0 ug/L
928
930
932
934
936
938
940

AECOM

Figure 26
March 2018 Cobalt Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa
June 2018
60562377

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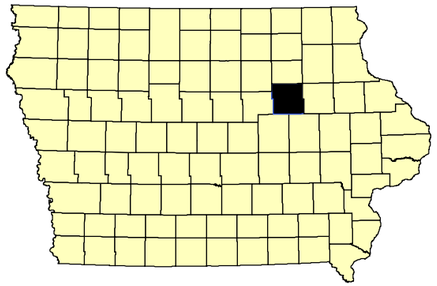

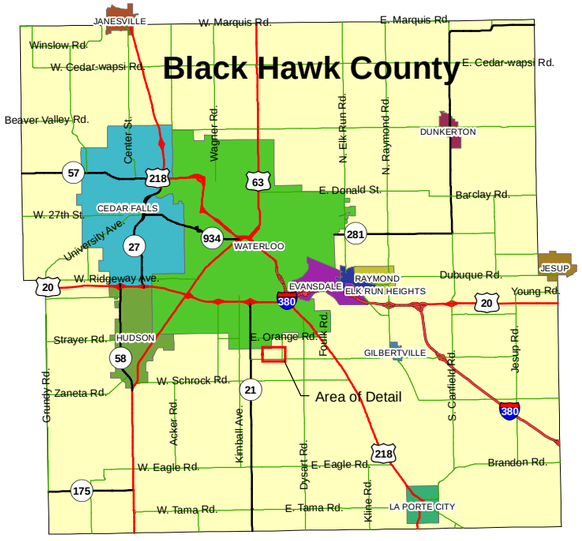

Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

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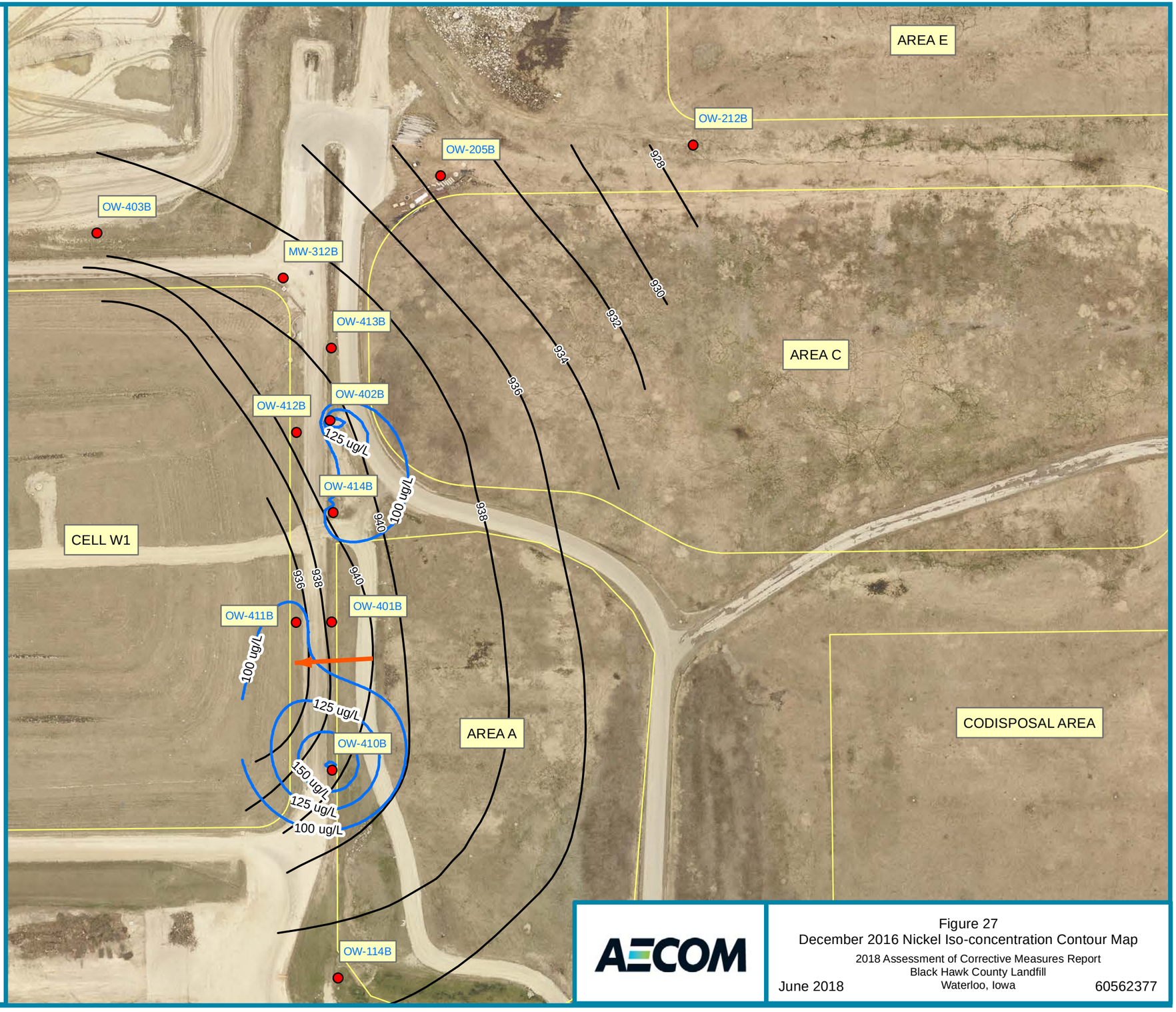
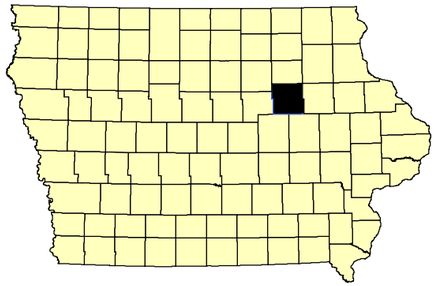
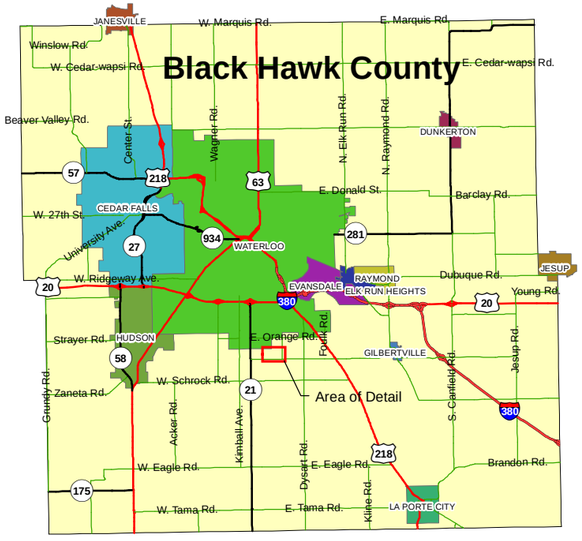


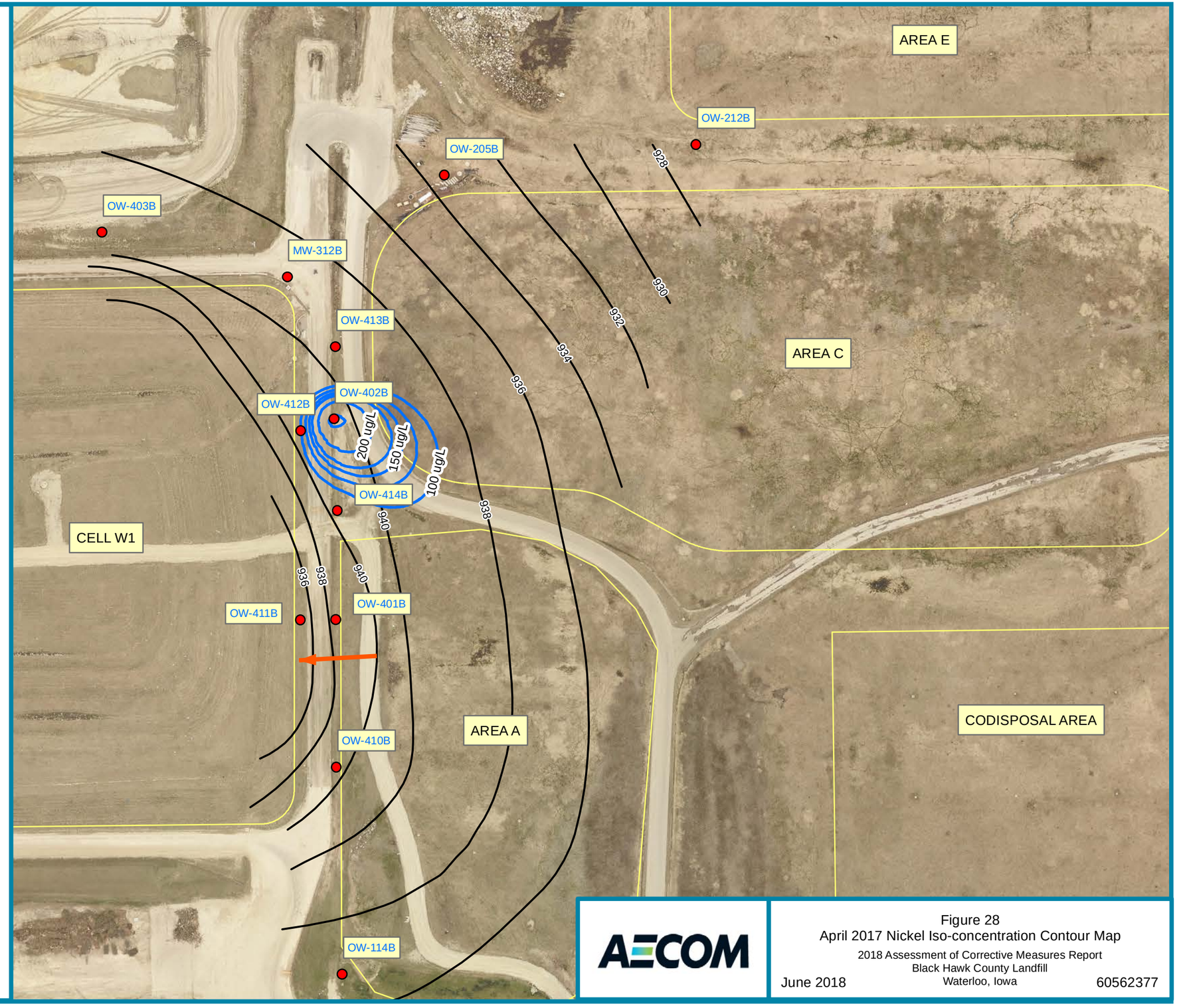
AECOM

Figure 27
December 2016 Nickel Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377







Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on April 2017 water elevations.

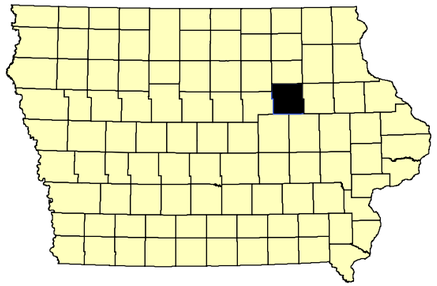
Basemap: Black Hawk County, IA Assessor, 2017

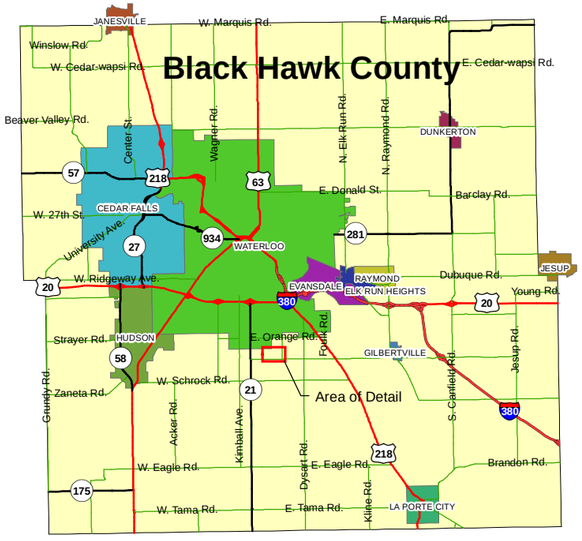
AECOM

Figure 28
April 2017 Nickel Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig28.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

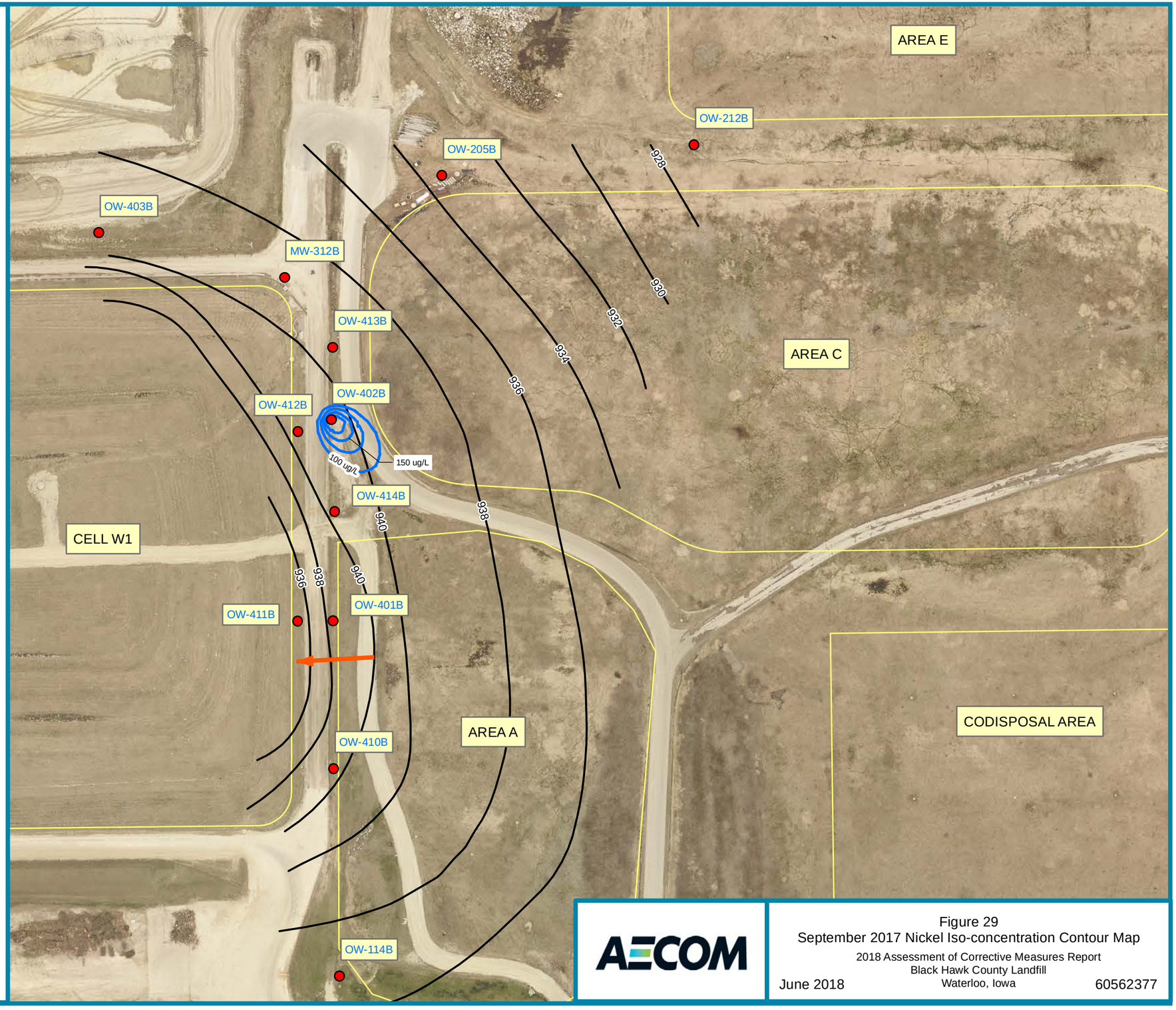
N

W E

S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

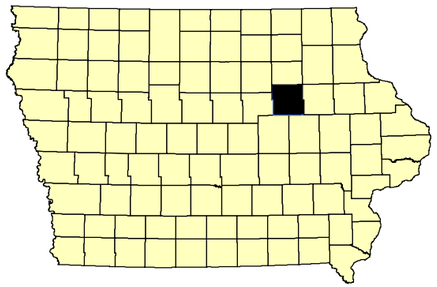


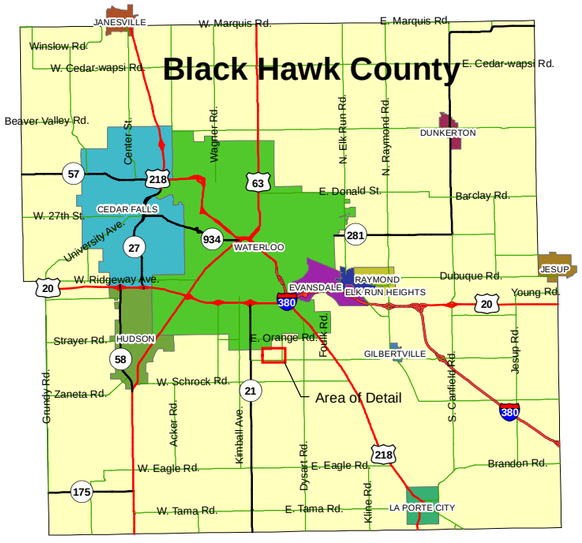
AECOM

Figure 29
September 2017 Nickel Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

P:\60562377\400_Technical\411 ACM\EVS\Fig29.mxd





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

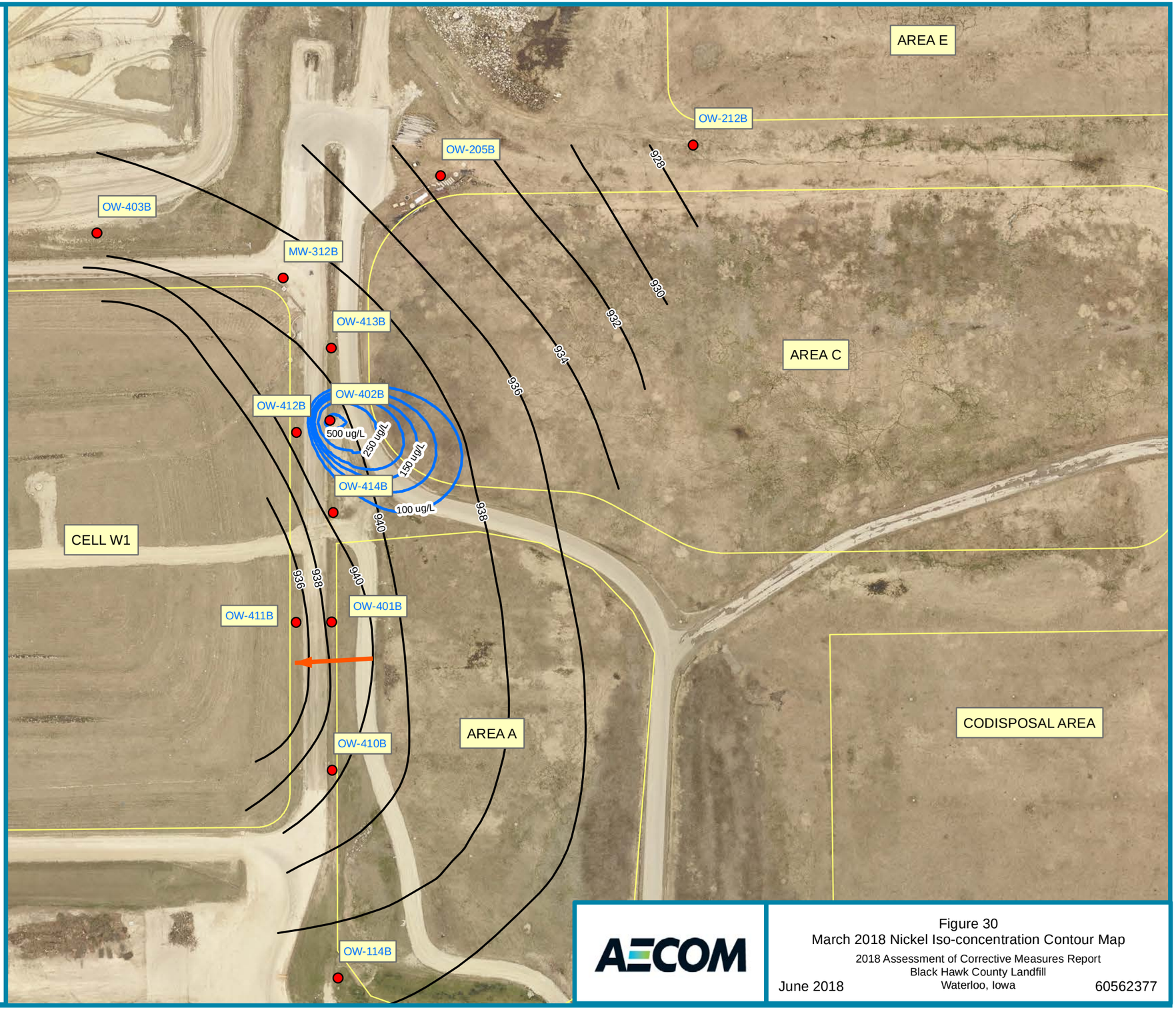
Feet

N W E S

Contours based on April 2017 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

P:\60562377\400_Technical\411 ACM\EVS\Fig30.mxd

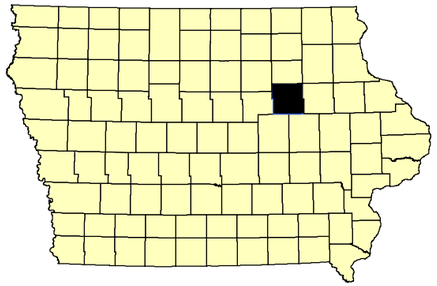


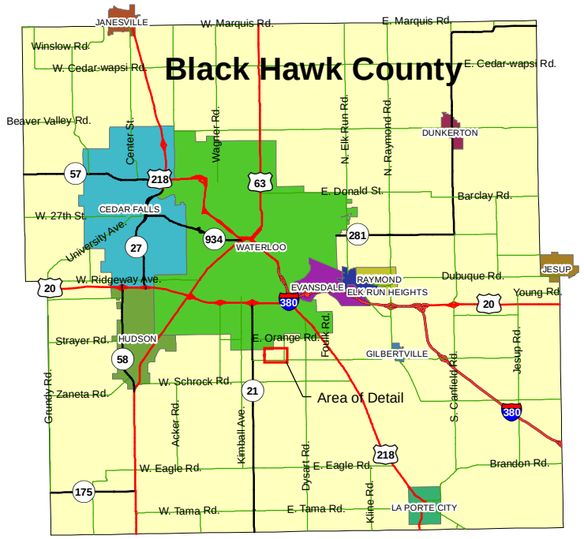
AECOM

Figure 30
March 2018 Nickel Iso-concentration Contour Map
2018 Assessment of Corrective Measures Report
Black Hawk County Landfill
Waterloo, Iowa

June 2018 60562377

APPENDIX A – 2019





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2019 water elevations.
NM = Not measured

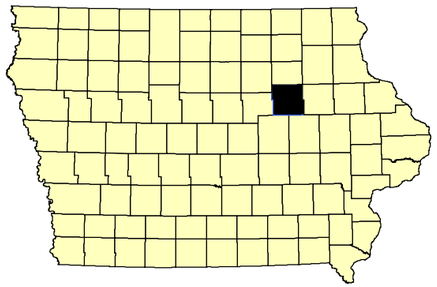
Basemap: Black Hawk County, IA Assessor, Spring 2013

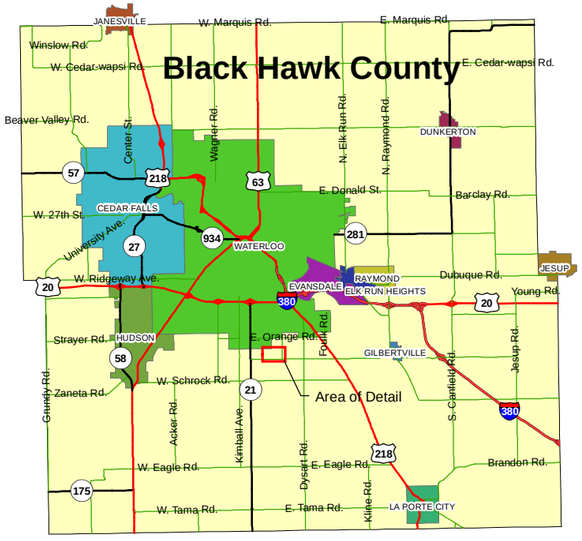
OW-212B 926.31
OW-205B 932.26
OW-403B 933.12
MW-312B 936.78
OW-413B 938.14
OW-412B 938.78
OW-402B 939.19
OW-414B NM
OW-411B 934.85
OW-401B 939.42
OW-410B 939.32
OW-114B 936.41
927
929
931
933
935
937
939
AREA C
AREA A

AECOM

Figure 6
October 2019 ACM Area Water Table Contour Map
Annual Water Quality Report
Black Hawk Solid Waste Commission
Waterloo, Iowa
January 2020
60622601

P:\60622601\400_Technical\405 Water Quality\01-IDNR\2019 AWQR\09-ACM Report\Fig6.mxd





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2019 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

P:\60622601\400_Technical\405 Water Quality\01-IDNR\2019 AWQR\09-ACM Report\Fig7.mxd

AREA E

AREA C

CELL W1

AREA A

CODISPOSAL AREA

OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-412B
OW-402B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

1.0 ug/L
2.0 ug/L
3.0 ug/L

927
929
931
933
935
937
939

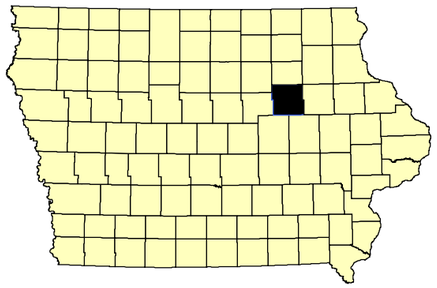
AECOM

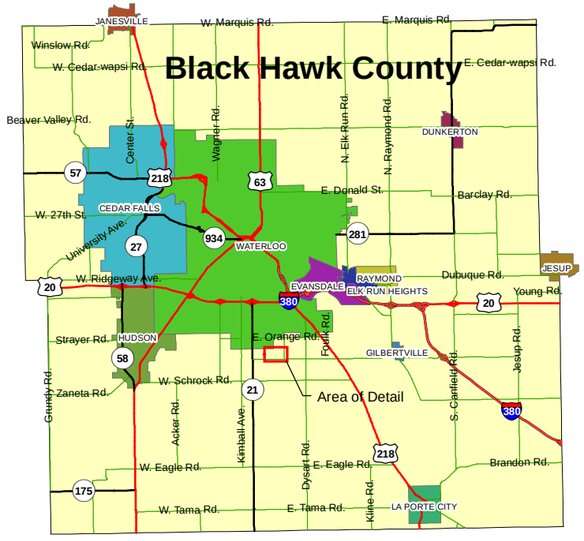
Figure 7
October 2019 Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2020

60622601





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2019 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-403B
OW-205B
OW-212B
MW-312B
OW-413B
OW-412B
OW-402B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

1.0 ug/L
5.0 ug/L
10.0 ug/L
15.0 ug/L
20.0 ug/L

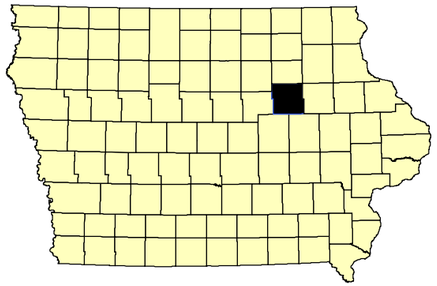
927 929 931 933 935 937 939

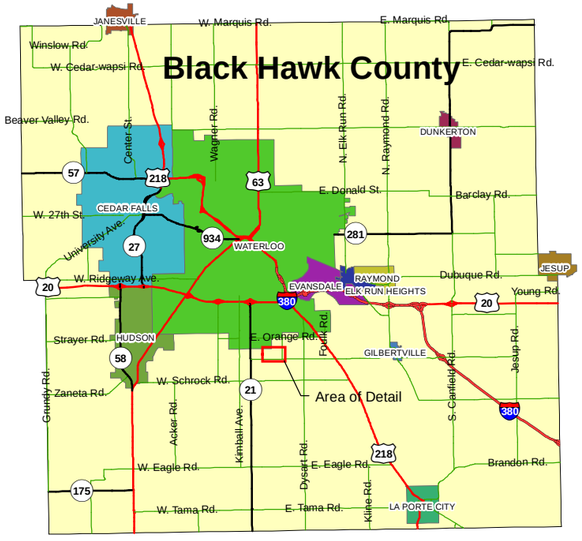
AECOM

Figure 8
October 2019 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
2019 Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2020 60622601

P:\60622601\400_Technical\405 Water Quality\01-IDNR\2019 AWQR\09-ACM Report\Fig8.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

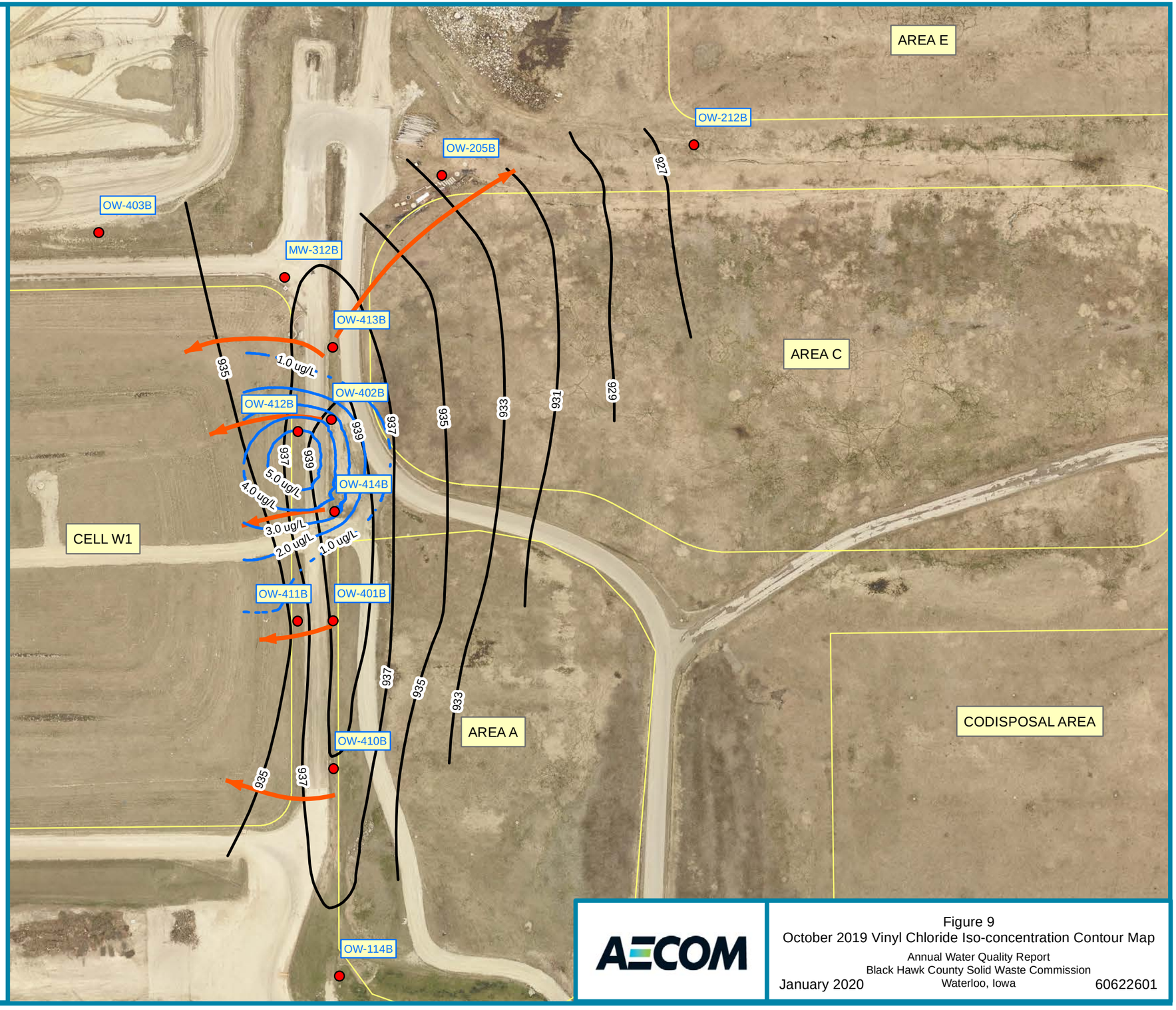
0 75 150 225 300

Feet

N W E S

Contours based on October 2019 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017



AECOM

Figure 9
October 2019 Vinyl Chloride Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2020 60622601

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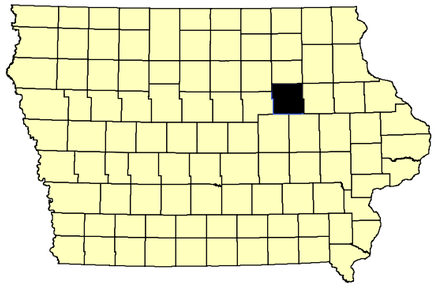
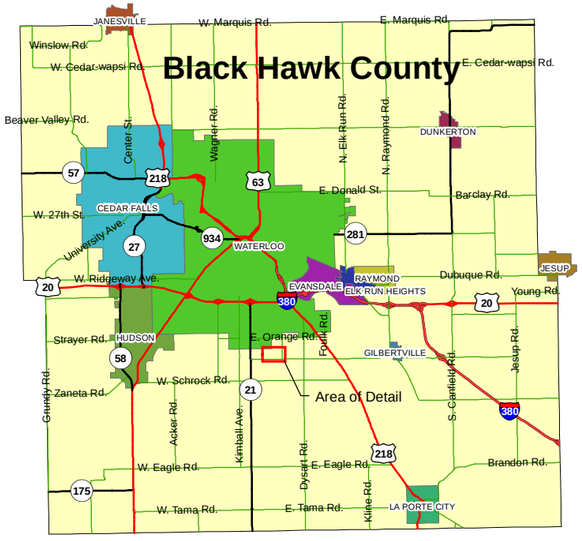




Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N

W E

S

Contours based on October 2019 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

8.0 ug/L

5.0 ug/L

3.0 ug/L

2.0 ug/L

927

929

931

933

935

937

939

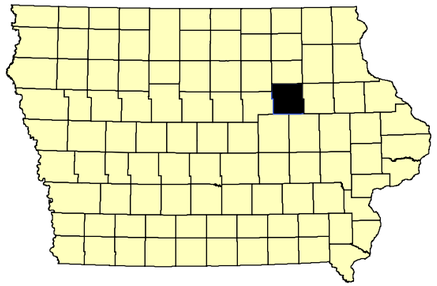
AECOM

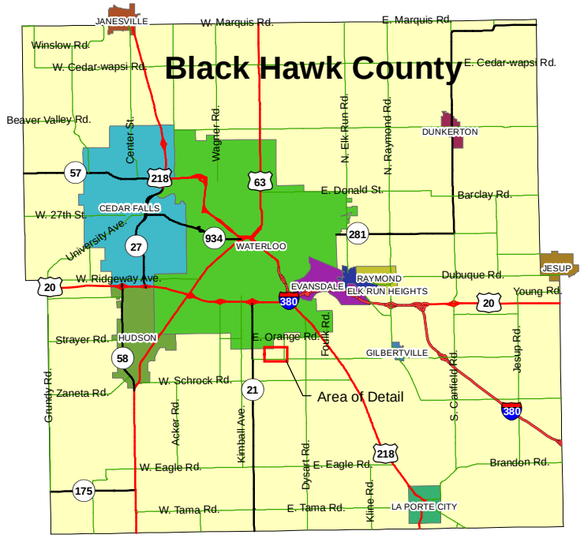
Figure 10
October 2019 Arsenic Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2020

60622601

P:\60622601\400_Technical\405 Water Quality\01-IDNR\2019 AWQR\09-ACM Report\Fig10.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2019 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B

OW-205B

OW-403B

MW-312B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

927 929 931 933 935 937 939

2.8 ug/L

5.0 ug/L

15.0 ug/L

10.0 ug/L

AECOM

Figure 11
October 2019 Cobalt Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2020 60622601

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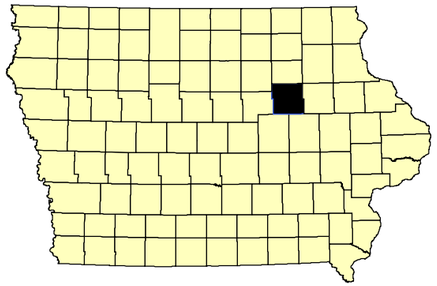

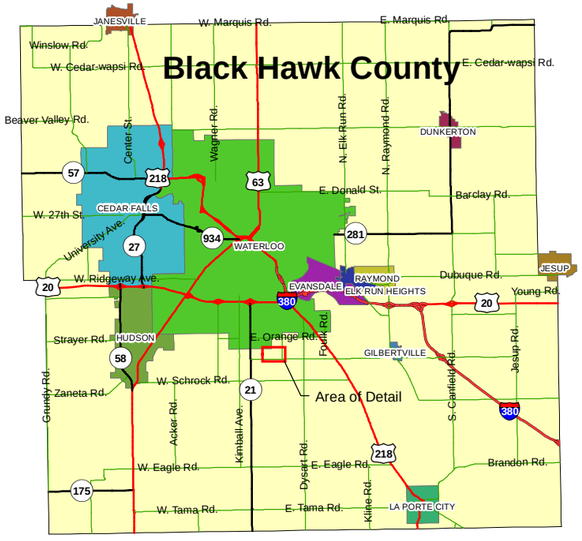

Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2019 water elevations.

Basemap: Black Hawk County, IA Assessor, 2017

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B
OW-205B
OW-403B
MW-312B
OW-413B
OW-412B
OW-402B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B

927 929 931 933 935 937 939

20.0 ug/L
25.0 ug/L
30.0 ug/L
50.0 ug/L
100.0 ug/L
75.0 ug/L

AECOM

Figure 12
October 2019 Nickel Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2020 60622601

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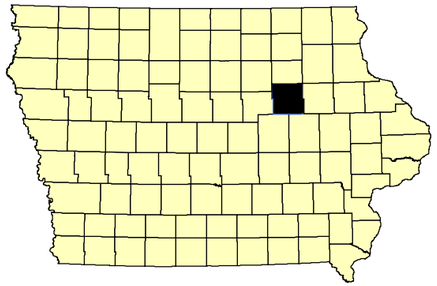
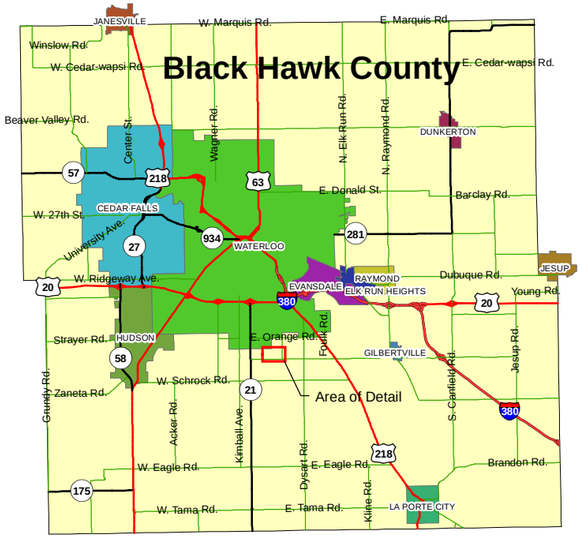
APPENDIX A – 2020





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2020 water elevations.
NM = Not measured

Basemap: Black Hawk County, IA Assessor, April 2019

CELL W3

CELL W1

AREA C

AREA A

OW-212B 924.74

OW-205B 931.41

OW-413B 937.60

OW-402B 938.83

OW-412B 938.71

OW-414B 939.31

OW-411B 934.94

OW-401B 938.16

OW-410B 939.14

OW-114B 934.35

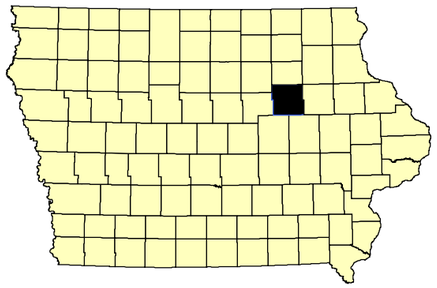
925 926 927 928 929 930 931 932 933 934 935 936 937 938

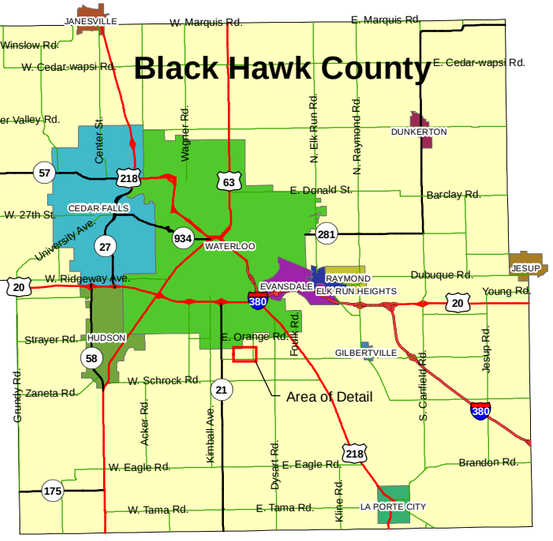
AECOM

Figure 6
October 2020 ACM Area Water Table Contour Map
Annual Water Quality Report
Black Hawk Solid Waste Commission
Waterloo, Iowa

January 2021 60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig6.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2020 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2019

CELL W3

CELL W1

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-205B

OW-212B

OW-413B

OW-402B

OW-412B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

925 926 927 928 929 930 931 932 933 934 935 936 937 938

1.0 ug/L 2.0 ug/L 3.0 ug/L 4.0 ug/L

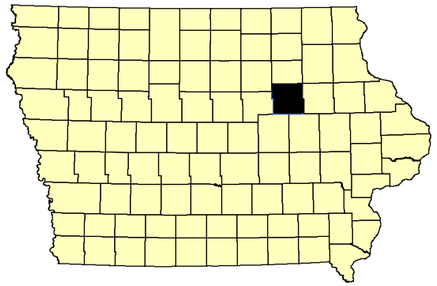
AECOM

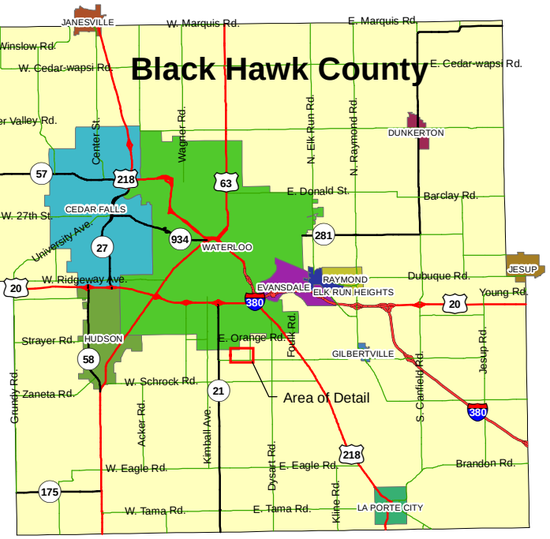
Figure 7
April 2020 Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2021 60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig7.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2020 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2019

CELL W3

CELL W1

AREA E

AREA C

AREA A

CODISPOSAL A

OW-205B

OW-212B

OW-413B

OW-412B

OW-402B

OW-414B

OW-411B

OW-401B

OW-410B

OW-114B

925 926 927 928 929 930 931 932 933 934 935 936 937 938 939

1.0 ug/L

5.0 ug/L

10.0 ug/L

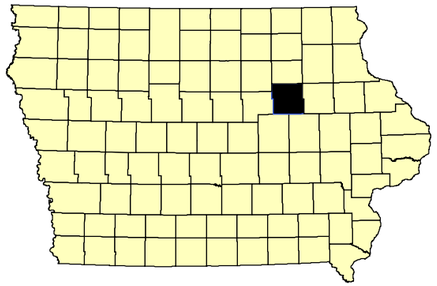
15.0 ug/L

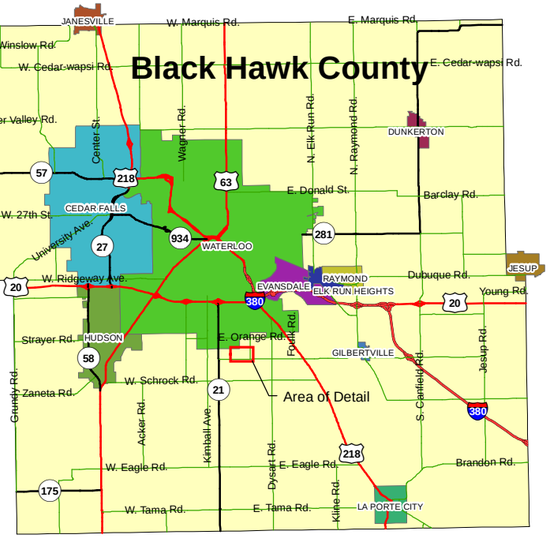
AECOM

Figure 8
April 2020 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2021 60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig8.mxd





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2020 water elevations.

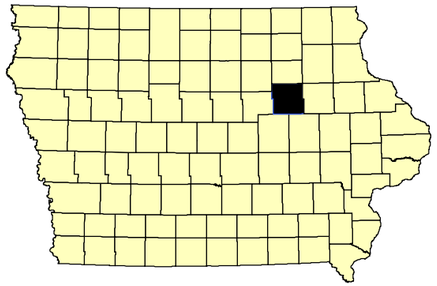
Basemap: Black Hawk County, IA Assessor, April 2019

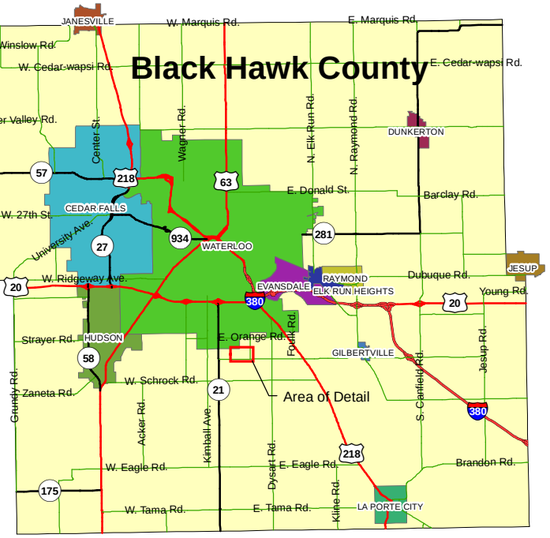
AECOM

Figure 9
April 2020 Vinyl Chloride Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2021 60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig9.mxd





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

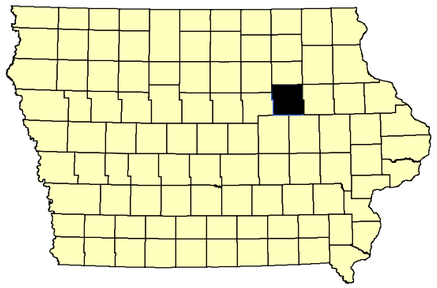
N W E S

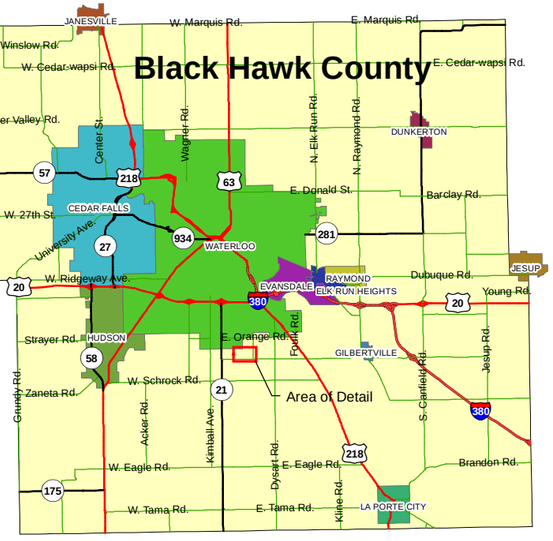
Contours based on October 2020 water elevations.

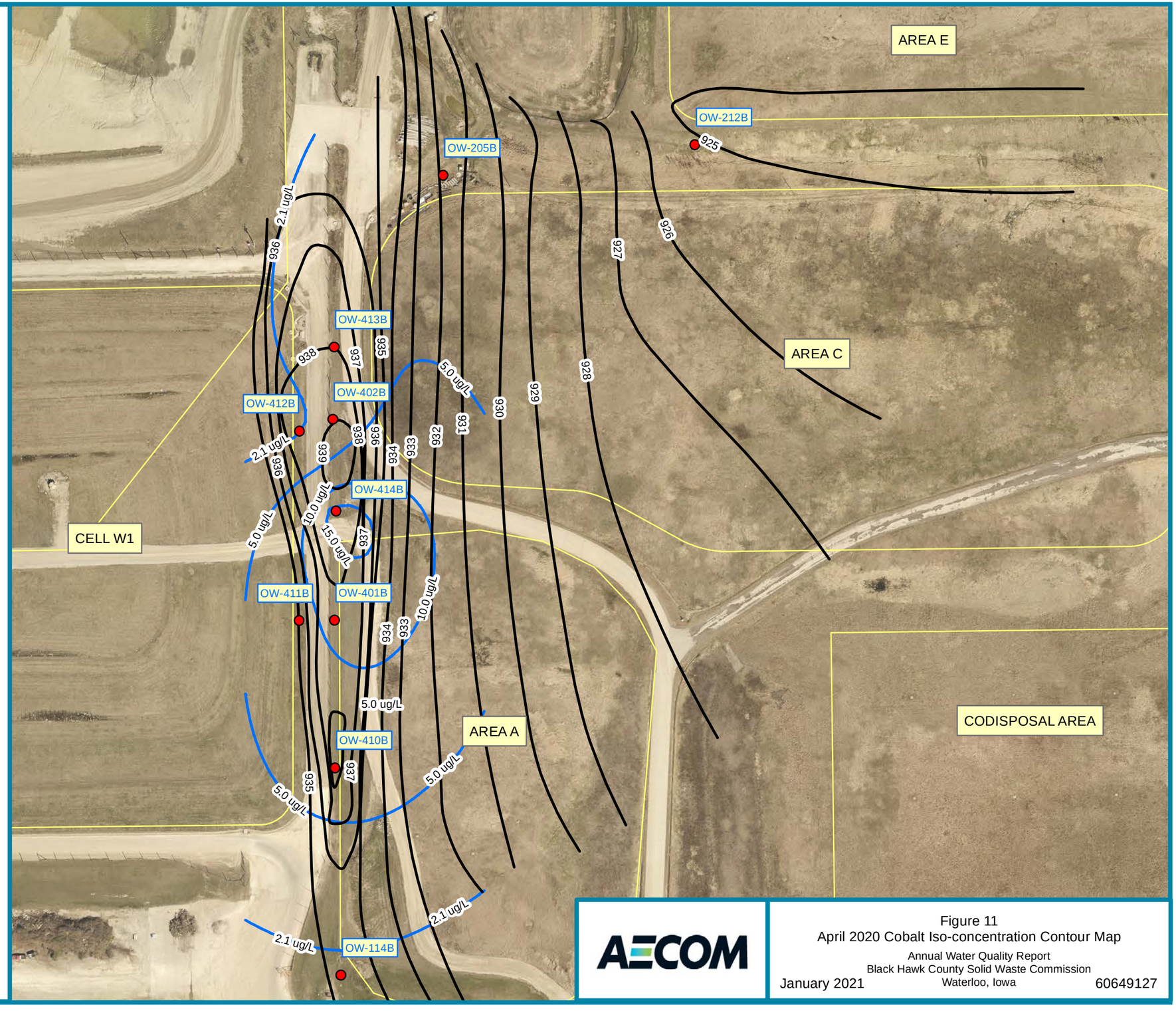
Basemap: Black Hawk County, IA Assessor, April 2019

Figure 10
April 2020 Arsenic Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2021
60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig10.mxd







Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2020 water elevations.

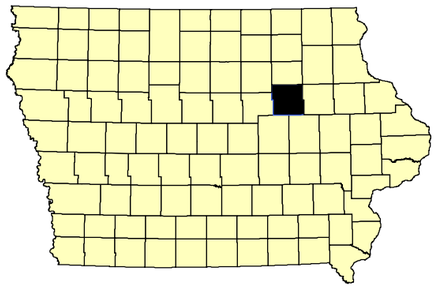
Basemap: Black Hawk County, IA Assessor, April 2019

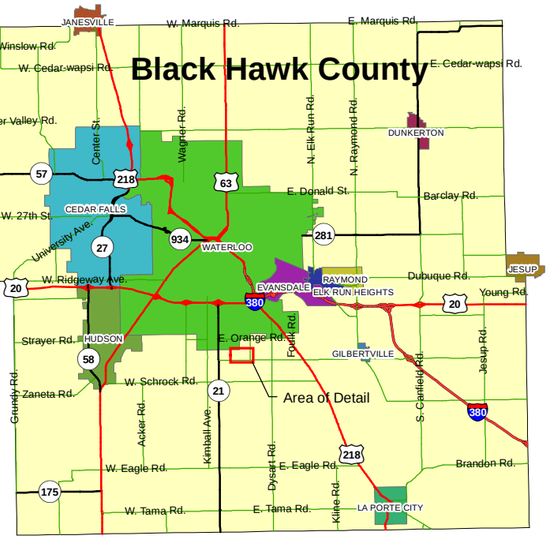
AECOM

Figure 11
April 2020 Cobalt Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2021 60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig11.mxd





Groundwater Contour

OW-207B 919.08 Monitoring Point with Water Elevation AMSL

Analyte Isoline

Flow Line

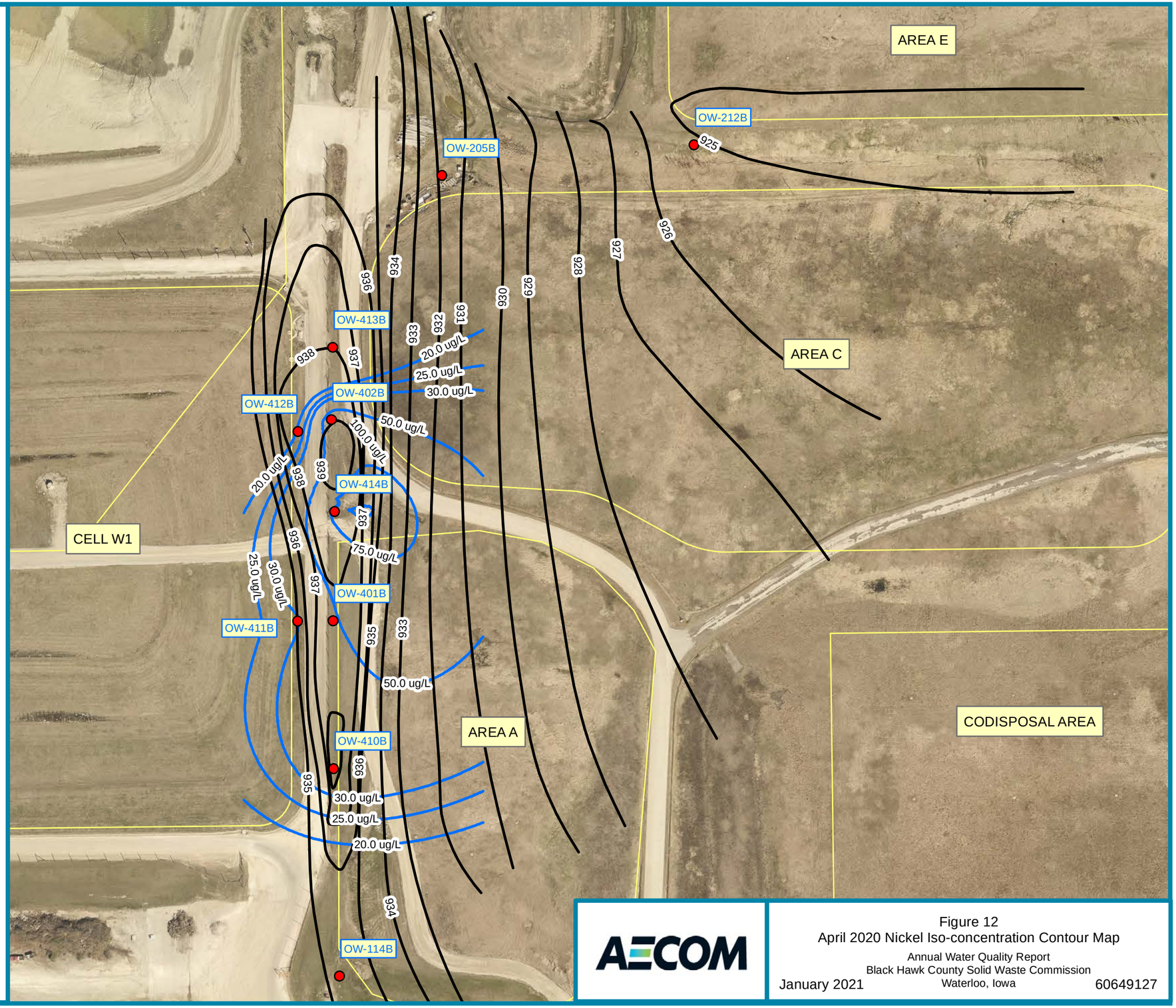
0 75 150 225 300

Feet

N W E S

Contours based on October 2020 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2019



AECOM

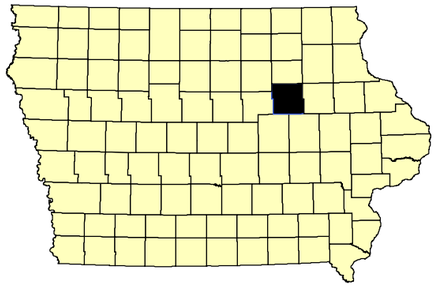
Figure 12
April 2020 Nickel Iso-concentration Contour Map

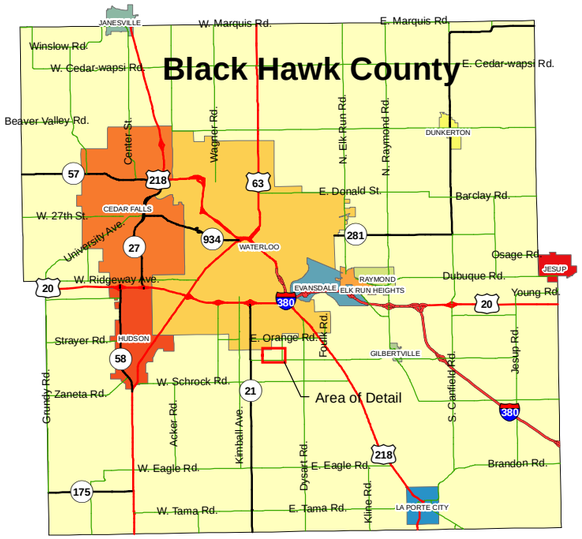
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2021 60649127

\\USWAT1FP001\Data\Projects\60649127\400_Technical\405 Water Quality\01-IDNR\2020 AWQR\09-ACM Report\Fig12.mxd

APPENDIX A - 2021





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2021 water elevations.
NM = Not measured

Basemap: Black Hawk County, IA Assessor, April 2021

CELL W3

CELL W1

AREA C

AREA A

OW-205B 931.01

OW-212B 920.01

OW-220B 915.45

OW-413B 937.01

OW-402B 938.00

OW-412B 937.94

OW-414B 938.37

OW-411B 934.21

OW-401B 938.83

OW-410B 938.49

OW-407B 939.03

OW-114B 933.05

935 930 925 920 915

AECOM

Figure 6
October 2021 ACM Area Water Table Contour Map
Annual Water Quality Report
Black Hawk Solid Waste Commission
Waterloo, Iowa

January 2022 60674663

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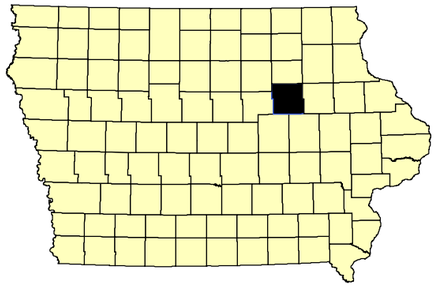

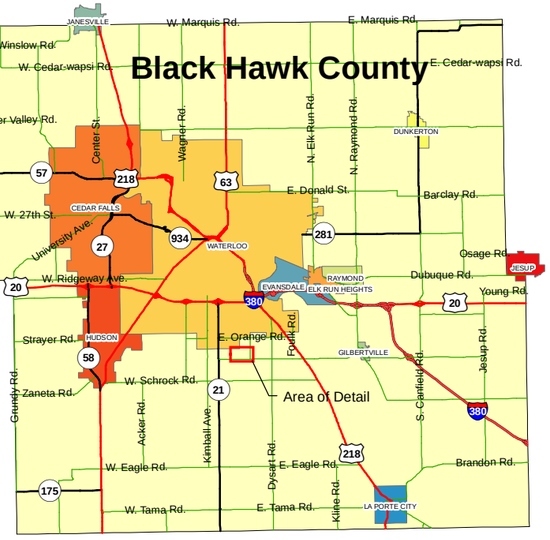

Groundwater Contour

OW-207B Monitoring Point

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N

W E

S

Contours based on October 2021 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

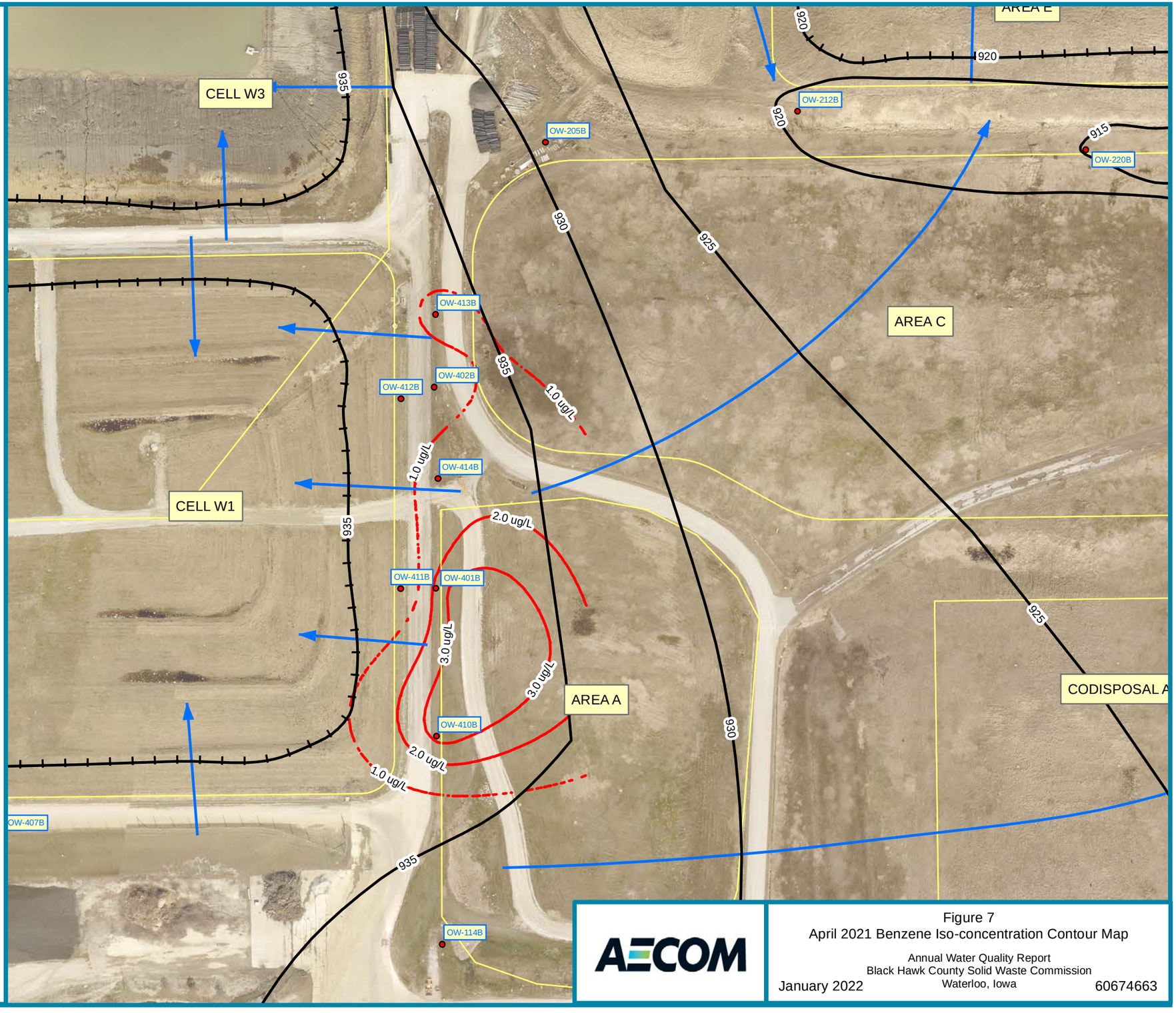

Figure 7
April 2021 Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2022

60674663

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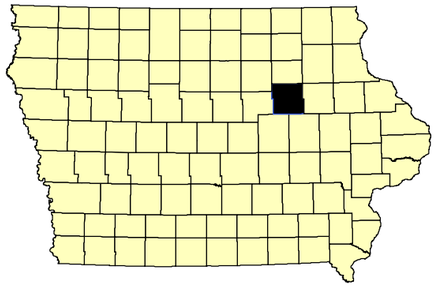

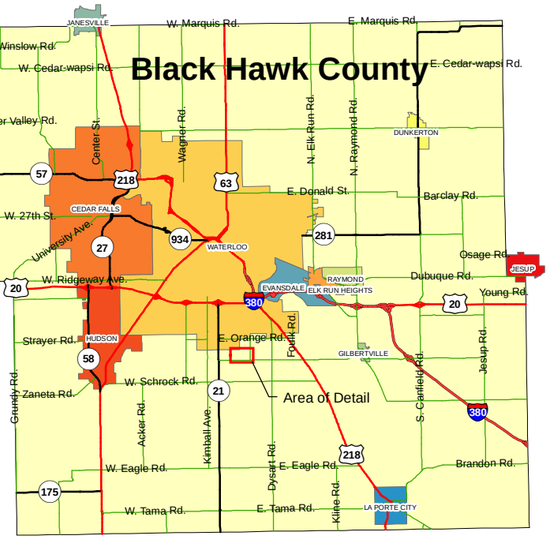

Groundwater Contour

OW-207B Monitoring Point

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2021 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

AECOM

Figure 8
April 2021 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2022 60674663

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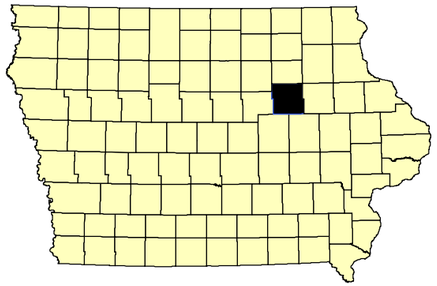
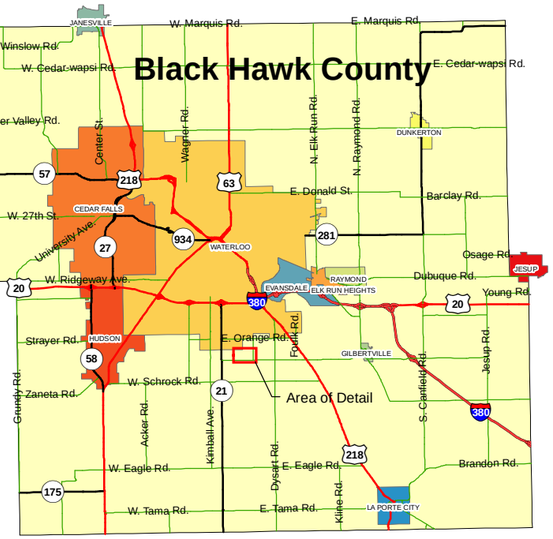




Groundwater Contour

OW-207B Monitoring Point

Analyte Isoline

Flow Line

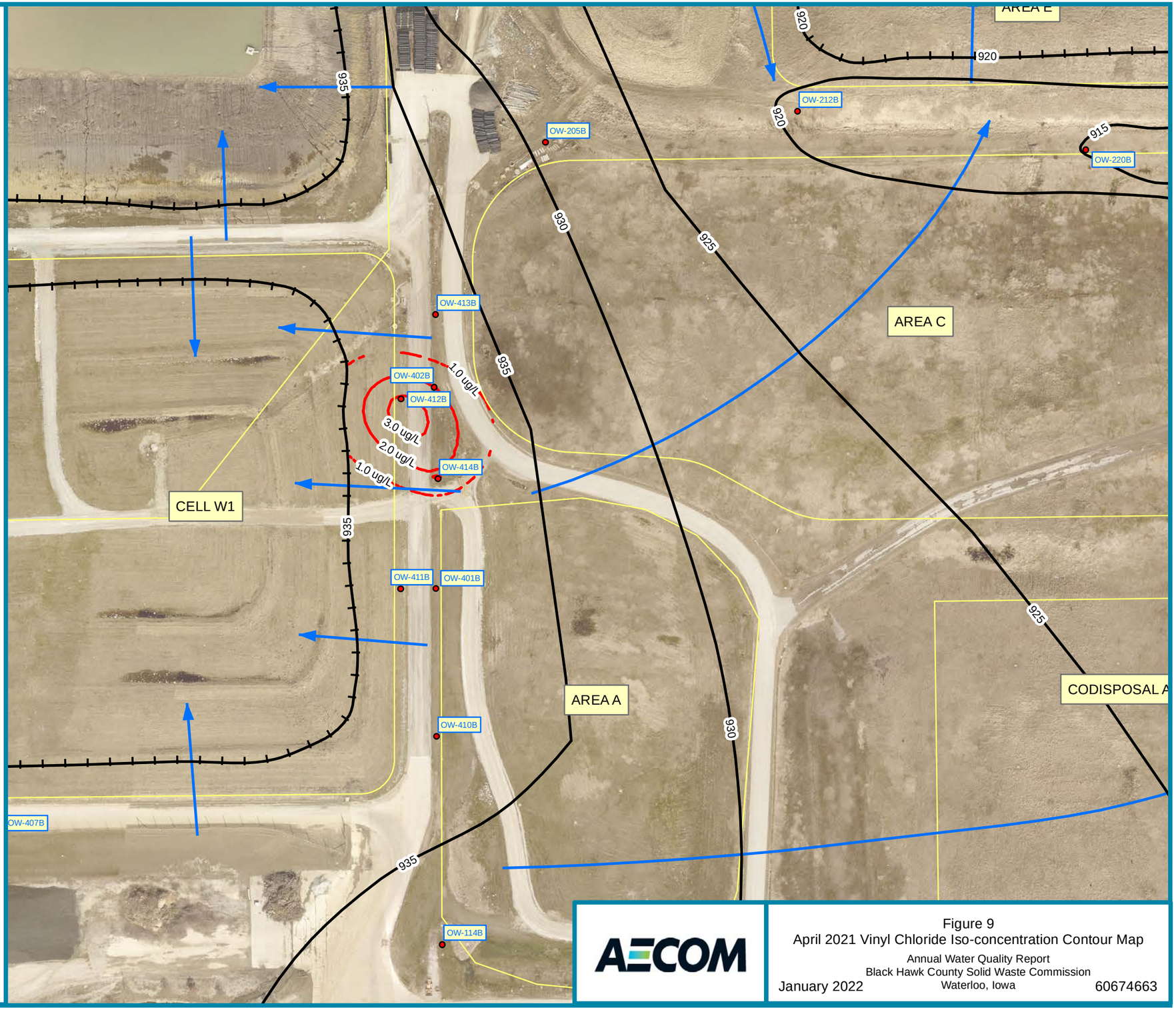
0 75 150 225 300

Feet

N W E S

Contours based on October 2021 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021



AECOM

Figure 9
April 2021 Vinyl Chloride Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2022 60674663

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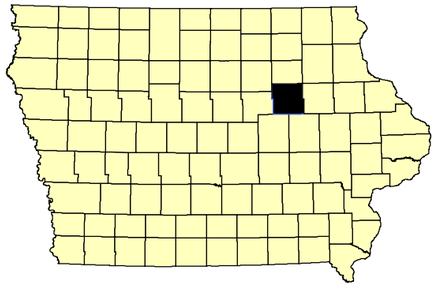

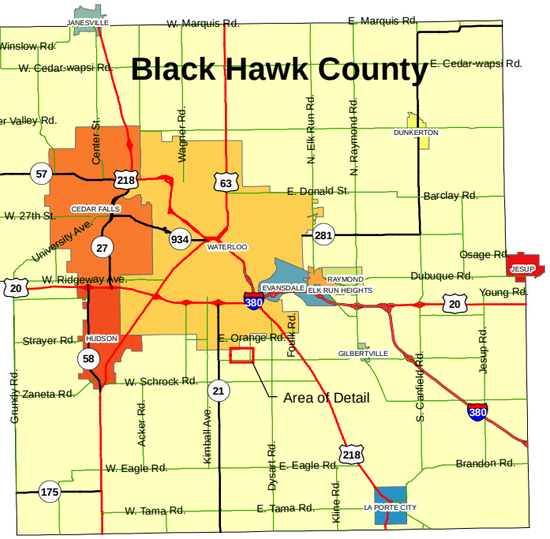

Groundwater Contour

OW-207B Monitoring Point

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N

W E

S

Contours based on October 2021 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

AREA E

AREA C

CELL W1

AREA A

CODISPOSAL A

OW-205B OW-212B OW-220B OW-413B OW-412B OW-402B OW-414B OW-411B OW-401B OW-410B OW-407B OW-114B

7.0 ug/L 5.0 ug/L 3.0 ug/L 2.0 ug/L 8.0 ug/L 10.0 ug/L

915 920 925 930 935

AECOM

Figure 10
April 2021 Arsenic Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2022 60674663

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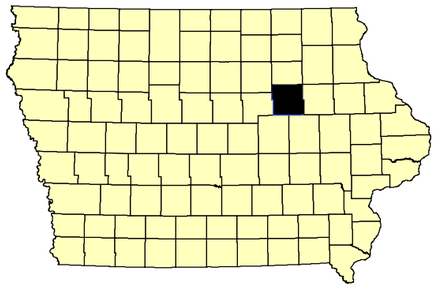

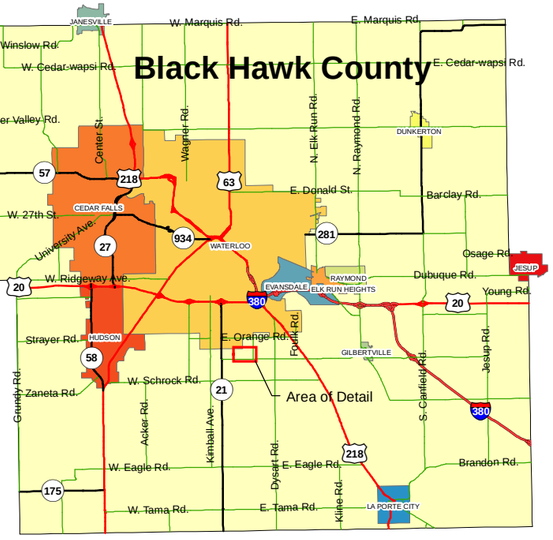

Groundwater Contour

OW-207B Monitoring Point

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2021 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

MW-712B
OW-205B
OW-212B
OW-220B
OW-413B
OW-412B
OW-402B
OW-414B
OW-411B
OW-401B
OW-410B
OW-114B
AREA E
AREA C
AREA A
CELL W1
CODISPOSAL AREA
935
920
915
930
925
5.0 ug/L
10.0 ug/L
15.0 ug/L
2.1 ug/L

AECOM

Figure 11
April 2021 Cobalt Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2022
60674663

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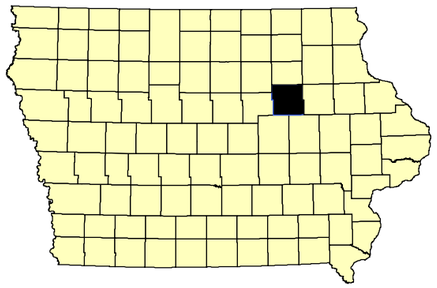
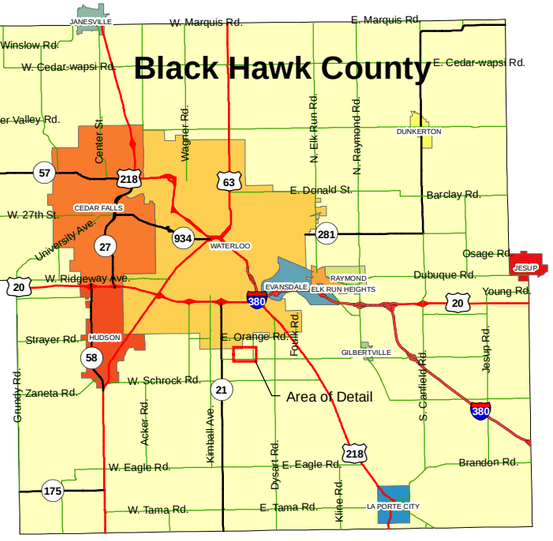




Groundwater Contour

OW-207B Monitoring Point

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

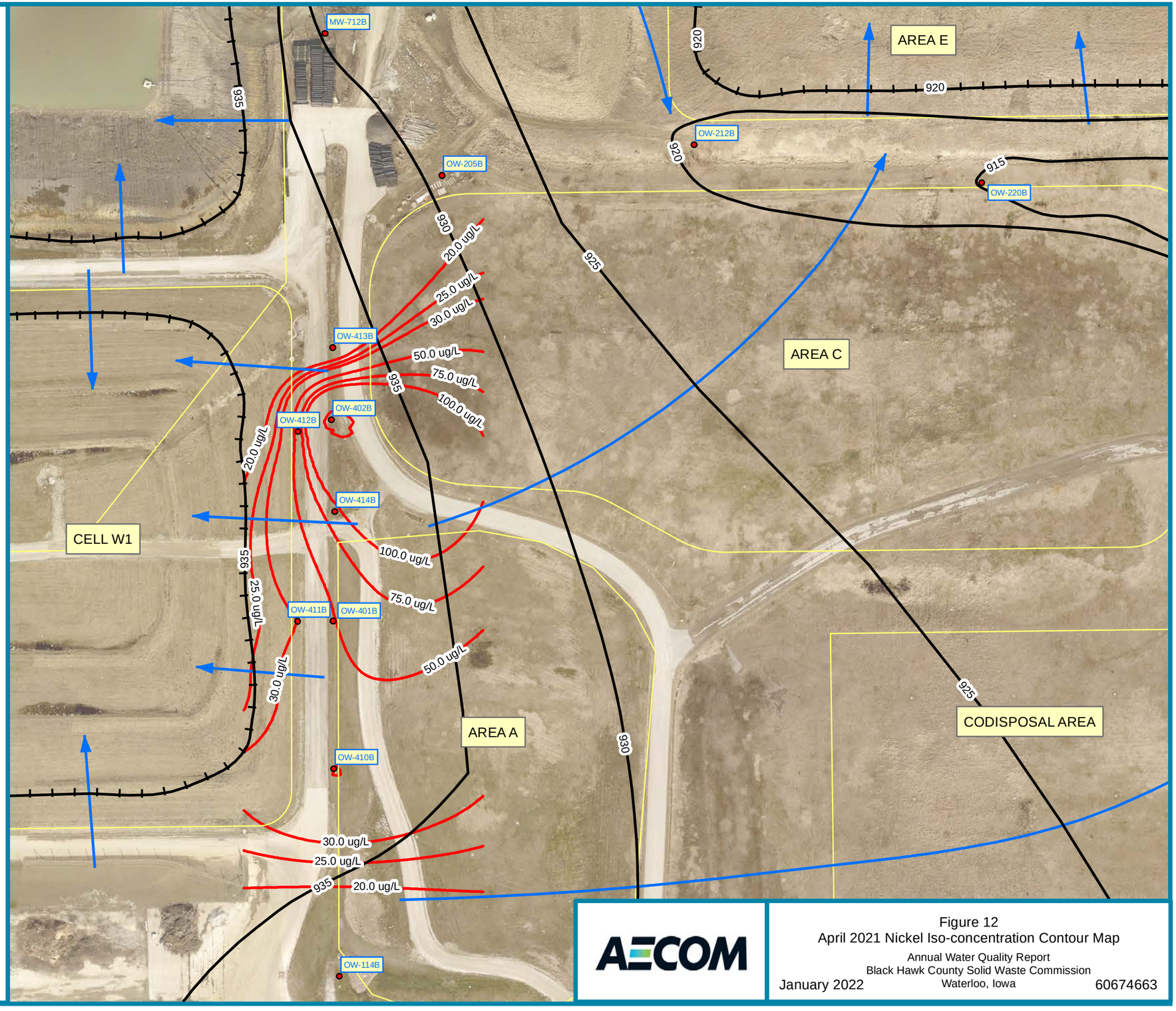
N

W E

S

Contours based on October 2021 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021



AECOM

Figure 12
April 2021 Nickel Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2022 60674663

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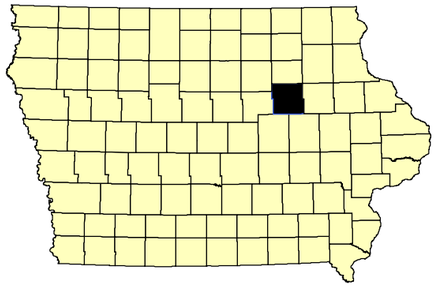
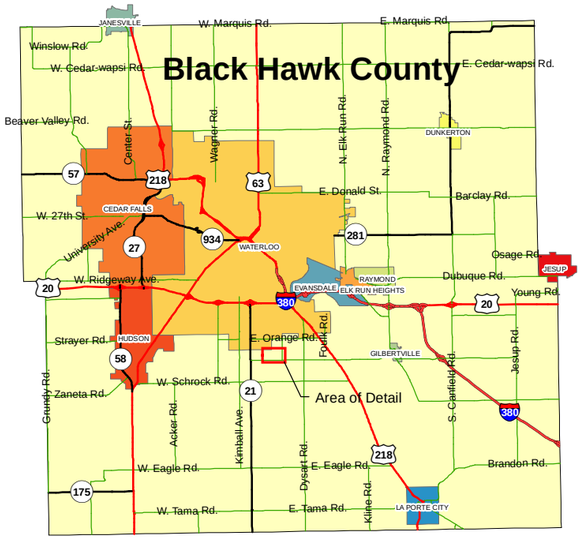
APPENDIX A - 2022





Groundwater Contour

OW-207B 919.08 — Monitoring Point with Water Elevation AMSL

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.
NM = Not measured

Basemap: Black Hawk County, IA Assessor, April 2021

CELL W3

CELL W1

AREA C

AREA A

OW-205B 930.97

OW-212B 920.56

OW-220B 915.75

OW-413B 936.88

OW-412B 937.80

OW-402B 937.83

OW-414B 938.18

OW-411B 933.90

OW-401B 938.22

OW-410B 938.35

OW-407B 939.14

OW-114B 933.39

940 925 920 915 890 935 930

AECOM

Figure 6
October 2022 ACM Area Water Table Contour Map
Annual Water Quality Report
Black Hawk Solid Waste Commission
Waterloo, Iowa

January 2023 60699034

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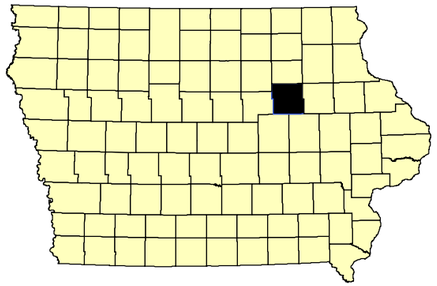

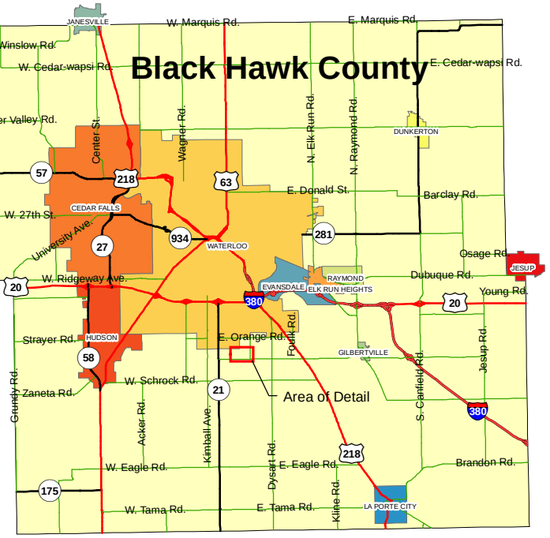

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

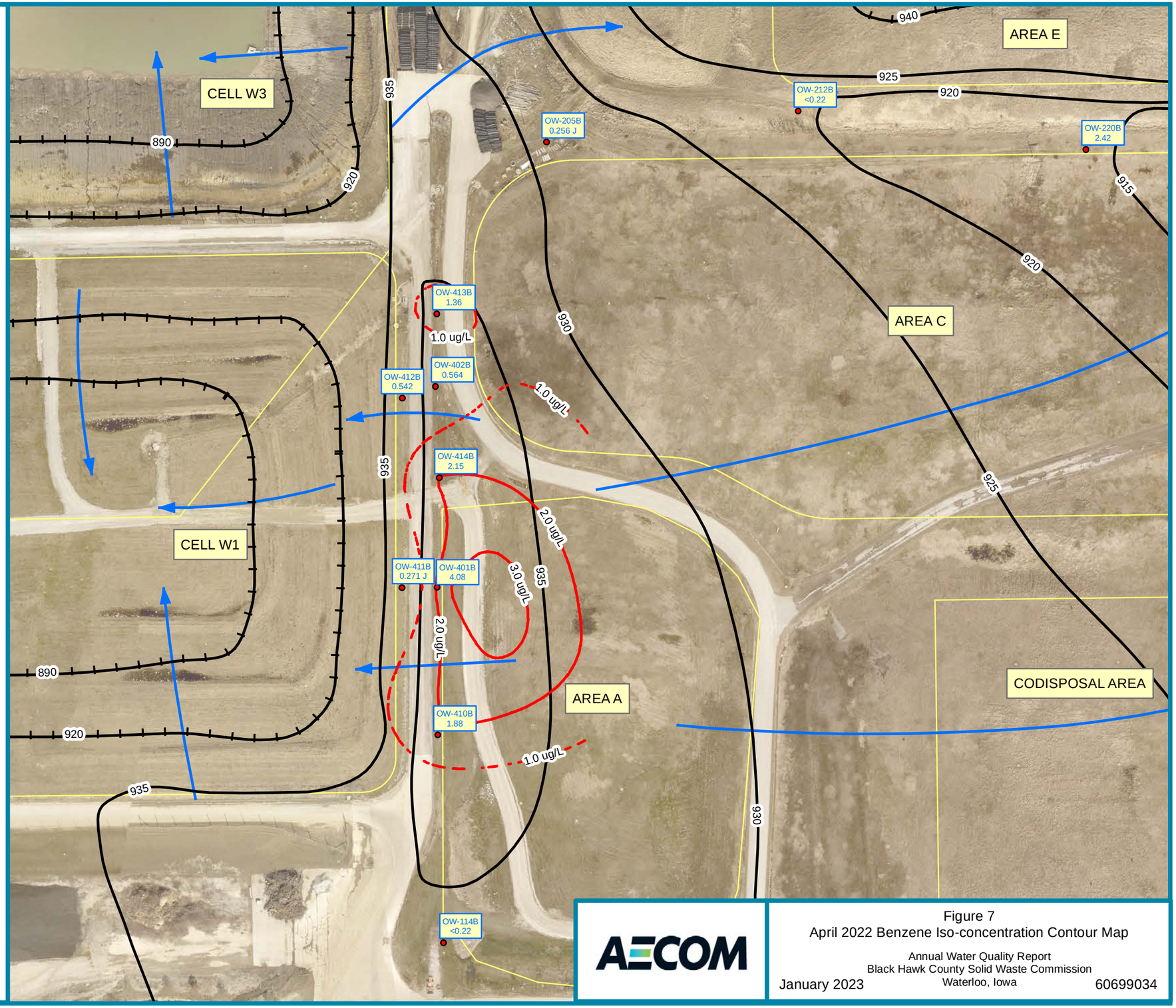

Figure 7
April 2022 Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2023 60699034

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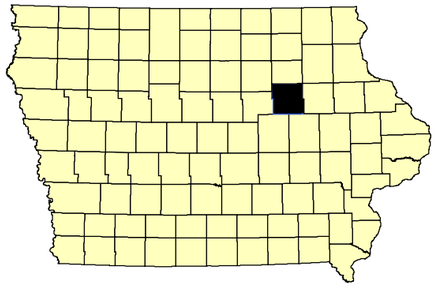

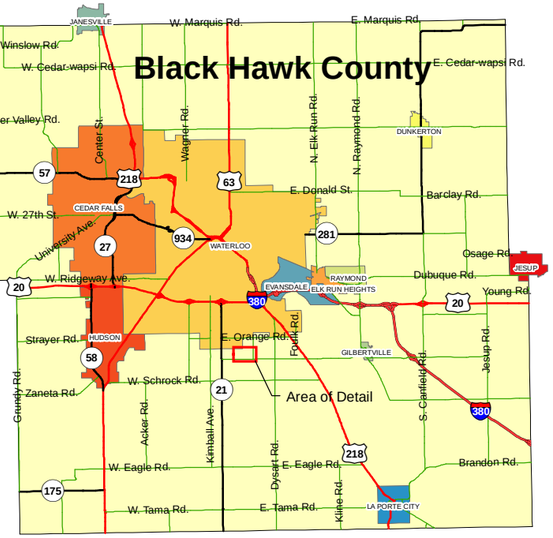

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

CELL W3

CELL W1

AREA E

AREA C

AREA A

CODISPOSAL AREA

890 920 935 940 925 915 930

OW-205B 0.52 J

OW-212B <0.21

OW-220B 0.703 J

OW-413B 1.13

OW-412B 17.5

OW-402B 14.3

OW-414B 10.4

OW-411B <0.21

OW-401B <0.21

OW-410B <0.21

OW-114B <0.21

1.0 ug/L

5.0 ug/L

15.0 ug/L

10.0 ug/L

AECOM

Figure 8
April 2022 cis-1,2-Dichloroethylene
Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2023

60699034

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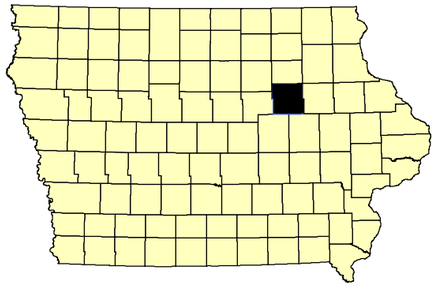

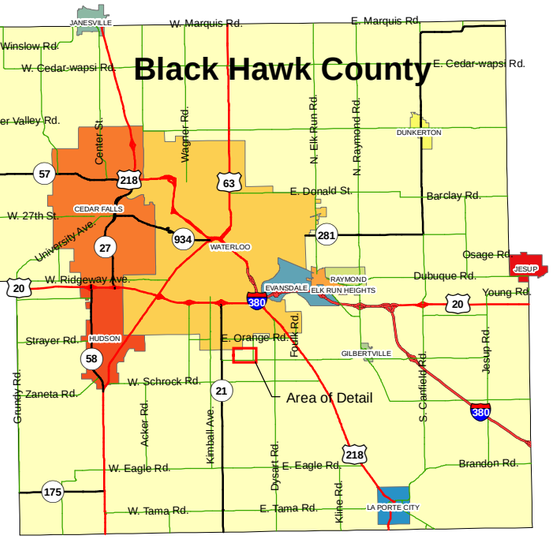

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

940 925 920 915 890 935 930

OW-205B <0.18
OW-212B <0.18
OW-220B <0.18
OW-413B <0.18
OW-412B 3.63
OW-402B 1.99
OW-414B 1.24
OW-411B <0.18
OW-401B <0.18
OW-410B <0.18
OW-114B <0.18

2.0 ug/L

1.0 ug/L

AECOM

Figure 9
April 2022 Vinyl Chloride Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2023 60699034

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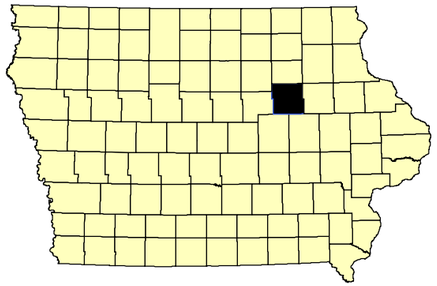

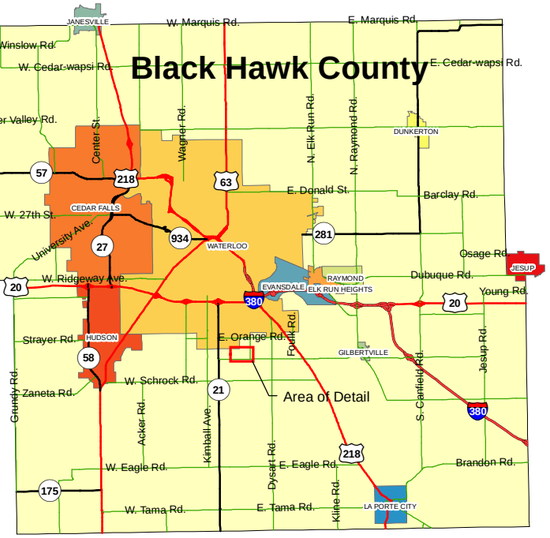

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

AREA E

AREA C

AREA A

CODISPOSAL AREA

CELL W1

OW-212B 1.36 J

OW-220B 4.87 J

OW-205B 10.2

OW-413B 4.22

OW-412B 5.14

OW-402B 0.847 J

OW-414B 4.24

OW-411B 4.85

OW-401B 10.4

OW-410B 6.57

OW-114B <0.75

940 925 920 915 890 935 930

8.0 ug/L 5.0 ug/L 3.0 ug/L 2.0 ug/L 10.0 ug/L

AECOM

Figure 10
April 2022 Arsenic Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2023 60699034

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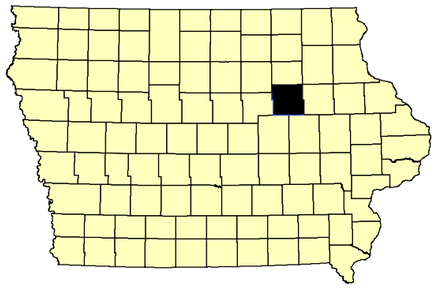

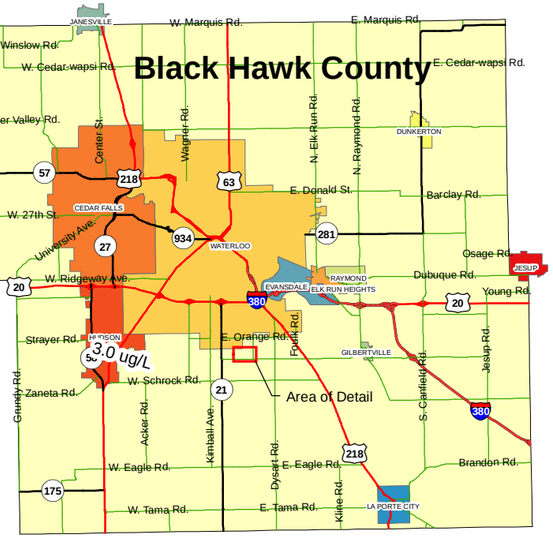

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

MW-712B 9.82
OW-212B 7.13
OW-220B 25.4
OW-205B 5.01
OW-413B 4.91
OW-412B 1.69
OW-402B 9.35
OW-414B 26.6
OW-411B 5.47
OW-401B 3.69
OW-410B 17.3
OW-114B 1.34

AREA E
AREA C
AREA A
CELL W1
CODISPOSAL AREA

940 925 920 915 890 935 930

5.0 ug/L
10.0 ug/L
15.0 ug/L
3.0 ug/L
2.1 ug/L

AECOM

Figure 11
April 2022 Cobalt Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2023
60699034

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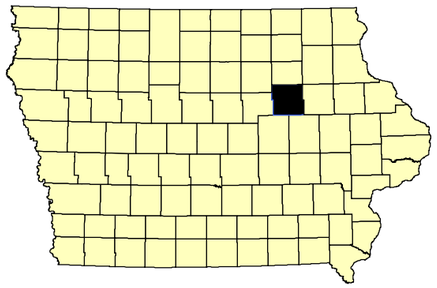

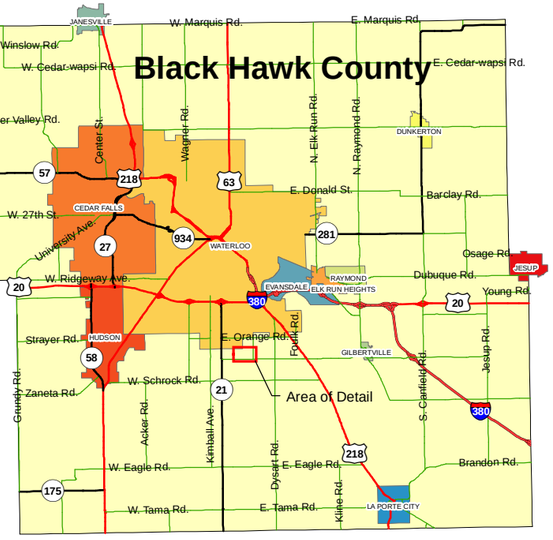

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on October 2022 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2021

MW-712B <1.9
OW-212B 19.7
OW-205B 14.6
OW-220B 147
OW-413B 4.59 J
OW-412B 16.6
OW-402B 602
OW-414B 72.5
OW-411B 31.2
OW-401B 42
OW-410B 55.5
OW-114B 19.9

AREA E
AREA C
AREA A
CELL W1
CODISPOSAL AREA

940 925 920 915 890 935 930

20.0 ug/L 25.0 ug/L 30.0 ug/L 50.0 ug/L 75.0 ug/L 100.0 ug/L 200.0 ug/L 7.0 ug/L

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Figure 12
April 2022 Nickel Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa
January 2023
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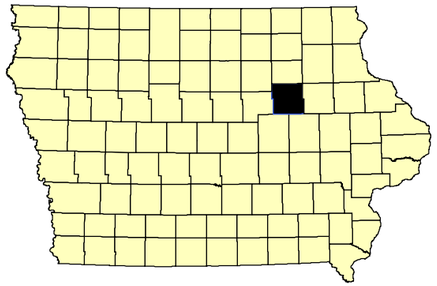
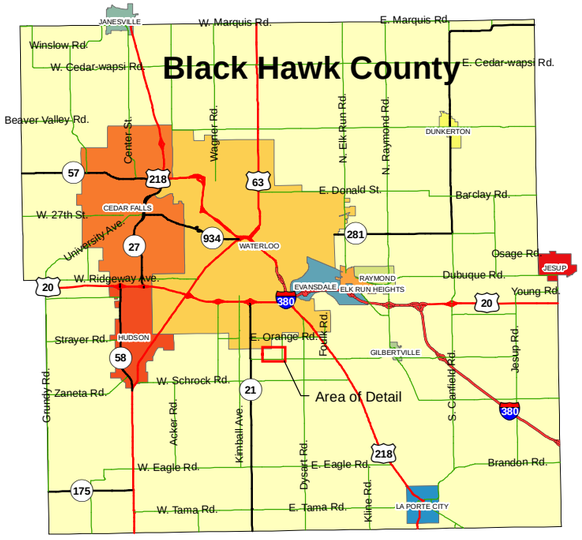
APPENDIX A - 2023





Groundwater Contour

OW-207B
2.5
Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300
Feet

N
W E
S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

5.0 ug/L

OW-205B
930.57

OW-212B
920.04

OW-224B
927.68

OW-225B
923.59

OW-220B
915.45

OW-226B
911.00

OW-413B
936.78

OW-412B
937.74

OW-402B
937.86

OW-414B
938.17

OW-411B
933.93

OW-401B
938.27

OW-410B
938.23

OW-114B
932.62

915
920
925
930
935

AECOM

Figure 6
September 2023 Area A Water Table Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024

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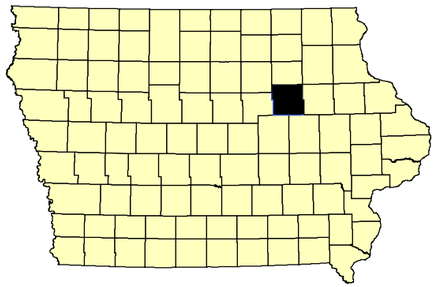

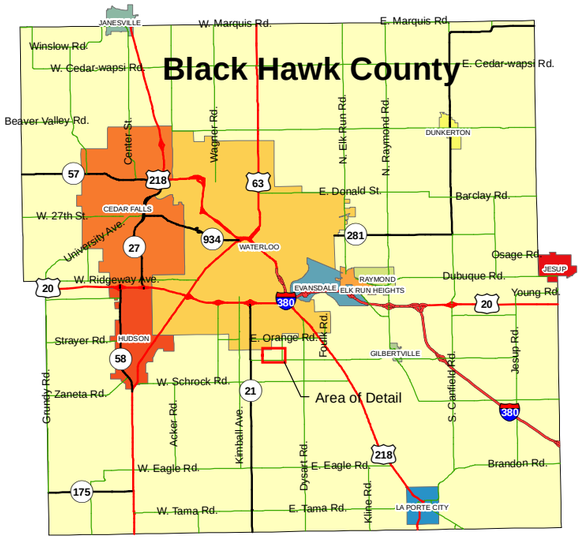

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

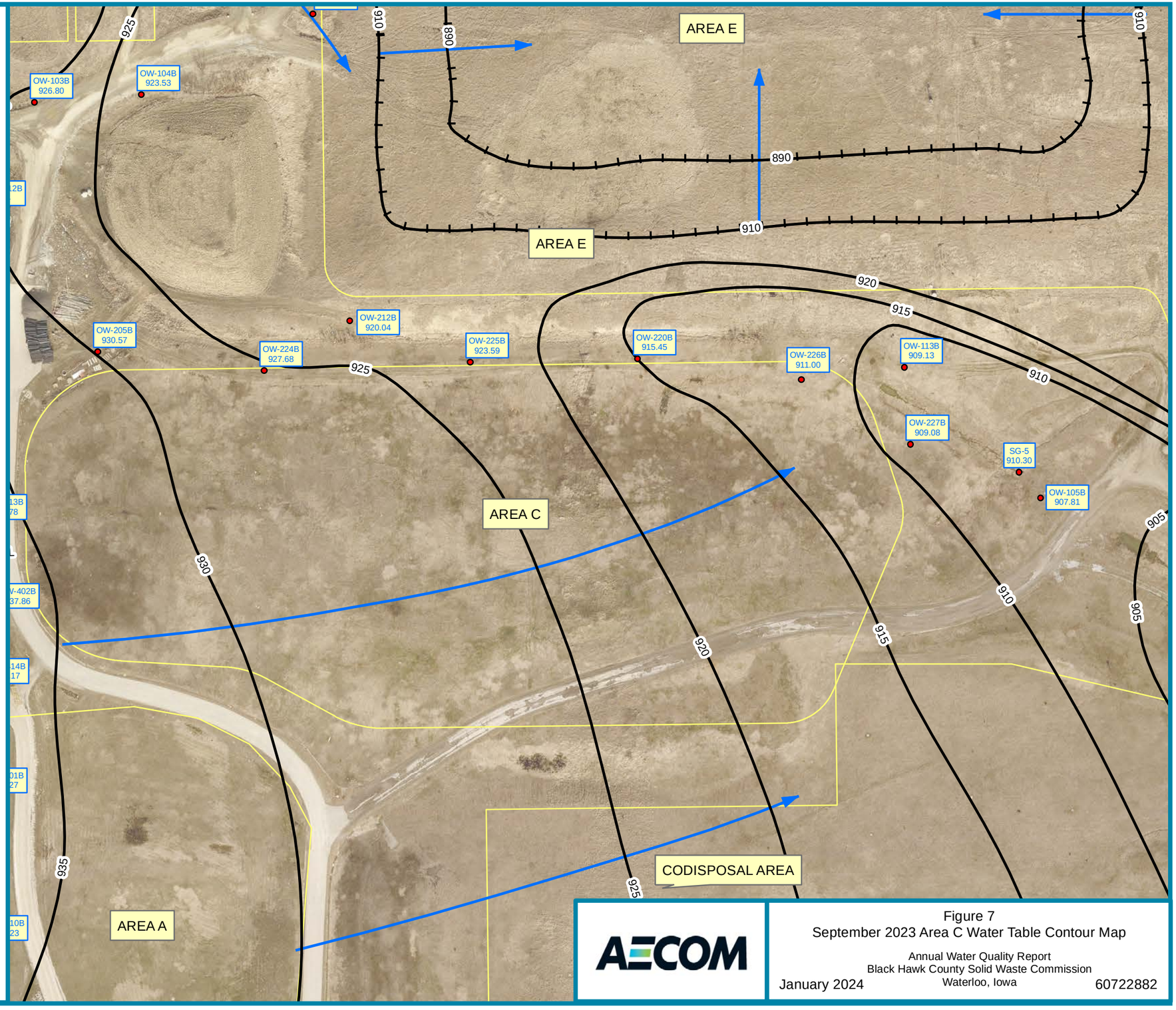

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Figure 7
September 2023 Area C Water Table Contour Map

Annual Water Quality Report
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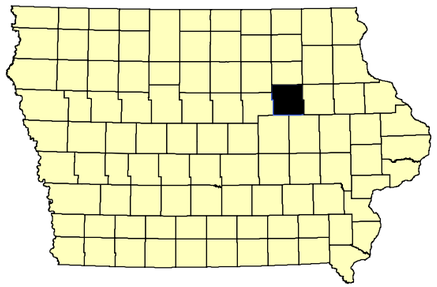

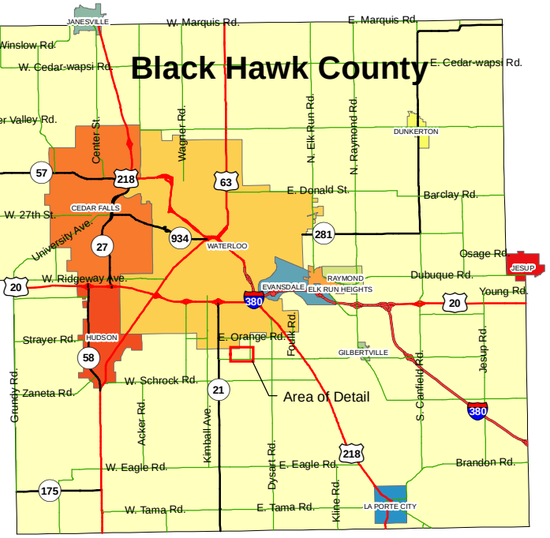

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 18.3

OW-413B 9.14

OW-402B 0.826

OW-412B 4.35

OW-414B 4.54

OW-401B 5.96

OW-411B 4.74

OW-410B 6.53

OW-114B 0.929

915 920 925 930 935

11.0 ug/L 10.0 ug/L 9.0 ug/L 8.0 ug/L 7.0 ug/L 6.0 ug/L 5.0 ug/L 4.0 ug/L 3.0 ug/L

AECOM

Figure 8
April 2023 Area A Arsenic Iso-concentration Contour Map

Annual Water Quality Report
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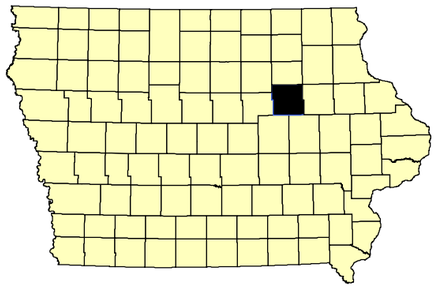

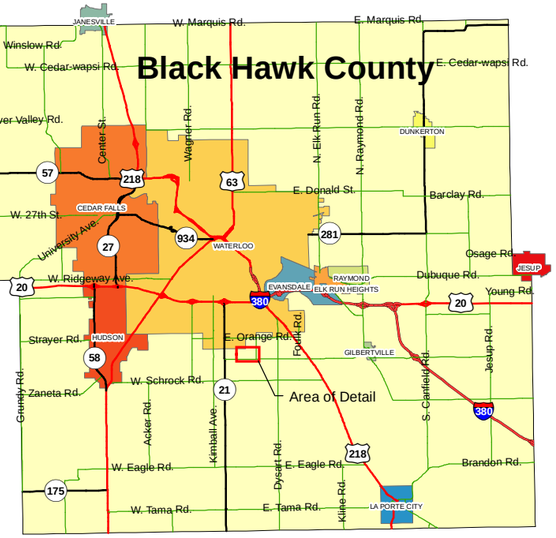

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-205B 18.3

OW-224B 3.51

OW-212B 7.28

OW-225B 1.68

OW-220B 16.4

OW-226B 5.08

OW-113B <0.53

OW-227B 2.67

OW-105B <0.53

10.0 ug/L 9.0 ug/L 8.0 ug/L 7.0 ug/L 6.0 ug/L 5.0 ug/L 4.0 ug/L 3.0 ug/L

13.0 ug/L 12.0 ug/L 11.0 ug/L 10.0 ug/L 9.0 ug/L 8.0 ug/L 7.0 ug/L 6.0 ug/L 5.0 ug/L 4.0 ug/L 3.0 ug/L

905 910 915 920 925 930 935

890

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Figure 9
April 2023 Area C Arsenic Iso-concentration Contour Map

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Waterloo, Iowa

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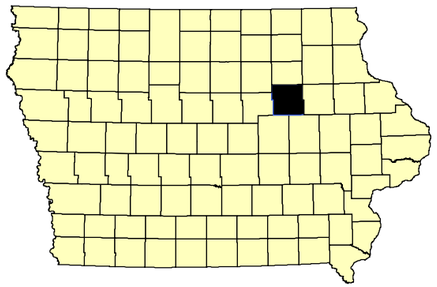

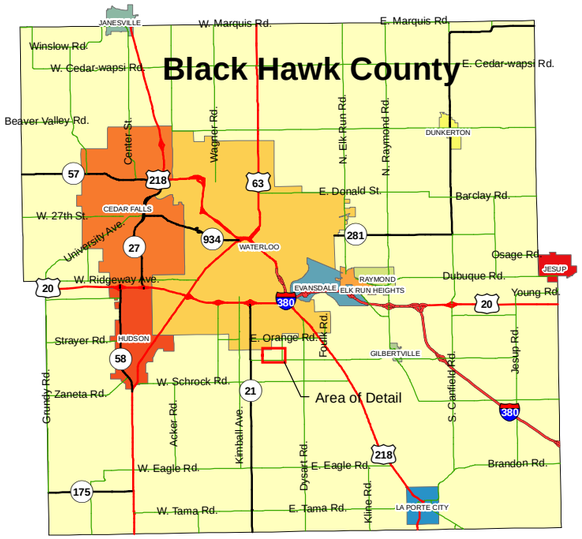

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 273

OW-413B 543

OW-412B 1510

OW-402B 857

OW-414B 497

OW-401B 1230

OW-411B 605

OW-410B 3030

OW-114B 62.7

920 915 925 935 930

600 ug/L 400 ug/L 700 ug/L 800 ug/L 900 ug/L 1000 ug/L 500 ug/L 1900 ug/L 2100 ug/L 2300 ug/L 1300 ug/L 1500 ug/L 1700 ug/L 1100 ug/L 300 ug/L

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Figure 10
April 2023 Area A Barium Iso-concentration Contour Map

Annual Water Quality Report
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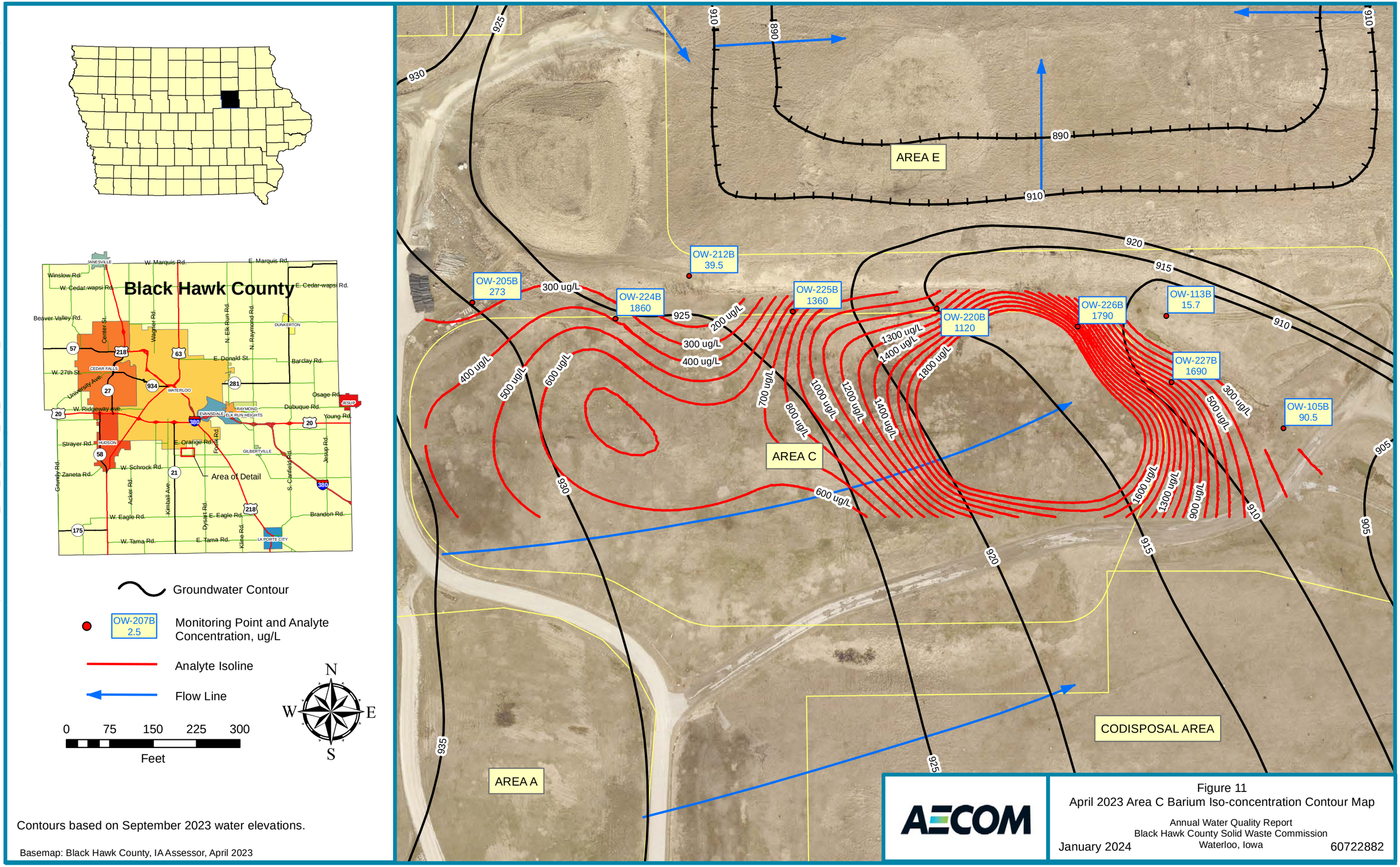

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

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Figure 11
April 2023 Area C Barium Iso-concentration Contour Map

Annual Water Quality Report
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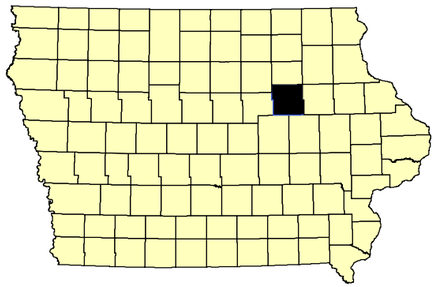

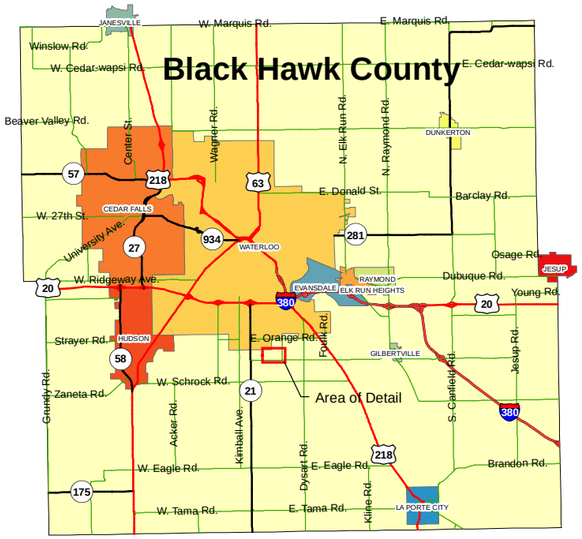

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

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Figure 12
April 2023 Area A Cobalt Iso-concentration Contour Map

Annual Water Quality Report
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Waterloo, Iowa

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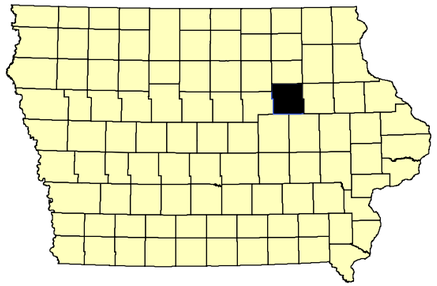

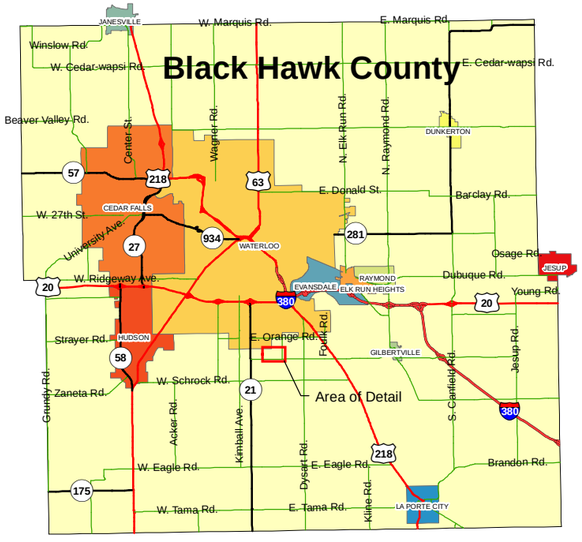

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

AREA E

AREA C

AREA A

CODISPOSAL AREA

OW-212B 27.1

OW-205B 5.28

OW-224B 62

OW-225B 30.9

OW-220B 24.9

OW-226B 28.7

OW-113B 2.62

OW-227B 25.6

OW-105B 0.217

5.0 ug/L

10.0 ug/L

15.0 ug/L

20.0 ug/L

25.0 ug/L

905

910

915

920

925

930

935

890

AECOM

Figure 13
April 2023 Area C Cobalt Iso-concentration Contour Map

Annual Water Quality Report
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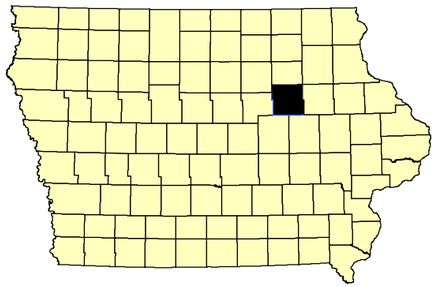

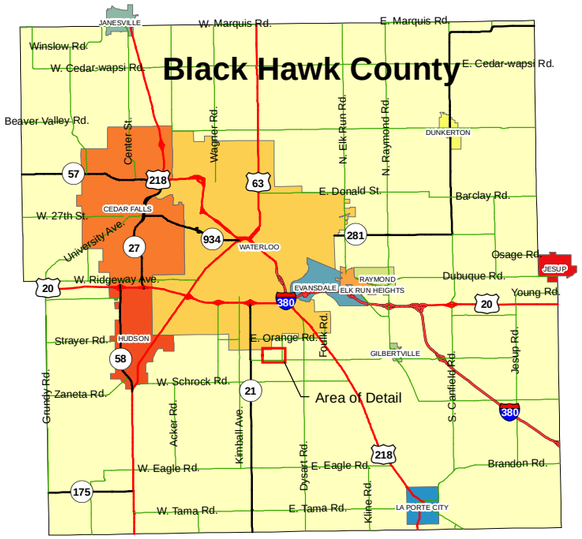

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 16.2

OW-413B <2.03

OW-412B 21.3

OW-402B 1270

OW-414B 74.5

OW-401B 50.1

OW-411B 29.9

OW-410B 50.9

OW-114B 12

915 920 925 930 935

20.0 ug/L 25.0 ug/L 30.0 ug/L 50.0 ug/L 75.0 ug/L 100.0 ug/L

AECOM

Figure 14
April 2023 Area A Nickel Iso-concentration Contour Map

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Waterloo, Iowa

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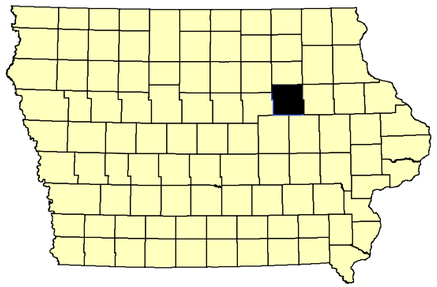

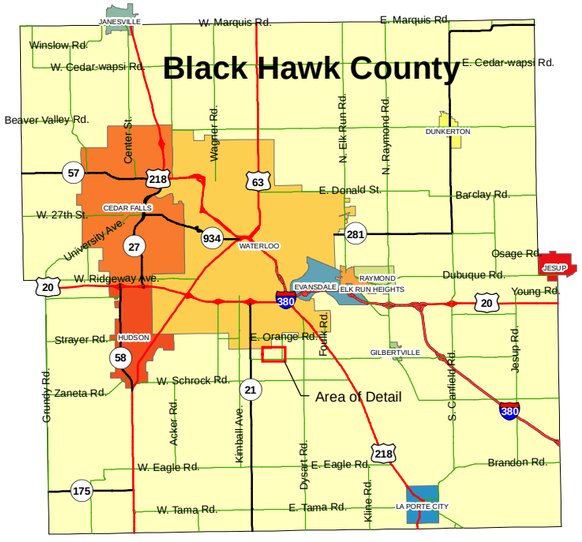

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

AECOM

Figure 15
April 2023 Area C Nickel Iso-concentration Contour Map

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January 2024 60722882

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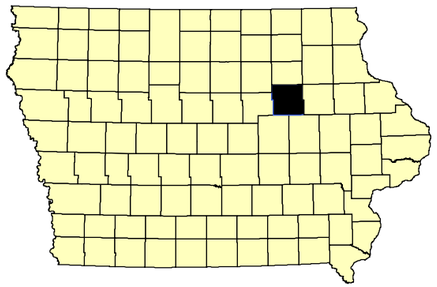

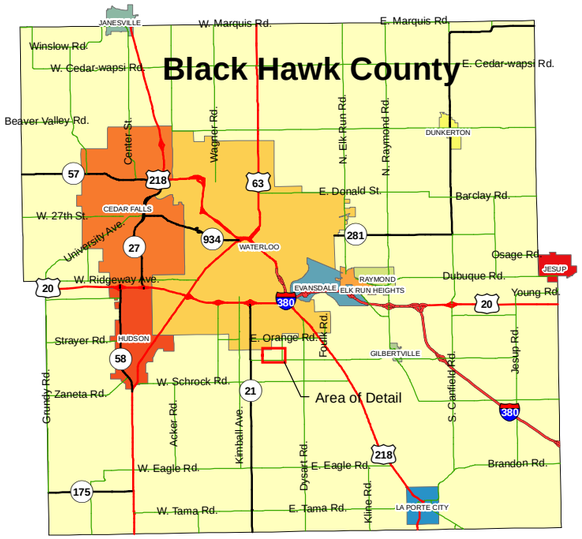

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

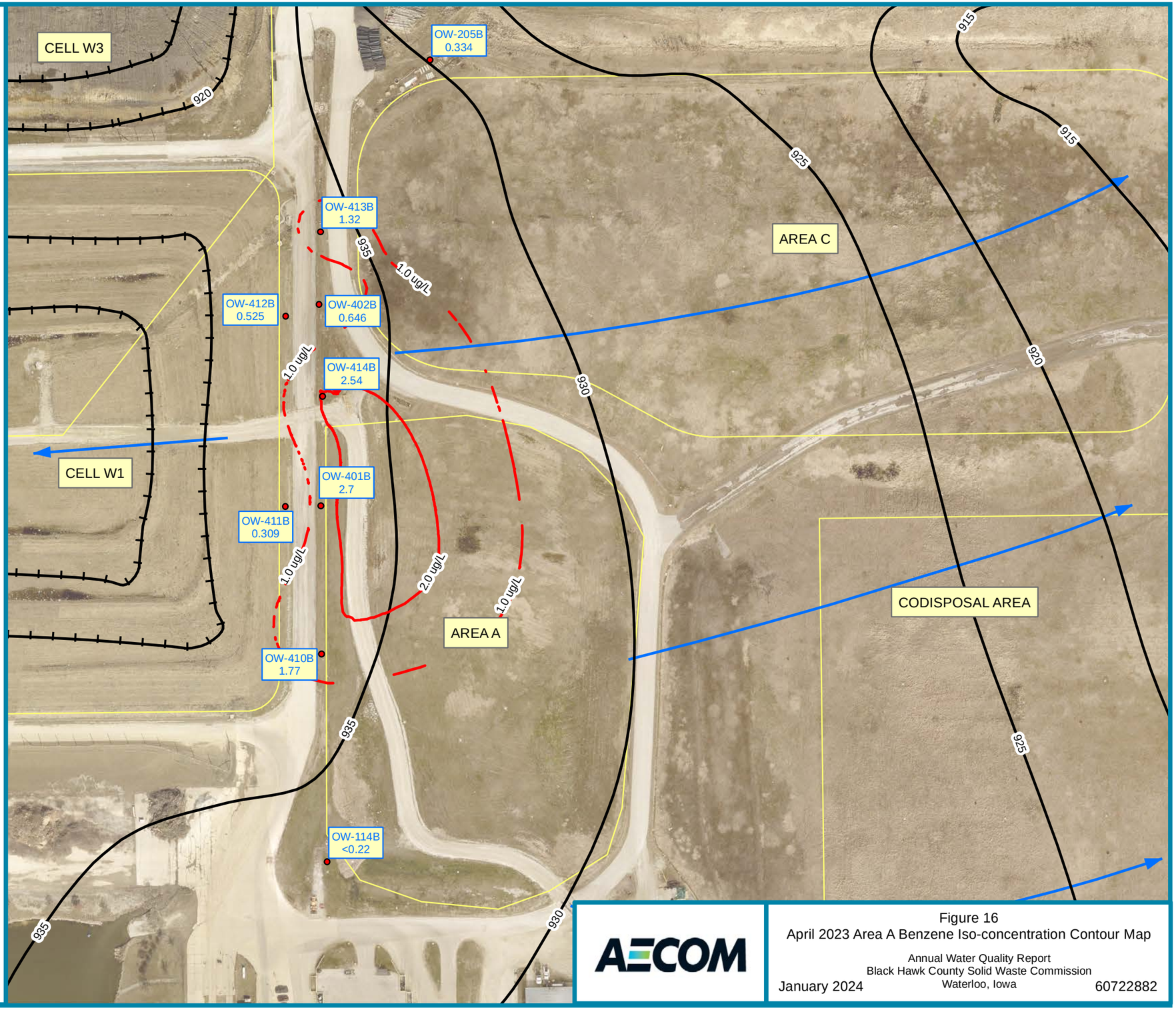

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Figure 16
April 2023 Area A Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024

60722882

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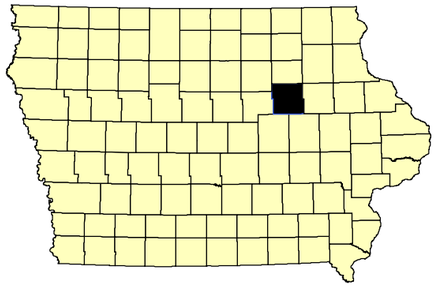
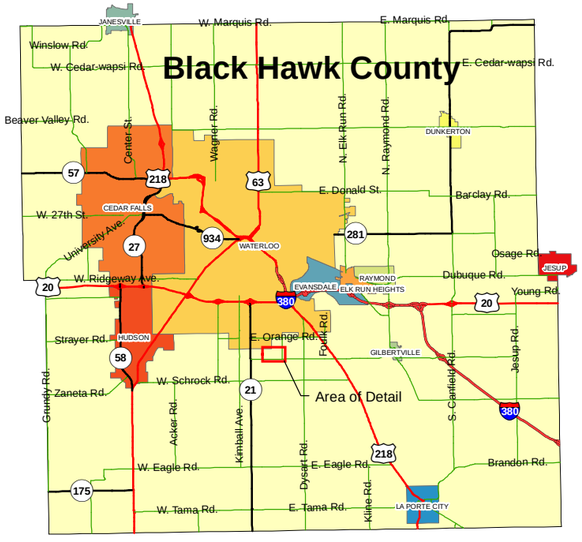




Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

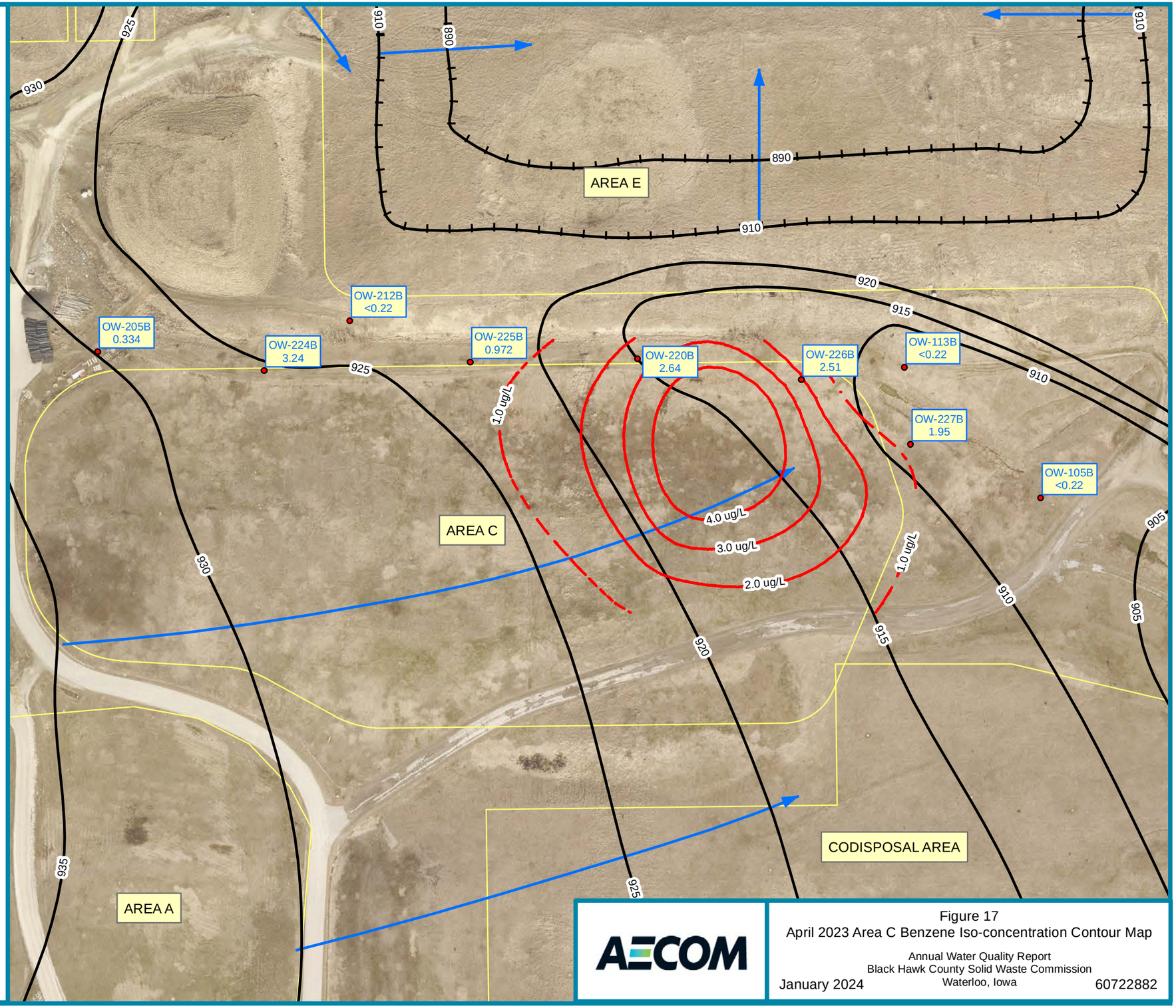
0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023



AECOM

Figure 17
April 2023 Area C Benzene Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024 60722882

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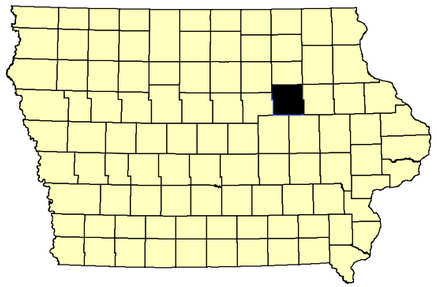

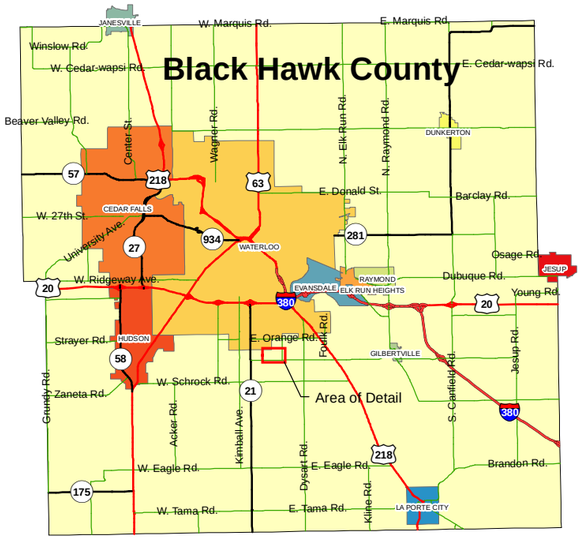

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

CELL W3

CELL W1

AREA C

AREA A

CODISPOSAL AREA

OW-205B 0.366

OW-413B 0.814

OW-412B 17.8

OW-402B 14.8

OW-414B 8.99

OW-401B <0.210

OW-411B <0.210

OW-410B <0.210

OW-114B <0.210

17.0 ug/L

15.0 ug/L

10.0 ug/L

5.0 ug/L

915 920 925 930 935

AECOM

Figure 18
April 2023 Area A cis-1,2-Dichloroethylene
Iso-concentration Contour Map
Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024 60722882

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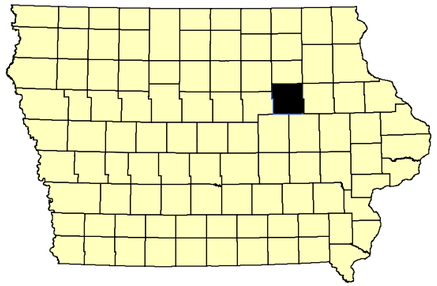
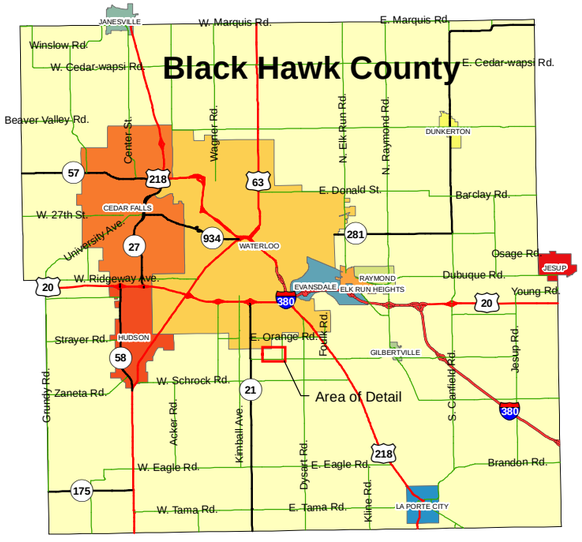




Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

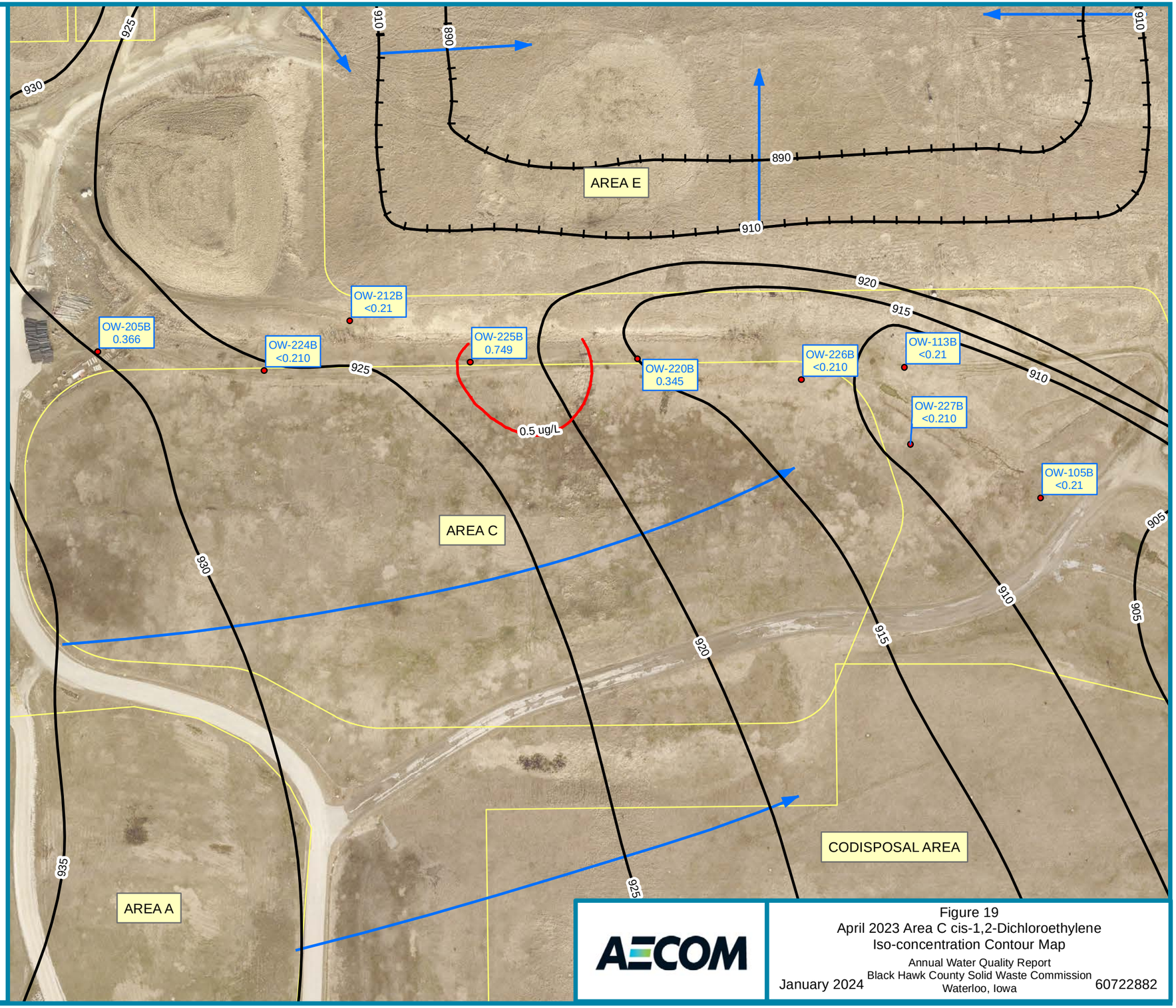
0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023



AECOM

Figure 19
April 2023 Area C cis-1,2-Dichloroethylene
Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024 60722882

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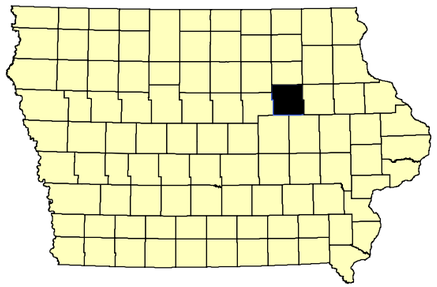

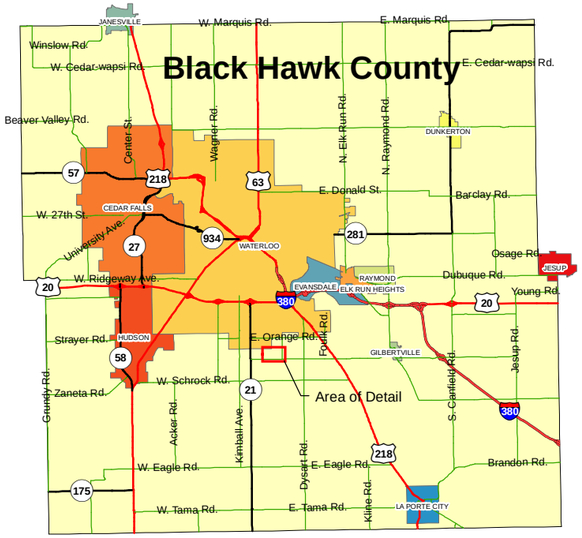

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

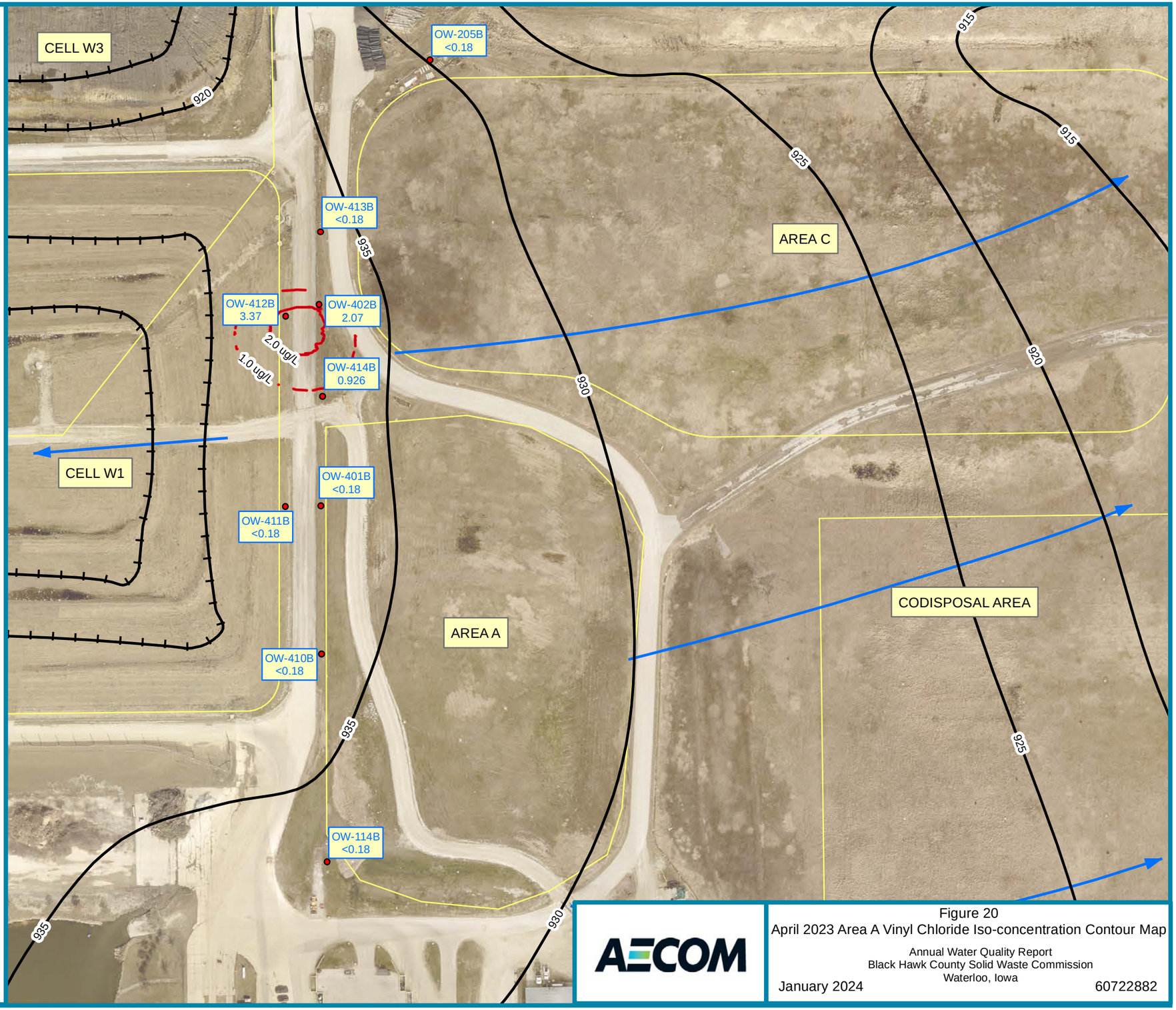

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Figure 20
April 2023 Area A Vinyl Chloride Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024 60722882

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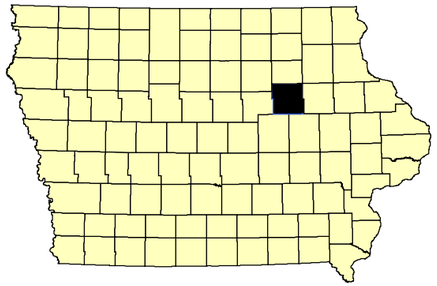

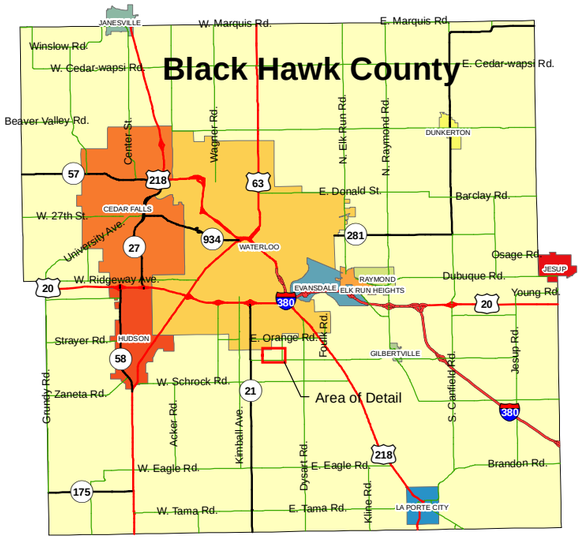

Groundwater Contour

OW-207B 2.5 — Monitoring Point and Analyte Concentration, ug/L

Analyte Isoline

Flow Line

0 75 150 225 300

Feet

N W E S

Contours based on September 2023 water elevations.

Basemap: Black Hawk County, IA Assessor, April 2023

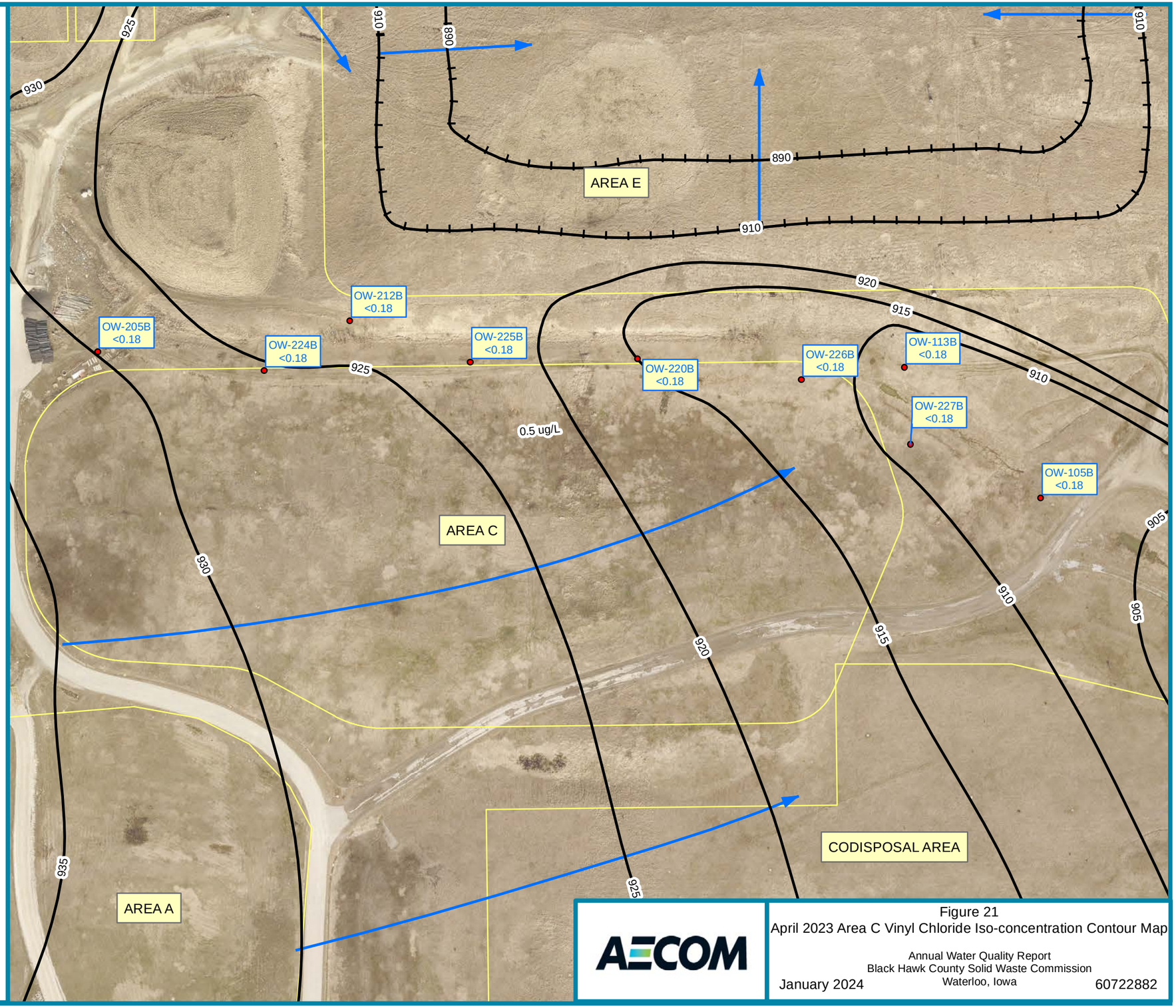

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Figure 21
April 2023 Area C Vinyl Chloride Iso-concentration Contour Map

Annual Water Quality Report
Black Hawk County Solid Waste Commission
Waterloo, Iowa

January 2024 60722882

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APPENDIX B-1 - Laboratory Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

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JOB DESCRIPTION

Black Hawk County Landfill (IDNR)

JOB NUMBER

310-279790-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job Narrative
310-279790-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/25/2024 11:10 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 time was 0.8°C.

GC/MS VOA
Method 8260D: The following sample was collected in a properly preserved vial; however, 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: OW-224B (310-279790-3) and OW-225B (310-279790-4).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-420224 recovered above the upper control limit for 2-Hexanone (32.0%D) and 4-Methyl-2-pentanone (30.2%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-420224/3).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-420224 recovered above the upper control limit for Vinyl chloride (27.5%D) and Chloroethane (25.5%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-420224/4).

Method 8260D: The following volatiles sample was diluted due to foaming at the time of sample preparation during the original sample analysis: OW-224B (310-279790-3). 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.

Pesticides
Method 8081B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-419890. 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.

Metals
Method 6020B: 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: OW-224B (310-279790-3) and OW-225B (310-279790-4). The sample(s) was 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-279790-1	OW-205B	Ground Water	04/24/24 13:30	04/25/24 11:10
310-279790-2	Trip Blank	Water	04/24/24 06:00	04/25/24 11:10
310-279790-3	OW-224B	Ground Water	04/24/24 14:30	04/25/24 11:10
310-279790-4	OW-225B	Ground Water	04/24/24 15:50	04/25/24 11:10

Detection Summary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-205B — Lab Sample ID: 310-279790-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	71.2		10.0	3.10	ug/L	1		8260D	Total/NA
Arsenic	9.06		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	171	B	2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.98	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	3.69		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	12.6		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	10.0		5.00	3.70	mg/L	1		I-3765-85	Total/NA
Field Turbidity	59.73				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-279790-2

No Detections.

Client Sample ID: OW-224B — Lab Sample ID: 310-279790-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.02	J	5.00	2.20	ug/L	10		8260D	Total/NA
Arsenic	5.70		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	2580	B	8.00	2.64	ug/L	4		6020B	Total/NA
Cadmium	0.349		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	7.68		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	32.5		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	7.43		5.00	1.80	ug/L	1		6020B	Total/NA
Lead	1.44		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	172		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	33.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	67.89				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-225B — Lab Sample ID: 310-279790-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.274	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.791	J	1.00	0.230	ug/L	1		8260D	Total/NA
2-Butanone (MEK)	6.31	J	10.0	2.10	ug/L	1		8260D	Total/NA
Acetone	40.9		10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	1.18		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.772	J	1.00	0.400	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.778	J	1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	5.86		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1710	B	2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.398		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	4.47	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	33.3		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	3.23	J	5.00	1.80	ug/L	1		6020B	Total/NA
Lead	0.957		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	144		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.81	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	42.5		7.50	5.55	mg/L	1		I-3765-85	Total/NA
Field Turbidity	48.28				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-205B
Lab Sample ID: 310-279790-1
Date Collected: 04/24/24 13:30
Matrix: Ground Water
Date Received: 04/25/24 11:10

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	<0.380		1.00	0.380	ug/L			05/01/24 00:05	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/01/24 00:05	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/01/24 00:05	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/01/24 00:05	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/01/24 00:05	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/01/24 00:05	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/01/24 00:05	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/01/24 00:05	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/01/24 00:05	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/01/24 00:05	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/01/24 00:05	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/01/24 00:05	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/01/24 00:05	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/01/24 00:05	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/01/24 00:05	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/01/24 00:05	1
Acetone	**71.2**		10.0	3.10	ug/L			05/01/24 00:05	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/01/24 00:05	1
Benzene	<0.220		0.500	0.220	ug/L			05/01/24 00:05	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/01/24 00:05	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/01/24 00:05	1
Bromoform	<0.780		5.00	0.780	ug/L			05/01/24 00:05	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/01/24 00:05	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/01/24 00:05	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/01/24 00:05	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/01/24 00:05	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/01/24 00:05	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/01/24 00:05	1
Chloroform	<1.30		3.00	1.30	ug/L			05/01/24 00:05	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/01/24 00:05	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/01/24 00:05	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/01/24 00:05	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/01/24 00:05	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/01/24 00:05	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/01/24 00:05	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/01/24 00:05	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/01/24 00:05	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/01/24 00:05	1
Styrene	<0.370		1.00	0.370	ug/L			05/01/24 00:05	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/01/24 00:05	1
Toluene	<0.430		1.00	0.430	ug/L			05/01/24 00:05	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/01/24 00:05	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/01/24 00:05	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/01/24 00:05	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/01/24 00:05	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/01/24 00:05	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/01/24 00:05	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/01/24 00:05	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/24 00:05	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-205B
Lab Sample ID: 310-279790-1
Date Collected: 04/24/24 13:30
Matrix: Ground Water
Date Received: 04/25/24 11:10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*05/01/24 00:05*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/01/24 00:05*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*05/01/24 00:05*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0276		0.0653	0.0276	ug/L		04/25/24 14:55	04/29/24 15:25	1
Endosulfan I	<0.0337		0.0653	0.0337	ug/L		04/25/24 14:55	04/29/24 15:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*87*		*10 - 136*	*04/25/24 14:55*	*04/29/24 15:25*	*1*
Tetrachloro-m-xylene (Surr)	*61*		*10 - 130*	*04/25/24 14:55*	*04/29/24 15:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		04/29/24 09:30	05/01/24 20:05	1
Arsenic	**9.06**		2.00	0.530	ug/L		04/29/24 09:30	05/01/24 20:05	1
Barium	**171**	**B**	2.00	0.660	ug/L		04/29/24 09:30	05/01/24 20:05	1
Beryllium	<0.330		1.00	0.330	ug/L		04/29/24 09:30	05/01/24 20:05	1
Cadmium	<0.100		0.200	0.100	ug/L		04/29/24 09:30	05/01/24 20:05	1
Chromium	**1.98**	**J**	5.00	1.20	ug/L		04/29/24 09:30	05/01/24 20:05	1
Cobalt	**3.69**		0.500	0.170	ug/L		04/29/24 09:30	05/01/24 20:05	1
Copper	<1.80		5.00	1.80	ug/L		04/29/24 09:30	05/01/24 20:05	1
Lead	<0.260		0.500	0.260	ug/L		04/29/24 09:30	05/01/24 20:05	1
Nickel	**12.6**		5.00	2.10	ug/L		04/29/24 09:30	05/01/24 20:05	1
Selenium	<1.40		5.00	1.40	ug/L		04/29/24 09:30	05/01/24 20:05	1
Silver	<0.500		1.00	0.500	ug/L		04/29/24 09:30	05/06/24 19:10	1
Thallium	<0.570		1.00	0.570	ug/L		04/29/24 09:30	05/01/24 20:05	1
Vanadium	<1.10		5.00	1.10	ug/L		04/29/24 09:30	05/07/24 16:49	1
Zinc	<9.70		20.0	9.70	ug/L		04/29/24 09:30	05/01/24 20:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		04/30/24 12:52	04/30/24 13:32	1
Total Suspended Solids (USGS I-3765-85)	**10.0**		5.00	3.70	mg/L			04/25/24 18:59	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**59.73**				NTU			04/24/24 13:30	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-279790-2
Date Collected: 04/24/24 06:00
Matrix: Water
Date Received: 04/25/24 11:10

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	<0.380		1.00	0.380	ug/L			04/30/24 19:44	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/30/24 19:44	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/30/24 19:44	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/30/24 19:44	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/30/24 19:44	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/30/24 19:44	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/30/24 19:44	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/30/24 19:44	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/30/24 19:44	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/30/24 19:44	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/30/24 19:44	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/30/24 19:44	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/30/24 19:44	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/30/24 19:44	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/30/24 19:44	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/30/24 19:44	1
Acetone	<3.10		10.0	3.10	ug/L			04/30/24 19:44	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/30/24 19:44	1
Benzene	<0.220		0.500	0.220	ug/L			04/30/24 19:44	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/30/24 19:44	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/30/24 19:44	1
Bromoform	<0.780		5.00	0.780	ug/L			04/30/24 19:44	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/30/24 19:44	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/30/24 19:44	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/30/24 19:44	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/30/24 19:44	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/30/24 19:44	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/30/24 19:44	1
Chloroform	<1.30		3.00	1.30	ug/L			04/30/24 19:44	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/30/24 19:44	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/30/24 19:44	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/30/24 19:44	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/30/24 19:44	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/30/24 19:44	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/30/24 19:44	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			04/30/24 19:44	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/30/24 19:44	1
o-Xylene	<0.400		1.00	0.400	ug/L			04/30/24 19:44	1
Styrene	<0.370		1.00	0.370	ug/L			04/30/24 19:44	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/30/24 19:44	1
Toluene	<0.430		1.00	0.430	ug/L			04/30/24 19:44	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/30/24 19:44	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/30/24 19:44	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/30/24 19:44	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/30/24 19:44	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/30/24 19:44	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/30/24 19:44	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/30/24 19:44	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			04/30/24 19:44	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-279790-2
Date Collected: 04/24/24 06:00
Matrix: Water
Date Received: 04/25/24 11:10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	97		73 - 130		04/30/24 19:44	1
Toluene-d8 (Surr)	99		80 - 120		04/30/24 19:44	1
4-Bromofluorobenzene (Surr)	104		80 - 120		04/30/24 19:44	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-224B
Lab Sample ID: 310-279790-3
Date Collected: 04/24/24 14:30
Matrix: Ground Water
Date Received: 04/25/24 11:10

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	<3.80		10.0	3.80	ug/L			05/01/24 02:16	10
1,1,1-Trichloroethane	<1.90		10.0	1.90	ug/L			05/01/24 02:16	10
1,1,2,2-Tetrachloroethane	<4.70		10.0	4.70	ug/L			05/01/24 02:16	10
1,1,2-Trichloroethane	<4.50		10.0	4.50	ug/L			05/01/24 02:16	10
1,1-Dichloroethane	<2.20		10.0	2.20	ug/L			05/01/24 02:16	10
1,1-Dichloroethene	<5.60		20.0	5.60	ug/L			05/01/24 02:16	10
1,2,3-Trichloropropane	<5.90		10.0	5.90	ug/L			05/01/24 02:16	10
1,2-Dibromo-3-Chloropropane	<12.0		50.0	12.0	ug/L			05/01/24 02:16	10
1,2-Dibromoethane (EDB)	<3.40		10.0	3.40	ug/L			05/01/24 02:16	10
1,2-Dichlorobenzene	<3.70		10.0	3.70	ug/L			05/01/24 02:16	10
1,2-Dichloroethane	<3.90		10.0	3.90	ug/L			05/01/24 02:16	10
1,2-Dichloropropane	<2.70		10.0	2.70	ug/L			05/01/24 02:16	10
1,4-Dichlorobenzene	<2.30		10.0	2.30	ug/L			05/01/24 02:16	10
2-Butanone (MEK)	<21.0		100	21.0	ug/L			05/01/24 02:16	10
2-Hexanone	<20.0		100	20.0	ug/L			05/01/24 02:16	10
4-Methyl-2-pentanone (MIBK)	<21.0		100	21.0	ug/L			05/01/24 02:16	10
Acetone	<31.0		100	31.0	ug/L			05/01/24 02:16	10
Acrylonitrile	<22.0		50.0	22.0	ug/L			05/01/24 02:16	10
Benzene	**3.02**	**J**	5.00	2.20	ug/L			05/01/24 02:16	10
Bromochloromethane	<5.40		50.0	5.40	ug/L			05/01/24 02:16	10
Bromodichloromethane	<3.90		10.0	3.90	ug/L			05/01/24 02:16	10
Bromoform	<7.80		50.0	7.80	ug/L			05/01/24 02:16	10
Bromomethane	<11.0		40.0	11.0	ug/L			05/01/24 02:16	10
Carbon disulfide	<4.50		10.0	4.50	ug/L			05/01/24 02:16	10
Carbon tetrachloride	<6.50		20.0	6.50	ug/L			05/01/24 02:16	10
Chlorobenzene	<4.00		10.0	4.00	ug/L			05/01/24 02:16	10
Chlorodibromomethane	<7.50		50.0	7.50	ug/L			05/01/24 02:16	10
Chloroethane	<7.90		40.0	7.90	ug/L			05/01/24 02:16	10
Chloroform	<13.0		30.0	13.0	ug/L			05/01/24 02:16	10
Chloromethane	<6.10		30.0	6.10	ug/L			05/01/24 02:16	10
cis-1,2-Dichloroethene	<2.10		10.0	2.10	ug/L			05/01/24 02:16	10
cis-1,3-Dichloropropene	<2.50		50.0	2.50	ug/L			05/01/24 02:16	10
Dibromomethane	<3.30		10.0	3.30	ug/L			05/01/24 02:16	10
Ethylbenzene	<3.10		10.0	3.10	ug/L			05/01/24 02:16	10
Iodomethane	<70.0		100	70.0	ug/L			05/01/24 02:16	10
m,p-Xylene	<3.80		20.0	3.80	ug/L			05/01/24 02:16	10
Methylene Chloride	<17.0		50.0	17.0	ug/L			05/01/24 02:16	10
o-Xylene	<4.00		10.0	4.00	ug/L			05/01/24 02:16	10
Styrene	<3.70		10.0	3.70	ug/L			05/01/24 02:16	10
Tetrachloroethene	<4.80		10.0	4.80	ug/L			05/01/24 02:16	10
Toluene	<4.30		10.0	4.30	ug/L			05/01/24 02:16	10
trans-1,2-Dichloroethene	<2.70		10.0	2.70	ug/L			05/01/24 02:16	10
trans-1,3-Dichloropropene	<5.60		50.0	5.60	ug/L			05/01/24 02:16	10
trans-1,4-Dichloro-2-butene	<11.0		100	11.0	ug/L			05/01/24 02:16	10
Trichloroethene	<4.30		10.0	4.30	ug/L			05/01/24 02:16	10
Trichlorofluoromethane	<3.80		40.0	3.80	ug/L			05/01/24 02:16	10
Vinyl acetate	<25.0		100	25.0	ug/L			05/01/24 02:16	10
Vinyl chloride	<1.80		10.0	1.80	ug/L			05/01/24 02:16	10
Xylenes, Total	<4.00		30.0	4.00	ug/L			05/01/24 02:16	10

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-224B
Lab Sample ID: 310-279790-3

Date Collected: 04/24/24 14:30
Matrix: Ground Water

Date Received: 04/25/24 11:10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*05/01/24 02:16*	*10*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/01/24 02:16*	*10*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/01/24 02:16*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		04/29/24 09:30	05/01/24 20:07	1
Arsenic	**5.70**		2.00	0.530	ug/L		04/29/24 09:30	05/01/24 20:07	1
Barium	**2580**	**B**	8.00	2.64	ug/L		04/29/24 09:30	05/06/24 19:12	4
Beryllium	<0.330		1.00	0.330	ug/L		04/29/24 09:30	05/01/24 20:07	1
Cadmium	**0.349**		0.200	0.100	ug/L		04/29/24 09:30	05/01/24 20:07	1
Chromium	**7.68**		5.00	1.20	ug/L		04/29/24 09:30	05/01/24 20:07	1
Cobalt	**32.5**		0.500	0.170	ug/L		04/29/24 09:30	05/01/24 20:07	1
Copper	**7.43**		5.00	1.80	ug/L		04/29/24 09:30	05/01/24 20:07	1
Lead	**1.44**		0.500	0.260	ug/L		04/29/24 09:30	05/01/24 20:07	1
Nickel	**172**		5.00	2.10	ug/L		04/29/24 09:30	05/01/24 20:07	1
Selenium	<1.40		5.00	1.40	ug/L		04/29/24 09:30	05/01/24 20:07	1
Silver	<2.00		4.00	2.00	ug/L		04/29/24 09:30	05/06/24 19:12	4
Thallium	<0.570		1.00	0.570	ug/L		04/29/24 09:30	05/01/24 20:07	1
Vanadium	<4.40		20.0	4.40	ug/L		04/29/24 09:30	05/07/24 17:07	4
Zinc	<9.70		20.0	9.70	ug/L		04/29/24 09:30	05/01/24 20:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**33.0**		15.0	11.1	mg/L			04/25/24 18:59	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**67.89**				NTU			04/24/24 14:30	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-279790-4
Date Collected: 04/24/24 15:50
Matrix: Ground Water
Date Received: 04/25/24 11:10

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	<0.380		1.00	0.380	ug/L			05/01/24 01:54	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/01/24 01:54	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/01/24 01:54	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/01/24 01:54	1
1,1-Dichloroethane	**0.274**	**J**	1.00	0.220	ug/L			05/01/24 01:54	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/01/24 01:54	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/01/24 01:54	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/01/24 01:54	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/01/24 01:54	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/01/24 01:54	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/01/24 01:54	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/01/24 01:54	1
1,4-Dichlorobenzene	**0.791**	**J**	1.00	0.230	ug/L			05/01/24 01:54	1
2-Butanone (MEK)	**6.31**	**J**	10.0	2.10	ug/L			05/01/24 01:54	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/01/24 01:54	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/01/24 01:54	1
Acetone	**40.9**		10.0	3.10	ug/L			05/01/24 01:54	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/01/24 01:54	1
Benzene	**1.18**		0.500	0.220	ug/L			05/01/24 01:54	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/01/24 01:54	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/01/24 01:54	1
Bromoform	<0.780		5.00	0.780	ug/L			05/01/24 01:54	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/01/24 01:54	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/01/24 01:54	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/01/24 01:54	1
Chlorobenzene	**0.772**	**J**	1.00	0.400	ug/L			05/01/24 01:54	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/01/24 01:54	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/01/24 01:54	1
Chloroform	<1.30		3.00	1.30	ug/L			05/01/24 01:54	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/01/24 01:54	1
cis-1,2-Dichloroethene	**0.778**	**J**	1.00	0.210	ug/L			05/01/24 01:54	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/01/24 01:54	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/01/24 01:54	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/01/24 01:54	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/01/24 01:54	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/01/24 01:54	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/01/24 01:54	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/01/24 01:54	1
Styrene	<0.370		1.00	0.370	ug/L			05/01/24 01:54	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/01/24 01:54	1
Toluene	<0.430		1.00	0.430	ug/L			05/01/24 01:54	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/01/24 01:54	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/01/24 01:54	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/01/24 01:54	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/01/24 01:54	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/01/24 01:54	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/01/24 01:54	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/01/24 01:54	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/01/24 01:54	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-279790-4

Date Collected: 04/24/24 15:50
Matrix: Ground Water

Date Received: 04/25/24 11:10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*05/01/24 01:54*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/01/24 01:54*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*05/01/24 01:54*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		04/29/24 09:30	05/01/24 20:09	1
Arsenic	**5.86**		2.00	0.530	ug/L		04/29/24 09:30	05/01/24 20:09	1
Barium	**1710**	**B**	2.00	0.660	ug/L		04/29/24 09:30	05/01/24 20:09	1
Beryllium	<0.330		1.00	0.330	ug/L		04/29/24 09:30	05/01/24 20:09	1
Cadmium	**0.398**		0.200	0.100	ug/L		04/29/24 09:30	05/01/24 20:09	1
Chromium	**4.47**	**J**	5.00	1.20	ug/L		04/29/24 09:30	05/01/24 20:09	1
Cobalt	**33.3**		0.500	0.170	ug/L		04/29/24 09:30	05/01/24 20:09	1
Copper	**3.23**	**J**	5.00	1.80	ug/L		04/29/24 09:30	05/01/24 20:09	1
Lead	**0.957**		0.500	0.260	ug/L		04/29/24 09:30	05/01/24 20:09	1
Nickel	**144**		5.00	2.10	ug/L		04/29/24 09:30	05/01/24 20:09	1
Selenium	<1.40		5.00	1.40	ug/L		04/29/24 09:30	05/01/24 20:09	1
Silver	<0.500		1.00	0.500	ug/L		04/29/24 09:30	05/06/24 19:14	1
Thallium	<0.570		1.00	0.570	ug/L		04/29/24 09:30	05/01/24 20:09	1
Vanadium	**1.81**	**J**	5.00	1.10	ug/L		04/29/24 09:30	05/07/24 17:10	1
Zinc	<9.70		20.0	9.70	ug/L		04/29/24 09:30	05/01/24 20:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**42.5**		7.50	5.55	mg/L			04/25/24 18:59	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**48.28**				NTU			04/24/24 15:50	1

Definitions/Glossary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

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
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.

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: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-279790-1	OW-205B	100	99	101
310-279790-3	OW-224B	101	100	102
310-279790-4	OW-225B	100	101	100

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	(73-130)	(80-120)	(80-120)
310-279790-2	Trip Blank	97	99	104
LCS 310-420224/6	Lab Control Sample	99	105	97
LCS 310-420224/7	Lab Control Sample	99	101	101
MB 310-420224/5	Method Blank	102	102	105

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (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)
310-279790-1	OW-205B	87	61

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

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 310-419890/2-A	Lab Control Sample	88	60
LCSD 310-419890/3-A	Lab Control Sample Dup	105	59
MB 310-419890/1-A	Method Blank	92	48

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Client: AECOM
Project/Site: Black Hawk County Landfill (IDNR)

Job ID: 310-279790-1

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

Lab Sample ID: MB 310-420224/5
Matrix: Water
Analysis Batch: 420224

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	<0.380		1.00	0.380	ug/L			04/30/24 18:17	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			04/30/24 18:17	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			04/30/24 18:17	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			04/30/24 18:17	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			04/30/24 18:17	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			04/30/24 18:17	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			04/30/24 18:17	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			04/30/24 18:17	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			04/30/24 18:17	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			04/30/24 18:17	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			04/30/24 18:17	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			04/30/24 18:17	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			04/30/24 18:17	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			04/30/24 18:17	1
2-Hexanone	<2.00		10.0	2.00	ug/L			04/30/24 18:17	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			04/30/24 18:17	1
Acetone	<3.10		10.0	3.10	ug/L			04/30/24 18:17	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			04/30/24 18:17	1
Benzene	<0.220		0.500	0.220	ug/L			04/30/24 18:17	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			04/30/24 18:17	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			04/30/24 18:17	1
Bromoform	<0.780		5.00	0.780	ug/L			04/30/24 18:17	1
Bromomethane	<1.10		4.00	1.10	ug/L			04/30/24 18:17	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			04/30/24 18:17	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			04/30/24 18:17	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			04/30/24 18:17	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			04/30/24 18:17	1
Chloroethane	<0.790		4.00	0.790	ug/L			04/30/24 18:17	1
Chloroform	<1.30		3.00	1.30	ug/L			04/30/24 18:17	1
Chloromethane	<0.610		3.00	0.610	ug/L			04/30/24 18:17	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			04/30/24 18:17	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			04/30/24 18:17	1
Dibromomethane	<0.330		1.00	0.330	ug/L			04/30/24 18:17	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			04/30/24 18:17	1
Iodomethane	<7.00		10.0	7.00	ug/L			04/30/24 18:17	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			04/30/24 18:17	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			04/30/24 18:17	1
o-Xylene	<0.400		1.00	0.400	ug/L			04/30/24 18:17	1
Styrene	<0.370		1.00	0.370	ug/L			04/30/24 18:17	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			04/30/24 18:17	1
Toluene	<0.430		1.00	0.430	ug/L			04/30/24 18:17	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			04/30/24 18:17	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			04/30/24 18:17	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			04/30/24 18:17	1
Trichloroethene	<0.430		1.00	0.430	ug/L			04/30/24 18:17	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			04/30/24 18:17	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			04/30/24 18:17	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			04/30/24 18:17	1

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

Lab Sample ID: MB 310-420224/5
Matrix: Water
Analysis Batch: 420224

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			04/30/24 18:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*04/30/24 18:17*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*04/30/24 18:17*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*04/30/24 18:17*	*1*

Lab Sample ID: LCS 310-420224/6
Matrix: Water
Analysis Batch: 420224

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	18.05		ug/L		90	71 - 120
1,1,1-Trichloroethane	20.0	19.97		ug/L		100	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.73		ug/L		104	68 - 124
1,1,2-Trichloroethane	20.0	19.84		ug/L		99	73 - 123
1,1-Dichloroethane	20.0	22.97		ug/L		115	70 - 127
1,1-Dichloroethene	20.0	23.35		ug/L		117	63 - 132
1,2,3-Trichloropropane	20.0	20.02		ug/L		100	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	22.99		ug/L		115	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.64		ug/L		93	75 - 125
1,2-Dichlorobenzene	20.0	20.06		ug/L		100	74 - 120
1,2-Dichloroethane	20.0	22.23		ug/L		111	71 - 125
1,2-Dichloropropane	20.0	20.79		ug/L		104	73 - 124
1,4-Dichlorobenzene	20.0	21.16		ug/L		106	72 - 120
2-Butanone (MEK)	40.0	50.23		ug/L		126	50 - 150
2-Hexanone	40.0	44.54		ug/L		111	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	46.87		ug/L		117	60 - 139
Acetone	40.0	57.41		ug/L		144	50 - 150
Acrylonitrile	200	247.1		ug/L		124	50 - 150
Benzene	20.0	20.57		ug/L		103	72 - 124
Bromochloromethane	20.0	18.38		ug/L		92	73 - 130
Bromodichloromethane	20.0	19.25		ug/L		96	74 - 122
Bromoform	20.0	16.42		ug/L		82	61 - 122
Carbon disulfide	20.0	25.65		ug/L		128	59 - 135
Carbon tetrachloride	20.0	19.06		ug/L		95	67 - 132
Chlorobenzene	20.0	18.84		ug/L		94	76 - 120
Chlorodibromomethane	20.0	16.97		ug/L		85	71 - 121
Chloroform	20.0	21.58		ug/L		108	72 - 125
cis-1,2-Dichloroethene	20.0	20.82		ug/L		104	74 - 123
cis-1,3-Dichloropropene	20.0	19.63		ug/L		98	71 - 125
Dibromomethane	20.0	19.19		ug/L		96	74 - 125
Ethylbenzene	20.0	20.26		ug/L		101	74 - 122
Iodomethane	20.0	19.72		ug/L		99	10 - 150
Methylene Chloride	20.0	23.15		ug/L		116	50 - 150
Styrene	20.0	19.41		ug/L		97	74 - 121
Tetrachloroethene	20.0	17.27		ug/L		86	71 - 130
Toluene	20.0	19.37		ug/L		97	74 - 123

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

Lab Sample ID: LCS 310-420224/6
Matrix: Water
Analysis Batch: 420224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	20.45		ug/L		102	70 - 126
trans-1,3-Dichloropropene	20.0	20.14		ug/L		101	69 - 123
trans-1,4-Dichloro-2-butene	20.0	22.27		ug/L		111	50 - 150
Trichloroethene	20.0	19.50		ug/L		98	72 - 126
Vinyl acetate	40.0	38.62		ug/L		97	50 - 150
Xylenes, Total	40.0	37.81		ug/L		95	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

Lab Sample ID: LCS 310-420224/7
Matrix: Water
Analysis Batch: 420224

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	20.50		ug/L		103	23 - 150
Chloroethane	20.0	24.36		ug/L		122	54 - 136
Chloromethane	20.0	26.73		ug/L		134	38 - 150
Trichlorofluoromethane	20.0	20.58		ug/L		103	54 - 149
Vinyl chloride	20.0	24.24		ug/L		121	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-419890/1-A
Matrix: Water
Analysis Batch: 420106

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419890

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0270		0.0640	0.0270	ug/L		04/25/24 14:55	04/29/24 13:31	1
Endosulfan I	<0.0330		0.0640	0.0330	ug/L		04/25/24 14:55	04/29/24 13:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*92*		*10 - 136*	*04/25/24 14:55*	*04/29/24 13:31*	*1*
Tetrachloro-m-xylene (Surr)	*48*		*10 - 130*	*04/25/24 14:55*	*04/29/24 13:31*	*1*

Lab Sample ID: LCS 310-419890/2-A
Matrix: Water
Analysis Batch: 420106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419890

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	1.00	0.8924		ug/L		89	36 - 149

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

Lab Sample ID: LCS 310-419890/2-A
Matrix: Water
Analysis Batch: 420106

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419890

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Endosulfan I			1.00	0.2461		ug/L		25	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*88*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*60*		*10 - 130*

Lab Sample ID: LCSD 310-419890/3-A
Matrix: Water
Analysis Batch: 420106

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 419890

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			1.00	0.9469		ug/L		95	36 - 149	6	35
Endosulfan I			1.00	0.2592		ug/L		26	10 - 120	5	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*105*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*59*		*10 - 130*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-419957/1-A
Matrix: Water
Analysis Batch: 420438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419957

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		04/29/24 09:30	05/01/24 18:46	1
Arsenic	<0.530		2.00	0.530	ug/L		04/29/24 09:30	05/01/24 18:46	1
Barium	0.8270	J	2.00	0.660	ug/L		04/29/24 09:30	05/01/24 18:46	1
Beryllium	<0.330		1.00	0.330	ug/L		04/29/24 09:30	05/01/24 18:46	1
Cadmium	<0.100		0.200	0.100	ug/L		04/29/24 09:30	05/01/24 18:46	1
Chromium	<1.20		5.00	1.20	ug/L		04/29/24 09:30	05/01/24 18:46	1
Cobalt	<0.170		0.500	0.170	ug/L		04/29/24 09:30	05/01/24 18:46	1
Copper	<1.80		5.00	1.80	ug/L		04/29/24 09:30	05/01/24 18:46	1
Lead	<0.260		0.500	0.260	ug/L		04/29/24 09:30	05/01/24 18:46	1
Nickel	<2.10		5.00	2.10	ug/L		04/29/24 09:30	05/01/24 18:46	1
Selenium	<1.40		5.00	1.40	ug/L		04/29/24 09:30	05/01/24 18:46	1
Thallium	<0.570		1.00	0.570	ug/L		04/29/24 09:30	05/01/24 18:46	1
Vanadium	<1.10		5.00	1.10	ug/L		04/29/24 09:30	05/01/24 18:46	1
Zinc	<9.70		20.0	9.70	ug/L		04/29/24 09:30	05/01/24 18:46	1

Lab Sample ID: MB 310-419957/1-A
Matrix: Water
Analysis Batch: 420833

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419957

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.500		1.00	0.500	ug/L		04/29/24 09:30	05/06/24 18:31	1

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

Lab Sample ID: LCS 310-419957/2-A
Matrix: Water
Analysis Batch: 420438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419957

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	213.5		ug/L		107	80 - 120
Arsenic	200	207.9		ug/L		104	80 - 120
Barium	100	104.6		ug/L		105	80 - 120
Beryllium	100	103.5		ug/L		103	80 - 120
Cadmium	100	102.6		ug/L		103	80 - 120
Chromium	100	108.8		ug/L		109	80 - 120
Cobalt	100	118.9		ug/L		119	80 - 120
Copper	200	224.0		ug/L		112	80 - 120
Lead	200	215.3		ug/L		108	80 - 120
Nickel	200	217.0		ug/L		108	80 - 120
Selenium	400	390.9		ug/L		98	80 - 120
Thallium	100	115.2		ug/L		115	80 - 120
Vanadium	100	90.74		ug/L		91	80 - 120
Zinc	200	197.3		ug/L		99	80 - 120

Lab Sample ID: LCS 310-419957/2-A
Matrix: Water
Analysis Batch: 420833

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419957

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	100	109.5		ug/L		110	80 - 120

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-611346/1-A
Matrix: Water
Analysis Batch: 611356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611346

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		04/30/24 12:52	04/30/24 13:32	1

Lab Sample ID: LCS 240-611346/2-A
Matrix: Water
Analysis Batch: 611356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611346

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	8.53	8.533		mg/L		100	70 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-419910/1
Matrix: Water
Analysis Batch: 419910

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	<3.70		5.00	3.70	mg/L			04/25/24 18:59	1

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: LCS 310-419910/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 419910

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids			100	101.0		mg/L		101	75 - 116		

QC Association Summary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 420224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	8260D	
310-279790-2	Trip Blank	Total/NA	Water	8260D	
310-279790-3	OW-224B	Total/NA	Ground Water	8260D	
310-279790-4	OW-225B	Total/NA	Ground Water	8260D	
MB 310-420224/5	Method Blank	Total/NA	Water	8260D	
LCS 310-420224/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-420224/7	Lab Control Sample	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 419890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	3510C	
MB 310-419890/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-419890/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-419890/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 420106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	8081B	419890
MB 310-419890/1-A	Method Blank	Total/NA	Water	8081B	419890
LCS 310-419890/2-A	Lab Control Sample	Total/NA	Water	8081B	419890
LCSD 310-419890/3-A	Lab Control Sample Dup	Total/NA	Water	8081B	419890

Metals

Prep Batch: 419957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	3005A	
310-279790-3	OW-224B	Total/NA	Ground Water	3005A	
310-279790-4	OW-225B	Total/NA	Ground Water	3005A	
MB 310-419957/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-419957/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 420438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	6020B	419957
310-279790-3	OW-224B	Total/NA	Ground Water	6020B	419957
310-279790-4	OW-225B	Total/NA	Ground Water	6020B	419957
MB 310-419957/1-A	Method Blank	Total/NA	Water	6020B	419957
LCS 310-419957/2-A	Lab Control Sample	Total/NA	Water	6020B	419957

Analysis Batch: 420833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	6020B	419957
310-279790-3	OW-224B	Total/NA	Ground Water	6020B	419957
310-279790-4	OW-225B	Total/NA	Ground Water	6020B	419957
MB 310-419957/1-A	Method Blank	Total/NA	Water	6020B	419957
LCS 310-419957/2-A	Lab Control Sample	Total/NA	Water	6020B	419957

QC Association Summary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Metals

Analysis Batch: 420956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	6020B	419957
310-279790-3	OW-224B	Total/NA	Ground Water	6020B	419957
310-279790-4	OW-225B	Total/NA	Ground Water	6020B	419957

General Chemistry

Analysis Batch: 419910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	I-3765-85	
310-279790-3	OW-224B	Total/NA	Ground Water	I-3765-85	
310-279790-4	OW-225B	Total/NA	Ground Water	I-3765-85	
MB 310-419910/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-419910/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 611346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	9030B	
MB 240-611346/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-611346/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 611356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	9034	611346
MB 240-611346/1-A	Method Blank	Total/NA	Water	9034	611346
LCS 240-611346/2-A	Lab Control Sample	Total/NA	Water	9034	611346

Field Service / Mobile Lab

Analysis Batch: 421181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-279790-1	OW-205B	Total/NA	Ground Water	Field Sampling	
310-279790-3	OW-224B	Total/NA	Ground Water	Field Sampling	
310-279790-4	OW-225B	Total/NA	Ground Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-205B
Lab Sample ID: 310-279790-1
Date Collected: 04/24/24 13:30
Matrix: Ground Water
Date Received: 04/25/24 11:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420224	WSE8	EET CF	05/01/24 00:05
Total/NA	Prep	3510C			419890	JT8P	EET CF	04/25/24 14:55
Total/NA	Analysis	8081B		1	420106	BW2O	EET CF	04/29/24 15:25
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420956	NFT2	EET CF	05/07/24 16:49
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420438	NFT2	EET CF	05/01/24 20:05
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420833	NFT2	EET CF	05/06/24 19:10
Total/NA	Prep	9030B			611346	BLW	EET CLE	04/30/24 12:52
Total/NA	Analysis	9034		1	611356	BLW	EET CLE	04/30/24 13:32
Total/NA	Analysis	I-3765-85		1	419910	A4XP	EET CF	04/25/24 18:59
Total/NA	Analysis	Field Sampling		1	421181	PDE6	EET CF	04/24/24 13:30

Client Sample ID: Trip Blank
Lab Sample ID: 310-279790-2
Date Collected: 04/24/24 06:00
Matrix: Water
Date Received: 04/25/24 11:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420224	WSE8	EET CF	04/30/24 19:44

Client Sample ID: OW-224B
Lab Sample ID: 310-279790-3
Date Collected: 04/24/24 14:30
Matrix: Ground Water
Date Received: 04/25/24 11:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	420224	WSE8	EET CF	05/01/24 02:16
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		4	420956	NFT2	EET CF	05/07/24 17:07
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420438	NFT2	EET CF	05/01/24 20:07
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		4	420833	NFT2	EET CF	05/06/24 19:12
Total/NA	Analysis	I-3765-85		1	419910	A4XP	EET CF	04/25/24 18:59
Total/NA	Analysis	Field Sampling		1	421181	PDE6	EET CF	04/24/24 14:30

Client Sample ID: OW-225B
Lab Sample ID: 310-279790-4
Date Collected: 04/24/24 15:50
Matrix: Ground Water
Date Received: 04/25/24 11:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	420224	WSE8	EET CF	05/01/24 01:54
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420956	NFT2	EET CF	05/07/24 17:10

Lab Chronicle

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-279790-4

Date Collected: 04/24/24 15:50
Matrix: Ground Water

Date Received: 04/25/24 11:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420438	NFT2	EET CF	05/01/24 20:09
Total/NA	Prep	3005A			419957	KM3E	EET CF	04/29/24 09:30
Total/NA	Analysis	6020B		1	420833	NFT2	EET CF	05/06/24 19:14
Total/NA	Analysis	I-3765-85		1	419910	A4XP	EET CF	04/25/24 18:59
Total/NA	Analysis	Field Sampling		1	421181	PDE6	EET CF	04/24/24 15:50

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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	m,p-Xylene
8260D		Ground Water	o-Xylene
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Ground Water	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

Method Summary

Client: AECOM
Job ID: 310-279790-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	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
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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310-279790 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo STATE IA Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 4/25/24 TIME 1110 Received By: TD

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: X Correction Factor (°C): 0.0

• **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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom.com	**Site Contact:**	**Date:** 4-25-24 — 1 of 2 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:** — TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**		Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS		**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____		Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks		Lab Sampling
Site Black Hawk County Landfill	☐ 1 week		
P O #	☐ 2 days		Job / SDG No
	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-101B			G	GW		N		X											
OW-105B			G	GW		N		X											
OW-113B			G	GW		N		X										X	
OW-114B			G	GW		N		X											
OW-205B	4-24-24	1330	G	GW	8	N		X			X			X				X	Turbidity - 59.73 NTU
OW-209B			G	GW		N		X											
OW-212B			G	GW		N		X											
OW-213BR			G	GW		N		X											
OW-216BR			G	GW		N		X											
OW-219B			G	GW		N		X											
OW-219B-FD			G	GW		N		X											
Trip Blank	4-24-24	0600	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd. ____ Corr'd ____		Therm ID No. ____
Relinquished by: Ben Porter	Company: Accom	Date/Time: 4-25-24	Received by:	Company:	Date/Time: 4/25/24 1110
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

5/9/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 4-25-24	COC No
AECOM	Email Christopher Oelkers@aecom com	Lab Contact:	Carrier:	2 of 2 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B			G	GW		N		X		X							X		
OW-221B			G	GW		N		X											
OW-222B			G	GW		N		X											
OW-223B			G	GW		N		X											
OW-224B	4-24-24	1430	G	GW	5	N		X											Turbidity - 67.89 NTU
OW-225B	4-24-24	1550	G	GW	5	N		X											Turbidity - 48.28 NTU
OW-226B			G	GW		N		X										X	
OW-227B			G	GW		N		X										X	
MW-319B			G	GW		N		X											
MW-320B			G	GW		N		X											
Equipment Blank-1			G	GW		N		X											
MW-319B-FD			G	GW		N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd ____ Corr'd. ____	Therm ID No. ____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Accom	4-25-24			4/25/24 1110
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

5/9/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

0.6 | 2.1

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-71692.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-279790-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 5/8/2024	Analysis Requested		Preservation Codes: -
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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:						G089
OW-205B (310-279790-1)	4/24/24	13:30 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
1	T. Bindert	4-25-24 1435			4-26-24 1010	EETNC
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:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # _____
Barberton Facility

Client Eurofins- CF Site Name _____ Cooler unpacked by ONR

Cooler Received on 4-26-24 Opened on 4-26-24

FedEx: 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

Receipt After-hours Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 19 (CF +1.5 °C) Observed Cooler Temp 0.6 °C Corrected Cooler Temp. 2.1 °C

2	Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No
	Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No NA
	Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)
	-Were tamper/custody seals intact and uncompromised?	(Yes) No NA
3	Shippers' packing slip attached to the cooler(s)?	(Yes) No
4	Did custody papers accompany the sample(s)?	(Yes) No
5	Were the custody papers relinquished & signed in the appropriate place?	(Yes) No
6	Was/were the person(s) who collected the samples clearly identified on the COC?	Yes (No)
7	Did all bottles arrive in good condition (Unbroken)?	(Yes) No
8	Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No
9	For each sample, does the COC specify preservatives (Y(N), # of containers (Y/N), and sample type of grab/comp(Y(N)?	
10	Were correct bottle(s) used for the test(s) indicated?	(Yes) No
11	Sufficient quantity received to perform indicated analyses?	(Yes) No
12.	Are these work share samples and all listed on the COC?	(Yes) No
	If yes, Questions 13 17 have been checked at the originating laboratory	
13	Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA pH Strip Lot# HC439975
14.	Were VOAs on the COC?	Yes No
15	Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this	Yes No NA
16	Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes No
17	Was a LL Hg or Me Hg trip blank present? _____	Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18 CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19 SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container
Sample(s) _____ were received with bubble >6 mm in diameter (Notify PM)

20 SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory
Time preserved _____ Preservative(s) added/Lot number(s) _____

VOA Sample Preservation Date/Time VOAs Frozen. _____



eurofins | Environment Testing **Temperature Controlled**

IF THIS SHIPMENT IS DELAYE
STORE REFRIGERATED (2° TO ° F)

A 2842 04.26
6 10:30
164
RT FZ

-0090(1016)

ORIGIN ID.ALOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

SHIP
ACTW
CAD

BILL

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF: S310-92991

585C6/0FEC/AED7

FedEx Express

E

J233023051201uv

FRI - 26 APR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7008 5808 2842

XS CAKA

44203
OH-US CLE

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-279790-1

Login Number: 279790

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 5/17/2024 9:14:26 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Spring 2024

JOB NUMBER

310-280664-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
5/17/2024 9:14:26 AM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job ID: 310-280664-1 — Eurofins Cedar Falls

Job Narrative
310-280664-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/8/2024 9:05 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 time was 2.4°C.

GC/MS VOA
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.

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

Sample Summary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-280664-1	GUE-2	Water	05/07/24 13:00	05/08/24 09:05
310-280664-2	OW-105B	Water	05/07/24 14:45	05/08/24 09:05
310-280664-3	Trip Blank	Water	05/07/24 06:00	05/08/24 09:05

Detection Summary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUE-2 — Lab Sample ID: 310-280664-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.474	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.378	J	1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	6.25	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	1.27		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	2.92		1.00	0.210	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.278	J	1.00	0.270	ug/L	1		8260D	Total/NA
Trichloroethene	0.596	J	1.00	0.430	ug/L	1		8260D	Total/NA
Vinyl chloride	0.552	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	3.04		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	571		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	3.02	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.84		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	29.7		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.19	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	31.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	11.73				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-105B — Lab Sample ID: 310-280664-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	79.9		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	4.38	J	5.00	1.20	ug/L	1		6020B	Total/NA
Field Turbidity	4.15				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-280664-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUE-2
Lab Sample ID: 310-280664-1
Date Collected: 05/07/24 13:00
Matrix: Water
Date Received: 05/08/24 09:05

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	<0.380		1.00	0.380	ug/L			05/15/24 00:42	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/15/24 00:42	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/15/24 00:42	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/15/24 00:42	1
1,1-Dichloroethane	**0.474**	**J**	1.00	0.220	ug/L			05/15/24 00:42	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/15/24 00:42	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/15/24 00:42	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/15/24 00:42	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/15/24 00:42	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/15/24 00:42	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/15/24 00:42	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/15/24 00:42	1
1,4-Dichlorobenzene	**0.378**	**J**	1.00	0.230	ug/L			05/15/24 00:42	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/15/24 00:42	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/15/24 00:42	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/15/24 00:42	1
Acetone	**6.25**	**J**	10.0	3.10	ug/L			05/15/24 00:42	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/15/24 00:42	1
Benzene	**1.27**		0.500	0.220	ug/L			05/15/24 00:42	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/15/24 00:42	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/15/24 00:42	1
Bromoform	<0.780		5.00	0.780	ug/L			05/15/24 00:42	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/15/24 00:42	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/15/24 00:42	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/15/24 00:42	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/15/24 00:42	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/15/24 00:42	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/15/24 00:42	1
Chloroform	<1.30		3.00	1.30	ug/L			05/15/24 00:42	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/15/24 00:42	1
cis-1,2-Dichloroethene	**2.92**		1.00	0.210	ug/L			05/15/24 00:42	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/15/24 00:42	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/15/24 00:42	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/15/24 00:42	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/15/24 00:42	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/15/24 00:42	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/15/24 00:42	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/15/24 00:42	1
Styrene	<0.370		1.00	0.370	ug/L			05/15/24 00:42	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/15/24 00:42	1
Toluene	<0.430		1.00	0.430	ug/L			05/15/24 00:42	1
trans-1,2-Dichloroethene	**0.278**	**J**	1.00	0.270	ug/L			05/15/24 00:42	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/15/24 00:42	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/15/24 00:42	1
Trichloroethene	**0.596**	**J**	1.00	0.430	ug/L			05/15/24 00:42	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/15/24 00:42	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/15/24 00:42	1
Vinyl chloride	**0.552**	**J**	1.00	0.180	ug/L			05/15/24 00:42	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/15/24 00:42	1

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUE-2
Lab Sample ID: 310-280664-1

Date Collected: 05/07/24 13:00
Matrix: Water

Date Received: 05/08/24 09:05

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*73 - 130*		*05/15/24 00:42*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/15/24 00:42*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*05/15/24 00:42*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/09/24 09:30	05/14/24 17:01	1
Arsenic	**3.04**		2.00	0.530	ug/L		05/09/24 09:30	05/13/24 21:51	1
Barium	**571**		2.00	0.660	ug/L		05/09/24 09:30	05/13/24 21:51	1
Beryllium	<0.330		1.00	0.330	ug/L		05/09/24 09:30	05/13/24 21:51	1
Cadmium	<0.100		0.200	0.100	ug/L		05/09/24 09:30	05/14/24 17:01	1
Chromium	**3.02**	**J**	5.00	1.20	ug/L		05/09/24 09:30	05/13/24 21:51	1
Cobalt	**2.84**		0.500	0.170	ug/L		05/09/24 09:30	05/13/24 21:51	1
Copper	<1.80		5.00	1.80	ug/L		05/09/24 09:30	05/13/24 21:51	1
Lead	<0.260		0.500	0.260	ug/L		05/09/24 09:30	05/13/24 21:51	1
Nickel	**29.7**		5.00	2.10	ug/L		05/09/24 09:30	05/13/24 21:51	1
Selenium	<1.40		5.00	1.40	ug/L		05/09/24 09:30	05/13/24 21:51	1
Silver	<0.500		1.00	0.500	ug/L		05/09/24 09:30	05/13/24 21:51	1
Thallium	<0.570		1.00	0.570	ug/L		05/09/24 09:30	05/13/24 21:51	1
Vanadium	**1.19**	**J**	5.00	1.10	ug/L		05/09/24 09:30	05/13/24 21:51	1
Zinc	<9.70		20.0	9.70	ug/L		05/09/24 09:30	05/14/24 17:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**31.0**		15.0	11.1	mg/L			05/10/24 14:33	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**11.73**				NTU			05/07/24 13:00	1

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-105B
Lab Sample ID: 310-280664-2
Date Collected: 05/07/24 14:45
Matrix: Water
Date Received: 05/08/24 09:05

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	<0.380		1.00	0.380	ug/L			05/15/24 01:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/15/24 01:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/15/24 01:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/15/24 01:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/15/24 01:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/15/24 01:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/15/24 01:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/15/24 01:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/15/24 01:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/15/24 01:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/15/24 01:04	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/15/24 01:04	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/15/24 01:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/15/24 01:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/15/24 01:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/15/24 01:04	1
Acetone	<3.10		10.0	3.10	ug/L			05/15/24 01:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/15/24 01:04	1
Benzene	<0.220		0.500	0.220	ug/L			05/15/24 01:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/15/24 01:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/15/24 01:04	1
Bromoform	<0.780		5.00	0.780	ug/L			05/15/24 01:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/15/24 01:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/15/24 01:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/15/24 01:04	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/15/24 01:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/15/24 01:04	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/15/24 01:04	1
Chloroform	<1.30		3.00	1.30	ug/L			05/15/24 01:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/15/24 01:04	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/15/24 01:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/15/24 01:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/15/24 01:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/15/24 01:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/15/24 01:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/15/24 01:04	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/15/24 01:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/15/24 01:04	1
Styrene	<0.370		1.00	0.370	ug/L			05/15/24 01:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/15/24 01:04	1
Toluene	<0.430		1.00	0.430	ug/L			05/15/24 01:04	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/15/24 01:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/15/24 01:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/15/24 01:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/15/24 01:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/15/24 01:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/15/24 01:04	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/15/24 01:04	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/15/24 01:04	1

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-105B
Lab Sample ID: 310-280664-2

Date Collected: 05/07/24 14:45
Matrix: Water

Date Received: 05/08/24 09:05

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*73 - 130*		*05/15/24 01:04*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*05/15/24 01:04*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/15/24 01:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/09/24 09:30	05/14/24 17:04	1
Arsenic	<0.530		2.00	0.530	ug/L		05/09/24 09:30	05/13/24 21:54	1
Barium	**79.9**		2.00	0.660	ug/L		05/09/24 09:30	05/13/24 21:54	1
Beryllium	<0.330		1.00	0.330	ug/L		05/09/24 09:30	05/13/24 21:54	1
Cadmium	<0.100		0.200	0.100	ug/L		05/09/24 09:30	05/14/24 17:04	1
Chromium	**4.38**	**J**	5.00	1.20	ug/L		05/09/24 09:30	05/13/24 21:54	1
Cobalt	<0.170		0.500	0.170	ug/L		05/09/24 09:30	05/13/24 21:54	1
Copper	<1.80		5.00	1.80	ug/L		05/09/24 09:30	05/13/24 21:54	1
Lead	<0.260		0.500	0.260	ug/L		05/09/24 09:30	05/13/24 21:54	1
Nickel	<2.10		5.00	2.10	ug/L		05/09/24 09:30	05/13/24 21:54	1
Selenium	<1.40		5.00	1.40	ug/L		05/09/24 09:30	05/13/24 21:54	1
Silver	<0.500		1.00	0.500	ug/L		05/09/24 09:30	05/13/24 21:54	1
Thallium	<0.570		1.00	0.570	ug/L		05/09/24 09:30	05/13/24 21:54	1
Vanadium	<1.10		5.00	1.10	ug/L		05/09/24 09:30	05/13/24 21:54	1
Zinc	<9.70		20.0	9.70	ug/L		05/09/24 09:30	05/14/24 17:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/10/24 14:33	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**4.15**				NTU			05/07/24 14:45	1

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-280664-3
Date Collected: 05/07/24 06:00
Matrix: Water
Date Received: 05/08/24 09:05

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	<0.380		1.00	0.380	ug/L			05/14/24 23:15	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/14/24 23:15	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/14/24 23:15	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/14/24 23:15	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/14/24 23:15	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/14/24 23:15	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/14/24 23:15	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/14/24 23:15	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/14/24 23:15	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/14/24 23:15	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/14/24 23:15	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/14/24 23:15	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/14/24 23:15	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/14/24 23:15	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/14/24 23:15	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/14/24 23:15	1
Acetone	<3.10		10.0	3.10	ug/L			05/14/24 23:15	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/14/24 23:15	1
Benzene	<0.220		0.500	0.220	ug/L			05/14/24 23:15	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/14/24 23:15	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/14/24 23:15	1
Bromoform	<0.780		5.00	0.780	ug/L			05/14/24 23:15	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/14/24 23:15	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/14/24 23:15	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/14/24 23:15	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/14/24 23:15	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/14/24 23:15	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/14/24 23:15	1
Chloroform	<1.30		3.00	1.30	ug/L			05/14/24 23:15	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/14/24 23:15	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/14/24 23:15	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/14/24 23:15	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/14/24 23:15	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/14/24 23:15	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/14/24 23:15	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/14/24 23:15	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/14/24 23:15	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/14/24 23:15	1
Styrene	<0.370		1.00	0.370	ug/L			05/14/24 23:15	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/14/24 23:15	1
Toluene	<0.430		1.00	0.430	ug/L			05/14/24 23:15	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/14/24 23:15	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/14/24 23:15	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/14/24 23:15	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/14/24 23:15	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/14/24 23:15	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/14/24 23:15	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/14/24 23:15	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/14/24 23:15	1

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-280664-3
Date Collected: 05/07/24 06:00
Matrix: Water
Date Received: 05/08/24 09:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	101		73 - 130		05/14/24 23:15	1
Toluene-d8 (Surr)	97		80 - 120		05/14/24 23:15	1
4-Bromofluorobenzene (Surr)	103		80 - 120		05/14/24 23:15	1

Definitions/Glossary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

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.

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: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)						
310-280664-1	GUE-2	104	96	103						
310-280664-1 MS	GUE-2	95	103	98						
310-280664-1 MSD	GUE-2	95	103	99						
310-280664-2	OW-105B	106	95	104						
310-280664-3	Trip Blank	101	97	103						
LCS 310-421433/6	Lab Control Sample	99	104	99						
LCS 310-421433/7	Lab Control Sample	102	97	103						
MB 310-421433/5	Method Blank	102	97	98						

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 310-421433/5
Matrix: Water
Analysis Batch: 421433

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	<0.380		1.00	0.380	ug/L			05/14/24 22:10	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/14/24 22:10	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/14/24 22:10	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/14/24 22:10	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/14/24 22:10	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/14/24 22:10	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/14/24 22:10	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/14/24 22:10	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/14/24 22:10	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/14/24 22:10	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/14/24 22:10	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/14/24 22:10	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/14/24 22:10	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/14/24 22:10	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/14/24 22:10	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/14/24 22:10	1
Acetone	<3.10		10.0	3.10	ug/L			05/14/24 22:10	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/14/24 22:10	1
Benzene	<0.220		0.500	0.220	ug/L			05/14/24 22:10	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/14/24 22:10	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/14/24 22:10	1
Bromoform	<0.780		5.00	0.780	ug/L			05/14/24 22:10	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/14/24 22:10	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/14/24 22:10	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/14/24 22:10	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/14/24 22:10	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/14/24 22:10	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/14/24 22:10	1
Chloroform	<1.30		3.00	1.30	ug/L			05/14/24 22:10	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/14/24 22:10	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/14/24 22:10	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/14/24 22:10	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/14/24 22:10	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/14/24 22:10	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/14/24 22:10	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/14/24 22:10	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/14/24 22:10	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/14/24 22:10	1
Styrene	<0.370		1.00	0.370	ug/L			05/14/24 22:10	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/14/24 22:10	1
Toluene	<0.430		1.00	0.430	ug/L			05/14/24 22:10	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/14/24 22:10	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/14/24 22:10	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/14/24 22:10	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/14/24 22:10	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/14/24 22:10	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/14/24 22:10	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/14/24 22:10	1

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

Lab Sample ID: MB 310-421433/5
Matrix: Water
Analysis Batch: 421433

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/14/24 22:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*05/14/24 22:10*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/14/24 22:10*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*05/14/24 22:10*	*1*

Lab Sample ID: LCS 310-421433/6
Matrix: Water
Analysis Batch: 421433

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	19.08		ug/L		95	71 - 120
1,1,1-Trichloroethane	20.0	19.36		ug/L		97	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.97		ug/L		100	68 - 124
1,1,2-Trichloroethane	20.0	19.95		ug/L		100	73 - 123
1,1-Dichloroethane	20.0	19.85		ug/L		99	70 - 127
1,1-Dichloroethene	20.0	19.86		ug/L		99	63 - 132
1,2,3-Trichloropropane	20.0	20.10		ug/L		100	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	17.87		ug/L		89	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.23		ug/L		101	75 - 125
1,2-Dichlorobenzene	20.0	18.91		ug/L		95	74 - 120
1,2-Dichloroethane	20.0	19.53		ug/L		98	71 - 125
1,2-Dichloropropane	20.0	19.67		ug/L		98	73 - 124
1,4-Dichlorobenzene	20.0	18.04		ug/L		90	72 - 120
2-Butanone (MEK)	40.0	39.01		ug/L		98	50 - 150
2-Hexanone	40.0	39.87		ug/L		100	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	41.18		ug/L		103	60 - 139
Acetone	40.0	39.61		ug/L		99	50 - 150
Acrylonitrile	200	202.6		ug/L		101	50 - 150
Benzene	20.0	19.54		ug/L		98	72 - 124
Bromochloromethane	20.0	19.95		ug/L		100	73 - 130
Bromodichloromethane	20.0	18.75		ug/L		94	74 - 122
Bromoform	20.0	19.80		ug/L		99	61 - 122
Carbon disulfide	20.0	18.63		ug/L		93	59 - 135
Carbon tetrachloride	20.0	18.56		ug/L		93	67 - 132
Chlorobenzene	20.0	19.26		ug/L		96	76 - 120
Chlorodibromomethane	20.0	19.39		ug/L		97	71 - 121
Chloroform	20.0	19.03		ug/L		95	72 - 125
cis-1,2-Dichloroethene	20.0	19.61		ug/L		98	74 - 123
cis-1,3-Dichloropropene	20.0	19.90		ug/L		99	71 - 125
Dibromomethane	20.0	19.82		ug/L		99	74 - 125
Ethylbenzene	20.0	19.89		ug/L		99	74 - 122
Iodomethane	20.0	16.50		ug/L		83	10 - 150
Methylene Chloride	20.0	20.11		ug/L		101	50 - 150
Styrene	20.0	20.54		ug/L		103	74 - 121
Tetrachloroethene	20.0	18.15		ug/L		91	71 - 130
Toluene	20.0	19.23		ug/L		96	74 - 123

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

Lab Sample ID: LCS 310-421433/6
Matrix: Water
Analysis Batch: 421433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	19.56		ug/L		98	70 - 126
trans-1,3-Dichloropropene	20.0	19.97		ug/L		100	69 - 123
trans-1,4-Dichloro-2-butene	20.0	19.24		ug/L		96	50 - 150
Trichloroethene	20.0	19.37		ug/L		97	72 - 126
Vinyl acetate	40.0	36.62		ug/L		92	50 - 150
Xylenes, Total	40.0	39.59		ug/L		99	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-421433/7
Matrix: Water
Analysis Batch: 421433

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	16.08		ug/L		80	23 - 150
Chloroethane	20.0	18.39		ug/L		92	54 - 136
Chloromethane	20.0	19.52		ug/L		98	38 - 150
Trichlorofluoromethane	20.0	16.93		ug/L		85	54 - 149
Vinyl chloride	20.0	18.84		ug/L		94	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: 310-280664-1 MS
Matrix: Water
Analysis Batch: 421433

Client Sample ID: GUE-2
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	<0.380		25.0	21.60		ug/L		86	55 - 130
1,1,1-Trichloroethane	<0.190		25.0	23.03		ug/L		92	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		25.0	23.10		ug/L		92	54 - 130
1,1,2-Trichloroethane	<0.450		25.0	22.71		ug/L		91	58 - 130
1,1-Dichloroethane	0.474	J	25.0	23.64		ug/L		93	49 - 130
1,1-Dichloroethene	<0.560		25.0	23.45		ug/L		94	37 - 132
1,2,3-Trichloropropane	<0.590		25.0	23.17		ug/L		93	49 - 130
1,2-Dibromo-3-Chloropropane	<1.20		25.0	22.31		ug/L		89	38 - 150
1,2-Dibromoethane (EDB)	<0.340		25.0	22.98		ug/L		92	60 - 130
1,2-Dichlorobenzene	<0.370		25.0	21.86		ug/L		87	59 - 130
1,2-Dichloroethane	<0.390		25.0	22.00		ug/L		88	51 - 130
1,2-Dichloropropane	<0.270		25.0	23.77		ug/L		95	57 - 130
1,4-Dichlorobenzene	0.378	J	25.0	21.32		ug/L		84	57 - 130
2-Butanone (MEK)	<2.10		50.0	52.91		ug/L		106	38 - 150
2-Hexanone	<2.00		50.0	53.11		ug/L		106	46 - 140

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

Lab Sample ID: 310-280664-1 MS
Matrix: Water
Analysis Batch: 421433

Client Sample ID: GUE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	56.15		ug/L		112	47 - 139
Acetone	6.25	J	50.0	53.35		ug/L		94	31 - 150
Acrylonitrile	<2.20		250	243.7		ug/L		97	40 - 150
Benzene	1.27		25.0	23.92		ug/L		91	46 - 130
Bromochloromethane	<0.540		25.0	21.84		ug/L		87	57 - 130
Bromodichloromethane	<0.390		25.0	20.67		ug/L		83	57 - 130
Bromoform	<0.780		25.0	19.95		ug/L		80	44 - 130
Carbon disulfide	<0.450		25.0	23.61		ug/L		94	38 - 135
Carbon tetrachloride	<0.650		25.0	22.38		ug/L		90	45 - 132
Chlorobenzene	<0.400		25.0	21.98		ug/L		88	59 - 130
Chlorodibromomethane	<0.750		25.0	20.58		ug/L		82	54 - 130
Chloroform	<1.30		25.0	20.64		ug/L		83	51 - 130
cis-1,2-Dichloroethene	2.92		25.0	24.73		ug/L		87	45 - 130
cis-1,3-Dichloropropene	<0.250		25.0	22.75		ug/L		91	53 - 130
Dibromomethane	<0.330		25.0	21.93		ug/L		88	59 - 130
Ethylbenzene	<0.310		25.0	23.25		ug/L		93	45 - 130
Iodomethane	<7.00		25.0	18.21		ug/L		73	10 - 150
Methylene Chloride	<1.70		25.0	23.05		ug/L		92	37 - 150
Styrene	<0.370		25.0	23.02		ug/L		92	47 - 130
Tetrachloroethene	<0.480		25.0	21.20		ug/L		85	47 - 130
Toluene	<0.430		25.0	22.25		ug/L		89	51 - 130
trans-1,2-Dichloroethene	0.278	J	25.0	22.80		ug/L		90	48 - 130
trans-1,3-Dichloropropene	<0.560		25.0	23.10		ug/L		92	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		25.0	22.70		ug/L		91	26 - 150
Trichloroethene	0.596	J	25.0	22.94		ug/L		89	51 - 130
Vinyl acetate	<2.50		50.0	43.92		ug/L		88	29 - 150
Xylenes, Total	<0.400		50.0	46.27		ug/L		93	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*73 - 130*
Toluene-d8 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Lab Sample ID: 310-280664-1 MSD
Matrix: Water
Analysis Batch: 421433

Client Sample ID: GUE-2
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	<0.380		25.0	20.80		ug/L		83	55 - 130	4	20
1,1,1-Trichloroethane	<0.190		25.0	22.84		ug/L		91	52 - 130	1	20
1,1,2,2-Tetrachloroethane	<0.470		25.0	22.57		ug/L		90	54 - 130	2	20
1,1,2-Trichloroethane	<0.450		25.0	22.24		ug/L		89	58 - 130	2	20
1,1-Dichloroethane	0.474	J	25.0	23.01		ug/L		90	49 - 130	3	20
1,1-Dichloroethene	<0.560		25.0	22.67		ug/L		91	37 - 132	3	26
1,2,3-Trichloropropane	<0.590		25.0	22.85		ug/L		91	49 - 130	1	26
1,2-Dibromo-3-Chloropropane	<1.20		25.0	22.53		ug/L		90	38 - 150	1	20
1,2-Dibromoethane (EDB)	<0.340		25.0	22.35		ug/L		89	60 - 130	3	20
1,2-Dichlorobenzene	<0.370		25.0	22.26		ug/L		89	59 - 130	2	20

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

Lab Sample ID: 310-280664-1 MSD
Matrix: Water
Analysis Batch: 421433

Client Sample ID: GUE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	<0.390		25.0	21.76		ug/L		87	51 - 130	1	20
1,2-Dichloropropane	<0.270		25.0	22.40		ug/L		90	57 - 130	6	20
1,4-Dichlorobenzene	0.378	J	25.0	21.40		ug/L		84	57 - 130	0	20
2-Butanone (MEK)	<2.10		50.0	52.38		ug/L		105	38 - 150	1	20
2-Hexanone	<2.00		50.0	52.50		ug/L		105	46 - 140	1	20
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	54.93		ug/L		110	47 - 139	2	20
Acetone	6.25	J	50.0	53.41		ug/L		94	31 - 150	0	29
Acrylonitrile	<2.20		250	242.1		ug/L		97	40 - 150	1	20
Benzene	1.27		25.0	23.11		ug/L		87	46 - 130	3	20
Bromochloromethane	<0.540		25.0	21.44		ug/L		86	57 - 130	2	20
Bromodichloromethane	<0.390		25.0	20.25		ug/L		81	57 - 130	2	20
Bromoform	<0.780		25.0	20.02		ug/L		80	44 - 130	0	20
Carbon disulfide	<0.450		25.0	22.09		ug/L		88	38 - 135	7	30
Carbon tetrachloride	<0.650		25.0	22.06		ug/L		88	45 - 132	1	20
Chlorobenzene	<0.400		25.0	21.23		ug/L		85	59 - 130	3	20
Chlorodibromomethane	<0.750		25.0	20.34		ug/L		81	54 - 130	1	20
Chloroform	<1.30		25.0	19.72		ug/L		79	51 - 130	5	20
cis-1,2-Dichloroethene	2.92		25.0	24.37		ug/L		86	45 - 130	1	20
cis-1,3-Dichloropropene	<0.250		25.0	22.26		ug/L		89	53 - 130	2	20
Dibromomethane	<0.330		25.0	21.63		ug/L		87	59 - 130	1	20
Ethylbenzene	<0.310		25.0	22.80		ug/L		91	45 - 130	2	20
Iodomethane	<7.00		25.0	20.54		ug/L		82	10 - 150	12	35
Methylene Chloride	<1.70		25.0	21.97		ug/L		88	37 - 150	5	24
Styrene	<0.370		25.0	22.78		ug/L		91	47 - 130	1	20
Tetrachloroethene	<0.480		25.0	20.54		ug/L		82	47 - 130	3	20
Toluene	<0.430		25.0	21.64		ug/L		87	51 - 130	3	20
trans-1,2-Dichloroethene	0.278	J	25.0	22.20		ug/L		88	48 - 130	3	22
trans-1,3-Dichloropropene	<0.560		25.0	23.04		ug/L		92	50 - 130	0	20
trans-1,4-Dichloro-2-butene	<1.10		25.0	22.34		ug/L		89	26 - 150	2	23
Trichloroethene	0.596	J	25.0	22.01		ug/L		86	51 - 130	4	20
Vinyl acetate	<2.50		50.0	40.79		ug/L		82	29 - 150	7	23
Xylenes, Total	<0.400		50.0	45.09		ug/L		90	43 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*73 - 130*
Toluene-d8 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-421062/1-A
Matrix: Water
Analysis Batch: 421541

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.530		2.00	0.530	ug/L		05/09/24 09:30	05/13/24 20:39	1
Barium	<0.660		2.00	0.660	ug/L		05/09/24 09:30	05/13/24 20:39	1
Beryllium	<0.330		1.00	0.330	ug/L		05/09/24 09:30	05/13/24 20:39	1
Chromium	<1.20		5.00	1.20	ug/L		05/09/24 09:30	05/13/24 20:39	1

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

Lab Sample ID: MB 310-421062/1-A
Matrix: Water
Analysis Batch: 421541

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.170		0.500	0.170	ug/L		05/09/24 09:30	05/13/24 20:39	1
Copper	<1.80		5.00	1.80	ug/L		05/09/24 09:30	05/13/24 20:39	1
Lead	<0.260		0.500	0.260	ug/L		05/09/24 09:30	05/13/24 20:39	1
Nickel	<2.10		5.00	2.10	ug/L		05/09/24 09:30	05/13/24 20:39	1
Selenium	<1.40		5.00	1.40	ug/L		05/09/24 09:30	05/13/24 20:39	1
Silver	<0.500		1.00	0.500	ug/L		05/09/24 09:30	05/13/24 20:39	1
Thallium	<0.570		1.00	0.570	ug/L		05/09/24 09:30	05/13/24 20:39	1
Vanadium	<1.10		5.00	1.10	ug/L		05/09/24 09:30	05/13/24 20:39	1

Lab Sample ID: MB 310-421062/1-A
Matrix: Water
Analysis Batch: 421633

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.100		0.200	0.100	ug/L		05/09/24 09:30	05/14/24 15:21	1
Zinc	<9.70		20.0	9.70	ug/L		05/09/24 09:30	05/14/24 15:21	1

Lab Sample ID: MB 310-421062/1-A
Matrix: Water
Analysis Batch: 421844

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421062

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/09/24 09:30	05/15/24 19:50	1

Lab Sample ID: LCS 310-421062/2-A
Matrix: Water
Analysis Batch: 421541

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421062

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	197.9		ug/L		99	80 - 120
Barium	100	97.58		ug/L		98	80 - 120
Beryllium	100	86.93		ug/L		87	80 - 120
Chromium	100	98.69		ug/L		99	80 - 120
Cobalt	100	99.62		ug/L		100	80 - 120
Copper	200	214.5		ug/L		107	80 - 120
Lead	200	213.1		ug/L		107	80 - 120
Nickel	200	204.8		ug/L		102	80 - 120
Selenium	400	373.6		ug/L		93	80 - 120
Silver	100	97.75		ug/L		98	80 - 120
Thallium	100	109.0		ug/L		109	80 - 120
Vanadium	100	88.81		ug/L		89	80 - 120

Lab Sample ID: LCS 310-421062/2-A
Matrix: Water
Analysis Batch: 421633

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421062

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	100	99.92		ug/L		100	80 - 120
Zinc	200	198.9		ug/L		99	80 - 120

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

Lab Sample ID: LCS 310-421062/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 421844
Prep Batch: 421062

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	215.9		ug/L		108	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-421342/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 421342

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			05/10/24 14:33	1

Lab Sample ID: LCS 310-421342/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 421342

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.00		mg/L		97	75 - 116

QC Association Summary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 421433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280664-1	GUE-2	Total/NA	Water	8260D	
310-280664-2	OW-105B	Total/NA	Water	8260D	
310-280664-3	Trip Blank	Total/NA	Water	8260D	
MB 310-421433/5	Method Blank	Total/NA	Water	8260D	
LCS 310-421433/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-421433/7	Lab Control Sample	Total/NA	Water	8260D	
310-280664-1 MS	GUE-2	Total/NA	Water	8260D	
310-280664-1 MSD	GUE-2	Total/NA	Water	8260D	

Metals

Prep Batch: 421062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280664-1	GUE-2	Total/NA	Water	3005A	
310-280664-2	OW-105B	Total/NA	Water	3005A	
MB 310-421062/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-421062/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 421541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280664-1	GUE-2	Total/NA	Water	6020B	421062
310-280664-2	OW-105B	Total/NA	Water	6020B	421062
MB 310-421062/1-A	Method Blank	Total/NA	Water	6020B	421062
LCS 310-421062/2-A	Lab Control Sample	Total/NA	Water	6020B	421062

Analysis Batch: 421633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-421062/1-A	Method Blank	Total/NA	Water	6020B	421062
LCS 310-421062/2-A	Lab Control Sample	Total/NA	Water	6020B	421062

Analysis Batch: 421695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280664-1	GUE-2	Total/NA	Water	6020B	421062
310-280664-2	OW-105B	Total/NA	Water	6020B	421062

Analysis Batch: 421844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-421062/1-A	Method Blank	Total/NA	Water	6020B	421062
LCS 310-421062/2-A	Lab Control Sample	Total/NA	Water	6020B	421062

General Chemistry

Analysis Batch: 421342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280664-1	GUE-2	Total/NA	Water	I-3765-85	
310-280664-2	OW-105B	Total/NA	Water	I-3765-85	
MB 310-421342/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-421342/2	Lab Control Sample	Total/NA	Water	I-3765-85	

QC Association Summary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Field Service / Mobile Lab

Analysis Batch: 421742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280664-1	GUE-2	Total/NA	Water	Field Sampling	
310-280664-2	OW-105B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUE-2
Lab Sample ID: 310-280664-1
Date Collected: 05/07/24 13:00
Matrix: Water
Date Received: 05/08/24 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	421433	WSE8	EET CF	05/15/24 00:42
Total/NA	Prep	3005A			421062	KM3E	EET CF	05/09/24 09:30
Total/NA	Analysis	6020B		1	421541	DHM5	EET CF	05/13/24 21:51
Total/NA	Prep	3005A			421062	KM3E	EET CF	05/09/24 09:30
Total/NA	Analysis	6020B		1	421695	NFT2	EET CF	05/14/24 17:01
Total/NA	Analysis	I-3765-85		1	421342	DGU1	EET CF	05/10/24 14:33
Total/NA	Analysis	Field Sampling		1	421742	BJ0R	EET CF	05/07/24 13:00

Client Sample ID: OW-105B
Lab Sample ID: 310-280664-2
Date Collected: 05/07/24 14:45
Matrix: Water
Date Received: 05/08/24 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	421433	WSE8	EET CF	05/15/24 01:04
Total/NA	Prep	3005A			421062	KM3E	EET CF	05/09/24 09:30
Total/NA	Analysis	6020B		1	421541	DHM5	EET CF	05/13/24 21:54
Total/NA	Prep	3005A			421062	KM3E	EET CF	05/09/24 09:30
Total/NA	Analysis	6020B		1	421695	NFT2	EET CF	05/14/24 17:04
Total/NA	Analysis	I-3765-85		1	421342	DGU1	EET CF	05/10/24 14:33
Total/NA	Analysis	Field Sampling		1	421742	BJ0R	EET CF	05/07/24 14:45

Client Sample ID: Trip Blank
Lab Sample ID: 310-280664-3
Date Collected: 05/07/24 06:00
Matrix: Water
Date Received: 05/08/24 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	421433	WSE8	EET CF	05/14/24 23:15

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Method Summary

Client: AECOM
Job ID: 310-280664-1
Project/Site: Black Hawk County Landfill (IDNR)

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
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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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310-280664 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Denver STATE CO Project: BHC IDW

Receipt Information

Date/Time Received: DATE 5/8/24 TIME 0705 Received By: JD

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: V Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	250 HNO3	
Uncorrected Temp (°C):	2.4	
Corrected Temp (°C):	2.4	

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319 277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher.Oelkers@aecom.com	**Site Contact:**	**Date:** 5-8-24	1 of 2 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			
P O #	☐ 2 days			Job / SDG No
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
MW-603B			G	GW		N		X											
MW-604B			G	GW		N		X											
MW-709B			G	GW		N		X											
MW-710B			G	GW		N		X											
MW-711B			G	GW		N		X											
MW-712B			G	GW		N		X											
GUE-1			G	GW		N		X											
GUE-2	5-7-24	1300	G	GW	5	N		X											Turbidity - 11.73 NTU
GUW1-1			G	GW		N		X											
GUW2-1			G	GW		N		X											
Equipment Blank-2			G	GW		N		X											
GUW2-1-FD			G	GW		N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp. (°C) Obs'd ____ Corr'd ____ Therm ID No. ____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-8-24	Received by:	Company:	Date/Time: 5824 0905
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

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5/17/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319 277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:**	**Date:** 5-8-24 — 2 of 2 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:** — TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client: Lab Sampling
(xxx) xxx-xxxx FAX			
Project Name Black Hawk Co IDNR			Job / SDG No
Site Black Hawk County Landfill			
P O #			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-101B			G	GW		N		X											
OW-105B	5-7-24	1445	G	GW	5	N		X											Turbidity - 4.15 NTU
OW-113B			G	GW		N		X										X	
OW-114B			G	GW		N		X											
OW-205B			G	GW		N		X			X			X				X	
OW-209B			G	GW		N		X											
OW-212B			G	GW		N		X											
OW-213BR			G	GW		N		X											
OW-216BR			G	GW		N		X											
OW-219B			G	GW		N		X											
OW-219B-FD			G	GW		N		X											
Trip Blank	5-7-24	0600	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd. _____ Corr'd. _____		Therm ID No. _____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-8-24	Received by:	Company:	Date/Time: 5/8/24 0905
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

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5/17/2024

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-280664-1

Login Number: 280664

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

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JOB DESCRIPTION

Black Hawk County Landfill (IDNR)

JOB NUMBER

310-280844-1

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
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job ID: 310-280844-1 — Eurofins Cedar Falls

Job Narrative
310-280844-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/9/2024 10:40 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 time was 1.3°C.

GC/MS VOA
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.

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

Sample Summary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-280844-1	MW-319B	Ground Water	05/08/24 11:00	05/09/24 10:40
310-280844-2	OW-414B	Ground Water	05/08/24 13:00	05/09/24 10:40
310-280844-3	OW-101B	Ground Water	05/08/24 10:00	05/09/24 10:40
310-280844-4	Trip Blank	Water	05/08/24 06:00	05/09/24 10:40

Detection Summary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B — Lab Sample ID: 310-280844-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	223		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	12.3		5.00	1.20	ug/L	1		6020B	Total/NA
Copper	2.54	J B	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	60.2		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	4.75		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	6.36				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-414B — Lab Sample ID: 310-280844-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloropropane	0.532	J	1.00	0.270	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	1.84		1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	4.20	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	1.98		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.912	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	1.23	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	6.98		1.00	0.210	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.328	J	1.00	0.270	ug/L	1		8260D	Total/NA
Vinyl chloride	0.900	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	9.85		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	642		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	19.1		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.74	J B	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	67.2		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	34.7		5.00	3.70	mg/L	1		I-3765-85	Total/NA
Field Turbidity	1.01				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-101B — Lab Sample ID: 310-280844-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	179		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.43	J	5.00	1.20	ug/L	1		6020B	Total/NA
Selenium	1.52	J	5.00	1.40	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.25		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	3.50				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-280844-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B
Lab Sample ID: 310-280844-1
Date Collected: 05/08/24 11:00
Matrix: Ground Water
Date Received: 05/09/24 10:40

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	<0.380		1.00	0.380	ug/L			05/18/24 19:43	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/18/24 19:43	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/18/24 19:43	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/18/24 19:43	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/18/24 19:43	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/18/24 19:43	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/18/24 19:43	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/18/24 19:43	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/18/24 19:43	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/18/24 19:43	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/18/24 19:43	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/18/24 19:43	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/18/24 19:43	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/18/24 19:43	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/18/24 19:43	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/18/24 19:43	1
Acetone	<3.10		10.0	3.10	ug/L			05/18/24 19:43	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/18/24 19:43	1
Benzene	<0.220		0.500	0.220	ug/L			05/18/24 19:43	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/18/24 19:43	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/18/24 19:43	1
Bromoform	<0.780		5.00	0.780	ug/L			05/18/24 19:43	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/18/24 19:43	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/18/24 19:43	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/18/24 19:43	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/18/24 19:43	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/18/24 19:43	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/18/24 19:43	1
Chloroform	<1.30		3.00	1.30	ug/L			05/18/24 19:43	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/18/24 19:43	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/18/24 19:43	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/18/24 19:43	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/18/24 19:43	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/18/24 19:43	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/18/24 19:43	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/18/24 19:43	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/18/24 19:43	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/18/24 19:43	1
Styrene	<0.370		1.00	0.370	ug/L			05/18/24 19:43	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/18/24 19:43	1
Toluene	<0.430		1.00	0.430	ug/L			05/18/24 19:43	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/18/24 19:43	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/18/24 19:43	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/18/24 19:43	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/18/24 19:43	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/18/24 19:43	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/18/24 19:43	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/18/24 19:43	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/18/24 19:43	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B
Date Collected: 05/08/24 11:00
Date Received: 05/09/24 10:40

Lab Sample ID: 310-280844-1
Matrix: Ground Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*05/18/24 19:43*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/18/24 19:43*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/18/24 19:43*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/13/24 09:00	05/21/24 18:16	1
Arsenic	<0.530		2.00	0.530	ug/L		05/13/24 09:00	05/21/24 18:16	1
Barium	**223**		2.00	0.660	ug/L		05/13/24 09:00	05/21/24 18:16	1
Beryllium	<0.330		1.00	0.330	ug/L		05/13/24 09:00	05/21/24 18:16	1
Cadmium	<0.100		0.200	0.100	ug/L		05/13/24 09:00	05/21/24 18:16	1
Chromium	**12.3**		5.00	1.20	ug/L		05/13/24 09:00	05/21/24 18:16	1
Cobalt	<0.170		0.500	0.170	ug/L		05/13/24 09:00	05/21/24 18:16	1
Copper	**2.54**	**J B**	5.00	1.80	ug/L		05/13/24 09:00	05/21/24 18:16	1
Lead	<0.260		0.500	0.260	ug/L		05/13/24 09:00	05/21/24 18:16	1
Nickel	**60.2**		5.00	2.10	ug/L		05/13/24 09:00	05/21/24 18:16	1
Selenium	<1.40		5.00	1.40	ug/L		05/13/24 09:00	05/21/24 18:16	1
Silver	<0.500		1.00	0.500	ug/L		05/13/24 09:00	05/21/24 18:16	1
Thallium	<0.570		1.00	0.570	ug/L		05/13/24 09:00	05/21/24 18:16	1
Vanadium	<1.10		5.00	1.10	ug/L		05/13/24 09:00	05/21/24 18:16	1
Zinc	<9.70		20.0	9.70	ug/L		05/13/24 09:00	05/21/24 18:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**4.75**		1.88	1.39	mg/L			05/11/24 10:11	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**6.36**				NTU			05/08/24 11:00	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-414B
Lab Sample ID: 310-280844-2
Date Collected: 05/08/24 13:00
Matrix: Ground Water
Date Received: 05/09/24 10:40

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	<0.380		1.00	0.380	ug/L			05/18/24 20:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/18/24 20:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/18/24 20:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/18/24 20:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/18/24 20:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/18/24 20:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/18/24 20:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/18/24 20:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/18/24 20:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/18/24 20:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/18/24 20:04	1
1,2-Dichloropropane	**0.532**	**J**	1.00	0.270	ug/L			05/18/24 20:04	1
1,4-Dichlorobenzene	**1.84**		1.00	0.230	ug/L			05/18/24 20:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/18/24 20:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/18/24 20:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/18/24 20:04	1
Acetone	**4.20**	**J**	10.0	3.10	ug/L			05/18/24 20:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/18/24 20:04	1
Benzene	**1.98**		0.500	0.220	ug/L			05/18/24 20:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/18/24 20:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/18/24 20:04	1
Bromoform	<0.780		5.00	0.780	ug/L			05/18/24 20:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/18/24 20:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/18/24 20:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/18/24 20:04	1
Chlorobenzene	**0.912**	**J**	1.00	0.400	ug/L			05/18/24 20:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/18/24 20:04	1
Chloroethane	**1.23**	**J**	4.00	0.790	ug/L			05/18/24 20:04	1
Chloroform	<1.30		3.00	1.30	ug/L			05/18/24 20:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/18/24 20:04	1
cis-1,2-Dichloroethene	**6.98**		1.00	0.210	ug/L			05/18/24 20:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/18/24 20:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/18/24 20:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/18/24 20:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/18/24 20:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/18/24 20:04	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/18/24 20:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/18/24 20:04	1
Styrene	<0.370		1.00	0.370	ug/L			05/18/24 20:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/18/24 20:04	1
Toluene	<0.430		1.00	0.430	ug/L			05/18/24 20:04	1
trans-1,2-Dichloroethene	**0.328**	**J**	1.00	0.270	ug/L			05/18/24 20:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/18/24 20:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/18/24 20:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/18/24 20:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/18/24 20:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/18/24 20:04	1
Vinyl chloride	**0.900**	**J**	1.00	0.180	ug/L			05/18/24 20:04	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/18/24 20:04	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-414B
Lab Sample ID: 310-280844-2

Date Collected: 05/08/24 13:00
Matrix: Ground Water

Date Received: 05/09/24 10:40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*05/18/24 20:04*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/18/24 20:04*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/18/24 20:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/13/24 09:00	05/21/24 18:35	1
Arsenic	**9.85**		2.00	0.530	ug/L		05/13/24 09:00	05/21/24 18:35	1
Barium	**642**		2.00	0.660	ug/L		05/13/24 09:00	05/21/24 18:35	1
Beryllium	<0.330		1.00	0.330	ug/L		05/13/24 09:00	05/21/24 18:35	1
Cadmium	<0.100		0.200	0.100	ug/L		05/13/24 09:00	05/21/24 18:35	1
Chromium	<1.20		5.00	1.20	ug/L		05/13/24 09:00	05/21/24 18:35	1
Cobalt	**19.1**		0.500	0.170	ug/L		05/13/24 09:00	05/21/24 18:35	1
Copper	**2.74**	**J B**	5.00	1.80	ug/L		05/13/24 09:00	05/21/24 18:35	1
Lead	<0.260		0.500	0.260	ug/L		05/13/24 09:00	05/21/24 18:35	1
Nickel	**67.2**		5.00	2.10	ug/L		05/13/24 09:00	05/21/24 18:35	1
Selenium	<1.40		5.00	1.40	ug/L		05/13/24 09:00	05/21/24 18:35	1
Silver	<0.500		1.00	0.500	ug/L		05/13/24 09:00	05/21/24 18:35	1
Thallium	<0.570		1.00	0.570	ug/L		05/13/24 09:00	05/21/24 18:35	1
Vanadium	<1.10		5.00	1.10	ug/L		05/13/24 09:00	05/21/24 18:35	1
Zinc	<9.70		20.0	9.70	ug/L		05/13/24 09:00	05/21/24 18:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**34.7**		5.00	3.70	mg/L			05/11/24 10:11	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.01**				NTU			05/08/24 13:00	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-101B
Lab Sample ID: 310-280844-3
Date Collected: 05/08/24 10:00
Matrix: Ground Water
Date Received: 05/09/24 10:40

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	<0.380		1.00	0.380	ug/L			05/18/24 20:26	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/18/24 20:26	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/18/24 20:26	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/18/24 20:26	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/18/24 20:26	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/18/24 20:26	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/18/24 20:26	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/18/24 20:26	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/18/24 20:26	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/18/24 20:26	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/18/24 20:26	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/18/24 20:26	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/18/24 20:26	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/18/24 20:26	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/18/24 20:26	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/18/24 20:26	1
Acetone	<3.10		10.0	3.10	ug/L			05/18/24 20:26	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/18/24 20:26	1
Benzene	<0.220		0.500	0.220	ug/L			05/18/24 20:26	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/18/24 20:26	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/18/24 20:26	1
Bromoform	<0.780		5.00	0.780	ug/L			05/18/24 20:26	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/18/24 20:26	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/18/24 20:26	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/18/24 20:26	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/18/24 20:26	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/18/24 20:26	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/18/24 20:26	1
Chloroform	<1.30		3.00	1.30	ug/L			05/18/24 20:26	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/18/24 20:26	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/18/24 20:26	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/18/24 20:26	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/18/24 20:26	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/18/24 20:26	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/18/24 20:26	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/18/24 20:26	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/18/24 20:26	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/18/24 20:26	1
Styrene	<0.370		1.00	0.370	ug/L			05/18/24 20:26	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/18/24 20:26	1
Toluene	<0.430		1.00	0.430	ug/L			05/18/24 20:26	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/18/24 20:26	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/18/24 20:26	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/18/24 20:26	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/18/24 20:26	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/18/24 20:26	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/18/24 20:26	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/18/24 20:26	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/18/24 20:26	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-101B
Lab Sample ID: 310-280844-3

Date Collected: 05/08/24 10:00
Matrix: Ground Water

Date Received: 05/09/24 10:40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*05/18/24 20:26*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/18/24 20:26*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/18/24 20:26*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/13/24 09:00	05/21/24 18:37	1
Arsenic	<0.530		2.00	0.530	ug/L		05/13/24 09:00	05/21/24 18:37	1
Barium	**179**		2.00	0.660	ug/L		05/13/24 09:00	05/21/24 18:37	1
Beryllium	<0.330		1.00	0.330	ug/L		05/13/24 09:00	05/21/24 18:37	1
Cadmium	<0.100		0.200	0.100	ug/L		05/13/24 09:00	05/21/24 18:37	1
Chromium	**1.43**	**J**	5.00	1.20	ug/L		05/13/24 09:00	05/21/24 18:37	1
Cobalt	<0.170		0.500	0.170	ug/L		05/13/24 09:00	05/21/24 18:37	1
Copper	<1.80		5.00	1.80	ug/L		05/13/24 09:00	05/21/24 18:37	1
Lead	<0.260		0.500	0.260	ug/L		05/13/24 09:00	05/21/24 18:37	1
Nickel	<2.10		5.00	2.10	ug/L		05/13/24 09:00	05/21/24 18:37	1
Selenium	**1.52**	**J**	5.00	1.40	ug/L		05/13/24 09:00	05/21/24 18:37	1
Silver	<0.500		1.00	0.500	ug/L		05/13/24 09:00	05/21/24 18:37	1
Thallium	<0.570		1.00	0.570	ug/L		05/13/24 09:00	05/21/24 18:37	1
Vanadium	<1.10		5.00	1.10	ug/L		05/13/24 09:00	05/21/24 18:37	1
Zinc	<9.70		20.0	9.70	ug/L		05/13/24 09:00	05/21/24 18:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.25**		1.88	1.39	mg/L			05/11/24 10:11	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**3.50**				NTU			05/08/24 10:00	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-280844-4
Date Collected: 05/08/24 06:00
Matrix: Water
Date Received: 05/09/24 10:40

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	<0.380		1.00	0.380	ug/L			05/18/24 16:49	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/18/24 16:49	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/18/24 16:49	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/18/24 16:49	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/18/24 16:49	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/18/24 16:49	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/18/24 16:49	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/18/24 16:49	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/18/24 16:49	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/18/24 16:49	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/18/24 16:49	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/18/24 16:49	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/18/24 16:49	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/18/24 16:49	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/18/24 16:49	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/18/24 16:49	1
Acetone	<3.10		10.0	3.10	ug/L			05/18/24 16:49	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/18/24 16:49	1
Benzene	<0.220		0.500	0.220	ug/L			05/18/24 16:49	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/18/24 16:49	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/18/24 16:49	1
Bromoform	<0.780		5.00	0.780	ug/L			05/18/24 16:49	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/18/24 16:49	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/18/24 16:49	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/18/24 16:49	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/18/24 16:49	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/18/24 16:49	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/18/24 16:49	1
Chloroform	<1.30		3.00	1.30	ug/L			05/18/24 16:49	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/18/24 16:49	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/18/24 16:49	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/18/24 16:49	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/18/24 16:49	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/18/24 16:49	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/18/24 16:49	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/18/24 16:49	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/18/24 16:49	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/18/24 16:49	1
Styrene	<0.370		1.00	0.370	ug/L			05/18/24 16:49	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/18/24 16:49	1
Toluene	<0.430		1.00	0.430	ug/L			05/18/24 16:49	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/18/24 16:49	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/18/24 16:49	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/18/24 16:49	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/18/24 16:49	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/18/24 16:49	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/18/24 16:49	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/18/24 16:49	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/18/24 16:49	1

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-280844-4
Date Collected: 05/08/24 06:00
Matrix: Water
Date Received: 05/09/24 10:40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	99		73 - 130		05/18/24 16:49	1
Toluene-d8 (Surr)	99		80 - 120		05/18/24 16:49	1
4-Bromofluorobenzene (Surr)	104		80 - 120		05/18/24 16:49	1

Definitions/Glossary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

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
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.

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: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-280844-1	MW-319B	102	97	104
310-280844-2	OW-414B	100	99	107
310-280844-2 MS	OW-414B	96	102	99
310-280844-2 MSD	OW-414B	98	104	100
310-280844-3	OW-101B	102	99	104

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	(73-130)	(80-120)	(80-120)
310-280844-4	Trip Blank	99	99	104
LCS 310-422006/6	Lab Control Sample	96	104	102
LCS 310-422006/7	Lab Control Sample	99	100	107
MB 310-422006/5	Method Blank	99	99	106

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 310-422006/5
Matrix: Water
Analysis Batch: 422006

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	<0.380		1.00	0.380	ug/L			05/18/24 15:43	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/18/24 15:43	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/18/24 15:43	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/18/24 15:43	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/18/24 15:43	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/18/24 15:43	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/18/24 15:43	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/18/24 15:43	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/18/24 15:43	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/18/24 15:43	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/18/24 15:43	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/18/24 15:43	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/18/24 15:43	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/18/24 15:43	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/18/24 15:43	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/18/24 15:43	1
Acetone	<3.10		10.0	3.10	ug/L			05/18/24 15:43	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/18/24 15:43	1
Benzene	<0.220		0.500	0.220	ug/L			05/18/24 15:43	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/18/24 15:43	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/18/24 15:43	1
Bromoform	<0.780		5.00	0.780	ug/L			05/18/24 15:43	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/18/24 15:43	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/18/24 15:43	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/18/24 15:43	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/18/24 15:43	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/18/24 15:43	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/18/24 15:43	1
Chloroform	<1.30		3.00	1.30	ug/L			05/18/24 15:43	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/18/24 15:43	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/18/24 15:43	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/18/24 15:43	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/18/24 15:43	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/18/24 15:43	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/18/24 15:43	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/18/24 15:43	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/18/24 15:43	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/18/24 15:43	1
Styrene	<0.370		1.00	0.370	ug/L			05/18/24 15:43	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/18/24 15:43	1
Toluene	<0.430		1.00	0.430	ug/L			05/18/24 15:43	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/18/24 15:43	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/18/24 15:43	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/18/24 15:43	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/18/24 15:43	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/18/24 15:43	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/18/24 15:43	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/18/24 15:43	1

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

Lab Sample ID: MB 310-422006/5
Matrix: Water
Analysis Batch: 422006

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/18/24 15:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*05/18/24 15:43*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/18/24 15:43*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/18/24 15:43*	*1*

Lab Sample ID: LCS 310-422006/6
Matrix: Water
Analysis Batch: 422006

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	18.73		ug/L		94	71 - 120
1,1,1-Trichloroethane	20.0	18.13		ug/L		91	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.14		ug/L		96	68 - 124
1,1,2-Trichloroethane	20.0	19.41		ug/L		97	73 - 123
1,1-Dichloroethane	20.0	18.78		ug/L		94	70 - 127
1,1-Dichloroethene	20.0	18.66		ug/L		93	63 - 132
1,2,3-Trichloropropane	20.0	18.64		ug/L		93	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	19.60		ug/L		98	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.45		ug/L		92	75 - 125
1,2-Dichlorobenzene	20.0	19.45		ug/L		97	74 - 120
1,2-Dichloroethane	20.0	17.41		ug/L		87	71 - 125
1,2-Dichloropropane	20.0	19.90		ug/L		100	73 - 124
1,4-Dichlorobenzene	20.0	18.68		ug/L		93	72 - 120
2-Butanone (MEK)	40.0	39.80		ug/L		100	50 - 150
2-Hexanone	40.0	37.42		ug/L		94	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	37.69		ug/L		94	60 - 139
Acetone	40.0	38.50		ug/L		96	50 - 150
Acrylonitrile	200	197.3		ug/L		99	50 - 150
Benzene	20.0	19.32		ug/L		97	72 - 124
Bromochloromethane	20.0	18.02		ug/L		90	73 - 130
Bromodichloromethane	20.0	17.92		ug/L		90	74 - 122
Bromoform	20.0	17.16		ug/L		86	61 - 122
Carbon disulfide	20.0	19.79		ug/L		99	59 - 135
Carbon tetrachloride	20.0	18.10		ug/L		91	67 - 132
Chlorobenzene	20.0	18.87		ug/L		94	76 - 120
Chlorodibromomethane	20.0	17.74		ug/L		89	71 - 121
Chloroform	20.0	18.78		ug/L		94	72 - 125
cis-1,2-Dichloroethene	20.0	18.51		ug/L		93	74 - 123
cis-1,3-Dichloropropene	20.0	19.12		ug/L		96	71 - 125
Dibromomethane	20.0	18.01		ug/L		90	74 - 125
Ethylbenzene	20.0	20.09		ug/L		100	74 - 122
Iodomethane	20.0	17.51		ug/L		88	10 - 150
Methylene Chloride	20.0	20.64		ug/L		103	50 - 150
Styrene	20.0	19.25		ug/L		96	74 - 121
Tetrachloroethene	20.0	18.59		ug/L		93	71 - 130
Toluene	20.0	18.63		ug/L		93	74 - 123

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

Lab Sample ID: LCS 310-422006/6
Matrix: Water
Analysis Batch: 422006

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	18.51		ug/L		93	70 - 126
trans-1,3-Dichloropropene	20.0	18.30		ug/L		91	69 - 123
trans-1,4-Dichloro-2-butene	20.0	18.55		ug/L		93	50 - 150
Trichloroethene	20.0	19.21		ug/L		96	72 - 126
Vinyl acetate	40.0	34.85		ug/L		87	50 - 150
Xylenes, Total	40.0	39.28		ug/L		98	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: LCS 310-422006/7
Matrix: Water
Analysis Batch: 422006

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	21.01		ug/L		105	23 - 150
Chloroethane	20.0	21.19		ug/L		106	54 - 136
Chloromethane	20.0	23.66		ug/L		118	38 - 150
Trichlorofluoromethane	20.0	20.44		ug/L		102	54 - 149
Vinyl chloride	20.0	22.92		ug/L		115	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*

Lab Sample ID: 310-280844-2 MS
Matrix: Ground Water
Analysis Batch: 422006

Client Sample ID: OW-414B
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	<0.380		25.0	21.44		ug/L		86	55 - 130
1,1,1-Trichloroethane	<0.190		25.0	21.15		ug/L		85	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		25.0	22.43		ug/L		90	54 - 130
1,1,2-Trichloroethane	<0.450		25.0	22.29		ug/L		89	58 - 130
1,1-Dichloroethane	<0.220		25.0	22.21		ug/L		89	49 - 130
1,1-Dichloroethene	<0.560		25.0	22.33		ug/L		89	37 - 132
1,2,3-Trichloropropane	<0.590		25.0	21.79		ug/L		87	49 - 130
1,2-Dibromo-3-Chloropropane	<1.20		25.0	23.57		ug/L		94	38 - 150
1,2-Dibromoethane (EDB)	<0.340		25.0	21.54		ug/L		86	60 - 130
1,2-Dichlorobenzene	<0.370		25.0	23.28		ug/L		93	59 - 130
1,2-Dichloroethane	<0.390		25.0	20.34		ug/L		81	51 - 130
1,2-Dichloropropane	0.532	J	25.0	23.43		ug/L		92	57 - 130
1,4-Dichlorobenzene	1.84		25.0	24.04		ug/L		89	57 - 130
2-Butanone (MEK)	<2.10		50.0	46.70		ug/L		93	38 - 150
2-Hexanone	<2.00		50.0	42.83		ug/L		86	46 - 140

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

Lab Sample ID: 310-280844-2 MS
Matrix: Ground Water
Analysis Batch: 422006

Client Sample ID: OW-414B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	45.68		ug/L		91	47 - 139
Acetone	4.20	J	50.0	43.10		ug/L		78	31 - 150
Acrylonitrile	<2.20		250	230.7		ug/L		92	40 - 150
Benzene	1.98		25.0	24.21		ug/L		89	46 - 130
Bromochloromethane	<0.540		25.0	21.44		ug/L		86	57 - 130
Bromodichloromethane	<0.390		25.0	21.16		ug/L		85	57 - 130
Bromoform	<0.780		25.0	20.53		ug/L		82	44 - 130
Carbon disulfide	<0.450		25.0	24.74		ug/L		99	38 - 135
Carbon tetrachloride	<0.650		25.0	21.33		ug/L		85	45 - 132
Chlorobenzene	0.912	J	25.0	23.03		ug/L		88	59 - 130
Chlorodibromomethane	<0.750		25.0	20.44		ug/L		82	54 - 130
Chloroform	<1.30		25.0	21.77		ug/L		87	51 - 130
cis-1,2-Dichloroethene	6.98		25.0	28.35		ug/L		85	45 - 130
cis-1,3-Dichloropropene	<0.250		25.0	21.50		ug/L		86	53 - 130
Dibromomethane	<0.330		25.0	21.33		ug/L		85	59 - 130
Ethylbenzene	<0.310		25.0	23.46		ug/L		94	45 - 130
Iodomethane	<7.00		25.0	20.66		ug/L		83	10 - 150
Methylene Chloride	<1.70		25.0	24.19		ug/L		97	37 - 150
Styrene	<0.370		25.0	22.79		ug/L		91	47 - 130
Tetrachloroethene	<0.480		25.0	21.61		ug/L		86	47 - 130
Toluene	<0.430		25.0	22.06		ug/L		88	51 - 130
trans-1,2-Dichloroethene	0.328	J	25.0	22.30		ug/L		88	48 - 130
trans-1,3-Dichloropropene	<0.560		25.0	21.00		ug/L		84	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		25.0	21.20		ug/L		85	26 - 150
Trichloroethene	<0.430		25.0	22.67		ug/L		91	51 - 130
Vinyl acetate	<2.50		50.0	40.09		ug/L		80	29 - 150
Xylenes, Total	<0.400		50.0	46.44		ug/L		93	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: 310-280844-2 MSD
Matrix: Ground Water
Analysis Batch: 422006

Client Sample ID: OW-414B
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	<0.380		25.0	20.21		ug/L		81	55 - 130	6	20
1,1,1-Trichloroethane	<0.190		25.0	19.33		ug/L		77	52 - 130	9	20
1,1,2,2-Tetrachloroethane	<0.470		25.0	21.11		ug/L		84	54 - 130	6	20
1,1,2-Trichloroethane	<0.450		25.0	20.68		ug/L		83	58 - 130	7	20
1,1-Dichloroethane	<0.220		25.0	20.65		ug/L		83	49 - 130	7	20
1,1-Dichloroethene	<0.560		25.0	20.16		ug/L		81	37 - 132	10	26
1,2,3-Trichloropropane	<0.590		25.0	20.49		ug/L		82	49 - 130	6	26
1,2-Dibromo-3-Chloropropane	<1.20		25.0	22.08		ug/L		88	38 - 150	7	20
1,2-Dibromoethane (EDB)	<0.340		25.0	19.45		ug/L		78	60 - 130	10	20
1,2-Dichlorobenzene	<0.370		25.0	21.77		ug/L		87	59 - 130	7	20

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

Lab Sample ID: 310-280844-2 MSD
Matrix: Ground Water
Analysis Batch: 422006

Client Sample ID: OW-414B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	<0.390		25.0	18.93		ug/L		76	51 - 130	7	20
1,2-Dichloropropane	0.532	J	25.0	21.53		ug/L		84	57 - 130	8	20
1,4-Dichlorobenzene	1.84		25.0	22.61		ug/L		83	57 - 130	6	20
2-Butanone (MEK)	<2.10		50.0	44.97		ug/L		90	38 - 150	4	20
2-Hexanone	<2.00		50.0	38.83		ug/L		78	46 - 140	10	20
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	43.07		ug/L		86	47 - 139	6	20
Acetone	4.20	J	50.0	43.05		ug/L		78	31 - 150	0	29
Acrylonitrile	<2.20		250	222.6		ug/L		89	40 - 150	4	20
Benzene	1.98		25.0	22.14		ug/L		81	46 - 130	9	20
Bromochloromethane	<0.540		25.0	19.77		ug/L		79	57 - 130	8	20
Bromodichloromethane	<0.390		25.0	19.41		ug/L		78	57 - 130	9	20
Bromoform	<0.780		25.0	19.13		ug/L		77	44 - 130	7	20
Carbon disulfide	<0.450		25.0	21.88		ug/L		88	38 - 135	12	30
Carbon tetrachloride	<0.650		25.0	19.64		ug/L		79	45 - 132	8	20
Chlorobenzene	0.912	J	25.0	21.28		ug/L		81	59 - 130	8	20
Chlorodibromomethane	<0.750		25.0	18.85		ug/L		75	54 - 130	8	20
Chloroform	<1.30		25.0	19.33		ug/L		77	51 - 130	12	20
cis-1,2-Dichloroethene	6.98		25.0	25.93		ug/L		76	45 - 130	9	20
cis-1,3-Dichloropropene	<0.250		25.0	19.99		ug/L		80	53 - 130	7	20
Dibromomethane	<0.330		25.0	20.20		ug/L		81	59 - 130	5	20
Ethylbenzene	<0.310		25.0	21.78		ug/L		87	45 - 130	7	20
Iodomethane	<7.00		25.0	23.47		ug/L		94	10 - 150	13	35
Methylene Chloride	<1.70		25.0	22.09		ug/L		88	37 - 150	9	24
Styrene	<0.370		25.0	21.32		ug/L		85	47 - 130	7	20
Tetrachloroethene	<0.480		25.0	19.55		ug/L		78	47 - 130	10	20
Toluene	<0.430		25.0	19.75		ug/L		79	51 - 130	11	20
trans-1,2-Dichloroethene	0.328	J	25.0	20.00		ug/L		79	48 - 130	11	22
trans-1,3-Dichloropropene	<0.560		25.0	19.56		ug/L		78	50 - 130	7	20
trans-1,4-Dichloro-2-butene	<1.10		25.0	19.75		ug/L		79	26 - 150	7	23
Trichloroethene	<0.430		25.0	20.47		ug/L		82	51 - 130	10	20
Vinyl acetate	<2.50		50.0	38.84		ug/L		78	29 - 150	3	23
Xylenes, Total	<0.400		50.0	43.30		ug/L		87	43 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*73 - 130*
Toluene-d8 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-421325/1-A
Matrix: Water
Analysis Batch: 422392

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421325

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/13/24 09:00	05/21/24 18:11	1
Arsenic	<0.530		2.00	0.530	ug/L		05/13/24 09:00	05/21/24 18:11	1
Barium	<0.660		2.00	0.660	ug/L		05/13/24 09:00	05/21/24 18:11	1
Beryllium	<0.330		1.00	0.330	ug/L		05/13/24 09:00	05/21/24 18:11	1

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

Lab Sample ID: MB 310-421325/1-A
Matrix: Water
Analysis Batch: 422392

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421325

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.100		0.200	0.100	ug/L		05/13/24 09:00	05/21/24 18:11	1
Chromium	<1.20		5.00	1.20	ug/L		05/13/24 09:00	05/21/24 18:11	1
Cobalt	<0.170		0.500	0.170	ug/L		05/13/24 09:00	05/21/24 18:11	1
Copper	2.193	J	5.00	1.80	ug/L		05/13/24 09:00	05/21/24 18:11	1
Lead	<0.260		0.500	0.260	ug/L		05/13/24 09:00	05/21/24 18:11	1
Nickel	<2.10		5.00	2.10	ug/L		05/13/24 09:00	05/21/24 18:11	1
Selenium	<1.40		5.00	1.40	ug/L		05/13/24 09:00	05/21/24 18:11	1
Silver	<0.500		1.00	0.500	ug/L		05/13/24 09:00	05/21/24 18:11	1
Thallium	<0.570		1.00	0.570	ug/L		05/13/24 09:00	05/21/24 18:11	1
Vanadium	<1.10		5.00	1.10	ug/L		05/13/24 09:00	05/21/24 18:11	1
Zinc	<9.70		20.0	9.70	ug/L		05/13/24 09:00	05/21/24 18:11	1

Lab Sample ID: LCS 310-421325/2-A
Matrix: Water
Analysis Batch: 422392

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	212.5		ug/L		106	80 - 120
Barium	100	113.4		ug/L		113	80 - 120
Beryllium	100	104.3		ug/L		104	80 - 120
Cadmium	100	106.6		ug/L		107	80 - 120
Chromium	100	99.59		ug/L		100	80 - 120
Cobalt	100	110.9		ug/L		111	80 - 120
Copper	200	225.2		ug/L		113	80 - 120
Lead	200	215.7		ug/L		108	80 - 120
Nickel	200	215.8		ug/L		108	80 - 120
Selenium	400	406.9		ug/L		102	80 - 120
Silver	100	113.1		ug/L		113	80 - 120
Thallium	100	118.1		ug/L		118	80 - 120
Vanadium	100	107.0		ug/L		107	80 - 120
Zinc	200	212.2		ug/L		106	80 - 120

Lab Sample ID: LCS 310-421325/2-A
Matrix: Water
Analysis Batch: 422521

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	240.1		ug/L		120	80 - 120

Lab Sample ID: 310-280844-1 MS
Matrix: Ground Water
Analysis Batch: 422392

Client Sample ID: MW-319B
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<1.00		200	234.1		ug/L		117	75 - 125
Arsenic	<0.530		200	203.3		ug/L		102	75 - 125
Barium	223		100	325.2		ug/L		102	75 - 125
Beryllium	<0.330		100	103.6		ug/L		104	75 - 125
Cadmium	<0.100		100	100.8		ug/L		101	75 - 125

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

Lab Sample ID: 310-280844-1 MS
Matrix: Ground Water
Analysis Batch: 422392

Client Sample ID: MW-319B
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	12.3		100	105.7		ug/L		93	75 - 125
Cobalt	<0.170		100	94.29		ug/L		94	75 - 125
Copper	2.54	J B	200	207.8		ug/L		103	75 - 125
Lead	<0.260		200	202.4		ug/L		101	75 - 125
Nickel	60.2		200	258.1		ug/L		99	75 - 125
Selenium	<1.40		400	396.6		ug/L		99	75 - 125
Silver	<0.500		100	96.79		ug/L		97	75 - 125
Thallium	<0.570		100	111.8		ug/L		112	75 - 125
Vanadium	<1.10		100	102.7		ug/L		103	75 - 125
Zinc	<9.70		200	202.3		ug/L		101	75 - 125

Lab Sample ID: 310-280844-1 MS
Matrix: Ground Water
Analysis Batch: 422521

Client Sample ID: MW-319B
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<1.00		200	235.1		ug/L		118	75 - 125

Lab Sample ID: 310-280844-1 MSD
Matrix: Ground Water
Analysis Batch: 422392

Client Sample ID: MW-319B
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<1.00		200	237.0		ug/L		118	75 - 125	1	20
Arsenic	<0.530		200	205.0		ug/L		102	75 - 125	1	20
Barium	223		100	329.2		ug/L		106	75 - 125	1	20
Beryllium	<0.330		100	104.7		ug/L		105	75 - 125	1	20
Cadmium	<0.100		100	102.2		ug/L		102	75 - 125	1	20
Chromium	12.3		100	107.1		ug/L		95	75 - 125	1	20
Cobalt	<0.170		100	95.28		ug/L		95	75 - 125	1	20
Copper	2.54	J B	200	209.5		ug/L		103	75 - 125	1	20
Lead	<0.260		200	208.4		ug/L		104	75 - 125	3	20
Nickel	60.2		200	261.5		ug/L		101	75 - 125	1	20
Selenium	<1.40		400	401.1		ug/L		100	75 - 125	1	20
Silver	<0.500		100	101.6		ug/L		102	75 - 125	5	20
Thallium	<0.570		100	113.6		ug/L		114	75 - 125	2	20
Vanadium	<1.10		100	103.3		ug/L		103	75 - 125	1	20
Zinc	<9.70		200	205.4		ug/L		103	75 - 125	1	20

Lab Sample ID: 310-280844-1 MSD
Matrix: Ground Water
Analysis Batch: 422521

Client Sample ID: MW-319B
Prep Type: Total/NA
Prep Batch: 421325

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<1.00		200	241.3		ug/L		121	75 - 125	3	20

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-421386/1
Matrix: Water
Analysis Batch: 421386

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	<3.70		5.00	3.70	mg/L			05/11/24 10:11	1

Lab Sample ID: LCS 310-421386/2
Matrix: Water
Analysis Batch: 421386

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	116.0		mg/L		116	75 - 116

QC Association Summary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 422006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280844-1	MW-319B	Total/NA	Ground Water	8260D	
310-280844-2	OW-414B	Total/NA	Ground Water	8260D	
310-280844-3	OW-101B	Total/NA	Ground Water	8260D	
310-280844-4	Trip Blank	Total/NA	Water	8260D	
MB 310-422006/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422006/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422006/7	Lab Control Sample	Total/NA	Water	8260D	
310-280844-2 MS	OW-414B	Total/NA	Ground Water	8260D	
310-280844-2 MSD	OW-414B	Total/NA	Ground Water	8260D	

Metals

Prep Batch: 421325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280844-1	MW-319B	Total/NA	Ground Water	3005A	
310-280844-2	OW-414B	Total/NA	Ground Water	3005A	
310-280844-3	OW-101B	Total/NA	Ground Water	3005A	
MB 310-421325/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-421325/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-280844-1 MS	MW-319B	Total/NA	Ground Water	3005A	
310-280844-1 MSD	MW-319B	Total/NA	Ground Water	3005A	

Analysis Batch: 422392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280844-1	MW-319B	Total/NA	Ground Water	6020B	421325
310-280844-2	OW-414B	Total/NA	Ground Water	6020B	421325
310-280844-3	OW-101B	Total/NA	Ground Water	6020B	421325
MB 310-421325/1-A	Method Blank	Total/NA	Water	6020B	421325
LCS 310-421325/2-A	Lab Control Sample	Total/NA	Water	6020B	421325
310-280844-1 MS	MW-319B	Total/NA	Ground Water	6020B	421325
310-280844-1 MSD	MW-319B	Total/NA	Ground Water	6020B	421325

Analysis Batch: 422521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-421325/2-A	Lab Control Sample	Total/NA	Water	6020B	421325
310-280844-1 MS	MW-319B	Total/NA	Ground Water	6020B	421325
310-280844-1 MSD	MW-319B	Total/NA	Ground Water	6020B	421325

General Chemistry

Analysis Batch: 421386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280844-1	MW-319B	Total/NA	Ground Water	I-3765-85	
310-280844-2	OW-414B	Total/NA	Ground Water	I-3765-85	
310-280844-3	OW-101B	Total/NA	Ground Water	I-3765-85	
MB 310-421386/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-421386/2	Lab Control Sample	Total/NA	Water	I-3765-85	

QC Association Summary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Field Service / Mobile Lab

Analysis Batch: 421742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-280844-1	MW-319B	Total/NA	Ground Water	Field Sampling	
310-280844-2	OW-414B	Total/NA	Ground Water	Field Sampling	
310-280844-3	OW-101B	Total/NA	Ground Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B
Lab Sample ID: 310-280844-1
Date Collected: 05/08/24 11:00
Matrix: Ground Water
Date Received: 05/09/24 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422006	WSE8	EET CF	05/18/24 19:43
Total/NA	Prep	3005A			421325	KM3E	EET CF	05/13/24 09:00
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 18:16
Total/NA	Analysis	I-3765-85		1	421386	D7CP	EET CF	05/11/24 10:11
Total/NA	Analysis	Field Sampling		1	421742	BJ0R	EET CF	05/08/24 11:00

Client Sample ID: OW-414B
Lab Sample ID: 310-280844-2
Date Collected: 05/08/24 13:00
Matrix: Ground Water
Date Received: 05/09/24 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422006	WSE8	EET CF	05/18/24 20:04
Total/NA	Prep	3005A			421325	KM3E	EET CF	05/13/24 09:00
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 18:35
Total/NA	Analysis	I-3765-85		1	421386	D7CP	EET CF	05/11/24 10:11
Total/NA	Analysis	Field Sampling		1	421742	BJ0R	EET CF	05/08/24 13:00

Client Sample ID: OW-101B
Lab Sample ID: 310-280844-3
Date Collected: 05/08/24 10:00
Matrix: Ground Water
Date Received: 05/09/24 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422006	WSE8	EET CF	05/18/24 20:26
Total/NA	Prep	3005A			421325	KM3E	EET CF	05/13/24 09:00
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 18:37
Total/NA	Analysis	I-3765-85		1	421386	D7CP	EET CF	05/11/24 10:11
Total/NA	Analysis	Field Sampling		1	421742	BJ0R	EET CF	05/08/24 10:00

Client Sample ID: Trip Blank
Lab Sample ID: 310-280844-4
Date Collected: 05/08/24 06:00
Matrix: Water
Date Received: 05/09/24 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422006	WSE8	EET CF	05/18/24 16:49

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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	m,p-Xylene
8260D		Ground Water	o-Xylene
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Ground Water	Field Turbidity

Method Summary

Client: AECOM
Job ID: 310-280844-1
Project/Site: Black Hawk County Landfill (IDNR)

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
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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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310-280844 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: AECOM			
City/State: CITY Waterloo	STATE IA	Project: BHC FDNR	
Receipt Information			
Date/Time Received: 5/8 24	DATE	TIME 1040	Received By: TD
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: X		Correction Factor (°C): 0.0	
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): 1.3		Corrected Temp (°C): 1.3	
• **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			

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277 2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-9-24	COC No
AECOM	Email Christopher Oelkers@aecom com			1 of 3 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	Lab Contact:	Carrier:	TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide							Sample Specific Notes
OW-220B			G	GW		N		X		X							X								
OW-221B			G	GW		N		X																	
OW-222B			G	GW		N		X																	
OW-223B			G	GW		N		X																	
OW-224B			G	GW		N		X																	
OW-225B			G	GW		N		X																	
OW-226B			G	GW		N		X										X							
OW-227B			G	GW		N		X										X							
MW-319B	5-8-24	1100	G	GW	5	N		X																	Turbidity - 6.36 NTU
MW-320B			G	GW		N		X																	
Equipment Blank-1			G	GW		N		X																	
MW-319B-FD			G	GW		N		X																	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd ____ Corr'd. ____ | Therm ID No. ____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Accom	5-9-24			5/9/24 1640
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

5/23/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom.com	2 of 3 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**	Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS	**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____	Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks	Lab Sampling
Site Black Hawk County Landfill	☐ 1 week	
P O #	☐ 2 days	Job / SDG No
	☐ 1 day	

Site Contact: **Date:** 5-9-24
Lab Contact: **Carrier:**

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-401B			G	GW		N		X		X		X	X		X	X	X	X	
OW-402B			G	GW		N		X											
MW-409B			G	GW		N		X											
OW-410B			G	GW		N		X											
OW-411B			G	GW		N		X											
OW-412B			G	GW		N		X											
OW-413B			G	GW		N		X											
OW-414B	5-8-24	1300	G	GW	5	N		X											Turbidity - 1.01 NTU
MW-501B			G	GW		N		X											
MW-602B			G	GW		N		X											
MW-602B-FD			G	GW		N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd.____ Corr'd.____ | Therm ID No .____

Relinquished by: Ben Porter	Company: 5-9-24	Date/Time	Received by:	Company:	Date/Time 5/9/24 1640
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

5/23/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319 277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-9-24	COC No
AECOM	Email Christopher Oelkers@aecom.com	Lab Contact:	Carrier:	3 of 3 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide						Sample Specific Notes
OW-101B	5-8-24	1000	G	GW	5	N		X																Turbidity - 3.50 NTU
OW-105B			G	GW		N		X																
OW-113B			G	GW		N		X										X						
OW-114B			G	GW		N		X																
OW-205B			G	GW		N		X			X			X				X						
OW-209B			G	GW		N		X																
OW-212B			G	GW		N		X																
OW-213BR			G	GW		N		X																
OW-216BR			G	GW		N		X																
OW-219B			G	GW		N		X																
OW-219B-FD			G	GW		N		X																
Trip Blank	5-8-24	0600	G	W	2	N		X																

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd _____ Corr'd. _____ | Therm ID No. _____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Aecom	5-9-24			5/9/24 1040
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

5/23/2024

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-280844-1

Login Number: 280844

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	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 5/30/2024 2:25:43 PM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)

JOB NUMBER

310-281290-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
5/30/2024 2:25:43 PM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job Narrative
310-281290-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/15/2024 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 time was 7.4°C.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 310-422205 recovered above the upper control limit for Vinyl Chloride (22.2 %D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-422205/4).

Method 8260D: The method blank for analytical batch 310-422205 contained Vinyl Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-422207 recovered above the upper control limit for 4-Methyl-2-pentanone (MIBK) (20.5%D) . The laboratory control sample associated with this CCV was within CCV criteria for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-422207/3).

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 310-422219. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8081B: The continuing calibration verification (CCV) associated with batch 310-422812 recovered above the upper control limit for Endrin aldehyde. The samples associated with this CCV were non-detects for the affected analytes; 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.

Metals
Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: OW-401B (310-281290-6). The sample(s) was 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-281290-1	MW-603B	Groundwater	05/14/24 14:00	05/15/24 09:30
310-281290-2	GUW2-1	Groundwater	05/14/24 13:30	05/15/24 09:30
310-281290-3	GUW2-1-FD	Groundwater	05/14/24 13:30	05/15/24 09:30
310-281290-4	OW-114B	Groundwater	05/14/24 12:00	05/15/24 09:30
310-281290-5	OW-216BR	Groundwater	05/14/24 13:00	05/15/24 09:30
310-281290-6	OW-401B	Groundwater	05/14/24 10:30	05/15/24 09:30
310-281290-7	Trip Blank	Water	05/14/24 00:00	05/15/24 09:30

Detection Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B — Lab Sample ID: 310-281290-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.633	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	38.6		2.00	0.660	ug/L	1		6020B	Total/NA
Field Turbidity	1.86				NTU	1		Field Sampling	Total/NA

Client Sample ID: GUW2-1 — Lab Sample ID: 310-281290-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	10.2		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	246		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	2.08		0.500	0.170	ug/L	1		6020B	Total/NA
Total Suspended Solids	25.0		7.50	5.55	mg/L	1		I-3765-85	Total/NA
Field Turbidity	9.74				NTU	1		Field Sampling	Total/NA

Client Sample ID: GUW2-1-FD — Lab Sample ID: 310-281290-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.224	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	10.4		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	247		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	2.11		0.500	0.170	ug/L	1		6020B	Total/NA
Total Suspended Solids	26.5		7.50	5.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: OW-114B — Lab Sample ID: 310-281290-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	55.8		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.93	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.830		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.93	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	13.0		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.88		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	19.11				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-216BR — Lab Sample ID: 310-281290-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	222		2.00	0.660	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.88		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	3.71				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-401B — Lab Sample ID: 310-281290-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	1.22		1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	9.57	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	3.79		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.473	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	0.998	J	4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	5.67		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1710		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.34	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.50		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	47.0		5.00	2.10	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: OW-401B (Continued)
Lab Sample ID: 310-281290-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vanadium	2.55	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	76.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	3.37				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B
Lab Sample ID: 310-281290-1
Date Collected: 05/14/24 14:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 06:25	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 06:25	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 06:25	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 06:25	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 06:25	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 06:25	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 06:25	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 06:25	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 06:25	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 06:25	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 06:25	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 06:25	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 06:25	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 06:25	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 06:25	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 06:25	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 06:25	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 06:25	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 06:25	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 06:25	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 06:25	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 06:25	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 06:25	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 06:25	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 06:25	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 06:25	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 06:25	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 06:25	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 06:25	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 06:25	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 06:25	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 06:25	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 06:25	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 06:25	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 06:25	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 06:25	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 06:25	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 06:25	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 06:25	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 06:25	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 06:25	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 06:25	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 06:25	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 06:25	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 06:25	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 06:25	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 06:25	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 06:25	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 06:25	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B
Lab Sample ID: 310-281290-1

Date Collected: 05/14/24 14:00
Matrix: Groundwater

Date Received: 05/15/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*115*		*73 - 130*		*05/21/24 06:25*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 06:25*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 06:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:43	1
Arsenic	**0.633**	**J**	2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:43	1
Barium	**38.6**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:43	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:43	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:43	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:43	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:43	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:43	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:43	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:19	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:43	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:19	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:43	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:43	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.86**				NTU			05/14/24 14:00	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1
Lab Sample ID: 310-281290-2
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 06:48	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 06:48	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 06:48	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 06:48	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 06:48	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 06:48	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 06:48	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 06:48	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 06:48	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 06:48	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 06:48	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 06:48	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 06:48	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 06:48	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 06:48	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 06:48	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 06:48	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 06:48	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 06:48	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 06:48	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 06:48	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 06:48	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 06:48	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 06:48	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 06:48	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 06:48	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 06:48	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 06:48	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 06:48	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 06:48	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 06:48	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 06:48	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 06:48	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 06:48	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 06:48	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 06:48	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 06:48	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 06:48	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 06:48	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 06:48	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 06:48	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 06:48	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 06:48	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 06:48	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 06:48	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 06:48	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 06:48	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 06:48	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 06:48	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1
Lab Sample ID: 310-281290-2

Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 06:48*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 06:48*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*05/21/24 06:48*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:45	1
Arsenic	**10.2**		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:45	1
Barium	**246**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:45	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:45	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:45	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:45	1
Cobalt	**2.08**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:45	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:45	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:45	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:22	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:45	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:22	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:45	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:45	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**25.0**		7.50	5.55	mg/L			05/17/24 09:34	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**9.74**				NTU			05/14/24 13:30	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1-FD
Lab Sample ID: 310-281290-3
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 07:11	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 07:11	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 07:11	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 07:11	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 07:11	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 07:11	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 07:11	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 07:11	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 07:11	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 07:11	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 07:11	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 07:11	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 07:11	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 07:11	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 07:11	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 07:11	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 07:11	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 07:11	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 07:11	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 07:11	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 07:11	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 07:11	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 07:11	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 07:11	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 07:11	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 07:11	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 07:11	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 07:11	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 07:11	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 07:11	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 07:11	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 07:11	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 07:11	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 07:11	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 07:11	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 07:11	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 07:11	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 07:11	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 07:11	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 07:11	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 07:11	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 07:11	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 07:11	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 07:11	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 07:11	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 07:11	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 07:11	1
Vinyl chloride	**0.224**	**J**	1.00	0.180	ug/L			05/23/24 23:44	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 07:11	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1-FD
Lab Sample ID: 310-281290-3

Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*116*		*73 - 130*		*05/21/24 07:11*	*1*
Dibromofluoromethane (Surr)	*112*		*73 - 130*		*05/23/24 23:44*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/21/24 07:11*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/23/24 23:44*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 07:11*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/23/24 23:44*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:47	1
Arsenic	**10.4**		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:47	1
Barium	**247**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:47	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:47	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:47	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:47	1
Cobalt	**2.11**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:47	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:47	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:47	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:24	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:47	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:24	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:47	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:47	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**26.5**		7.50	5.55	mg/L			05/17/24 08:46	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4
Date Collected: 05/14/24 12:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 07:34	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 07:34	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 07:34	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 07:34	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 07:34	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 07:34	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 07:34	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 07:34	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 07:34	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 07:34	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 07:34	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 07:34	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 07:34	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 07:34	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 07:34	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 07:34	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 07:34	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 07:34	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 07:34	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 07:34	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 07:34	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 07:34	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 07:34	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 07:34	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 07:34	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 07:34	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 07:34	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 07:34	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 07:34	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 07:34	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 07:34	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 07:34	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 07:34	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 07:34	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 07:34	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 07:34	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 07:34	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 07:34	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 07:34	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 07:34	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 07:34	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 07:34	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 07:34	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 07:34	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 07:34	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 07:34	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 07:34	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 07:34	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 07:34	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4

Date Collected: 05/14/24 12:00
Matrix: Groundwater

Date Received: 05/15/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 07:34*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/21/24 07:34*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*05/21/24 07:34*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:50	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:50	1
Barium	**55.8**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:50	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:50	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:50	1
Chromium	**1.93**	**J**	5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:50	1
Cobalt	**0.830**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:50	1
Copper	**2.93**	**J**	5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:50	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:50	1
Nickel	**13.0**		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:26	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:50	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:26	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:50	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:50	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:50	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	1.39	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**19.11**				NTU			05/14/24 12:00	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-216BR
Lab Sample ID: 310-281290-5
Date Collected: 05/14/24 13:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 07:57	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 07:57	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 07:57	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 07:57	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 07:57	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 07:57	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 07:57	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 07:57	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 07:57	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 07:57	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 07:57	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 07:57	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 07:57	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 07:57	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 07:57	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 07:57	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 07:57	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 07:57	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 07:57	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 07:57	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 07:57	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 07:57	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 07:57	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 07:57	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 07:57	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 07:57	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 07:57	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 07:57	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 07:57	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 07:57	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 07:57	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 07:57	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 07:57	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 07:57	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 07:57	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 07:57	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 07:57	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 07:57	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 07:57	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 07:57	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 07:57	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 07:57	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 07:57	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 07:57	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 07:57	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 07:57	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 07:57	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 07:57	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 07:57	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-216BR
Lab Sample ID: 310-281290-5

Date Collected: 05/14/24 13:00
Matrix: Groundwater

Date Received: 05/15/24 09:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*112*		*73 - 130*		*05/21/24 07:57*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 07:57*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 07:57*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:52	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:52	1
Barium	**222**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:52	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:52	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:52	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:52	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:52	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:52	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:52	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:37	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:52	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:37	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:52	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:52	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.88**		1.88	1.39	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**3.71**				NTU			05/14/24 13:00	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-401B
Lab Sample ID: 310-281290-6
Date Collected: 05/14/24 10:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 08:19	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 08:19	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 08:19	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 08:19	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 08:19	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 08:19	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 08:19	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 08:19	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 08:19	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 08:19	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 08:19	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 08:19	1
1,4-Dichlorobenzene	**1.22**		1.00	0.230	ug/L			05/21/24 08:19	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 08:19	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 08:19	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 08:19	1
Acetone	**9.57**	**J**	10.0	3.10	ug/L			05/21/24 08:19	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 08:19	1
Benzene	**3.79**		0.500	0.220	ug/L			05/21/24 08:19	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 08:19	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 08:19	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 08:19	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 08:19	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 08:19	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 08:19	1
Chlorobenzene	**0.473**	**J**	1.00	0.400	ug/L			05/21/24 08:19	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 08:19	1
Chloroethane	**0.998**	**J**	4.00	0.790	ug/L			05/21/24 08:19	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 08:19	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 08:19	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 08:19	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 08:19	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 08:19	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 08:19	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 08:19	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 08:19	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 08:19	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 08:19	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 08:19	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 08:19	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 08:19	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 08:19	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 08:19	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 08:19	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 08:19	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 08:19	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 08:19	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 08:19	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 08:19	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-401B
Lab Sample ID: 310-281290-6
Date Collected: 05/14/24 10:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*73 - 130*		*05/21/24 08:19*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/21/24 08:19*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 08:19*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	<0.0315		0.0696	0.0315	ug/L		05/21/24 08:00	05/28/24 15:42	1
Endrin aldehyde	<0.0315		0.0696	0.0315	ug/L		05/21/24 08:00	05/28/24 15:42	1
Endosulfan sulfate	<0.0326		0.0696	0.0326	ug/L		05/21/24 08:00	05/28/24 15:42	1
beta-BHC	<0.0402		0.0696	0.0402	ug/L		05/21/24 08:00	05/28/24 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*73*		*10 - 136*	*05/21/24 08:00*	*05/28/24 15:42*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*10 - 130*	*05/21/24 08:00*	*05/28/24 15:42*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:54	1
Arsenic	**5.67**		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:54	1
Barium	**1710**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:54	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:54	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:54	1
Chromium	**1.34**	**J**	5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:54	1
Cobalt	**2.50**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:54	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:54	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:54	1
Nickel	**47.0**		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:39	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:54	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:39	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:54	1
Vanadium	**2.55**	**J**	5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:54	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		05/20/24 07:41	05/20/24 09:22	1
Total Suspended Solids (USGS I-3765-85)	**76.0**		15.0	11.1	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**3.37**				NTU			05/14/24 10:30	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7
Date Collected: 05/14/24 00:00
Matrix: Water
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 12:29	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 12:29	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 12:29	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 12:29	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 12:29	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 12:29	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 12:29	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 12:29	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 12:29	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 12:29	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 12:29	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 12:29	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 12:29	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 12:29	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 12:29	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 12:29	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 12:29	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 12:29	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 12:29	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 12:29	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 12:29	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 12:29	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 12:29	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 12:29	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 12:29	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 12:29	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 12:29	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 12:29	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 12:29	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 12:29	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 12:29	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 12:29	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 12:29	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 12:29	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 12:29	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 12:29	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 12:29	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 12:29	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 12:29	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 12:29	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 12:29	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 12:29	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 12:29	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 12:29	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 12:29	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 12:29	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 12:29	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 12:29	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 12:29	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7
Date Collected: 05/14/24 00:00
Matrix: Water
Date Received: 05/15/24 09:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	111		73 - 130		05/21/24 12:29	1
Toluene-d8 (Surr)	97		80 - 120		05/21/24 12:29	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/21/24 12:29	1

Definitions/Glossary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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.

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: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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

Matrix: Groundwater — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(73-130)	(80-120)	(80-120)
310-281290-1	MW-603B	115	98	99
310-281290-2	GUW2-1	113	98	100
310-281290-3	GUW2-1-FD	116	96	99
310-281290-3	GUW2-1-FD	112	96	99
310-281290-4	OW-114B	113	97	101
310-281290-5	OW-216BR	112	98	99
310-281290-6	OW-401B	109	97	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	(73-130)	(80-120)	(80-120)
310-281290-7	Trip Blank	111	97	99
LCS 310-422205/6	Lab Control Sample	99	101	101
LCS 310-422205/7	Lab Control Sample	115	96	100
LCS 310-422207/6	Lab Control Sample	99	101	100
LCS 310-422207/7	Lab Control Sample	113	97	102
LCS 310-422561/6	Lab Control Sample	98	101	102
LCS 310-422561/7	Lab Control Sample	111	97	100
MB 310-422205/5	Method Blank	113	98	102
MB 310-422207/5	Method Blank	113	98	100
MB 310-422561/5	Method Blank	111	96	98

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Groundwater — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
310-281290-6	OW-401B	73	59

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Surrogate Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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 310-422219/4-A	Lab Control Sample	75	77								
LCSD 310-422219/5-A	Lab Control Sample Dup	52	66								
MB 310-422219/1-A	Method Blank	73	68								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

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

Lab Sample ID: MB 310-422205/5
Matrix: Water
Analysis Batch: 422205

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	<0.380		1.00	0.380	ug/L			05/21/24 00:21	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 00:21	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 00:21	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 00:21	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 00:21	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 00:21	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 00:21	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 00:21	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 00:21	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 00:21	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 00:21	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 00:21	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 00:21	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 00:21	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 00:21	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 00:21	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 00:21	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 00:21	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 00:21	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 00:21	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 00:21	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 00:21	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 00:21	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 00:21	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 00:21	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 00:21	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 00:21	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 00:21	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 00:21	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 00:21	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 00:21	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 00:21	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 00:21	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 00:21	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 00:21	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 00:21	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 00:21	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 00:21	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 00:21	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 00:21	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 00:21	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 00:21	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 00:21	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 00:21	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 00:21	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 00:21	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 00:21	1
Vinyl chloride	0.2884	J	1.00	0.180	ug/L			05/21/24 00:21	1

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

Lab Sample ID: MB 310-422205/5
Matrix: Water
Analysis Batch: 422205

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 00:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 00:21*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 00:21*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/21/24 00:21*	*1*

Lab Sample ID: LCS 310-422205/6
Matrix: Water
Analysis Batch: 422205

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	21.65		ug/L		108	71 - 120
1,1,1-Trichloroethane	20.0	22.06		ug/L		110	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.35		ug/L		102	68 - 124
1,1,2-Trichloroethane	20.0	22.66		ug/L		113	73 - 123
1,1-Dichloroethane	20.0	21.15		ug/L		106	70 - 127
1,1-Dichloroethene	20.0	20.64		ug/L		103	63 - 132
1,2,3-Trichloropropane	20.0	21.33		ug/L		107	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.10		ug/L		106	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.65		ug/L		113	75 - 125
1,2-Dichlorobenzene	20.0	21.32		ug/L		107	74 - 120
1,2-Dichloroethane	20.0	22.09		ug/L		110	71 - 125
1,2-Dichloropropane	20.0	23.09		ug/L		115	73 - 124
1,4-Dichlorobenzene	20.0	21.34		ug/L		107	72 - 120
2-Butanone (MEK)	40.0	44.07		ug/L		110	50 - 150
2-Hexanone	40.0	44.46		ug/L		111	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	44.99		ug/L		112	60 - 139
Acetone	40.0	43.03		ug/L		108	50 - 150
Acrylonitrile	200	218.3		ug/L		109	50 - 150
Benzene	20.0	21.74		ug/L		109	72 - 124
Bromochloromethane	20.0	21.34		ug/L		107	73 - 130
Bromodichloromethane	20.0	21.50		ug/L		107	74 - 122
Bromoform	20.0	20.61		ug/L		103	61 - 122
Carbon disulfide	20.0	20.69		ug/L		103	59 - 135
Carbon tetrachloride	20.0	23.39		ug/L		117	67 - 132
Chlorobenzene	20.0	21.34		ug/L		107	76 - 120
Chlorodibromomethane	20.0	22.17		ug/L		111	71 - 121
Chloroform	20.0	21.38		ug/L		107	72 - 125
cis-1,2-Dichloroethene	20.0	20.73		ug/L		104	74 - 123
cis-1,3-Dichloropropene	20.0	22.50		ug/L		113	71 - 125
Dibromomethane	20.0	21.32		ug/L		107	74 - 125
Ethylbenzene	20.0	21.58		ug/L		108	74 - 122
Iodomethane	20.0	21.99		ug/L		110	10 - 150
Methylene Chloride	20.0	20.28		ug/L		101	50 - 150
Styrene	20.0	21.68		ug/L		108	74 - 121
Tetrachloroethene	20.0	22.08		ug/L		110	71 - 130
Toluene	20.0	20.94		ug/L		105	74 - 123

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

Lab Sample ID: LCS 310-422205/6
Matrix: Water
Analysis Batch: 422205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	21.18		ug/L		106	70 - 126
trans-1,3-Dichloropropene	20.0	21.25		ug/L		106	69 - 123
trans-1,4-Dichloro-2-butene	20.0	21.57		ug/L		108	50 - 150
Trichloroethene	20.0	21.98		ug/L		110	72 - 126
Vinyl acetate	40.0	41.84		ug/L		105	50 - 150
Xylenes, Total	40.0	43.39		ug/L		108	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-422205/7
Matrix: Water
Analysis Batch: 422205

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	20.54		ug/L		103	23 - 150
Chloroethane	20.0	22.95		ug/L		115	54 - 136
Chloromethane	20.0	24.41		ug/L		122	38 - 150
Trichlorofluoromethane	20.0	23.61		ug/L		118	54 - 149
Vinyl chloride	20.0	24.27		ug/L		121	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*115*		*73 - 130*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 310-422207/5
Matrix: Water
Analysis Batch: 422207

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	<0.380		1.00	0.380	ug/L			05/21/24 11:21	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 11:21	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 11:21	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 11:21	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 11:21	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 11:21	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 11:21	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 11:21	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 11:21	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 11:21	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 11:21	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 11:21	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 11:21	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 11:21	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 11:21	1

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

Lab Sample ID: MB 310-422207/5
Matrix: Water
Analysis Batch: 422207

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 11:21	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 11:21	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 11:21	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 11:21	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 11:21	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 11:21	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 11:21	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 11:21	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 11:21	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 11:21	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 11:21	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 11:21	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 11:21	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 11:21	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 11:21	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 11:21	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 11:21	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 11:21	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 11:21	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 11:21	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 11:21	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 11:21	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 11:21	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 11:21	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 11:21	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 11:21	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 11:21	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 11:21	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 11:21	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 11:21	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 11:21	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 11:21	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 11:21	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 11:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 11:21*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 11:21*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*05/21/24 11:21*	*1*

Lab Sample ID: LCS 310-422207/6
Matrix: Water
Analysis Batch: 422207

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	20.28		ug/L		101	71 - 120
1,1,1-Trichloroethane	20.0	20.28		ug/L		101	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.00		ug/L		105	68 - 124

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

Lab Sample ID: LCS 310-422207/6
Matrix: Water
Analysis Batch: 422207

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	20.0	21.61		ug/L		108	73 - 123
1,1-Dichloroethane	20.0	19.37		ug/L		97	70 - 127
1,1-Dichloroethene	20.0	18.99		ug/L		95	63 - 132
1,2,3-Trichloropropane	20.0	21.14		ug/L		106	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.36		ug/L		107	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.05		ug/L		110	75 - 125
1,2-Dichlorobenzene	20.0	20.34		ug/L		102	74 - 120
1,2-Dichloroethane	20.0	21.20		ug/L		106	71 - 125
1,2-Dichloropropane	20.0	21.47		ug/L		107	73 - 124
1,4-Dichlorobenzene	20.0	19.96		ug/L		100	72 - 120
2-Butanone (MEK)	40.0	45.87		ug/L		115	50 - 150
2-Hexanone	40.0	46.52		ug/L		116	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	46.05		ug/L		115	60 - 139
Acetone	40.0	43.50		ug/L		109	50 - 150
Acrylonitrile	200	220.9		ug/L		110	50 - 150
Benzene	20.0	20.34		ug/L		102	72 - 124
Bromochloromethane	20.0	20.25		ug/L		101	73 - 130
Bromodichloromethane	20.0	20.15		ug/L		101	74 - 122
Bromoform	20.0	20.22		ug/L		101	61 - 122
Carbon disulfide	20.0	18.86		ug/L		94	59 - 135
Carbon tetrachloride	20.0	21.44		ug/L		107	67 - 132
Chlorobenzene	20.0	20.01		ug/L		100	76 - 120
Chlorodibromomethane	20.0	20.93		ug/L		105	71 - 121
Chloroform	20.0	19.96		ug/L		100	72 - 125
cis-1,2-Dichloroethene	20.0	19.04		ug/L		95	74 - 123
cis-1,3-Dichloropropene	20.0	20.78		ug/L		104	71 - 125
Dibromomethane	20.0	20.56		ug/L		103	74 - 125
Ethylbenzene	20.0	20.37		ug/L		102	74 - 122
Iodomethane	20.0	19.31		ug/L		97	10 - 150
Methylene Chloride	20.0	19.17		ug/L		96	50 - 150
Styrene	20.0	20.44		ug/L		102	74 - 121
Tetrachloroethene	20.0	20.16		ug/L		101	71 - 130
Toluene	20.0	19.34		ug/L		97	74 - 123
trans-1,2-Dichloroethene	20.0	19.25		ug/L		96	70 - 126
trans-1,3-Dichloropropene	20.0	19.97		ug/L		100	69 - 123
trans-1,4-Dichloro-2-butene	20.0	19.62		ug/L		98	50 - 150
Trichloroethene	20.0	20.58		ug/L		103	72 - 126
Vinyl acetate	40.0	40.45		ug/L		101	50 - 150
Xylenes, Total	40.0	40.46		ug/L		101	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

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

Lab Sample ID: LCS 310-422207/7
Matrix: Water
Analysis Batch: 422207

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	19.56		ug/L		98	23 - 150
Chloroethane	20.0	21.21		ug/L		106	54 - 136
Chloromethane	20.0	22.23		ug/L		111	38 - 150
Trichlorofluoromethane	20.0	21.81		ug/L		109	54 - 149
Vinyl chloride	20.0	22.32		ug/L		112	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*113*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 310-422561/5
Matrix: Water
Analysis Batch: 422561

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	<0.380		1.00	0.380	ug/L			05/23/24 18:25	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 18:25	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 18:25	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 18:25	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 18:25	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 18:25	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 18:25	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 18:25	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 18:25	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 18:25	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 18:25	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 18:25	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 18:25	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 18:25	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 18:25	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 18:25	1
Acetone	<3.10		10.0	3.10	ug/L			05/23/24 18:25	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 18:25	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 18:25	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 18:25	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 18:25	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 18:25	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 18:25	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 18:25	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 18:25	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 18:25	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 18:25	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 18:25	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 18:25	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 18:25	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 18:25	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 18:25	1

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

Lab Sample ID: MB 310-422561/5
Matrix: Water
Analysis Batch: 422561

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 18:25	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 18:25	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 18:25	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 18:25	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 18:25	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 18:25	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 18:25	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 18:25	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 18:25	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 18:25	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 18:25	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 18:25	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 18:25	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 18:25	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 18:25	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 18:25	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 18:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*73 - 130*		*05/23/24 18:25*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/23/24 18:25*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*05/23/24 18:25*	*1*

Lab Sample ID: LCS 310-422561/6
Matrix: Water
Analysis Batch: 422561

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	21.78		ug/L		109	71 - 120
1,1,1-Trichloroethane	20.0	21.83		ug/L		109	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.69		ug/L		108	68 - 124
1,1,2-Trichloroethane	20.0	23.11		ug/L		116	73 - 123
1,1-Dichloroethane	20.0	20.86		ug/L		104	70 - 127
1,1-Dichloroethene	20.0	19.89		ug/L		99	63 - 132
1,2,3-Trichloropropane	20.0	22.30		ug/L		112	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.29		ug/L		106	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.91		ug/L		115	75 - 125
1,2-Dichlorobenzene	20.0	21.81		ug/L		109	74 - 120
1,2-Dichloroethane	20.0	22.06		ug/L		110	71 - 125
1,2-Dichloropropane	20.0	23.19		ug/L		116	73 - 124
1,4-Dichlorobenzene	20.0	21.71		ug/L		109	72 - 120
2-Butanone (MEK)	40.0	47.82		ug/L		120	50 - 150
2-Hexanone	40.0	48.75		ug/L		122	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	48.31		ug/L		121	60 - 139
Acetone	40.0	45.00		ug/L		113	50 - 150
Acrylonitrile	200	226.9		ug/L		113	50 - 150
Benzene	20.0	21.92		ug/L		110	72 - 124
Bromochloromethane	20.0	20.80		ug/L		104	73 - 130

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

Lab Sample ID: LCS 310-422561/6
Matrix: Water
Analysis Batch: 422561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromodichloromethane	20.0	21.25		ug/L		106	74 - 122
Bromoform	20.0	21.35		ug/L		107	61 - 122
Carbon disulfide	20.0	20.28		ug/L		101	59 - 135
Carbon tetrachloride	20.0	23.80		ug/L		119	67 - 132
Chlorobenzene	20.0	22.06		ug/L		110	76 - 120
Chlorodibromomethane	20.0	22.24		ug/L		111	71 - 121
Chloroform	20.0	20.53		ug/L		103	72 - 125
cis-1,2-Dichloroethene	20.0	20.95		ug/L		105	74 - 123
cis-1,3-Dichloropropene	20.0	23.01		ug/L		115	71 - 125
Dibromomethane	20.0	21.00		ug/L		105	74 - 125
Ethylbenzene	20.0	22.08		ug/L		110	74 - 122
Iodomethane	20.0	17.93		ug/L		90	10 - 150
Methylene Chloride	20.0	20.00		ug/L		100	50 - 150
Styrene	20.0	22.33		ug/L		112	74 - 121
Tetrachloroethene	20.0	22.11		ug/L		111	71 - 130
Toluene	20.0	21.33		ug/L		107	74 - 123
trans-1,2-Dichloroethene	20.0	21.15		ug/L		106	70 - 126
trans-1,3-Dichloropropene	20.0	21.71		ug/L		109	69 - 123
trans-1,4-Dichloro-2-butene	20.0	21.25		ug/L		106	50 - 150
Trichloroethene	20.0	22.02		ug/L		110	72 - 126
Vinyl acetate	40.0	43.07		ug/L		108	50 - 150
Xylenes, Total	40.0	43.42		ug/L		109	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: LCS 310-422561/7
Matrix: Water
Analysis Batch: 422561

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	19.08		ug/L		95	23 - 150
Chloroethane	20.0	22.25		ug/L		111	54 - 136
Chloromethane	20.0	22.76		ug/L		114	38 - 150
Trichlorofluoromethane	20.0	23.05		ug/L		115	54 - 149
Vinyl chloride	20.0	23.24		ug/L		116	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*111*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-422219/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422812
Prep Batch: 422219

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	<0.0290		0.0640	0.0290	ug/L		05/21/24 08:00	05/28/24 13:10	1
Endrin aldehyde	<0.0290		0.0640	0.0290	ug/L		05/21/24 08:00	05/28/24 13:10	1
Endosulfan sulfate	<0.0300		0.0640	0.0300	ug/L		05/21/24 08:00	05/28/24 13:10	1
beta-BHC	<0.0370		0.0640	0.0370	ug/L		05/21/24 08:00	05/28/24 13:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*73*		*10 - 136*	*05/21/24 08:00*	*05/28/24 13:10*	*1*
Tetrachloro-m-xylene (Surr)	*68*		*10 - 130*	*05/21/24 08:00*	*05/28/24 13:10*	*1*

Lab Sample ID: LCS 310-422219/4-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422812
Prep Batch: 422219

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
alpha-BHC			1.00	0.6847		ug/L		68	36 - 127		
Endrin aldehyde			1.00	0.7810		ug/L		78	32 - 137		
Endosulfan sulfate			1.00	0.7480		ug/L		75	36 - 147		
beta-BHC			1.00	0.6860		ug/L		69	37 - 136		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*75*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*77*		*10 - 130*

Lab Sample ID: LCSD 310-422219/5-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422812
Prep Batch: 422219

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC			1.00	0.5967		ug/L		60	36 - 127	14	35
Endrin aldehyde			1.00	0.6930		ug/L		69	32 - 137	12	35
Endosulfan sulfate			1.00	0.6602		ug/L		66	36 - 147	12	35
beta-BHC			1.00	0.6092		ug/L		61	37 - 136	14	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*52*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*66*		*10 - 130*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-421948/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422792
Prep Batch: 421948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 19:45	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 19:45	1
Barium	<0.660		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 19:45	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 19:45	1

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

Lab Sample ID: MB 310-421948/1-A
Matrix: Water
Analysis Batch: 422792

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 19:45	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 19:45	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 19:45	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 19:45	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 19:45	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 19:45	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 19:45	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 19:45	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 19:45	1

Lab Sample ID: MB 310-421948/1-A
Matrix: Water
Analysis Batch: 423059

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 20:55	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 20:55	1

Lab Sample ID: LCS 310-421948/2-A
Matrix: Water
Analysis Batch: 422792

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	201.3		ug/L		101	80 - 120
Arsenic	200	207.5		ug/L		104	80 - 120
Barium	100	106.0		ug/L		106	80 - 120
Beryllium	100	95.44		ug/L		95	80 - 120
Cadmium	100	100.5		ug/L		100	80 - 120
Chromium	100	96.12		ug/L		96	80 - 120
Cobalt	100	99.24		ug/L		99	80 - 120
Copper	200	199.7		ug/L		100	80 - 120
Lead	200	210.3		ug/L		105	80 - 120
Nickel	200	212.0		ug/L		106	80 - 120
Selenium	400	399.5		ug/L		100	80 - 120
Thallium	100	110.6		ug/L		111	80 - 120
Vanadium	100	102.4		ug/L		102	80 - 120
Zinc	200	183.2		ug/L		92	80 - 120

Lab Sample ID: LCS 310-421948/2-A
Matrix: Water
Analysis Batch: 423059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	100	113.5		ug/L		113	80 - 120

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-613583/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 613623
Prep Batch: 613583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		05/20/24 07:41	05/20/24 09:22	1

Lab Sample ID: LCS 240-613583/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 613623
Prep Batch: 613583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	9.07	8.000		mg/L		88	70 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-421986/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 421986

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			05/17/24 08:46	1

Lab Sample ID: LCS 310-421986/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 421986

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	89.00		mg/L		89	81 - 116

Lab Sample ID: MB 310-422005/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422005

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			05/17/24 09:34	1

Lab Sample ID: LCS 310-422005/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422005

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.00		mg/L		94	81 - 116

GC/MS VOA

Analysis Batch: 422205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	8260D	
310-281290-2	GUW2-1	Total/NA	Groundwater	8260D	
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	8260D	
310-281290-4	OW-114B	Total/NA	Groundwater	8260D	
310-281290-5	OW-216BR	Total/NA	Groundwater	8260D	
310-281290-6	OW-401B	Total/NA	Groundwater	8260D	
MB 310-422205/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422205/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422205/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 422207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-7	Trip Blank	Total/NA	Water	8260D	
MB 310-422207/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422207/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422207/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 422561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	8260D	
MB 310-422561/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422561/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422561/7	Lab Control Sample	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 422219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	3510C	
MB 310-422219/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-422219/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-422219/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 422812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	8081B	422219
MB 310-422219/1-A	Method Blank	Total/NA	Water	8081B	422219
LCS 310-422219/4-A	Lab Control Sample	Total/NA	Water	8081B	422219
LCSD 310-422219/5-A	Lab Control Sample Dup	Total/NA	Water	8081B	422219

Metals

Prep Batch: 421948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	3005A	
310-281290-2	GUW2-1	Total/NA	Groundwater	3005A	
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	3005A	
310-281290-4	OW-114B	Total/NA	Groundwater	3005A	
310-281290-5	OW-216BR	Total/NA	Groundwater	3005A	
310-281290-6	OW-401B	Total/NA	Groundwater	3005A	
MB 310-421948/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-421948/2-A	Lab Control Sample	Total/NA	Water	3005A	

Metals

Analysis Batch: 422792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	6020B	421948
310-281290-2	GUW2-1	Total/NA	Groundwater	6020B	421948
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	6020B	421948
310-281290-4	OW-114B	Total/NA	Groundwater	6020B	421948
310-281290-5	OW-216BR	Total/NA	Groundwater	6020B	421948
310-281290-6	OW-401B	Total/NA	Groundwater	6020B	421948
MB 310-421948/1-A	Method Blank	Total/NA	Water	6020B	421948
LCS 310-421948/2-A	Lab Control Sample	Total/NA	Water	6020B	421948

Analysis Batch: 423059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	6020B	421948
310-281290-2	GUW2-1	Total/NA	Groundwater	6020B	421948
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	6020B	421948
310-281290-4	OW-114B	Total/NA	Groundwater	6020B	421948
310-281290-5	OW-216BR	Total/NA	Groundwater	6020B	421948
310-281290-6	OW-401B	Total/NA	Groundwater	6020B	421948
MB 310-421948/1-A	Method Blank	Total/NA	Water	6020B	421948
LCS 310-421948/2-A	Lab Control Sample	Total/NA	Water	6020B	421948

General Chemistry

Analysis Batch: 421986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	I-3765-85	
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	I-3765-85	
310-281290-4	OW-114B	Total/NA	Groundwater	I-3765-85	
310-281290-5	OW-216BR	Total/NA	Groundwater	I-3765-85	
310-281290-6	OW-401B	Total/NA	Groundwater	I-3765-85	
MB 310-421986/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-421986/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 422005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-2	GUW2-1	Total/NA	Groundwater	I-3765-85	
MB 310-422005/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422005/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 613583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	9030B	
MB 240-613583/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-613583/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 613623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	9034	613583
MB 240-613583/1-A	Method Blank	Total/NA	Water	9034	613583
LCS 240-613583/2-A	Lab Control Sample	Total/NA	Water	9034	613583

QC Association Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Field Service / Mobile Lab

Analysis Batch: 422183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	Field Sampling	
310-281290-2	GUW2-1	Total/NA	Groundwater	Field Sampling	
310-281290-4	OW-114B	Total/NA	Groundwater	Field Sampling	
310-281290-5	OW-216BR	Total/NA	Groundwater	Field Sampling	
310-281290-6	OW-401B	Total/NA	Groundwater	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B
Lab Sample ID: 310-281290-1
Date Collected: 05/14/24 14:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 06:25
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:43
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:19
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 14:00

Client Sample ID: GUW2-1
Lab Sample ID: 310-281290-2
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 06:48
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:45
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:22
Total/NA	Analysis	I-3765-85		1	422005	HE7K	EET CF	05/17/24 09:34
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 13:30

Client Sample ID: GUW2-1-FD
Lab Sample ID: 310-281290-3
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 07:11
Total/NA	Analysis	8260D		1	422561	FE5V	EET CF	05/23/24 23:44
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:47
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:24
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4
Date Collected: 05/14/24 12:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 07:34
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:50
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:26

Lab Chronicle

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4
Date Collected: 05/14/24 12:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 12:00

Client Sample ID: OW-216BR
Lab Sample ID: 310-281290-5
Date Collected: 05/14/24 13:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 07:57
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:52
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:37
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 13:00

Client Sample ID: OW-401B
Lab Sample ID: 310-281290-6
Date Collected: 05/14/24 10:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 08:19
Total/NA	Prep	3510C			422219	C3AA	EET CF	05/21/24 08:00
Total/NA	Analysis	8081B		1	422812	BW2O	EET CF	05/28/24 15:42
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:54
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:39
Total/NA	Prep	9030B			613583	BLW	EET CLE	05/20/24 07:41
Total/NA	Analysis	9034		1	613623	BLW	EET CLE	05/20/24 09:22
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 10:30

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7
Date Collected: 05/14/24 00:00
Matrix: Water
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422207	D2YP	EET CF	05/21/24 12:29

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Groundwater	m,p-Xylene
8260D		Groundwater	o-Xylene
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Groundwater	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

Method Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	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
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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310-281290 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: AECOM			
City/State: CITY Detroit/MI	STATE MI	Project: BHCo FDNR	
Receipt Information			
Date/Time Received:	DATE 5/15/24	TIME 0730	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?	☐ 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): 7.4	Corrected Temp (°C): 7.4

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	1 5 NS	1 5 NS
Uncorrected Temp (°C):	5.9	5.1
Corrected Temp (°C):	5.9	5.1

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:**	**Date:** 5-15-24	1 of 3 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS			Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			**For Lab Use Only:** Walk-in Client: Lab Sampling
(xxx) xxx-xxxx FAX				
Project Name Black Hawk Co IDNR				Job / SDG No
Site Black Hawk County Landfill				
P O #				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
MW-603B	5-14-24	1400	G	GW	5	N		X											Turbidity - 1.86 NTU
MW-604B			G	GW		N		X											
MW-709B			G	GW		N		X											
MW-710B			G	GW		N		X											
MW-711B			G	GW		N		X											
MW-712B			G	GW		N		X											
GUE-1			G	GW		N		X											
GUE-2			G	GW		N		X											
GUW1-1			G	GW		N		X											
GUW2-1	5-14-24	1330	G	GW	5	N		X											Turbidity - 9.74 NTU
Equipment Blank-2			G	GW		N		X											
GUW2-1-FD	5-14-24	1330	G	GW	5	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C): Obs'd._____ Corr'd._____		Therm ID No._____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-15-24	Received by:	Company:	Date/Time: 5/15/24 0930
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

5/30/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:**	**Date:** 5-15-24 — 2 of 3 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:** — TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client / Lab Sampling
(xxx) xxx-xxxx FAX			
Project Name Black Hawk Co IDNR			Job / SDG No
Site Black Hawk County Landfill			
P O #			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide					Sample Specific Notes
OW-101B			G	GW		N		X															
OW-105B			G	GW		N		X															
OW-113B			G	GW		N		X										X					
OW-114B	5-14-24	1200	G	GW	5	N		X															Turbidity - 19.1 NTU
OW-205B			G	GW		N		X			X			X				X					
OW-209B			G	GW		N		X															
OW-212B			G	GW		N		X															
OW-213BR			G	GW		N		X															
OW-216BR	5-14-24	1300	G	GW	5	N		X															Turbidity - 3.71 NTU
OW-219B			G	GW		N		X															
OW-219B-FD			G	GW		N		X															

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd. _____ Corr'd _____		Therm ID No. _____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-15-24	Received by:	Company:	Date/Time: 5/24 0930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Page 49 of 51

5/30/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom com	3 of 3 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**	Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS	**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____	Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks	Lab Sampling
Site Black Hawk County Landfill	☐ 1 week	Job / SDG No
P O #	☐ 2 days	
	☐ 1 day	
Site Contact:	**Date:** 5-15-24	
Lab Contact:	**Carrier:**	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-401B	5-14-24	1030	G	GW	10	N		X		X		X	X		X	X	X	X	Turbidity – 3.37 NTU
OW-402B			G	GW		N		X											
MW-409B			G	GW		N		X											
OW-410B			G	GW		N		X											
OW-411B			G	GW		N		X											
OW-412B			G	GW		N		X											
OW-413B			G	GW		N		X											
OW-414B			G	GW		N		X											
MW-501B			G	GW		N		X											
MW-602B			G	GW		N		X											
MW-602B-FD			G	GW		N		X											
Trip Blank	5-14-24	0600	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd. ____ Corr'd ____ | Therm ID No. ____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-15-24	Received by:	Company:	Date/Time: 5/15/24 0910
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

5/30/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

0.2/1.7

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72467.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-281290-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 5/29/2024			Preservation Codes: -
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	9034_Calc/9030B Sulfide	Total Number of containers	Special Instructions/Note:
			Preservation Code:						G005
OW-401B (310-281290-6)	5/14/24	10:30 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
	5/15/24 1610		JESSICA RIGDON	5-16-24 1030	ETNC
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:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility

Client Eurofins-CF Site Name
Cooler Received on 5-16-24 Opened on 5-16-24
FedEx. 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other
Cooler unpacked by: ONQ
Receipt After-hours Drop-off Date/Time Storage Location
Eurofins Cooler # EC Foam Box Client Cooler Box Other
Packing material used. Bubble Wrap Foam Plastic Bag (None) Other
COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form
IR GUN # 19 (CF +1.5 °C) Observed Cooler Temp 0.2 °C Corrected Cooler Temp. 1.7 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3 Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7 Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9 For each sample, does the COC specify preservatives (Y/N)? # of containers (Y/N), and sample type of grab/comp(Y/N)?	(Y)	(Y) (N)
10 Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11 Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	(Yes)	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all *preserved sample(s) at the correct pH upon receipt?*	Yes	No NA pH Strip Lot# HC439975
14 Were VOAs on the COC?	Yes	No
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	No
17 Was a LL Hg or Me Hg trip blank present?	Yes	No

Tests that are not checked for pH by Receiving
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

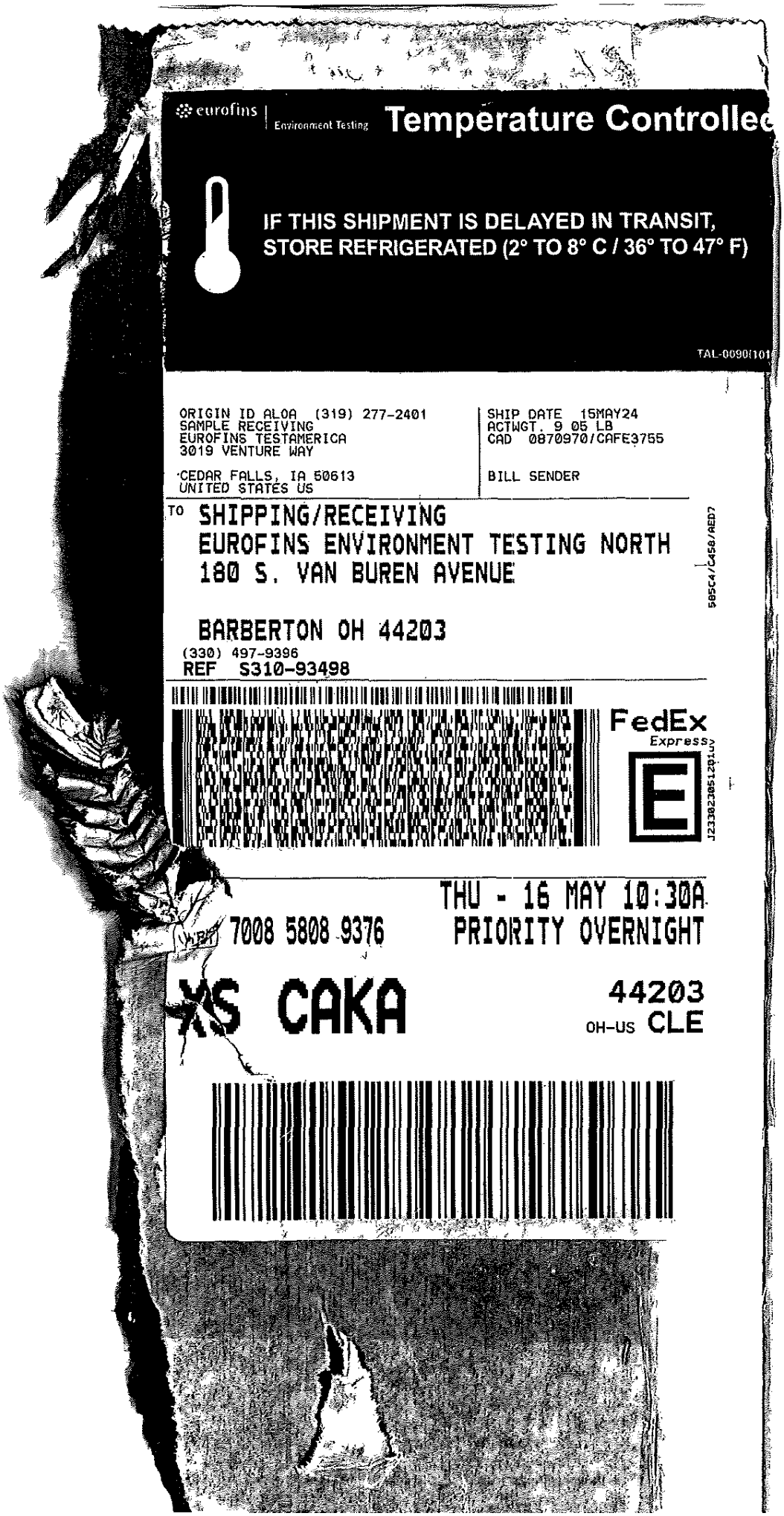
Concerning

18. *CHAIN OF CUSTODY & SAMPLE DISCREPANCIES* ☐ *additional next page* | *Samples processed by:*

19 SAMPLE CONDITION
Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container
Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20 SAMPLE PRESERVATION
Sample(s) were further preserved in the laboratory
Time preserved Preservative(s) added/Lot number(s)

VOA Sample Preservation - Date/Time VOAs Frozen



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Temperature Controlled

IF THIS SHIPMENT IS DELAYED IN TRANSIT,
STORE REFRIGERATED (2° TO 8° C / 36° TO 47° F)

TAL-0090(101

ORIGIN ID ALOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

SHIP DATE 15MAY24
ACTWGT 9 05 LB
CAD 0870970/CAFE3755

BILL SENDER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF S310-93498

585C4/C458/AED7

FedEx Express

J233023051201uv

THU - 16 MAY 10:30A
PRIORITY OVERNIGHT

7008 5808 9376

XS CAKA

44203
OH-US CLE

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72464.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-281290-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 5/29/2024			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

Analysis Requested

Preservation Codes:
-

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)	8151A/8151A_AP (MOD) 2,4-D and Silvex	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-401B (310-281290-6)	5/14/24	10:30 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
		5/15/24 1550				
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 5/16/24 09:55	Company ECLGT

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R:6.4 C:6.1

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-281290-1

Login Number: 281290

List Number: 1

Creator: Bennett, Samantha

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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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 6/5/2024 3:34:20 PM Revision 1

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)

JOB NUMBER

310-281290-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
6/5/2024 3:34:20 PM
Revision 1

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job Narrative
310-281290-1

REVISION

The report being provided is a revision of the original report sent on 5/30/2024. The report (revision 1) is being revised due to This report was revised 6/03/2024. Missing Delta BHC from the Pesticide List..

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/15/2024 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 time was 7.4°C.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 310-422205 recovered above the upper control limit for Vinyl Chloride (22.2 %D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-422205/4).

Method 8260D: The method blank for analytical batch 310-422205 contained Vinyl Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-422207 recovered above the upper control limit for 4-Methyl-2-pentanone (MIBK) (20.5%D) . The laboratory control sample associated with this CCV was within CCV criteria for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-422207/3).

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 310-422219. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8081B: The continuing calibration verification (CCV) associated with batch 310-422812 recovered above the upper control limit for Endrin aldehyde. The samples associated with this CCV were non-detects for the affected analytes; 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.

Metals
Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: OW-401B (310-281290-6). The sample(s) was 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-281290-1	MW-603B	Groundwater	05/14/24 14:00	05/15/24 09:30
310-281290-2	GUW2-1	Groundwater	05/14/24 13:30	05/15/24 09:30
310-281290-3	GUW2-1-FD	Groundwater	05/14/24 13:30	05/15/24 09:30
310-281290-4	OW-114B	Groundwater	05/14/24 12:00	05/15/24 09:30
310-281290-5	OW-216BR	Groundwater	05/14/24 13:00	05/15/24 09:30
310-281290-6	OW-401B	Groundwater	05/14/24 10:30	05/15/24 09:30
310-281290-7	Trip Blank	Water	05/14/24 00:00	05/15/24 09:30

Detection Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B — Lab Sample ID: 310-281290-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.633	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	38.6		2.00	0.660	ug/L	1		6020B	Total/NA
Field Turbidity	1.86				NTU	1		Field Sampling	Total/NA

Client Sample ID: GUW2-1 — Lab Sample ID: 310-281290-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	10.2		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	246		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	2.08		0.500	0.170	ug/L	1		6020B	Total/NA
Total Suspended Solids	25.0		7.50	5.55	mg/L	1		I-3765-85	Total/NA
Field Turbidity	9.74				NTU	1		Field Sampling	Total/NA

Client Sample ID: GUW2-1-FD — Lab Sample ID: 310-281290-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.224	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	10.4		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	247		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	2.11		0.500	0.170	ug/L	1		6020B	Total/NA
Total Suspended Solids	26.5		7.50	5.55	mg/L	1		I-3765-85	Total/NA

Client Sample ID: OW-114B — Lab Sample ID: 310-281290-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	55.8		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.93	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.830		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.93	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	13.0		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.88		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	19.11				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-216BR — Lab Sample ID: 310-281290-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	222		2.00	0.660	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.88		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	3.71				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-401B — Lab Sample ID: 310-281290-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	1.22		1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	9.57	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	3.79		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.473	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	0.998	J	4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	5.67		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1710		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.34	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.50		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	47.0		5.00	2.10	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: OW-401B (Continued)
Lab Sample ID: 310-281290-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vanadium	2.55	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	76.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	3.37				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B
Lab Sample ID: 310-281290-1
Date Collected: 05/14/24 14:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 06:25	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 06:25	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 06:25	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 06:25	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 06:25	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 06:25	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 06:25	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 06:25	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 06:25	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 06:25	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 06:25	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 06:25	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 06:25	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 06:25	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 06:25	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 06:25	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 06:25	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 06:25	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 06:25	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 06:25	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 06:25	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 06:25	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 06:25	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 06:25	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 06:25	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 06:25	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 06:25	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 06:25	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 06:25	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 06:25	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 06:25	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 06:25	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 06:25	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 06:25	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 06:25	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 06:25	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 06:25	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 06:25	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 06:25	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 06:25	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 06:25	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 06:25	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 06:25	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 06:25	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 06:25	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 06:25	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 06:25	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 06:25	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 06:25	1

Client Sample ID: MW-603B
Date Collected: 05/14/24 14:00
Date Received: 05/15/24 09:30

Lab Sample ID: 310-281290-1
Matrix: Groundwater

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*115*		*73 - 130*		*05/21/24 06:25*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 06:25*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 06:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:43	1
Arsenic	**0.633**	**J**	2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:43	1
Barium	**38.6**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:43	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:43	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:43	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:43	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:43	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:43	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:43	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:19	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:43	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:19	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:43	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:43	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.86**				NTU			05/14/24 14:00	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1
Lab Sample ID: 310-281290-2
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 06:48	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 06:48	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 06:48	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 06:48	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 06:48	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 06:48	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 06:48	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 06:48	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 06:48	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 06:48	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 06:48	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 06:48	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 06:48	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 06:48	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 06:48	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 06:48	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 06:48	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 06:48	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 06:48	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 06:48	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 06:48	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 06:48	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 06:48	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 06:48	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 06:48	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 06:48	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 06:48	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 06:48	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 06:48	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 06:48	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 06:48	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 06:48	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 06:48	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 06:48	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 06:48	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 06:48	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 06:48	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 06:48	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 06:48	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 06:48	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 06:48	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 06:48	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 06:48	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 06:48	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 06:48	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 06:48	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 06:48	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 06:48	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 06:48	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1
Date Collected: 05/14/24 13:30
Date Received: 05/15/24 09:30

Lab Sample ID: 310-281290-2
Matrix: Groundwater

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 06:48*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 06:48*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*05/21/24 06:48*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:45	1
Arsenic	**10.2**		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:45	1
Barium	**246**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:45	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:45	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:45	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:45	1
Cobalt	**2.08**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:45	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:45	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:45	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:22	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:45	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:22	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:45	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:45	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**25.0**		7.50	5.55	mg/L			05/17/24 09:34	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**9.74**				NTU			05/14/24 13:30	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1-FD
Lab Sample ID: 310-281290-3
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 07:11	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 07:11	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 07:11	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 07:11	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 07:11	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 07:11	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 07:11	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 07:11	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 07:11	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 07:11	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 07:11	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 07:11	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 07:11	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 07:11	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 07:11	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 07:11	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 07:11	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 07:11	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 07:11	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 07:11	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 07:11	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 07:11	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 07:11	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 07:11	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 07:11	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 07:11	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 07:11	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 07:11	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 07:11	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 07:11	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 07:11	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 07:11	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 07:11	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 07:11	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 07:11	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 07:11	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 07:11	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 07:11	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 07:11	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 07:11	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 07:11	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 07:11	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 07:11	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 07:11	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 07:11	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 07:11	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 07:11	1
Vinyl chloride	**0.224**	**J**	1.00	0.180	ug/L			05/23/24 23:44	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 07:11	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: GUW2-1-FD
Lab Sample ID: 310-281290-3

Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*116*		*73 - 130*		*05/21/24 07:11*	*1*
Dibromofluoromethane (Surr)	*112*		*73 - 130*		*05/23/24 23:44*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/21/24 07:11*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/23/24 23:44*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 07:11*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/23/24 23:44*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:47	1
Arsenic	**10.4**		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:47	1
Barium	**247**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:47	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:47	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:47	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:47	1
Cobalt	**2.11**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:47	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:47	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:47	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:24	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:47	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:24	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:47	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:47	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**26.5**		7.50	5.55	mg/L			05/17/24 08:46	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4

Date Collected: 05/14/24 12:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 07:34	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 07:34	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 07:34	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 07:34	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 07:34	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 07:34	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 07:34	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 07:34	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 07:34	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 07:34	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 07:34	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 07:34	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 07:34	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 07:34	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 07:34	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 07:34	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 07:34	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 07:34	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 07:34	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 07:34	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 07:34	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 07:34	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 07:34	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 07:34	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 07:34	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 07:34	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 07:34	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 07:34	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 07:34	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 07:34	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 07:34	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 07:34	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 07:34	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 07:34	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 07:34	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 07:34	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 07:34	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 07:34	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 07:34	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 07:34	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 07:34	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 07:34	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 07:34	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 07:34	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 07:34	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 07:34	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 07:34	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 07:34	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 07:34	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Date Collected: 05/14/24 12:00
Date Received: 05/15/24 09:30

Lab Sample ID: 310-281290-4
Matrix: Groundwater

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 07:34*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/21/24 07:34*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*05/21/24 07:34*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:50	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:50	1
Barium	**55.8**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:50	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:50	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:50	1
Chromium	**1.93**	**J**	5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:50	1
Cobalt	**0.830**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:50	1
Copper	**2.93**	**J**	5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:50	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:50	1
Nickel	**13.0**		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:26	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:50	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:26	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:50	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:50	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:50	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	1.39	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**19.11**				NTU			05/14/24 12:00	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-216BR
Lab Sample ID: 310-281290-5

Date Collected: 05/14/24 13:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 07:57	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 07:57	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 07:57	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 07:57	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 07:57	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 07:57	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 07:57	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 07:57	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 07:57	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 07:57	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 07:57	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 07:57	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 07:57	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 07:57	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 07:57	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 07:57	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 07:57	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 07:57	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 07:57	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 07:57	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 07:57	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 07:57	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 07:57	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 07:57	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 07:57	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 07:57	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 07:57	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 07:57	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 07:57	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 07:57	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 07:57	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 07:57	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 07:57	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 07:57	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 07:57	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 07:57	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 07:57	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 07:57	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 07:57	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 07:57	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 07:57	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 07:57	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 07:57	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 07:57	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 07:57	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 07:57	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 07:57	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 07:57	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 07:57	1

Client Sample ID: OW-216BR
Date Collected: 05/14/24 13:00
Date Received: 05/15/24 09:30

Lab Sample ID: 310-281290-5
Matrix: Groundwater

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*112*		*73 - 130*		*05/21/24 07:57*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 07:57*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 07:57*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:52	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:52	1
Barium	**222**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:52	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:52	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:52	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:52	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:52	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:52	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:52	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:37	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:52	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:37	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:52	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:52	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.88**		1.88	1.39	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**3.71**				NTU			05/14/24 13:00	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-401B
Lab Sample ID: 310-281290-6

Date Collected: 05/14/24 10:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 08:19	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 08:19	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 08:19	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 08:19	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 08:19	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 08:19	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 08:19	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 08:19	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 08:19	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 08:19	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 08:19	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 08:19	1
1,4-Dichlorobenzene	**1.22**		1.00	0.230	ug/L			05/21/24 08:19	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 08:19	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 08:19	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 08:19	1
Acetone	**9.57**	**J**	10.0	3.10	ug/L			05/21/24 08:19	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 08:19	1
Benzene	**3.79**		0.500	0.220	ug/L			05/21/24 08:19	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 08:19	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 08:19	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 08:19	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 08:19	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 08:19	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 08:19	1
Chlorobenzene	**0.473**	**J**	1.00	0.400	ug/L			05/21/24 08:19	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 08:19	1
Chloroethane	**0.998**	**J**	4.00	0.790	ug/L			05/21/24 08:19	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 08:19	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 08:19	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 08:19	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 08:19	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 08:19	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 08:19	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 08:19	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 08:19	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 08:19	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 08:19	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 08:19	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 08:19	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 08:19	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 08:19	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 08:19	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 08:19	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 08:19	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 08:19	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 08:19	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 08:19	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 08:19	1

Client Sample ID: OW-401B
Date Collected: 05/14/24 10:30
Date Received: 05/15/24 09:30

Lab Sample ID: 310-281290-6
Matrix: Groundwater

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*109*		*73 - 130*		*05/21/24 08:19*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/21/24 08:19*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*05/21/24 08:19*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
beta-BHC	<0.0402		0.0696	0.0402	ug/L		05/21/24 08:00	05/28/24 15:42	1
delta-BHC	<0.0293		0.0696	0.0293	ug/L		05/21/24 08:00	05/28/24 15:42	1
Endosulfan sulfate	<0.0326		0.0696	0.0326	ug/L		05/21/24 08:00	05/28/24 15:42	1
Endrin aldehyde	<0.0315		0.0696	0.0315	ug/L		05/21/24 08:00	05/28/24 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*73*		*10 - 136*	*05/21/24 08:00*	*05/28/24 15:42*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*10 - 130*	*05/21/24 08:00*	*05/28/24 15:42*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 20:54	1
Arsenic	**5.67**		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 20:54	1
Barium	**1710**		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 20:54	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 20:54	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 20:54	1
Chromium	**1.34**	**J**	5.00	1.20	ug/L		05/17/24 09:30	05/24/24 20:54	1
Cobalt	**2.50**		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 20:54	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 20:54	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 20:54	1
Nickel	**47.0**		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 21:39	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 20:54	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 21:39	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 20:54	1
Vanadium	**2.55**	**J**	5.00	1.10	ug/L		05/17/24 09:30	05/24/24 20:54	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 20:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		05/20/24 07:41	05/20/24 09:22	1
Total Suspended Solids (USGS I-3765-85)	**76.0**		15.0	11.1	mg/L			05/17/24 08:46	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**3.37**				NTU			05/14/24 10:30	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7

Date Collected: 05/14/24 00:00
Matrix: Water
Date Received: 05/15/24 09:30

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	<0.380		1.00	0.380	ug/L			05/21/24 12:29	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 12:29	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 12:29	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 12:29	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 12:29	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 12:29	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 12:29	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 12:29	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 12:29	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 12:29	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 12:29	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 12:29	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 12:29	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 12:29	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 12:29	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 12:29	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 12:29	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 12:29	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 12:29	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 12:29	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 12:29	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 12:29	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 12:29	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 12:29	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 12:29	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 12:29	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 12:29	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 12:29	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 12:29	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 12:29	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 12:29	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 12:29	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 12:29	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 12:29	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 12:29	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 12:29	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 12:29	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 12:29	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 12:29	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 12:29	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 12:29	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 12:29	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 12:29	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 12:29	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 12:29	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 12:29	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 12:29	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 12:29	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 12:29	1

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7
Date Collected: 05/14/24 00:00
Matrix: Water
Date Received: 05/15/24 09:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	111		73 - 130		05/21/24 12:29	1
Toluene-d8 (Surr)	97		80 - 120		05/21/24 12:29	1
4-Bromofluorobenzene (Surr)	99		80 - 120		05/21/24 12:29	1

Definitions/Glossary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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.

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: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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

Matrix: Groundwater — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(73-130)	(80-120)	(80-120)
310-281290-1	MW-603B	115	98	99
310-281290-2	GUW2-1	113	98	100
310-281290-3	GUW2-1-FD	116	96	99
310-281290-3	GUW2-1-FD	112	96	99
310-281290-4	OW-114B	113	97	101
310-281290-5	OW-216BR	112	98	99
310-281290-6	OW-401B	109	97	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	(73-130)	(80-120)	(80-120)
310-281290-7	Trip Blank	111	97	99
LCS 310-422205/6	Lab Control Sample	99	101	101
LCS 310-422205/7	Lab Control Sample	115	96	100
LCS 310-422207/6	Lab Control Sample	99	101	100
LCS 310-422207/7	Lab Control Sample	113	97	102
LCS 310-422561/6	Lab Control Sample	98	101	102
LCS 310-422561/7	Lab Control Sample	111	97	100
MB 310-422205/5	Method Blank	113	98	102
MB 310-422207/5	Method Blank	113	98	100
MB 310-422561/5	Method Blank	111	96	98

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Groundwater — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB1	TCX1
Lab Sample ID	Client Sample ID	(10-136)	(10-130)
310-281290-6	OW-401B	73	59

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Surrogate Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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 310-422219/4-A	Lab Control Sample	75	77								
LCSD 310-422219/5-A	Lab Control Sample Dup	52	66								
MB 310-422219/1-A	Method Blank	73	68								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

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

Lab Sample ID: MB 310-422205/5
Matrix: Water
Analysis Batch: 422205

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	<0.380		1.00	0.380	ug/L			05/21/24 00:21	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 00:21	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 00:21	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 00:21	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 00:21	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 00:21	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 00:21	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 00:21	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 00:21	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 00:21	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 00:21	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 00:21	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 00:21	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 00:21	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 00:21	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 00:21	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 00:21	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 00:21	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 00:21	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 00:21	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 00:21	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 00:21	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 00:21	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 00:21	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 00:21	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 00:21	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 00:21	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 00:21	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 00:21	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 00:21	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 00:21	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 00:21	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 00:21	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 00:21	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 00:21	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 00:21	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 00:21	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 00:21	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 00:21	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 00:21	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 00:21	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 00:21	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 00:21	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 00:21	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 00:21	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 00:21	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 00:21	1
Vinyl chloride	0.2884	J	1.00	0.180	ug/L			05/21/24 00:21	1

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

Lab Sample ID: MB 310-422205/5
Matrix: Water
Analysis Batch: 422205

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 00:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 00:21*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 00:21*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/21/24 00:21*	*1*

Lab Sample ID: LCS 310-422205/6
Matrix: Water
Analysis Batch: 422205

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	21.65		ug/L		108	71 - 120
1,1,1-Trichloroethane	20.0	22.06		ug/L		110	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.35		ug/L		102	68 - 124
1,1,2-Trichloroethane	20.0	22.66		ug/L		113	73 - 123
1,1-Dichloroethane	20.0	21.15		ug/L		106	70 - 127
1,1-Dichloroethene	20.0	20.64		ug/L		103	63 - 132
1,2,3-Trichloropropane	20.0	21.33		ug/L		107	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.10		ug/L		106	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.65		ug/L		113	75 - 125
1,2-Dichlorobenzene	20.0	21.32		ug/L		107	74 - 120
1,2-Dichloroethane	20.0	22.09		ug/L		110	71 - 125
1,2-Dichloropropane	20.0	23.09		ug/L		115	73 - 124
1,4-Dichlorobenzene	20.0	21.34		ug/L		107	72 - 120
2-Butanone (MEK)	40.0	44.07		ug/L		110	50 - 150
2-Hexanone	40.0	44.46		ug/L		111	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	44.99		ug/L		112	60 - 139
Acetone	40.0	43.03		ug/L		108	50 - 150
Acrylonitrile	200	218.3		ug/L		109	50 - 150
Benzene	20.0	21.74		ug/L		109	72 - 124
Bromochloromethane	20.0	21.34		ug/L		107	73 - 130
Bromodichloromethane	20.0	21.50		ug/L		107	74 - 122
Bromoform	20.0	20.61		ug/L		103	61 - 122
Carbon disulfide	20.0	20.69		ug/L		103	59 - 135
Carbon tetrachloride	20.0	23.39		ug/L		117	67 - 132
Chlorobenzene	20.0	21.34		ug/L		107	76 - 120
Chlorodibromomethane	20.0	22.17		ug/L		111	71 - 121
Chloroform	20.0	21.38		ug/L		107	72 - 125
cis-1,2-Dichloroethene	20.0	20.73		ug/L		104	74 - 123
cis-1,3-Dichloropropene	20.0	22.50		ug/L		113	71 - 125
Dibromomethane	20.0	21.32		ug/L		107	74 - 125
Ethylbenzene	20.0	21.58		ug/L		108	74 - 122
Iodomethane	20.0	21.99		ug/L		110	10 - 150
Methylene Chloride	20.0	20.28		ug/L		101	50 - 150
Styrene	20.0	21.68		ug/L		108	74 - 121
Tetrachloroethene	20.0	22.08		ug/L		110	71 - 130
Toluene	20.0	20.94		ug/L		105	74 - 123

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

Lab Sample ID: LCS 310-422205/6
Matrix: Water
Analysis Batch: 422205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	21.18		ug/L		106	70 - 126
trans-1,3-Dichloropropene	20.0	21.25		ug/L		106	69 - 123
trans-1,4-Dichloro-2-butene	20.0	21.57		ug/L		108	50 - 150
Trichloroethene	20.0	21.98		ug/L		110	72 - 126
Vinyl acetate	40.0	41.84		ug/L		105	50 - 150
Xylenes, Total	40.0	43.39		ug/L		108	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-422205/7
Matrix: Water
Analysis Batch: 422205

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	20.54		ug/L		103	23 - 150
Chloroethane	20.0	22.95		ug/L		115	54 - 136
Chloromethane	20.0	24.41		ug/L		122	38 - 150
Trichlorofluoromethane	20.0	23.61		ug/L		118	54 - 149
Vinyl chloride	20.0	24.27		ug/L		121	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*115*		*73 - 130*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 310-422207/5
Matrix: Water
Analysis Batch: 422207

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	<0.380		1.00	0.380	ug/L			05/21/24 11:21	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/21/24 11:21	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/21/24 11:21	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/21/24 11:21	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/21/24 11:21	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/21/24 11:21	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/21/24 11:21	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/21/24 11:21	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/21/24 11:21	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/21/24 11:21	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/21/24 11:21	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/21/24 11:21	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/21/24 11:21	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/21/24 11:21	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/21/24 11:21	1

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

Lab Sample ID: MB 310-422207/5
Matrix: Water
Analysis Batch: 422207

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/21/24 11:21	1
Acetone	<3.10		10.0	3.10	ug/L			05/21/24 11:21	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/21/24 11:21	1
Benzene	<0.220		0.500	0.220	ug/L			05/21/24 11:21	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/21/24 11:21	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/21/24 11:21	1
Bromoform	<0.780		5.00	0.780	ug/L			05/21/24 11:21	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/21/24 11:21	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/21/24 11:21	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/21/24 11:21	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/21/24 11:21	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/21/24 11:21	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/21/24 11:21	1
Chloroform	<1.30		3.00	1.30	ug/L			05/21/24 11:21	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/21/24 11:21	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/21/24 11:21	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/21/24 11:21	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/21/24 11:21	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/21/24 11:21	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/21/24 11:21	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/21/24 11:21	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/21/24 11:21	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/21/24 11:21	1
Styrene	<0.370		1.00	0.370	ug/L			05/21/24 11:21	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/21/24 11:21	1
Toluene	<0.430		1.00	0.430	ug/L			05/21/24 11:21	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/21/24 11:21	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/21/24 11:21	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/21/24 11:21	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/21/24 11:21	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/21/24 11:21	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/21/24 11:21	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/21/24 11:21	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/21/24 11:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*113*		*73 - 130*		*05/21/24 11:21*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/21/24 11:21*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*05/21/24 11:21*	*1*

Lab Sample ID: LCS 310-422207/6
Matrix: Water
Analysis Batch: 422207

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	20.28		ug/L		101	71 - 120
1,1,1-Trichloroethane	20.0	20.28		ug/L		101	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.00		ug/L		105	68 - 124

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

Lab Sample ID: LCS 310-422207/6
Matrix: Water
Analysis Batch: 422207

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	20.0	21.61		ug/L		108	73 - 123
1,1-Dichloroethane	20.0	19.37		ug/L		97	70 - 127
1,1-Dichloroethene	20.0	18.99		ug/L		95	63 - 132
1,2,3-Trichloropropane	20.0	21.14		ug/L		106	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.36		ug/L		107	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.05		ug/L		110	75 - 125
1,2-Dichlorobenzene	20.0	20.34		ug/L		102	74 - 120
1,2-Dichloroethane	20.0	21.20		ug/L		106	71 - 125
1,2-Dichloropropane	20.0	21.47		ug/L		107	73 - 124
1,4-Dichlorobenzene	20.0	19.96		ug/L		100	72 - 120
2-Butanone (MEK)	40.0	45.87		ug/L		115	50 - 150
2-Hexanone	40.0	46.52		ug/L		116	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	46.05		ug/L		115	60 - 139
Acetone	40.0	43.50		ug/L		109	50 - 150
Acrylonitrile	200	220.9		ug/L		110	50 - 150
Benzene	20.0	20.34		ug/L		102	72 - 124
Bromochloromethane	20.0	20.25		ug/L		101	73 - 130
Bromodichloromethane	20.0	20.15		ug/L		101	74 - 122
Bromoform	20.0	20.22		ug/L		101	61 - 122
Carbon disulfide	20.0	18.86		ug/L		94	59 - 135
Carbon tetrachloride	20.0	21.44		ug/L		107	67 - 132
Chlorobenzene	20.0	20.01		ug/L		100	76 - 120
Chlorodibromomethane	20.0	20.93		ug/L		105	71 - 121
Chloroform	20.0	19.96		ug/L		100	72 - 125
cis-1,2-Dichloroethene	20.0	19.04		ug/L		95	74 - 123
cis-1,3-Dichloropropene	20.0	20.78		ug/L		104	71 - 125
Dibromomethane	20.0	20.56		ug/L		103	74 - 125
Ethylbenzene	20.0	20.37		ug/L		102	74 - 122
Iodomethane	20.0	19.31		ug/L		97	10 - 150
Methylene Chloride	20.0	19.17		ug/L		96	50 - 150
Styrene	20.0	20.44		ug/L		102	74 - 121
Tetrachloroethene	20.0	20.16		ug/L		101	71 - 130
Toluene	20.0	19.34		ug/L		97	74 - 123
trans-1,2-Dichloroethene	20.0	19.25		ug/L		96	70 - 126
trans-1,3-Dichloropropene	20.0	19.97		ug/L		100	69 - 123
trans-1,4-Dichloro-2-butene	20.0	19.62		ug/L		98	50 - 150
Trichloroethene	20.0	20.58		ug/L		103	72 - 126
Vinyl acetate	40.0	40.45		ug/L		101	50 - 150
Xylenes, Total	40.0	40.46		ug/L		101	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

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

Lab Sample ID: LCS 310-422207/7
Matrix: Water
Analysis Batch: 422207

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	19.56		ug/L		98	23 - 150
Chloroethane	20.0	21.21		ug/L		106	54 - 136
Chloromethane	20.0	22.23		ug/L		111	38 - 150
Trichlorofluoromethane	20.0	21.81		ug/L		109	54 - 149
Vinyl chloride	20.0	22.32		ug/L		112	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*113*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 310-422561/5
Matrix: Water
Analysis Batch: 422561

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	<0.380		1.00	0.380	ug/L			05/23/24 18:25	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 18:25	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 18:25	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 18:25	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 18:25	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 18:25	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 18:25	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 18:25	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 18:25	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 18:25	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 18:25	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 18:25	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 18:25	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 18:25	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 18:25	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 18:25	1
Acetone	<3.10		10.0	3.10	ug/L			05/23/24 18:25	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 18:25	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 18:25	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 18:25	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 18:25	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 18:25	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 18:25	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 18:25	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 18:25	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 18:25	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 18:25	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 18:25	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 18:25	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 18:25	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 18:25	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 18:25	1

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

Lab Sample ID: MB 310-422561/5
Matrix: Water
Analysis Batch: 422561

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 18:25	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 18:25	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 18:25	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 18:25	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 18:25	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 18:25	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 18:25	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 18:25	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 18:25	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 18:25	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 18:25	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 18:25	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 18:25	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 18:25	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 18:25	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 18:25	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 18:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*111*		*73 - 130*		*05/23/24 18:25*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/23/24 18:25*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*05/23/24 18:25*	*1*

Lab Sample ID: LCS 310-422561/6
Matrix: Water
Analysis Batch: 422561

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	21.78		ug/L		109	71 - 120
1,1,1-Trichloroethane	20.0	21.83		ug/L		109	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.69		ug/L		108	68 - 124
1,1,2-Trichloroethane	20.0	23.11		ug/L		116	73 - 123
1,1-Dichloroethane	20.0	20.86		ug/L		104	70 - 127
1,1-Dichloroethene	20.0	19.89		ug/L		99	63 - 132
1,2,3-Trichloropropane	20.0	22.30		ug/L		112	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.29		ug/L		106	50 - 150
1,2-Dibromoethane (EDB)	20.0	22.91		ug/L		115	75 - 125
1,2-Dichlorobenzene	20.0	21.81		ug/L		109	74 - 120
1,2-Dichloroethane	20.0	22.06		ug/L		110	71 - 125
1,2-Dichloropropane	20.0	23.19		ug/L		116	73 - 124
1,4-Dichlorobenzene	20.0	21.71		ug/L		109	72 - 120
2-Butanone (MEK)	40.0	47.82		ug/L		120	50 - 150
2-Hexanone	40.0	48.75		ug/L		122	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	48.31		ug/L		121	60 - 139
Acetone	40.0	45.00		ug/L		113	50 - 150
Acrylonitrile	200	226.9		ug/L		113	50 - 150
Benzene	20.0	21.92		ug/L		110	72 - 124
Bromochloromethane	20.0	20.80		ug/L		104	73 - 130

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

Lab Sample ID: LCS 310-422561/6
Matrix: Water
Analysis Batch: 422561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromodichloromethane	20.0	21.25		ug/L		106	74 - 122
Bromoform	20.0	21.35		ug/L		107	61 - 122
Carbon disulfide	20.0	20.28		ug/L		101	59 - 135
Carbon tetrachloride	20.0	23.80		ug/L		119	67 - 132
Chlorobenzene	20.0	22.06		ug/L		110	76 - 120
Chlorodibromomethane	20.0	22.24		ug/L		111	71 - 121
Chloroform	20.0	20.53		ug/L		103	72 - 125
cis-1,2-Dichloroethene	20.0	20.95		ug/L		105	74 - 123
cis-1,3-Dichloropropene	20.0	23.01		ug/L		115	71 - 125
Dibromomethane	20.0	21.00		ug/L		105	74 - 125
Ethylbenzene	20.0	22.08		ug/L		110	74 - 122
Iodomethane	20.0	17.93		ug/L		90	10 - 150
Methylene Chloride	20.0	20.00		ug/L		100	50 - 150
Styrene	20.0	22.33		ug/L		112	74 - 121
Tetrachloroethene	20.0	22.11		ug/L		111	71 - 130
Toluene	20.0	21.33		ug/L		107	74 - 123
trans-1,2-Dichloroethene	20.0	21.15		ug/L		106	70 - 126
trans-1,3-Dichloropropene	20.0	21.71		ug/L		109	69 - 123
trans-1,4-Dichloro-2-butene	20.0	21.25		ug/L		106	50 - 150
Trichloroethene	20.0	22.02		ug/L		110	72 - 126
Vinyl acetate	40.0	43.07		ug/L		108	50 - 150
Xylenes, Total	40.0	43.42		ug/L		109	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: LCS 310-422561/7
Matrix: Water
Analysis Batch: 422561

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	19.08		ug/L		95	23 - 150
Chloroethane	20.0	22.25		ug/L		111	54 - 136
Chloromethane	20.0	22.76		ug/L		114	38 - 150
Trichlorofluoromethane	20.0	23.05		ug/L		115	54 - 149
Vinyl chloride	20.0	23.24		ug/L		116	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*111*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-422219/1-A
Matrix: Water
Analysis Batch: 422812

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422219

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
beta-BHC	<0.0370		0.0640	0.0370	ug/L		05/21/24 08:00	05/28/24 13:10	1
delta-BHC	<0.0270		0.0640	0.0270	ug/L		05/21/24 08:00	05/28/24 13:10	1
Endosulfan sulfate	<0.0300		0.0640	0.0300	ug/L		05/21/24 08:00	05/28/24 13:10	1
Endrin aldehyde	<0.0290		0.0640	0.0290	ug/L		05/21/24 08:00	05/28/24 13:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*73*		*10 - 136*	*05/21/24 08:00*	*05/28/24 13:10*	*1*
Tetrachloro-m-xylene (Surr)	*68*		*10 - 130*	*05/21/24 08:00*	*05/28/24 13:10*	*1*

Lab Sample ID: LCS 310-422219/4-A
Matrix: Water
Analysis Batch: 422812

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422219

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
beta-BHC			1.00	0.6860		ug/L		69	37 - 136		
delta-BHC			1.00	0.6387		ug/L		64	33 - 134		
Endosulfan sulfate			1.00	0.7480		ug/L		75	36 - 147		
Endrin aldehyde			1.00	0.7810		ug/L		78	32 - 137		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*75*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*77*		*10 - 130*

Lab Sample ID: LCSD 310-422219/5-A
Matrix: Water
Analysis Batch: 422812

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422219

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
beta-BHC			1.00	0.6092		ug/L		61	37 - 136	12	35
delta-BHC			1.00	0.5698		ug/L		57	33 - 134	11	35
Endosulfan sulfate			1.00	0.6602		ug/L		66	36 - 147	12	35
Endrin aldehyde			1.00	0.6930		ug/L		69	32 - 137	12	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*52*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*66*		*10 - 130*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-421948/1-A
Matrix: Water
Analysis Batch: 422792

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/24/24 19:45	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/24/24 19:45	1
Barium	<0.660		2.00	0.660	ug/L		05/17/24 09:30	05/24/24 19:45	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/24/24 19:45	1

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

Lab Sample ID: MB 310-421948/1-A
Matrix: Water
Analysis Batch: 422792

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/24/24 19:45	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/24/24 19:45	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/24/24 19:45	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/24/24 19:45	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/24/24 19:45	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/24/24 19:45	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/24/24 19:45	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/24/24 19:45	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/24/24 19:45	1

Lab Sample ID: MB 310-421948/1-A
Matrix: Water
Analysis Batch: 423059

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/29/24 20:55	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/29/24 20:55	1

Lab Sample ID: LCS 310-421948/2-A
Matrix: Water
Analysis Batch: 422792

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	201.3		ug/L		101	80 - 120
Arsenic	200	207.5		ug/L		104	80 - 120
Barium	100	106.0		ug/L		106	80 - 120
Beryllium	100	95.44		ug/L		95	80 - 120
Cadmium	100	100.5		ug/L		100	80 - 120
Chromium	100	96.12		ug/L		96	80 - 120
Cobalt	100	99.24		ug/L		99	80 - 120
Copper	200	199.7		ug/L		100	80 - 120
Lead	200	210.3		ug/L		105	80 - 120
Nickel	200	212.0		ug/L		106	80 - 120
Selenium	400	399.5		ug/L		100	80 - 120
Thallium	100	110.6		ug/L		111	80 - 120
Vanadium	100	102.4		ug/L		102	80 - 120
Zinc	200	183.2		ug/L		92	80 - 120

Lab Sample ID: LCS 310-421948/2-A
Matrix: Water
Analysis Batch: 423059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	100	113.5		ug/L		113	80 - 120

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-613583/1-A
Matrix: Water
Analysis Batch: 613623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 613583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		05/20/24 07:41	05/20/24 09:22	1

Lab Sample ID: LCS 240-613583/2-A
Matrix: Water
Analysis Batch: 613623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 613583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	9.07	8.000		mg/L		88	70 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-421986/1
Matrix: Water
Analysis Batch: 421986

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	<3.70		5.00	3.70	mg/L			05/17/24 08:46	1

Lab Sample ID: LCS 310-421986/2
Matrix: Water
Analysis Batch: 421986

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	81 - 116

Lab Sample ID: MB 310-422005/1
Matrix: Water
Analysis Batch: 422005

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	<3.70		5.00	3.70	mg/L			05/17/24 09:34	1

Lab Sample ID: LCS 310-422005/2
Matrix: Water
Analysis Batch: 422005

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	94.00		mg/L		94	81 - 116

QC Association Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 422205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	8260D	
310-281290-2	GUW2-1	Total/NA	Groundwater	8260D	
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	8260D	
310-281290-4	OW-114B	Total/NA	Groundwater	8260D	
310-281290-5	OW-216BR	Total/NA	Groundwater	8260D	
310-281290-6	OW-401B	Total/NA	Groundwater	8260D	
MB 310-422205/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422205/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422205/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 422207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-7	Trip Blank	Total/NA	Water	8260D	
MB 310-422207/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422207/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422207/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 422561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	8260D	
MB 310-422561/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422561/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422561/7	Lab Control Sample	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 422219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	3510C	
MB 310-422219/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-422219/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-422219/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 422812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	8081B	422219
MB 310-422219/1-A	Method Blank	Total/NA	Water	8081B	422219
LCS 310-422219/4-A	Lab Control Sample	Total/NA	Water	8081B	422219
LCSD 310-422219/5-A	Lab Control Sample Dup	Total/NA	Water	8081B	422219

Metals

Prep Batch: 421948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	3005A	
310-281290-2	GUW2-1	Total/NA	Groundwater	3005A	
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	3005A	
310-281290-4	OW-114B	Total/NA	Groundwater	3005A	
310-281290-5	OW-216BR	Total/NA	Groundwater	3005A	
310-281290-6	OW-401B	Total/NA	Groundwater	3005A	
MB 310-421948/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-421948/2-A	Lab Control Sample	Total/NA	Water	3005A	

Metals

Analysis Batch: 422792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	6020B	421948
310-281290-2	GUW2-1	Total/NA	Groundwater	6020B	421948
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	6020B	421948
310-281290-4	OW-114B	Total/NA	Groundwater	6020B	421948
310-281290-5	OW-216BR	Total/NA	Groundwater	6020B	421948
310-281290-6	OW-401B	Total/NA	Groundwater	6020B	421948
MB 310-421948/1-A	Method Blank	Total/NA	Water	6020B	421948
LCS 310-421948/2-A	Lab Control Sample	Total/NA	Water	6020B	421948

Analysis Batch: 423059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	6020B	421948
310-281290-2	GUW2-1	Total/NA	Groundwater	6020B	421948
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	6020B	421948
310-281290-4	OW-114B	Total/NA	Groundwater	6020B	421948
310-281290-5	OW-216BR	Total/NA	Groundwater	6020B	421948
310-281290-6	OW-401B	Total/NA	Groundwater	6020B	421948
MB 310-421948/1-A	Method Blank	Total/NA	Water	6020B	421948
LCS 310-421948/2-A	Lab Control Sample	Total/NA	Water	6020B	421948

General Chemistry

Analysis Batch: 421986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	I-3765-85	
310-281290-3	GUW2-1-FD	Total/NA	Groundwater	I-3765-85	
310-281290-4	OW-114B	Total/NA	Groundwater	I-3765-85	
310-281290-5	OW-216BR	Total/NA	Groundwater	I-3765-85	
310-281290-6	OW-401B	Total/NA	Groundwater	I-3765-85	
MB 310-421986/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-421986/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 422005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-2	GUW2-1	Total/NA	Groundwater	I-3765-85	
MB 310-422005/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422005/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 613583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	9030B	
MB 240-613583/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-613583/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 613623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-6	OW-401B	Total/NA	Groundwater	9034	613583
MB 240-613583/1-A	Method Blank	Total/NA	Water	9034	613583
LCS 240-613583/2-A	Lab Control Sample	Total/NA	Water	9034	613583

QC Association Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Field Service / Mobile Lab

Analysis Batch: 422183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281290-1	MW-603B	Total/NA	Groundwater	Field Sampling	
310-281290-2	GUW2-1	Total/NA	Groundwater	Field Sampling	
310-281290-4	OW-114B	Total/NA	Groundwater	Field Sampling	
310-281290-5	OW-216BR	Total/NA	Groundwater	Field Sampling	
310-281290-6	OW-401B	Total/NA	Groundwater	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-603B
Lab Sample ID: 310-281290-1
Date Collected: 05/14/24 14:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 06:25
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:43
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:19
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 14:00

Client Sample ID: GUW2-1
Lab Sample ID: 310-281290-2
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 06:48
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:45
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:22
Total/NA	Analysis	I-3765-85		1	422005	HE7K	EET CF	05/17/24 09:34
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 13:30

Client Sample ID: GUW2-1-FD
Lab Sample ID: 310-281290-3
Date Collected: 05/14/24 13:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 07:11
Total/NA	Analysis	8260D		1	422561	FE5V	EET CF	05/23/24 23:44
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:47
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:24
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4
Date Collected: 05/14/24 12:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 07:34
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:50
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:26

Lab Chronicle

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-281290-4
Date Collected: 05/14/24 12:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 12:00

Client Sample ID: OW-216BR
Lab Sample ID: 310-281290-5
Date Collected: 05/14/24 13:00
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 07:57
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:52
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:37
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 13:00

Client Sample ID: OW-401B
Lab Sample ID: 310-281290-6
Date Collected: 05/14/24 10:30
Matrix: Groundwater
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422205	D2YP	EET CF	05/21/24 08:19
Total/NA	Prep	3510C			422219	C3AA	EET CF	05/21/24 08:00
Total/NA	Analysis	8081B		1	422812	BW2O	EET CF	05/28/24 15:42
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422792	NFT2	EET CF	05/24/24 20:54
Total/NA	Prep	3005A			421948	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	423059	NFT2	EET CF	05/29/24 21:39
Total/NA	Prep	9030B			613583	BLW	EET CLE	05/20/24 07:41
Total/NA	Analysis	9034		1	613623	BLW	EET CLE	05/20/24 09:22
Total/NA	Analysis	I-3765-85		1	421986	HE7K	EET CF	05/17/24 08:46
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/14/24 10:30

Client Sample ID: Trip Blank
Lab Sample ID: 310-281290-7
Date Collected: 05/14/24 00:00
Matrix: Water
Date Received: 05/15/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422207	D2YP	EET CF	05/21/24 12:29

Laboratory References:
EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

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	06-02-24

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
8260D		Groundwater	m,p-Xylene
8260D		Groundwater	o-Xylene
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Groundwater	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

Method Summary

Client: AECOM
Job ID: 310-281290-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	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
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

eurofins | Environment Testing America

310-281290 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: AECOM			
City/State: CITY Detroit STATE MI		Project: BHCo FDNR	
Receipt Information			
Date/Time Received: DATE 5/15/24	TIME 0930	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?	☐ 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 0
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	7.4	Corrected Temp (°C):	7.4

• **Sample Container Temperature**	CONTAINER 1	CONTAINER 2
Container(s) used:	1 5 NS	1 5 NS
Uncorrected Temp (°C):	5.9	5.1
Corrected Temp (°C):	5.9	5.1

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:**	**Date:** 5-15-24	1 of 3 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
MW-603B	5-14-24	1400	G	GW	5	N		X											Turbidity - 1.86 NTU
MW-604B			G	GW		N		X											
MW-709B			G	GW		N		X											
MW-710B			G	GW		N		X											
MW-711B			G	GW		N		X											
MW-712B			G	GW		N		X											
GUE-1			G	GW		N		X											
GUE-2			G	GW		N		X											
GUW1-1			G	GW		N		X											
GUW2-1	5-14-24	1330	G	GW	5	N		X											Turbidity - 9.74 NTU
Equipment Blank-2			G	GW		N		X											
GUW2-1-FD	5-14-24	1330	G	GW	5	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C): Obs'd. ____ Corr'd. ____ | Therm ID No. ____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-15-24	Received by:	Company:	Date/Time: 5/15/24 0930
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:**	**Date:** 5-15-24 — 2 of 3 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:** — TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☐		**For Lab Use Only:** Walk-in Client
(xxx) xxx-xxxx FAX	☑ 2 weeks		Lab Sampling
Project Name Black Hawk Co IDNR	☐ 1 week		
Site Black Hawk County Landfill	☐ 2 days		Job / SDG No
P O #	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide						Sample Specific Notes
OW-101B			G	GW		N		X																
OW-105B			G	GW		N		X																
OW-113B			G	GW		N		X										X						
OW-114B	5-14-24	1200	G	GW	5	N		X																Turbidity - 19.1 NTU
OW-205B			G	GW		N		X			X			X				X						
OW-209B			G	GW		N		X																
OW-212B			G	GW		N		X																
OW-213BR			G	GW		N		X																
OW-216BR	5-14-24	1300	G	GW	5	N		X																Turbidity - 3.71 NTU
OW-219B			G	GW		N		X																
OW-219B-FD			G	GW		N		X																

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd. _____ Corr'd _____		Therm ID No. _____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-15-24	Received by:	Company:	Date/Time: 5/15/24 0930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

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6/5/2024 (Rev. 1)

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-15-24	COC No
AECOM	Email Christopher Oelkers@aecom com	Lab Contact:	Carrier:	3 of 3 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-401B	5-14-24	1030	G	GW	10	N		X		X		X	X		X	X	X	X	Turbidity – 3.37 NTU
OW-402B			G	GW		N		X											
MW-409B			G	GW		N		X											
OW-410B			G	GW		N		X											
OW-411B			G	GW		N		X											
OW-412B			G	GW		N		X											
OW-413B			G	GW		N		X											
OW-414B			G	GW		N		X											
MW-501B			G	GW		N		X											
MW-602B			G	GW		N		X											
MW-602B-FD			G	GW		N		X											
Trip Blank	5-14-24	0600	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd. ____ Corr'd ____	Therm ID No. ____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-15-24	Received by:	Company:	Date/Time: 5/15/24 0910
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

0.2/1.7

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72467.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-281290-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 5/29/2024			Preservation Codes: -
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	9034_Calc/9030B Sulfide	Total Number of containers	Special Instructions/Note:
			Preservation Code:						G005
OW-401B (310-281290-6)	5/14/24	10:30 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
	5/15/24 1610		JESSICA RIGDON	5-16-24 1030	ETNC
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:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility

Client Eurofins-CF Site Name

Cooler unpacked by: ONQ

Cooler Received on 5-16-24 Opened on 5-16-24

FedEx. 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used. Bubble Wrap Foam Plastic Bag (None) Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 19 (CF +1.5 °C) Observed Cooler Temp 0.2 °C Corrected Cooler Temp. 1.7 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No	
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	
-Were tamper/custody seals intact and uncompromised?	(Yes) No NA	
3 Shippers' packing slip attached to the cooler(s)?	(Yes) No	
4. Did custody papers accompany the sample(s)?	(Yes) No	
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes (No)	
7 Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No	
9 For each sample, does the COC specify preservatives (Y(N)) # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
11 Sufficient quantity received to perform indicated analyses?	(Yes) No	
12. Are these work share samples and all listed on the COC?	(Yes) No	
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all *preserved sample(s) at the correct pH upon receipt?*	Yes No NA	pH Strip Lot# HC439975
14 Were VOAs on the COC?	Yes No	
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this	Yes No NA	
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes No	
17 Was a LL Hg or Me Hg trip blank present?	Yes No	

Tests that are not checked for pH by Receiving

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. *CHAIN OF CUSTODY & SAMPLE DISCREPANCIES* ☐ *additional next page* | *Samples processed by:*

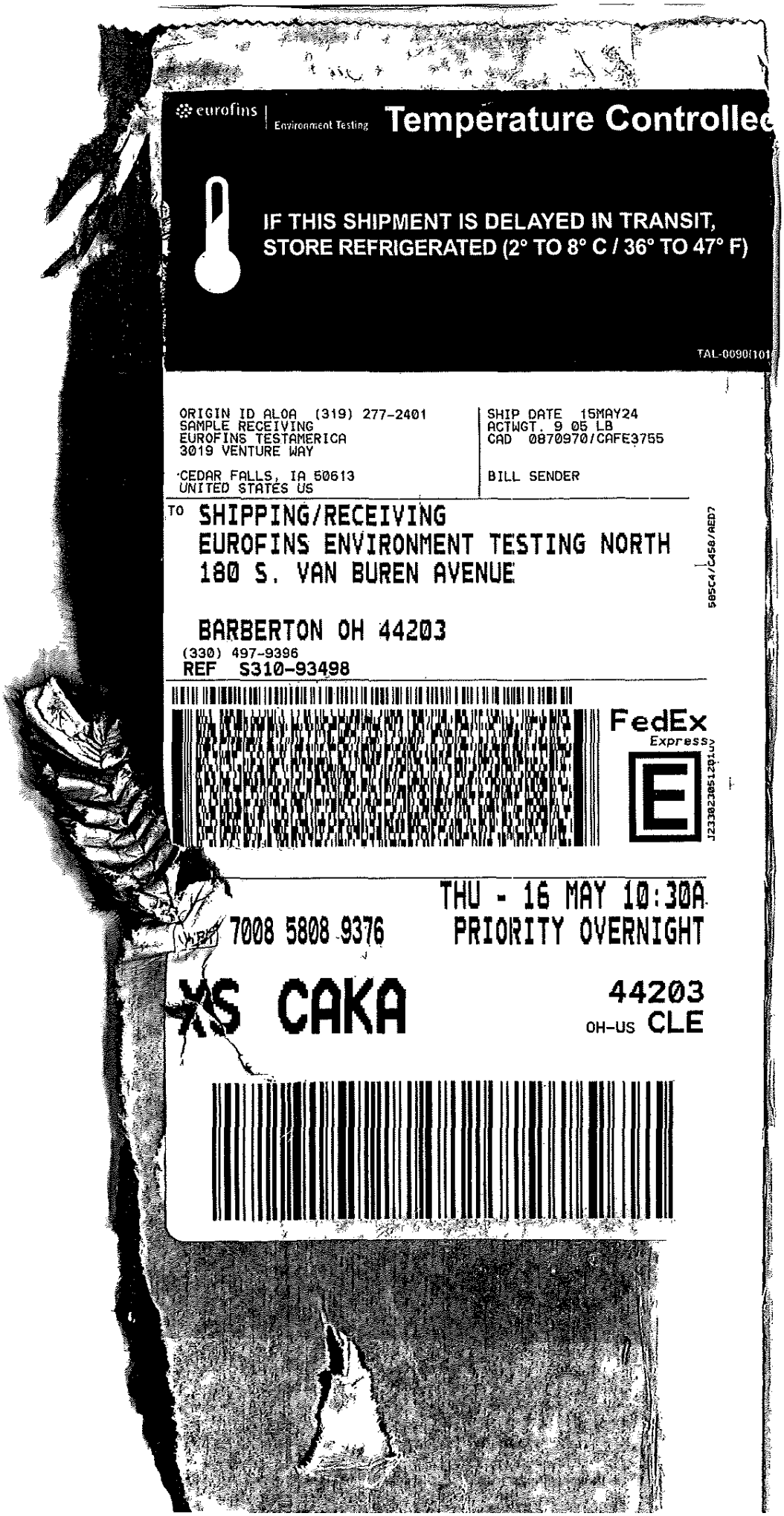
19 SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container
Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20 SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory
Time preserved Preservative(s) added/Lot number(s)

VOA Sample Preservation - Date/Time VOAs Frozen



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Temperature Controlled

IF THIS SHIPMENT IS DELAYED IN TRANSIT,
STORE REFRIGERATED (2° TO 8° C / 36° TO 47° F)

TAL-0090(101

ORIGIN ID ALOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

SHIP DATE 15MAY24
ACTWGT 9 05 LB
CAD 0870970/CAFE3755

BILL SENDER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF S310-93498

585C4/C458/AED7

FedEx Express

J233023051201uv

THU - 16 MAY 10:30A
PRIORITY OVERNIGHT

7008 5808 9376

XS CAKA

44203
OH-US CLE

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72464.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-281290-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 5/29/2024			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

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)	8151A/8151A_AP (MOD) 2,4-D and Silvex	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-401B (310-281290-6)	5/14/24	10:30 Central		Water			X	2	

Analysis Requested

Preservation Codes:

Other:

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
		5/15/24 1550				
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 5/16/24 09:55	Company ECLGT

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R:6.4 C:6.1

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-281290-1

Login Number: 281290
List Number: 1
Creator: Bennett, Samantha

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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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 5/26/2024 8:18:58 PM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)

JOB NUMBER

310-281404-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
5/26/2024 8:18:58 PM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job ID: 310-281404-1 — Eurofins Cedar Falls

Job Narrative
310-281404-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/16/2024 10:00 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 time was 3.3°C.

GC/MS VOA
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.

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

Sample Summary

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-281404-1	OW-402B	Ground Water	05/15/24 15:00	05/16/24 10:00
310-281404-2	OW-411B	Ground Water	05/15/24 10:45	05/16/24 10:00
310-281404-3	OW-412B	Ground Water	05/15/24 11:45	05/16/24 10:00
310-281404-4	OW-413B	Ground Water	05/15/24 12:45	05/16/24 10:00
310-281404-5	Trip Blank	Water	05/15/24 06:00	05/16/24 10:00

Detection Summary

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B — Lab Sample ID: 310-281404-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.521	J	1.00	0.210	ug/L	1		8260D	Total/NA
Barium	581		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	2.02		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	30.4		5.00	2.10	ug/L	1		6020B	Total/NA
Field Turbidity	0.82				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-411B — Lab Sample ID: 310-281404-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.68	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	0.229	J	0.500	0.220	ug/L	1		8260D	Total/NA
Arsenic	4.07		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	687		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	1.41		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	28.5		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	40.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	0.77				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-412B — Lab Sample ID: 310-281404-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.234	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,2-Dichloropropane	0.356	J	1.00	0.270	ug/L	1		8260D	Total/NA
Acetone	5.51	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	0.296	J	0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	0.905	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	11.8		1.00	0.210	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.289	J	1.00	0.270	ug/L	1		8260D	Total/NA
Vinyl chloride	0.812	J	1.00	0.180	ug/L	1		8260D	Total/NA
Arsenic	4.18		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1390		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	4.40	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	1.03		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.339	J	0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	20.5		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	9.00		7.50	5.55	mg/L	1		I-3765-85	Total/NA
Field Turbidity	74.33				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-413B — Lab Sample ID: 310-281404-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.231	J	1.00	0.220	ug/L	1		8260D	Total/NA
Benzene	1.17		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	1.10	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.701	J	1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	10.8		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	632		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	6.15		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	5.23		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	3.27	J	5.00	1.80	ug/L	1		6020B	Total/NA
Lead	1.06		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	7.58		5.00	2.10	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-413B (Continued)
Lab Sample ID: 310-281404-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vanadium	5.91		5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	128		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	81.81				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank
Lab Sample ID: 310-281404-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B
Lab Sample ID: 310-281404-1
Date Collected: 05/15/24 15:00
Matrix: Ground Water
Date Received: 05/16/24 10:00

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	<0.380		1.00	0.380	ug/L			05/22/24 08:26	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/22/24 08:26	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/22/24 08:26	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/22/24 08:26	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/22/24 08:26	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/22/24 08:26	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/22/24 08:26	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/22/24 08:26	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/22/24 08:26	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/22/24 08:26	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/22/24 08:26	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/22/24 08:26	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/22/24 08:26	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/22/24 08:26	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/22/24 08:26	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/22/24 08:26	1
Acetone	<3.10		10.0	3.10	ug/L			05/22/24 08:26	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/22/24 08:26	1
Benzene	<0.220		0.500	0.220	ug/L			05/22/24 08:26	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/22/24 08:26	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/22/24 08:26	1
Bromoform	<0.780		5.00	0.780	ug/L			05/22/24 08:26	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/22/24 08:26	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/22/24 08:26	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/22/24 08:26	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/22/24 08:26	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/22/24 08:26	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/22/24 08:26	1
Chloroform	<1.30		3.00	1.30	ug/L			05/22/24 08:26	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/22/24 08:26	1
cis-1,2-Dichloroethene	**0.521**	**J**	1.00	0.210	ug/L			05/22/24 08:26	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/22/24 08:26	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/22/24 08:26	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/22/24 08:26	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/22/24 08:26	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/22/24 08:26	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/22/24 08:26	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/22/24 08:26	1
Styrene	<0.370		1.00	0.370	ug/L			05/22/24 08:26	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/22/24 08:26	1
Toluene	<0.430		1.00	0.430	ug/L			05/22/24 08:26	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/22/24 08:26	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/22/24 08:26	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/22/24 08:26	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/22/24 08:26	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/22/24 08:26	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/22/24 08:26	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/22/24 08:26	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/22/24 08:26	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B
Lab Sample ID: 310-281404-1

Date Collected: 05/15/24 15:00
Matrix: Ground Water

Date Received: 05/16/24 10:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*05/22/24 08:26*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/22/24 08:26*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*05/22/24 08:26*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/21/24 14:19	1
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/20/24 20:11	1
Barium	**581**		2.00	0.660	ug/L		05/17/24 09:30	05/20/24 20:11	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/20/24 20:11	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/20/24 20:11	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/20/24 20:11	1
Cobalt	**2.02**		0.500	0.170	ug/L		05/17/24 09:30	05/20/24 20:11	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/20/24 20:11	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/20/24 20:11	1
Nickel	**30.4**		5.00	2.10	ug/L		05/17/24 09:30	05/21/24 14:19	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/20/24 20:11	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/20/24 20:11	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/20/24 20:11	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/20/24 20:11	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/20/24 20:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/20/24 14:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.82**				NTU			05/15/24 15:00	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-411B
Lab Sample ID: 310-281404-2
Date Collected: 05/15/24 10:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

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	<0.380		1.00	0.380	ug/L			05/22/24 08:47	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/22/24 08:47	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/22/24 08:47	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/22/24 08:47	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/22/24 08:47	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/22/24 08:47	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/22/24 08:47	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/22/24 08:47	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/22/24 08:47	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/22/24 08:47	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/22/24 08:47	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/22/24 08:47	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/22/24 08:47	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/22/24 08:47	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/22/24 08:47	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/22/24 08:47	1
Acetone	**4.68**	**J**	10.0	3.10	ug/L			05/22/24 08:47	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/22/24 08:47	1
Benzene	**0.229**	**J**	0.500	0.220	ug/L			05/22/24 08:47	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/22/24 08:47	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/22/24 08:47	1
Bromoform	<0.780		5.00	0.780	ug/L			05/22/24 08:47	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/22/24 08:47	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/22/24 08:47	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/22/24 08:47	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/22/24 08:47	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/22/24 08:47	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/22/24 08:47	1
Chloroform	<1.30		3.00	1.30	ug/L			05/22/24 08:47	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/22/24 08:47	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/22/24 08:47	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/22/24 08:47	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/22/24 08:47	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/22/24 08:47	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/22/24 08:47	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/22/24 08:47	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/22/24 08:47	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/22/24 08:47	1
Styrene	<0.370		1.00	0.370	ug/L			05/22/24 08:47	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/22/24 08:47	1
Toluene	<0.430		1.00	0.430	ug/L			05/22/24 08:47	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/22/24 08:47	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/22/24 08:47	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/22/24 08:47	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/22/24 08:47	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/22/24 08:47	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/22/24 08:47	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/22/24 08:47	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/22/24 08:47	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-411B
Lab Sample ID: 310-281404-2

Date Collected: 05/15/24 10:45
Matrix: Ground Water

Date Received: 05/16/24 10:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*73 - 130*		*05/22/24 08:47*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/22/24 08:47*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/22/24 08:47*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/21/24 14:21	1
Arsenic	**4.07**		2.00	0.530	ug/L		05/17/24 09:30	05/20/24 20:14	1
Barium	**687**		2.00	0.660	ug/L		05/17/24 09:30	05/20/24 20:14	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/20/24 20:14	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/20/24 20:14	1
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/20/24 20:14	1
Cobalt	**1.41**		0.500	0.170	ug/L		05/17/24 09:30	05/20/24 20:14	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/20/24 20:14	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/20/24 20:14	1
Nickel	**28.5**		5.00	2.10	ug/L		05/17/24 09:30	05/21/24 14:21	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/20/24 20:14	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/20/24 20:14	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/20/24 20:14	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/20/24 20:14	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/20/24 20:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**40.0**		15.0	11.1	mg/L			05/20/24 10:17	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.77**				NTU			05/15/24 10:45	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-412B
Lab Sample ID: 310-281404-3
Date Collected: 05/15/24 11:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

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	<0.380		1.00	0.380	ug/L			05/22/24 09:09	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/22/24 09:09	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/22/24 09:09	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/22/24 09:09	1
1,1-Dichloroethane	**0.234**	**J**	1.00	0.220	ug/L			05/22/24 09:09	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/22/24 09:09	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/22/24 09:09	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/22/24 09:09	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/22/24 09:09	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/22/24 09:09	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/22/24 09:09	1
1,2-Dichloropropane	**0.356**	**J**	1.00	0.270	ug/L			05/22/24 09:09	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/22/24 09:09	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/22/24 09:09	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/22/24 09:09	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/22/24 09:09	1
Acetone	**5.51**	**J**	10.0	3.10	ug/L			05/22/24 09:09	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/22/24 09:09	1
Benzene	**0.296**	**J**	0.500	0.220	ug/L			05/22/24 09:09	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/22/24 09:09	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/22/24 09:09	1
Bromoform	<0.780		5.00	0.780	ug/L			05/22/24 09:09	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/22/24 09:09	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/22/24 09:09	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/22/24 09:09	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/22/24 09:09	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/22/24 09:09	1
Chloroethane	**0.905**	**J**	4.00	0.790	ug/L			05/22/24 09:09	1
Chloroform	<1.30		3.00	1.30	ug/L			05/22/24 09:09	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/22/24 09:09	1
cis-1,2-Dichloroethene	**11.8**		1.00	0.210	ug/L			05/22/24 09:09	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/22/24 09:09	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/22/24 09:09	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/22/24 09:09	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/22/24 09:09	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/22/24 09:09	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/22/24 09:09	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/22/24 09:09	1
Styrene	<0.370		1.00	0.370	ug/L			05/22/24 09:09	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/22/24 09:09	1
Toluene	<0.430		1.00	0.430	ug/L			05/22/24 09:09	1
trans-1,2-Dichloroethene	**0.289**	**J**	1.00	0.270	ug/L			05/22/24 09:09	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/22/24 09:09	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/22/24 09:09	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/22/24 09:09	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/22/24 09:09	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/22/24 09:09	1
Vinyl chloride	**0.812**	**J**	1.00	0.180	ug/L			05/22/24 09:09	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/22/24 09:09	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-412B
Lab Sample ID: 310-281404-3

Date Collected: 05/15/24 11:45
Matrix: Ground Water

Date Received: 05/16/24 10:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*05/22/24 09:09*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/22/24 09:09*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*05/22/24 09:09*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/21/24 14:23	1
Arsenic	**4.18**		2.00	0.530	ug/L		05/17/24 09:30	05/20/24 20:16	1
Barium	**1390**		2.00	0.660	ug/L		05/17/24 09:30	05/20/24 20:16	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/20/24 20:16	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/20/24 20:16	1
Chromium	**4.40**	**J**	5.00	1.20	ug/L		05/17/24 09:30	05/20/24 20:16	1
Cobalt	**1.03**		0.500	0.170	ug/L		05/17/24 09:30	05/20/24 20:16	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/20/24 20:16	1
Lead	**0.339**	**J**	0.500	0.260	ug/L		05/17/24 09:30	05/20/24 20:16	1
Nickel	**20.5**		5.00	2.10	ug/L		05/17/24 09:30	05/21/24 14:23	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/20/24 20:16	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/20/24 20:16	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/20/24 20:16	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/20/24 20:16	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/20/24 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**9.00**		7.50	5.55	mg/L			05/20/24 14:19	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**74.33**				NTU			05/15/24 11:45	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-413B
Lab Sample ID: 310-281404-4
Date Collected: 05/15/24 12:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

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	<0.380		1.00	0.380	ug/L			05/22/24 09:31	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/22/24 09:31	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/22/24 09:31	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/22/24 09:31	1
1,1-Dichloroethane	**0.231**	**J**	1.00	0.220	ug/L			05/22/24 09:31	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/22/24 09:31	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/22/24 09:31	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/22/24 09:31	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/22/24 09:31	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/22/24 09:31	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/22/24 09:31	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/22/24 09:31	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/22/24 09:31	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/22/24 09:31	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/22/24 09:31	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/22/24 09:31	1
Acetone	<3.10		10.0	3.10	ug/L			05/22/24 09:31	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/22/24 09:31	1
Benzene	**1.17**		0.500	0.220	ug/L			05/22/24 09:31	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/22/24 09:31	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/22/24 09:31	1
Bromoform	<0.780		5.00	0.780	ug/L			05/22/24 09:31	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/22/24 09:31	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/22/24 09:31	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/22/24 09:31	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/22/24 09:31	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/22/24 09:31	1
Chloroethane	**1.10**	**J**	4.00	0.790	ug/L			05/22/24 09:31	1
Chloroform	<1.30		3.00	1.30	ug/L			05/22/24 09:31	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/22/24 09:31	1
cis-1,2-Dichloroethene	**0.701**	**J**	1.00	0.210	ug/L			05/22/24 09:31	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/22/24 09:31	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/22/24 09:31	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/22/24 09:31	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/22/24 09:31	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/22/24 09:31	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/22/24 09:31	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/22/24 09:31	1
Styrene	<0.370		1.00	0.370	ug/L			05/22/24 09:31	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/22/24 09:31	1
Toluene	<0.430		1.00	0.430	ug/L			05/22/24 09:31	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/22/24 09:31	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/22/24 09:31	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/22/24 09:31	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/22/24 09:31	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/22/24 09:31	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/22/24 09:31	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/22/24 09:31	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/22/24 09:31	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-413B
Lab Sample ID: 310-281404-4

Date Collected: 05/15/24 12:45
Matrix: Ground Water

Date Received: 05/16/24 10:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*73 - 130*		*05/22/24 09:31*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/22/24 09:31*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/22/24 09:31*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/21/24 14:25	1
Arsenic	**10.8**		2.00	0.530	ug/L		05/17/24 09:30	05/20/24 20:18	1
Barium	**632**		2.00	0.660	ug/L		05/17/24 09:30	05/20/24 20:18	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/20/24 20:18	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/20/24 20:18	1
Chromium	**6.15**		5.00	1.20	ug/L		05/17/24 09:30	05/20/24 20:18	1
Cobalt	**5.23**		0.500	0.170	ug/L		05/17/24 09:30	05/20/24 20:18	1
Copper	**3.27**	**J**	5.00	1.80	ug/L		05/17/24 09:30	05/20/24 20:18	1
Lead	**1.06**		0.500	0.260	ug/L		05/17/24 09:30	05/20/24 20:18	1
Nickel	**7.58**		5.00	2.10	ug/L		05/17/24 09:30	05/21/24 14:25	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/20/24 20:18	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/20/24 20:18	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/20/24 20:18	1
Vanadium	**5.91**		5.00	1.10	ug/L		05/17/24 09:30	05/20/24 20:18	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/20/24 20:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**128**		15.0	11.1	mg/L			05/20/24 10:17	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**81.81**				NTU			05/15/24 12:45	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281404-5
Date Collected: 05/15/24 06:00
Matrix: Water
Date Received: 05/16/24 10:00

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	<0.380		1.00	0.380	ug/L			05/22/24 09:53	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/22/24 09:53	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/22/24 09:53	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/22/24 09:53	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/22/24 09:53	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/22/24 09:53	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/22/24 09:53	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/22/24 09:53	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/22/24 09:53	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/22/24 09:53	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/22/24 09:53	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/22/24 09:53	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/22/24 09:53	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/22/24 09:53	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/22/24 09:53	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/22/24 09:53	1
Acetone	<3.10		10.0	3.10	ug/L			05/22/24 09:53	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/22/24 09:53	1
Benzene	<0.220		0.500	0.220	ug/L			05/22/24 09:53	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/22/24 09:53	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/22/24 09:53	1
Bromoform	<0.780		5.00	0.780	ug/L			05/22/24 09:53	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/22/24 09:53	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/22/24 09:53	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/22/24 09:53	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/22/24 09:53	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/22/24 09:53	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/22/24 09:53	1
Chloroform	<1.30		3.00	1.30	ug/L			05/22/24 09:53	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/22/24 09:53	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/22/24 09:53	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/22/24 09:53	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/22/24 09:53	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/22/24 09:53	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/22/24 09:53	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/22/24 09:53	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/22/24 09:53	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/22/24 09:53	1
Styrene	<0.370		1.00	0.370	ug/L			05/22/24 09:53	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/22/24 09:53	1
Toluene	<0.430		1.00	0.430	ug/L			05/22/24 09:53	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/22/24 09:53	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/22/24 09:53	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/22/24 09:53	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/22/24 09:53	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/22/24 09:53	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/22/24 09:53	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/22/24 09:53	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/22/24 09:53	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281404-5
Date Collected: 05/15/24 06:00
Matrix: Water
Date Received: 05/16/24 10:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	99		73 - 130		05/22/24 09:53	1
Toluene-d8 (Surr)	99		80 - 120		05/22/24 09:53	1
4-Bromofluorobenzene (Surr)	105		80 - 120		05/22/24 09:53	1

Definitions/Glossary

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

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.

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: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-281404-1	OW-402B	101	98	105
310-281404-1 MS	OW-402B	96	105	101
310-281404-1 MSD	OW-402B	93	105	101
310-281404-2	OW-411B	98	102	104
310-281404-3	OW-412B	99	100	101
310-281404-4	OW-413B	97	99	106

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	(73-130)	(80-120)	(80-120)
310-281404-5	Trip Blank	99	99	105
LCS 310-422316/6	Lab Control Sample	94	105	101
LCS 310-422316/7	Lab Control Sample	96	101	103
MB 310-422316/5	Method Blank	96	102	107

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 310-422316/5
Matrix: Water
Analysis Batch: 422316

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	<0.380		1.00	0.380	ug/L			05/22/24 04:26	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/22/24 04:26	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/22/24 04:26	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/22/24 04:26	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/22/24 04:26	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/22/24 04:26	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/22/24 04:26	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/22/24 04:26	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/22/24 04:26	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/22/24 04:26	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/22/24 04:26	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/22/24 04:26	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/22/24 04:26	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/22/24 04:26	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/22/24 04:26	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/22/24 04:26	1
Acetone	<3.10		10.0	3.10	ug/L			05/22/24 04:26	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/22/24 04:26	1
Benzene	<0.220		0.500	0.220	ug/L			05/22/24 04:26	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/22/24 04:26	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/22/24 04:26	1
Bromoform	<0.780		5.00	0.780	ug/L			05/22/24 04:26	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/22/24 04:26	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/22/24 04:26	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/22/24 04:26	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/22/24 04:26	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/22/24 04:26	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/22/24 04:26	1
Chloroform	<1.30		3.00	1.30	ug/L			05/22/24 04:26	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/22/24 04:26	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/22/24 04:26	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/22/24 04:26	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/22/24 04:26	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/22/24 04:26	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/22/24 04:26	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/22/24 04:26	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/22/24 04:26	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/22/24 04:26	1
Styrene	<0.370		1.00	0.370	ug/L			05/22/24 04:26	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/22/24 04:26	1
Toluene	<0.430		1.00	0.430	ug/L			05/22/24 04:26	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/22/24 04:26	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/22/24 04:26	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/22/24 04:26	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/22/24 04:26	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/22/24 04:26	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/22/24 04:26	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/22/24 04:26	1

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

Lab Sample ID: MB 310-422316/5
Matrix: Water
Analysis Batch: 422316

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/22/24 04:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*96*		*73 - 130*		*05/22/24 04:26*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/22/24 04:26*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/22/24 04:26*	*1*

Lab Sample ID: LCS 310-422316/6
Matrix: Water
Analysis Batch: 422316

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	18.95		ug/L		95	71 - 120
1,1,1-Trichloroethane	20.0	18.50		ug/L		93	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.90		ug/L		99	68 - 124
1,1,2-Trichloroethane	20.0	19.62		ug/L		98	73 - 123
1,1-Dichloroethane	20.0	19.38		ug/L		97	70 - 127
1,1-Dichloroethene	20.0	19.25		ug/L		96	63 - 132
1,2,3-Trichloropropane	20.0	19.00		ug/L		95	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	20.85		ug/L		104	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.58		ug/L		93	75 - 125
1,2-Dichlorobenzene	20.0	20.15		ug/L		101	74 - 120
1,2-Dichloroethane	20.0	18.13		ug/L		91	71 - 125
1,2-Dichloropropane	20.0	19.68		ug/L		98	73 - 124
1,4-Dichlorobenzene	20.0	19.20		ug/L		96	72 - 120
2-Butanone (MEK)	40.0	40.76		ug/L		102	50 - 150
2-Hexanone	40.0	43.91		ug/L		110	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	42.17		ug/L		105	60 - 139
Acetone	40.0	40.00		ug/L		100	50 - 150
Acrylonitrile	200	200.2		ug/L		100	50 - 150
Benzene	20.0	18.88		ug/L		94	72 - 124
Bromochloromethane	20.0	18.47		ug/L		92	73 - 130
Bromodichloromethane	20.0	17.97		ug/L		90	74 - 122
Bromoform	20.0	17.68		ug/L		88	61 - 122
Carbon disulfide	20.0	19.57		ug/L		98	59 - 135
Carbon tetrachloride	20.0	17.99		ug/L		90	67 - 132
Chlorobenzene	20.0	19.30		ug/L		96	76 - 120
Chlorodibromomethane	20.0	17.91		ug/L		90	71 - 121
Chloroform	20.0	17.92		ug/L		90	72 - 125
cis-1,2-Dichloroethene	20.0	18.22		ug/L		91	74 - 123
cis-1,3-Dichloropropene	20.0	19.48		ug/L		97	71 - 125
Dibromomethane	20.0	18.56		ug/L		93	74 - 125
Ethylbenzene	20.0	20.50		ug/L		103	74 - 122
Iodomethane	20.0	11.27		ug/L		56	10 - 150
Methylene Chloride	20.0	20.79		ug/L		104	50 - 150
Styrene	20.0	19.95		ug/L		100	74 - 121
Tetrachloroethene	20.0	18.74		ug/L		94	71 - 130
Toluene	20.0	18.76		ug/L		94	74 - 123

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

Lab Sample ID: LCS 310-422316/6
Matrix: Water
Analysis Batch: 422316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	18.27		ug/L		91	70 - 126
trans-1,3-Dichloropropene	20.0	18.19		ug/L		91	69 - 123
trans-1,4-Dichloro-2-butene	20.0	18.03		ug/L		90	50 - 150
Trichloroethene	20.0	18.98		ug/L		95	72 - 126
Vinyl acetate	40.0	34.12		ug/L		85	50 - 150
Xylenes, Total	40.0	40.78		ug/L		102	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*94*		*73 - 130*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCS 310-422316/7
Matrix: Water
Analysis Batch: 422316

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	15.84		ug/L		79	23 - 150
Chloroethane	20.0	19.50		ug/L		97	54 - 136
Chloromethane	20.0	21.50		ug/L		108	38 - 150
Trichlorofluoromethane	20.0	18.78		ug/L		94	54 - 149
Vinyl chloride	20.0	20.77		ug/L		104	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: 310-281404-1 MS
Matrix: Ground Water
Analysis Batch: 422316

Client Sample ID: OW-402B
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	<0.380		25.0	23.08		ug/L		92	55 - 130
1,1,1-Trichloroethane	<0.190		25.0	19.94		ug/L		80	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		25.0	25.18		ug/L		101	54 - 130
1,1,2-Trichloroethane	<0.450		25.0	24.24		ug/L		97	58 - 130
1,1-Dichloroethane	<0.220		25.0	21.99		ug/L		88	49 - 130
1,1-Dichloroethene	<0.560		25.0	21.65		ug/L		87	37 - 132
1,2,3-Trichloropropane	<0.590		25.0	24.25		ug/L		97	49 - 130
1,2-Dibromo-3-Chloropropane	<1.20		25.0	24.74		ug/L		99	38 - 150
1,2-Dibromoethane (EDB)	<0.340		25.0	22.41		ug/L		90	60 - 130
1,2-Dichlorobenzene	<0.370		25.0	23.61		ug/L		94	59 - 130
1,2-Dichloroethane	<0.390		25.0	20.95		ug/L		84	51 - 130
1,2-Dichloropropane	<0.270		25.0	22.81		ug/L		91	57 - 130
1,4-Dichlorobenzene	<0.230		25.0	22.89		ug/L		92	57 - 130
2-Butanone (MEK)	<2.10		50.0	47.65		ug/L		95	38 - 150
2-Hexanone	<2.00		50.0	49.59		ug/L		99	46 - 140

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

Lab Sample ID: 310-281404-1 MS
Matrix: Ground Water
Analysis Batch: 422316

Client Sample ID: OW-402B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	50.28		ug/L		101	47 - 139
Acetone	<3.10		50.0	46.07		ug/L		92	31 - 150
Acrylonitrile	<2.20		250	240.9		ug/L		96	40 - 150
Benzene	<0.220		25.0	22.68		ug/L		91	46 - 130
Bromochloromethane	<0.540		25.0	22.02		ug/L		88	57 - 130
Bromodichloromethane	<0.390		25.0	21.55		ug/L		86	57 - 130
Bromoform	<0.780		25.0	22.24		ug/L		89	44 - 130
Carbon disulfide	<0.450		25.0	23.31		ug/L		93	38 - 135
Carbon tetrachloride	<0.650		25.0	20.09		ug/L		80	45 - 132
Chlorobenzene	<0.400		25.0	23.40		ug/L		94	59 - 130
Chlorodibromomethane	<0.750		25.0	22.04		ug/L		88	54 - 130
Chloroform	<1.30		25.0	21.42		ug/L		86	51 - 130
cis-1,2-Dichloroethene	0.521	J	25.0	22.23		ug/L		87	45 - 130
cis-1,3-Dichloropropene	<0.250		25.0	21.96		ug/L		88	53 - 130
Dibromomethane	<0.330		25.0	21.97		ug/L		88	59 - 130
Ethylbenzene	<0.310		25.0	24.34		ug/L		97	45 - 130
Iodomethane	<7.00		25.0	11.77		ug/L		47	10 - 150
Methylene Chloride	<1.70		25.0	24.23		ug/L		97	37 - 150
Styrene	<0.370		25.0	23.85		ug/L		95	47 - 130
Tetrachloroethene	<0.480		25.0	21.06		ug/L		84	47 - 130
Toluene	<0.430		25.0	22.80		ug/L		91	51 - 130
trans-1,2-Dichloroethene	<0.270		25.0	21.48		ug/L		86	48 - 130
trans-1,3-Dichloropropene	<0.560		25.0	21.80		ug/L		87	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		25.0	21.50		ug/L		86	26 - 150
Trichloroethene	<0.430		25.0	22.19		ug/L		89	51 - 130
Vinyl acetate	<2.50		50.0	38.39		ug/L		77	29 - 150
Xylenes, Total	<0.400		50.0	48.13		ug/L		96	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: 310-281404-1 MSD
Matrix: Ground Water
Analysis Batch: 422316

Client Sample ID: OW-402B
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	<0.380		25.0	21.92		ug/L		88	55 - 130	5	20
1,1,1-Trichloroethane	<0.190		25.0	19.12		ug/L		76	52 - 130	4	20
1,1,2,2-Tetrachloroethane	<0.470		25.0	23.70		ug/L		95	54 - 130	6	20
1,1,2-Trichloroethane	<0.450		25.0	22.77		ug/L		91	58 - 130	6	20
1,1-Dichloroethane	<0.220		25.0	20.34		ug/L		81	49 - 130	8	20
1,1-Dichloroethene	<0.560		25.0	19.65		ug/L		79	37 - 132	10	26
1,2,3-Trichloropropane	<0.590		25.0	23.17		ug/L		93	49 - 130	5	26
1,2-Dibromo-3-Chloropropane	<1.20		25.0	24.13		ug/L		97	38 - 150	2	20
1,2-Dibromoethane (EDB)	<0.340		25.0	21.60		ug/L		86	60 - 130	4	20
1,2-Dichlorobenzene	<0.370		25.0	23.40		ug/L		94	59 - 130	1	20

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

Lab Sample ID: 310-281404-1 MSD
Matrix: Ground Water
Analysis Batch: 422316

Client Sample ID: OW-402B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	<0.390		25.0	19.64		ug/L		79	51 - 130	6	20
1,2-Dichloropropane	<0.270		25.0	21.74		ug/L		87	57 - 130	5	20
1,4-Dichlorobenzene	<0.230		25.0	22.21		ug/L		89	57 - 130	3	20
2-Butanone (MEK)	<2.10		50.0	43.61		ug/L		87	38 - 150	9	20
2-Hexanone	<2.00		50.0	47.46		ug/L		95	46 - 140	4	20
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	48.90		ug/L		98	47 - 139	3	20
Acetone	<3.10		50.0	45.98		ug/L		92	31 - 150	0	29
Acrylonitrile	<2.20		250	229.6		ug/L		92	40 - 150	5	20
Benzene	<0.220		25.0	20.82		ug/L		83	46 - 130	9	20
Bromochloromethane	<0.540		25.0	20.07		ug/L		80	57 - 130	9	20
Bromodichloromethane	<0.390		25.0	20.16		ug/L		81	57 - 130	7	20
Bromoform	<0.780		25.0	20.84		ug/L		83	44 - 130	6	20
Carbon disulfide	<0.450		25.0	20.68		ug/L		83	38 - 135	12	30
Carbon tetrachloride	<0.650		25.0	18.63		ug/L		75	45 - 132	8	20
Chlorobenzene	<0.400		25.0	21.85		ug/L		87	59 - 130	7	20
Chlorodibromomethane	<0.750		25.0	20.84		ug/L		83	54 - 130	6	20
Chloroform	<1.30		25.0	19.55		ug/L		78	51 - 130	9	20
cis-1,2-Dichloroethene	0.521	J	25.0	20.44		ug/L		80	45 - 130	8	20
cis-1,3-Dichloropropene	<0.250		25.0	21.08		ug/L		84	53 - 130	4	20
Dibromomethane	<0.330		25.0	20.77		ug/L		83	59 - 130	6	20
Ethylbenzene	<0.310		25.0	22.60		ug/L		90	45 - 130	7	20
Iodomethane	<7.00		25.0	13.55		ug/L		54	10 - 150	14	35
Methylene Chloride	<1.70		25.0	22.34		ug/L		89	37 - 150	8	24
Styrene	<0.370		25.0	22.15		ug/L		89	47 - 130	7	20
Tetrachloroethene	<0.480		25.0	19.37		ug/L		77	47 - 130	8	20
Toluene	<0.430		25.0	20.88		ug/L		84	51 - 130	9	20
trans-1,2-Dichloroethene	<0.270		25.0	19.57		ug/L		78	48 - 130	9	22
trans-1,3-Dichloropropene	<0.560		25.0	20.29		ug/L		81	50 - 130	7	20
trans-1,4-Dichloro-2-butene	<1.10		25.0	20.43		ug/L		82	26 - 150	5	23
Trichloroethene	<0.430		25.0	20.42		ug/L		82	51 - 130	8	20
Vinyl acetate	<2.50		50.0	38.63		ug/L		77	29 - 150	1	23
Xylenes, Total	<0.400		50.0	45.09		ug/L		90	43 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*93*		*73 - 130*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-421951/1-A
Matrix: Water
Analysis Batch: 422276

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.530		2.00	0.530	ug/L		05/17/24 09:30	05/20/24 19:32	1
Barium	<0.660		2.00	0.660	ug/L		05/17/24 09:30	05/20/24 19:32	1
Beryllium	<0.330		1.00	0.330	ug/L		05/17/24 09:30	05/20/24 19:32	1
Cadmium	<0.100		0.200	0.100	ug/L		05/17/24 09:30	05/20/24 19:32	1

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

Lab Sample ID: MB 310-421951/1-A
Matrix: Water
Analysis Batch: 422276

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	<1.20		5.00	1.20	ug/L		05/17/24 09:30	05/20/24 19:32	1
Copper	<1.80		5.00	1.80	ug/L		05/17/24 09:30	05/20/24 19:32	1
Lead	<0.260		0.500	0.260	ug/L		05/17/24 09:30	05/20/24 19:32	1
Selenium	<1.40		5.00	1.40	ug/L		05/17/24 09:30	05/20/24 19:32	1
Silver	<0.500		1.00	0.500	ug/L		05/17/24 09:30	05/20/24 19:32	1
Thallium	<0.570		1.00	0.570	ug/L		05/17/24 09:30	05/20/24 19:32	1
Vanadium	<1.10		5.00	1.10	ug/L		05/17/24 09:30	05/20/24 19:32	1
Zinc	<9.70		20.0	9.70	ug/L		05/17/24 09:30	05/20/24 19:32	1

Lab Sample ID: MB 310-421951/1-A
Matrix: Water
Analysis Batch: 422392

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/17/24 09:30	05/21/24 14:08	1
Cobalt	<0.170		0.500	0.170	ug/L		05/17/24 09:30	05/21/24 14:08	1
Nickel	<2.10		5.00	2.10	ug/L		05/17/24 09:30	05/21/24 14:08	1

Lab Sample ID: LCS 310-421951/2-A
Matrix: Water
Analysis Batch: 422276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	205.0		ug/L		102	80 - 120
Barium	100	105.6		ug/L		106	80 - 120
Beryllium	100	102.7		ug/L		103	80 - 120
Cadmium	100	99.59		ug/L		100	80 - 120
Chromium	100	96.19		ug/L		96	80 - 120
Cobalt	100	111.1		ug/L		111	80 - 120
Copper	200	214.3		ug/L		107	80 - 120
Lead	200	212.3		ug/L		106	80 - 120
Selenium	400	400.4		ug/L		100	80 - 120
Silver	100	116.5		ug/L		117	80 - 120
Thallium	100	115.8		ug/L		116	80 - 120
Vanadium	100	97.02		ug/L		97	80 - 120
Zinc	200	203.3		ug/L		102	80 - 120

Lab Sample ID: LCS 310-421951/2-A
Matrix: Water
Analysis Batch: 422392

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	228.1		ug/L		114	80 - 120
Nickel	200	204.7		ug/L		102	80 - 120

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

Lab Sample ID: 310-281404-4 DU
Matrix: Ground Water
Analysis Batch: 422276

Client Sample ID: OW-413B
Prep Type: Total/NA
Prep Batch: 421951

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	10.8			11.95		ug/L				10	20
Barium	632			637.4		ug/L				0.9	20
Beryllium	<0.330			<0.330		ug/L				NC	20
Cadmium	<0.100			<0.100		ug/L				NC	20
Chromium	6.15			7.507		ug/L				20	20
Cobalt	5.23			5.466		ug/L				4	20
Copper	3.27	J		3.563	J	ug/L				9	20
Lead	1.06			1.144		ug/L				7	20
Selenium	<1.40			<1.40		ug/L				NC	20
Silver	<0.500			<0.500		ug/L				NC	20
Thallium	<0.570			<0.570		ug/L				NC	20
Vanadium	5.91			7.094		ug/L				18	20
Zinc	<9.70			<9.70		ug/L				NC	20

Lab Sample ID: 310-281404-4 DU
Matrix: Ground Water
Analysis Batch: 422392

Client Sample ID: OW-413B
Prep Type: Total/NA
Prep Batch: 421951

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Antimony	<1.00			<1.00		ug/L				NC	20
Nickel	7.58			9.296		ug/L				20	20

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-422173/1
Matrix: Water
Analysis Batch: 422173

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	<3.70		5.00	3.70	mg/L			05/20/24 10:17	1

Lab Sample ID: LCS 310-422173/2
Matrix: Water
Analysis Batch: 422173

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	98.00		mg/L		98	81 - 116		

Lab Sample ID: MB 310-422230/1
Matrix: Water
Analysis Batch: 422230

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	<3.70		5.00	3.70	mg/L			05/20/24 14:19	1

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: LCS 310-422230/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422230

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	103.0		mg/L		103	81 - 116

GC/MS VOA

Analysis Batch: 422316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-1	OW-402B	Total/NA	Ground Water	8260D	
310-281404-2	OW-411B	Total/NA	Ground Water	8260D	
310-281404-3	OW-412B	Total/NA	Ground Water	8260D	
310-281404-4	OW-413B	Total/NA	Ground Water	8260D	
310-281404-5	Trip Blank	Total/NA	Water	8260D	
MB 310-422316/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422316/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422316/7	Lab Control Sample	Total/NA	Water	8260D	
310-281404-1 MS	OW-402B	Total/NA	Ground Water	8260D	
310-281404-1 MSD	OW-402B	Total/NA	Ground Water	8260D	

Metals

Prep Batch: 421951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-1	OW-402B	Total/NA	Ground Water	3005A	
310-281404-2	OW-411B	Total/NA	Ground Water	3005A	
310-281404-3	OW-412B	Total/NA	Ground Water	3005A	
310-281404-4	OW-413B	Total/NA	Ground Water	3005A	
MB 310-421951/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-421951/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-281404-4 DU	OW-413B	Total/NA	Ground Water	3005A	

Analysis Batch: 422276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-1	OW-402B	Total/NA	Ground Water	6020B	421951
310-281404-2	OW-411B	Total/NA	Ground Water	6020B	421951
310-281404-3	OW-412B	Total/NA	Ground Water	6020B	421951
310-281404-4	OW-413B	Total/NA	Ground Water	6020B	421951
MB 310-421951/1-A	Method Blank	Total/NA	Water	6020B	421951
LCS 310-421951/2-A	Lab Control Sample	Total/NA	Water	6020B	421951
310-281404-4 DU	OW-413B	Total/NA	Ground Water	6020B	421951

Analysis Batch: 422392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-1	OW-402B	Total/NA	Ground Water	6020B	421951
310-281404-2	OW-411B	Total/NA	Ground Water	6020B	421951
310-281404-3	OW-412B	Total/NA	Ground Water	6020B	421951
310-281404-4	OW-413B	Total/NA	Ground Water	6020B	421951
MB 310-421951/1-A	Method Blank	Total/NA	Water	6020B	421951
LCS 310-421951/2-A	Lab Control Sample	Total/NA	Water	6020B	421951
310-281404-4 DU	OW-413B	Total/NA	Ground Water	6020B	421951

General Chemistry

Analysis Batch: 422173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-2	OW-411B	Total/NA	Ground Water	I-3765-85	
310-281404-4	OW-413B	Total/NA	Ground Water	I-3765-85	
MB 310-422173/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422173/2	Lab Control Sample	Total/NA	Water	I-3765-85	

QC Association Summary

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

General Chemistry

Analysis Batch: 422230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-1	OW-402B	Total/NA	Ground Water	I-3765-85	
310-281404-3	OW-412B	Total/NA	Ground Water	I-3765-85	
MB 310-422230/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422230/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Field Service / Mobile Lab

Analysis Batch: 422183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281404-1	OW-402B	Total/NA	Ground Water	Field Sampling	
310-281404-2	OW-411B	Total/NA	Ground Water	Field Sampling	
310-281404-3	OW-412B	Total/NA	Ground Water	Field Sampling	
310-281404-4	OW-413B	Total/NA	Ground Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B
Lab Sample ID: 310-281404-1
Date Collected: 05/15/24 15:00
Matrix: Ground Water
Date Received: 05/16/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422316	WSE8	EET CF	05/22/24 08:26
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422276	NFT2	EET CF	05/20/24 20:11
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 14:19
Total/NA	Analysis	I-3765-85		1	422230	HE7K	EET CF	05/20/24 14:19
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/15/24 15:00

Client Sample ID: OW-411B
Lab Sample ID: 310-281404-2
Date Collected: 05/15/24 10:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422316	WSE8	EET CF	05/22/24 08:47
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422276	NFT2	EET CF	05/20/24 20:14
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 14:21
Total/NA	Analysis	I-3765-85		1	422173	HE7K	EET CF	05/20/24 10:17
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/15/24 10:45

Client Sample ID: OW-412B
Lab Sample ID: 310-281404-3
Date Collected: 05/15/24 11:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422316	WSE8	EET CF	05/22/24 09:09
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422276	NFT2	EET CF	05/20/24 20:16
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 14:23
Total/NA	Analysis	I-3765-85		1	422230	HE7K	EET CF	05/20/24 14:19
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/15/24 11:45

Client Sample ID: OW-413B
Lab Sample ID: 310-281404-4
Date Collected: 05/15/24 12:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422316	WSE8	EET CF	05/22/24 09:31
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422276	NFT2	EET CF	05/20/24 20:18
Total/NA	Prep	3005A			421951	KM3E	EET CF	05/17/24 09:30
Total/NA	Analysis	6020B		1	422392	NFT2	EET CF	05/21/24 14:25

Lab Chronicle

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-413B
Lab Sample ID: 310-281404-4

Date Collected: 05/15/24 12:45
Matrix: Ground Water
Date Received: 05/16/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	422173	HE7K	EET CF	05/20/24 10:17
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/15/24 12:45

Client Sample ID: Trip Blank
Lab Sample ID: 310-281404-5

Date Collected: 05/15/24 06:00
Matrix: Water
Date Received: 05/16/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422316	WSE8	EET CF	05/22/24 09:53

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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	m,p-Xylene
8260D		Ground Water	o-Xylene
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Ground Water	Field Turbidity

Method Summary

Client: AECOM
Job ID: 310-281404-1
Project/Site: Black Hawk County Landfill (IDNR)

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
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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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310-281404 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo STATE IA Project: BHC IDW

Receipt Information

Date/Time Received: DATE 5/16/24 TIME 1000 Received By: TO

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: R Correction Factor (°C): 0.0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): Corrected Temp (°C):

Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	250 HDPE	
Uncorrected Temp (°C):	3.3	
Corrected Temp (°C):	3.3	

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277.2425

Chain of Custody Record

eurofins
Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom.com	**Site Contact:** / **Date:** 5-16-24	1 of 1 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client: / Lab Sampling
(xxx) xxx-xxxx FAX			
Project Name Black Hawk Co IDNR			Job / SDG No
Site Black Hawk County Landfill			
P O #			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-401B			G	GW		N		X		X		X	X		X	X	X	X	
OW-402B	5-15-24	1500	G	GW	5	N		X											Turbidity - 0.82 NTU
MW-409B			G	GW		N		X											
OW-410B			G	GW		N		X											
OW-411B	5-15-24	1045	G	GW	5	N		X											Turbidity - 0.77 NTU
OW-412B	5-15-24	1145	G	GW	5	N		X											Turbidity - 47.33 NTU
OW-413B	5-15-24	1245	G	GW	5	N		X											Turbidity - 81.81 NTU
OW-414B			G	GW		N		X											
MW-501B			G	GW		N		X											
MW-602B			G	GW		N		X											
MW-602B-FD			G	GW		N		X											
Trip Blank	5-15-24	0600	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd _____ Corr'd. _____	Therm ID No. _____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-16-24	Received by:	Company:	Date/Time: 5/16/24 1030
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

5/26/2024

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-281404-1

Login Number: 281404

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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.	True	
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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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

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JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Spring 2024

JOB NUMBER

310-281530-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job ID: 310-281530-1 — Eurofins Cedar Falls

Job Narrative
310-281530-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/17/2024 10:00 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 time was 2.0°C.

GC/MS VOA
Method 8260D: The following sample was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed within the 7-day holding time specified for unpreserved samples: OW-220B (310-281530-4).

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.

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.

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

Sample Summary

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-281530-1	MW-409B	Water	05/16/24 12:30	05/17/24 10:00
310-281530-2	OW-410B	Water	05/16/24 11:30	05/17/24 10:00
310-281530-3	Trip Blank	Water	05/16/24 05:00	05/17/24 10:00
310-281530-4	OW-220B	Water	05/16/24 13:30	05/17/24 10:00
310-281530-5	MW-320B	Water	05/16/24 15:00	05/17/24 10:00
310-281530-6	Equipment Blank-2	Water	05/16/24 16:00	05/17/24 10:00
310-281530-7	MW-320FD	Water	05/16/24 15:00	05/17/24 10:00

Detection Summary

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-409B — Lab Sample ID: 310-281530-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.25	J	10.0	3.10	ug/L	1		8260D	Total/NA
Arsenic	3.83		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	35.8		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	11.1		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	5.00		5.00	1.80	ug/L	1		6020B	Total/NA
Lead	0.330	J	0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	9.19		5.00	2.10	ug/L	1		6020B	Total/NA
Selenium	1.66	J	5.00	1.40	ug/L	1		6020B	Total/NA
Silver	0.863	J	1.00	0.500	ug/L	1		6020B	Total/NA
Total Suspended Solids	38.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	18.42				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-410B — Lab Sample ID: 310-281530-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	2.91	J	10.0	2.10	ug/L	1		8260D	Total/NA
Acetone	17.1		10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.02		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	4.54		1.00	0.400	ug/L	1		8260D	Total/NA
Arsenic	11.8		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	2750		8.00	2.64	ug/L	4		6020B	Total/NA
Chromium	4.13	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	13.8		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	52.1		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.76	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	80.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	182.75				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-281530-3

No Detections.

Client Sample ID: OW-220B — Lab Sample ID: 310-281530-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.940	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	1.87		1.00	0.230	ug/L	1		8260D	Total/NA
2-Butanone (MEK)	5.29	J	10.0	2.10	ug/L	1		8260D	Total/NA
Acetone	10.8		10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.29		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	2.09	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.474	J	1.00	0.210	ug/L	1		8260D	Total/NA
Silvex (2,4,5-TP)	0.372		0.0477	0.0210	ug/L	1		8151A	Total/NA
Arsenic	14.4		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	904		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	7.00		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	21.7		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	135		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.37	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	115		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	4.72				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320B — Lab Sample ID: 310-281530-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
m,p-Xylene	0.404	J	2.00	0.380	ug/L	1		8260D	Total/NA
Xylenes, Total	0.404	J	3.00	0.400	ug/L	1		8260D	Total/NA
Barium	235		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	83.3		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.635		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.38	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	31.6		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.10	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	5.13		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	19.41				NTU	1		Field Sampling	Total/NA

Client Sample ID: Equipment Blank-2 — Lab Sample ID: 310-281530-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.48	J	10.0	3.10	ug/L	1		8260D	Total/NA
Bromodichloromethane	0.830	J	1.00	0.390	ug/L	1		8260D	Total/NA
Chloroform	2.10	J	3.00	1.30	ug/L	1		8260D	Total/NA
Toluene	0.580	J	1.00	0.430	ug/L	1		8260D	Total/NA

Client Sample ID: MW-320FD — Lab Sample ID: 310-281530-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	236		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	91.6		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.711		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.49	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	33.4		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.18	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.00		1.88	1.39	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-409B
Lab Sample ID: 310-281530-1
Date Collected: 05/16/24 12:30
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 08:46	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 08:46	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 08:46	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 08:46	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 08:46	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 08:46	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 08:46	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 08:46	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 08:46	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 08:46	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 08:46	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 08:46	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 08:46	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 08:46	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 08:46	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 08:46	1
Acetone	**6.25**	**J**	10.0	3.10	ug/L			05/23/24 08:46	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 08:46	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 08:46	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 08:46	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 08:46	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 08:46	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 08:46	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 08:46	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 08:46	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 08:46	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 08:46	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 08:46	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 08:46	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 08:46	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 08:46	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 08:46	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 08:46	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 08:46	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 08:46	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 08:46	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 08:46	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 08:46	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 08:46	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 08:46	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 08:46	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 08:46	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 08:46	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 08:46	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 08:46	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 08:46	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 08:46	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 08:46	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 08:46	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-409B
Date Collected: 05/16/24 12:30
Date Received: 05/17/24 10:00

Lab Sample ID: 310-281530-1
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*73 - 130*		*05/23/24 08:46*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/23/24 08:46*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*05/23/24 08:46*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 20:55	1
Arsenic	**3.83**		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 20:55	1
Barium	**35.8**		2.00	0.660	ug/L		05/20/24 09:30	05/29/24 20:55	1
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 20:55	1
Cadmium	<0.100		0.200	0.100	ug/L		05/20/24 09:30	05/30/24 18:29	1
Chromium	<1.20		5.00	1.20	ug/L		05/20/24 09:30	05/29/24 20:55	1
Cobalt	**11.1**		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 20:55	1
Copper	**5.00**		5.00	1.80	ug/L		05/20/24 09:30	05/29/24 20:55	1
Lead	**0.330**	**J**	0.500	0.260	ug/L		05/20/24 09:30	05/29/24 20:55	1
Nickel	**9.19**		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 20:55	1
Selenium	**1.66**	**J**	5.00	1.40	ug/L		05/20/24 09:30	05/29/24 20:55	1
Silver	**0.863**	**J**	1.00	0.500	ug/L		05/20/24 09:30	05/29/24 20:55	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 20:55	1
Vanadium	<1.10		5.00	1.10	ug/L		05/20/24 09:30	05/29/24 20:55	1
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 20:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**38.0**		15.0	11.1	mg/L			05/22/24 09:48	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**18.42**				NTU			05/16/24 12:30	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-410B
Lab Sample ID: 310-281530-2
Date Collected: 05/16/24 11:30
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 09:08	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 09:08	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 09:08	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 09:08	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 09:08	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 09:08	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 09:08	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 09:08	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 09:08	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 09:08	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 09:08	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 09:08	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 09:08	1
2-Butanone (MEK)	**2.91**	**J**	10.0	2.10	ug/L			05/23/24 09:08	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 09:08	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 09:08	1
Acetone	**17.1**		10.0	3.10	ug/L			05/23/24 09:08	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 09:08	1
Benzene	**2.02**		0.500	0.220	ug/L			05/23/24 09:08	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 09:08	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 09:08	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 09:08	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 09:08	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 09:08	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 09:08	1
Chlorobenzene	**4.54**		1.00	0.400	ug/L			05/23/24 09:08	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 09:08	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 09:08	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 09:08	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 09:08	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 09:08	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 09:08	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 09:08	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 09:08	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 09:08	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 09:08	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 09:08	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 09:08	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 09:08	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 09:08	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 09:08	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 09:08	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 09:08	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 09:08	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 09:08	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 09:08	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 09:08	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 09:08	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 09:08	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-410B
Date Collected: 05/16/24 11:30
Date Received: 05/17/24 10:00

Lab Sample ID: 310-281530-2
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*05/23/24 09:08*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/23/24 09:08*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/23/24 09:08*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 20:59	1
Arsenic	**11.8**		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 20:59	1
Barium	**2750**		8.00	2.64	ug/L		05/20/24 09:30	05/30/24 18:32	4
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 20:59	1
Cadmium	<0.400		0.800	0.400	ug/L		05/20/24 09:30	05/30/24 18:32	4
Chromium	**4.13**	**J**	5.00	1.20	ug/L		05/20/24 09:30	05/29/24 20:59	1
Cobalt	**13.8**		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 20:59	1
Copper	<1.80		5.00	1.80	ug/L		05/20/24 09:30	05/29/24 20:59	1
Lead	<0.260		0.500	0.260	ug/L		05/20/24 09:30	05/29/24 20:59	1
Nickel	**52.1**		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 20:59	1
Selenium	<1.40		5.00	1.40	ug/L		05/20/24 09:30	05/29/24 20:59	1
Silver	<0.500		1.00	0.500	ug/L		05/20/24 09:30	05/29/24 20:59	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 20:59	1
Vanadium	**1.76**	**J**	5.00	1.10	ug/L		05/20/24 09:30	05/29/24 20:59	1
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 20:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**80.0**		15.0	11.1	mg/L			05/22/24 09:48	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**182.75**				NTU			05/16/24 11:30	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281530-3
Date Collected: 05/16/24 05:00
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 02:36	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 02:36	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 02:36	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 02:36	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 02:36	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 02:36	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 02:36	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 02:36	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 02:36	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 02:36	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 02:36	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 02:36	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 02:36	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 02:36	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 02:36	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 02:36	1
Acetone	<3.10		10.0	3.10	ug/L			05/23/24 02:36	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 02:36	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 02:36	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 02:36	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 02:36	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 02:36	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 02:36	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 02:36	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 02:36	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 02:36	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 02:36	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 02:36	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 02:36	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 02:36	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 02:36	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 02:36	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 02:36	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 02:36	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 02:36	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 02:36	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 02:36	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 02:36	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 02:36	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 02:36	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 02:36	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 02:36	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 02:36	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 02:36	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 02:36	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 02:36	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 02:36	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 02:36	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 02:36	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281530-3
Date Collected: 05/16/24 05:00
Matrix: Water
Date Received: 05/17/24 10:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	97		73 - 130		05/23/24 02:36	1
Toluene-d8 (Surr)	101		80 - 120		05/23/24 02:36	1
4-Bromofluorobenzene (Surr)	105		80 - 120		05/23/24 02:36	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-220B
Lab Sample ID: 310-281530-4

Date Collected: 05/16/24 13:30
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 09:30	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 09:30	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 09:30	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 09:30	1
1,1-Dichloroethane	**0.940**	**J**	1.00	0.220	ug/L			05/23/24 09:30	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 09:30	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 09:30	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 09:30	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 09:30	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 09:30	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 09:30	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 09:30	1
1,4-Dichlorobenzene	**1.87**		1.00	0.230	ug/L			05/23/24 09:30	1
2-Butanone (MEK)	**5.29**	**J**	10.0	2.10	ug/L			05/23/24 09:30	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 09:30	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 09:30	1
Acetone	**10.8**		10.0	3.10	ug/L			05/23/24 09:30	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 09:30	1
Benzene	**2.29**		0.500	0.220	ug/L			05/23/24 09:30	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 09:30	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 09:30	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 09:30	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 09:30	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 09:30	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 09:30	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 09:30	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 09:30	1
Chloroethane	**2.09**	**J**	4.00	0.790	ug/L			05/23/24 09:30	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 09:30	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 09:30	1
cis-1,2-Dichloroethene	**0.474**	**J**	1.00	0.210	ug/L			05/23/24 09:30	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 09:30	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 09:30	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 09:30	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 09:30	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 09:30	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 09:30	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 09:30	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 09:30	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 09:30	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 09:30	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 09:30	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 09:30	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 09:30	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 09:30	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 09:30	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 09:30	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 09:30	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 09:30	1

Client Sample ID: OW-220B
Date Collected: 05/16/24 13:30
Date Received: 05/17/24 10:00

Lab Sample ID: 310-281530-4
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*05/23/24 09:30*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/23/24 09:30*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*05/23/24 09:30*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.239		0.573	0.239	ug/L		05/23/24 18:46	05/24/24 19:58	1
Silvex (2,4,5-TP)	**0.372**		0.0477	0.0210	ug/L		05/23/24 18:46	05/24/24 19:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*90*	*p*	*34 - 142*	*05/23/24 18:46*	*05/24/24 19:58*	*1*
DCAA	*275*	*S1+*	*34 - 142*	*05/23/24 18:46*	*05/24/24 19:58*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 21:02	1
Arsenic	**14.4**		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 21:02	1
Barium	**904**		2.00	0.660	ug/L		05/20/24 09:30	05/29/24 21:02	1
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 21:02	1
Cadmium	<0.100		0.200	0.100	ug/L		05/20/24 09:30	05/30/24 18:36	1
Chromium	**7.00**		5.00	1.20	ug/L		05/20/24 09:30	05/29/24 21:02	1
Cobalt	**21.7**		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 21:02	1
Copper	<1.80		5.00	1.80	ug/L		05/20/24 09:30	05/29/24 21:02	1
Lead	<0.260		0.500	0.260	ug/L		05/20/24 09:30	05/29/24 21:02	1
Nickel	**135**		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 21:02	1
Selenium	<1.40		5.00	1.40	ug/L		05/20/24 09:30	05/29/24 21:02	1
Silver	<0.500		1.00	0.500	ug/L		05/20/24 09:30	05/29/24 21:02	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 21:02	1
Vanadium	**1.37**	**J**	5.00	1.10	ug/L		05/20/24 09:30	05/29/24 21:02	1
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 21:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**115**		15.0	11.1	mg/L			05/22/24 09:48	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**4.72**				NTU			05/16/24 13:30	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320B
Lab Sample ID: 310-281530-5

Date Collected: 05/16/24 15:00
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 08:25	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 08:25	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 08:25	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 08:25	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 08:25	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 08:25	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 08:25	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 08:25	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 08:25	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 08:25	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 08:25	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 08:25	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 08:25	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 08:25	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 08:25	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 08:25	1
Acetone	<3.10		10.0	3.10	ug/L			05/23/24 08:25	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 08:25	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 08:25	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 08:25	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 08:25	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 08:25	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 08:25	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 08:25	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 08:25	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 08:25	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 08:25	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 08:25	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 08:25	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 08:25	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 08:25	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 08:25	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 08:25	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 08:25	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 08:25	1
m,p-Xylene	**0.404**	**J**	2.00	0.380	ug/L			05/23/24 08:25	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 08:25	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 08:25	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 08:25	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 08:25	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 08:25	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 08:25	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 08:25	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 08:25	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 08:25	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 08:25	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 08:25	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 08:25	1
Xylenes, Total	**0.404**	**J**	3.00	0.400	ug/L			05/23/24 08:25	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320B
Date Collected: 05/16/24 15:00
Date Received: 05/17/24 10:00

Lab Sample ID: 310-281530-5
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*73 - 130*		*05/23/24 08:25*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/23/24 08:25*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*05/23/24 08:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 21:06	1
Arsenic	<0.530		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 21:06	1
Barium	**235**		2.00	0.660	ug/L		05/20/24 09:30	05/29/24 21:06	1
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 21:06	1
Cadmium	<0.100		0.200	0.100	ug/L		05/20/24 09:30	05/30/24 18:39	1
Chromium	**83.3**		5.00	1.20	ug/L		05/20/24 09:30	05/29/24 21:06	1
Cobalt	**0.635**		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 21:06	1
Copper	**2.38**	**J**	5.00	1.80	ug/L		05/20/24 09:30	05/29/24 21:06	1
Lead	<0.260		0.500	0.260	ug/L		05/20/24 09:30	05/29/24 21:06	1
Nickel	**31.6**		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 21:06	1
Selenium	<1.40		5.00	1.40	ug/L		05/20/24 09:30	05/29/24 21:06	1
Silver	<0.500		1.00	0.500	ug/L		05/20/24 09:30	05/29/24 21:06	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 21:06	1
Vanadium	**1.10**	**J**	5.00	1.10	ug/L		05/20/24 09:30	05/29/24 21:06	1
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 21:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**5.13**		1.88	1.39	mg/L			05/22/24 09:48	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**19.41**				NTU			05/16/24 15:00	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Equipment Blank-2
Lab Sample ID: 310-281530-6

Date Collected: 05/16/24 16:00
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 02:58	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 02:58	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 02:58	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 02:58	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 02:58	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 02:58	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 02:58	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 02:58	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 02:58	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 02:58	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 02:58	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 02:58	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 02:58	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 02:58	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 02:58	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 02:58	1
Acetone	**7.48**	**J**	10.0	3.10	ug/L			05/23/24 02:58	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 02:58	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 02:58	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 02:58	1
Bromodichloromethane	**0.830**	**J**	1.00	0.390	ug/L			05/23/24 02:58	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 02:58	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 02:58	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 02:58	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 02:58	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 02:58	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 02:58	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 02:58	1
Chloroform	**2.10**	**J**	3.00	1.30	ug/L			05/23/24 02:58	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 02:58	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 02:58	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 02:58	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 02:58	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 02:58	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 02:58	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 02:58	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 02:58	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 02:58	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 02:58	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 02:58	1
Toluene	**0.580**	**J**	1.00	0.430	ug/L			05/23/24 02:58	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 02:58	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 02:58	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 02:58	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 02:58	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 02:58	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 02:58	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 02:58	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 02:58	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Equipment Blank-2
Lab Sample ID: 310-281530-6

Date Collected: 05/16/24 16:00
Matrix: Water
Date Received: 05/17/24 10:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*05/23/24 02:58*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/23/24 02:58*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/23/24 02:58*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 21:09	1
Arsenic	<0.530		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 21:09	1
Barium	<0.660		2.00	0.660	ug/L		05/20/24 09:30	05/29/24 21:09	1
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 21:09	1
Cadmium	<0.100		0.200	0.100	ug/L		05/20/24 09:30	05/30/24 18:43	1
Chromium	<1.20		5.00	1.20	ug/L		05/20/24 09:30	05/29/24 21:09	1
Cobalt	<0.170		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 21:09	1
Copper	<1.80		5.00	1.80	ug/L		05/20/24 09:30	05/29/24 21:09	1
Lead	<0.260		0.500	0.260	ug/L		05/20/24 09:30	05/29/24 21:09	1
Nickel	<2.10		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 21:09	1
Selenium	<1.40		5.00	1.40	ug/L		05/20/24 09:30	05/29/24 21:09	1
Silver	<0.500		1.00	0.500	ug/L		05/20/24 09:30	05/29/24 21:09	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 21:09	1
Vanadium	<1.10		5.00	1.10	ug/L		05/20/24 09:30	05/29/24 21:09	1
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 21:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/21/24 10:12	1

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320FD
Lab Sample ID: 310-281530-7
Date Collected: 05/16/24 15:00
Matrix: Water
Date Received: 05/17/24 10:00

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	<0.380		1.00	0.380	ug/L			05/23/24 03:19	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 03:19	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 03:19	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 03:19	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 03:19	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 03:19	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 03:19	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 03:19	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 03:19	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 03:19	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 03:19	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 03:19	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 03:19	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 03:19	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 03:19	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 03:19	1
Acetone	<3.10		10.0	3.10	ug/L			05/23/24 03:19	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 03:19	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 03:19	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 03:19	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 03:19	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 03:19	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 03:19	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 03:19	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 03:19	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 03:19	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 03:19	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 03:19	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 03:19	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 03:19	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 03:19	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 03:19	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 03:19	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 03:19	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 03:19	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 03:19	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 03:19	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 03:19	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 03:19	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 03:19	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 03:19	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 03:19	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 03:19	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 03:19	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 03:19	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 03:19	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 03:19	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 03:19	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 03:19	1

Client Sample Results

Client: AECOM
Project/Site: Black Hawk County Landfill (IDNR)

Job ID: 310-281530-1

Client Sample ID: MW-320FD

Date Collected: 05/16/24 15:00
Date Received: 05/17/24 10:00

Lab Sample ID: 310-281530-7

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*05/23/24 03:19*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/23/24 03:19*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/23/24 03:19*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 21:28	1
Arsenic	<0.530		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 21:28	1
Barium	**236**		2.00	0.660	ug/L		05/20/24 09:30	05/29/24 21:28	1
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 21:28	1
Cadmium	<0.100		0.200	0.100	ug/L		05/20/24 09:30	05/30/24 18:47	1
Chromium	**91.6**		5.00	1.20	ug/L		05/20/24 09:30	05/29/24 21:28	1
Cobalt	**0.711**		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 21:28	1
Copper	**2.49**	**J**	5.00	1.80	ug/L		05/20/24 09:30	05/29/24 21:28	1
Lead	<0.260		0.500	0.260	ug/L		05/20/24 09:30	05/29/24 21:28	1
Nickel	**33.4**		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 21:28	1
Selenium	<1.40		5.00	1.40	ug/L		05/20/24 09:30	05/29/24 21:28	1
Silver	<0.500		1.00	0.500	ug/L		05/20/24 09:30	05/29/24 21:28	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 21:28	1
Vanadium	**1.18**	**J**	5.00	1.10	ug/L		05/20/24 09:30	05/29/24 21:28	1
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 21:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.00**		1.88	1.39	mg/L			05/21/24 10:12	1

Definitions/Glossary

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

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 Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1+	Surrogate recovery exceeds control limits, high biased.

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.

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: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-281530-1	MW-409B	98	100	105
310-281530-2	OW-410B	99	100	107
310-281530-3	Trip Blank	97	101	105
310-281530-4	OW-220B	100	102	103
310-281530-5	MW-320B	95	100	103
310-281530-6	Equipment Blank-2	99	97	102
310-281530-7	MW-320FD	101	99	107
LCS 310-422420/6	Lab Control Sample	96	105	102
LCS 310-422420/7	Lab Control Sample	98	101	105
MB 310-422420/5	Method Blank	98	102	109

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1	DCPAA2
Lab Sample ID	Client Sample ID	(34-142)	(34-142)
310-281530-4	OW-220B	90 p	275 S1+

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-422420/5
Matrix: Water
Analysis Batch: 422420

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	<0.380		1.00	0.380	ug/L			05/23/24 01:30	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/23/24 01:30	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/23/24 01:30	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/23/24 01:30	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/23/24 01:30	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/23/24 01:30	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/23/24 01:30	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/23/24 01:30	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/23/24 01:30	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/23/24 01:30	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/23/24 01:30	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/23/24 01:30	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/23/24 01:30	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/23/24 01:30	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/23/24 01:30	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/23/24 01:30	1
Acetone	<3.10		10.0	3.10	ug/L			05/23/24 01:30	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/23/24 01:30	1
Benzene	<0.220		0.500	0.220	ug/L			05/23/24 01:30	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/23/24 01:30	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/23/24 01:30	1
Bromoform	<0.780		5.00	0.780	ug/L			05/23/24 01:30	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/23/24 01:30	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/23/24 01:30	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/23/24 01:30	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/23/24 01:30	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/23/24 01:30	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/23/24 01:30	1
Chloroform	<1.30		3.00	1.30	ug/L			05/23/24 01:30	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/23/24 01:30	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/23/24 01:30	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/23/24 01:30	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/23/24 01:30	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/23/24 01:30	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/23/24 01:30	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/23/24 01:30	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/23/24 01:30	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/23/24 01:30	1
Styrene	<0.370		1.00	0.370	ug/L			05/23/24 01:30	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/23/24 01:30	1
Toluene	<0.430		1.00	0.430	ug/L			05/23/24 01:30	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/23/24 01:30	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/23/24 01:30	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/23/24 01:30	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/23/24 01:30	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/23/24 01:30	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/23/24 01:30	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/23/24 01:30	1

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

Lab Sample ID: MB 310-422420/5
Matrix: Water
Analysis Batch: 422420

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/23/24 01:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*73 - 130*		*05/23/24 01:30*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/23/24 01:30*	*1*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*05/23/24 01:30*	*1*

Lab Sample ID: LCS 310-422420/6
Matrix: Water
Analysis Batch: 422420

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	18.17		ug/L		91	71 - 120
1,1,1-Trichloroethane	20.0	17.80		ug/L		89	73 - 129
1,1,2,2-Tetrachloroethane	20.0	18.94		ug/L		95	68 - 124
1,1,2-Trichloroethane	20.0	18.97		ug/L		95	73 - 123
1,1-Dichloroethane	20.0	18.89		ug/L		94	70 - 127
1,1-Dichloroethene	20.0	18.87		ug/L		94	63 - 132
1,2,3-Trichloropropane	20.0	17.83		ug/L		89	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	18.57		ug/L		93	50 - 150
1,2-Dibromoethane (EDB)	20.0	17.95		ug/L		90	75 - 125
1,2-Dichlorobenzene	20.0	19.29		ug/L		96	74 - 120
1,2-Dichloroethane	20.0	17.74		ug/L		89	71 - 125
1,2-Dichloropropane	20.0	19.61		ug/L		98	73 - 124
1,4-Dichlorobenzene	20.0	18.91		ug/L		95	72 - 120
2-Butanone (MEK)	40.0	34.53		ug/L		86	50 - 150
2-Hexanone	40.0	37.29		ug/L		93	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	36.99		ug/L		92	60 - 139
Acetone	40.0	35.70		ug/L		89	50 - 150
Acrylonitrile	200	195.9		ug/L		98	50 - 150
Benzene	20.0	19.37		ug/L		97	72 - 124
Bromochloromethane	20.0	18.14		ug/L		91	73 - 130
Bromodichloromethane	20.0	17.89		ug/L		89	74 - 122
Bromoform	20.0	16.69		ug/L		83	61 - 122
Carbon disulfide	20.0	19.78		ug/L		99	59 - 135
Carbon tetrachloride	20.0	17.88		ug/L		89	67 - 132
Chlorobenzene	20.0	19.11		ug/L		96	76 - 120
Chlorodibromomethane	20.0	17.41		ug/L		87	71 - 121
Chloroform	20.0	18.02		ug/L		90	72 - 125
cis-1,2-Dichloroethene	20.0	18.52		ug/L		93	74 - 123
cis-1,3-Dichloropropene	20.0	18.74		ug/L		94	71 - 125
Dibromomethane	20.0	17.95		ug/L		90	74 - 125
Ethylbenzene	20.0	20.33		ug/L		102	74 - 122
Iodomethane	20.0	10.63		ug/L		53	10 - 150
Methylene Chloride	20.0	20.31		ug/L		102	50 - 150
Styrene	20.0	19.30		ug/L		96	74 - 121
Tetrachloroethene	20.0	18.14		ug/L		91	71 - 130
Toluene	20.0	18.60		ug/L		93	74 - 123

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

Lab Sample ID: LCS 310-422420/6
Matrix: Water
Analysis Batch: 422420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	18.68		ug/L		93	70 - 126
trans-1,3-Dichloropropene	20.0	17.55		ug/L		88	69 - 123
trans-1,4-Dichloro-2-butene	20.0	16.53		ug/L		83	50 - 150
Trichloroethene	20.0	19.00		ug/L		95	72 - 126
Vinyl acetate	40.0	34.78		ug/L		87	50 - 150
Xylenes, Total	40.0	39.16		ug/L		98	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: LCS 310-422420/7
Matrix: Water
Analysis Batch: 422420

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	17.38		ug/L		87	23 - 150
Chloroethane	20.0	20.08		ug/L		100	54 - 136
Chloromethane	20.0	22.04		ug/L		110	38 - 150
Trichlorofluoromethane	20.0	18.65		ug/L		93	54 - 149
Vinyl chloride	20.0	21.02		ug/L		105	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-422087/1-A
Matrix: Water
Analysis Batch: 423058

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422087

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/20/24 09:30	05/29/24 20:15	1
Arsenic	<0.530		2.00	0.530	ug/L		05/20/24 09:30	05/29/24 20:15	1
Barium	<0.660		2.00	0.660	ug/L		05/20/24 09:30	05/29/24 20:15	1
Beryllium	<0.330		1.00	0.330	ug/L		05/20/24 09:30	05/29/24 20:15	1
Chromium	<1.20		5.00	1.20	ug/L		05/20/24 09:30	05/29/24 20:15	1
Cobalt	<0.170		0.500	0.170	ug/L		05/20/24 09:30	05/29/24 20:15	1
Copper	<1.80		5.00	1.80	ug/L		05/20/24 09:30	05/29/24 20:15	1
Lead	<0.260		0.500	0.260	ug/L		05/20/24 09:30	05/29/24 20:15	1
Nickel	<2.10		5.00	2.10	ug/L		05/20/24 09:30	05/29/24 20:15	1
Selenium	<1.40		5.00	1.40	ug/L		05/20/24 09:30	05/29/24 20:15	1
Silver	<0.500		1.00	0.500	ug/L		05/20/24 09:30	05/29/24 20:15	1
Thallium	<0.570		1.00	0.570	ug/L		05/20/24 09:30	05/29/24 20:15	1
Vanadium	<1.10		5.00	1.10	ug/L		05/20/24 09:30	05/29/24 20:15	1

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

Lab Sample ID: MB 310-422087/1-A
Matrix: Water
Analysis Batch: 423058

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422087

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<9.70		20.0	9.70	ug/L		05/20/24 09:30	05/29/24 20:15	1

Lab Sample ID: MB 310-422087/1-A
Matrix: Water
Analysis Batch: 423173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422087

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.100		0.200	0.100	ug/L		05/20/24 09:30	05/30/24 17:56	1

Lab Sample ID: LCS 310-422087/2-A
Matrix: Water
Analysis Batch: 423058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422087

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	203.0		ug/L		101	80 - 120
Arsenic	200	213.4		ug/L		107	80 - 120
Barium	100	105.4		ug/L		105	80 - 120
Beryllium	100	89.95		ug/L		90	80 - 120
Chromium	100	98.05		ug/L		98	80 - 120
Cobalt	100	95.23		ug/L		95	80 - 120
Copper	200	202.1		ug/L		101	80 - 120
Lead	200	201.4		ug/L		101	80 - 120
Nickel	200	197.3		ug/L		99	80 - 120
Selenium	400	382.8		ug/L		96	80 - 120
Silver	100	109.9		ug/L		110	80 - 120
Thallium	100	86.91		ug/L		87	80 - 120
Vanadium	100	96.79		ug/L		97	80 - 120
Zinc	200	191.1		ug/L		96	80 - 120

Lab Sample ID: LCS 310-422087/2-A
Matrix: Water
Analysis Batch: 423173

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422087

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	100	94.83		ug/L		95	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-422300/1
Matrix: Water
Analysis Batch: 422300

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	<3.70		5.00	3.70	mg/L			05/21/24 10:12	1

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: LCS 310-422300/2
Matrix: Water
Analysis Batch: 422300

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	100.0		mg/L		100	81 - 116

Lab Sample ID: MB 310-422414/1
Matrix: Water
Analysis Batch: 422414

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	<3.70		5.00	3.70	mg/L			05/22/24 09:48	1

Lab Sample ID: LCS 310-422414/2
Matrix: Water
Analysis Batch: 422414

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	90.00		mg/L		90	81 - 116

Lab Sample ID: 310-281530-1 DU
Matrix: Water
Analysis Batch: 422414

Client Sample ID: MW-409B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	38.0		39.00		mg/L		3	35

GC/MS VOA

Analysis Batch: 422420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-1	MW-409B	Total/NA	Water	8260D	
310-281530-2	OW-410B	Total/NA	Water	8260D	
310-281530-3	Trip Blank	Total/NA	Water	8260D	
310-281530-4	OW-220B	Total/NA	Water	8260D	
310-281530-5	MW-320B	Total/NA	Water	8260D	
310-281530-6	Equipment Blank-2	Total/NA	Water	8260D	
310-281530-7	MW-320FD	Total/NA	Water	8260D	
MB 310-422420/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422420/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422420/7	Lab Control Sample	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 510025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-4	OW-220B	Total/NA	Water	8151A	

Analysis Batch: 510091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-4	OW-220B	Total/NA	Water	8151A	510025

Metals

Prep Batch: 422087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-1	MW-409B	Total/NA	Water	3005A	
310-281530-2	OW-410B	Total/NA	Water	3005A	
310-281530-4	OW-220B	Total/NA	Water	3005A	
310-281530-5	MW-320B	Total/NA	Water	3005A	
310-281530-6	Equipment Blank-2	Total/NA	Water	3005A	
310-281530-7	MW-320FD	Total/NA	Water	3005A	
MB 310-422087/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-422087/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 423058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-1	MW-409B	Total/NA	Water	6020B	422087
310-281530-2	OW-410B	Total/NA	Water	6020B	422087
310-281530-4	OW-220B	Total/NA	Water	6020B	422087
310-281530-5	MW-320B	Total/NA	Water	6020B	422087
310-281530-6	Equipment Blank-2	Total/NA	Water	6020B	422087
310-281530-7	MW-320FD	Total/NA	Water	6020B	422087
MB 310-422087/1-A	Method Blank	Total/NA	Water	6020B	422087
LCS 310-422087/2-A	Lab Control Sample	Total/NA	Water	6020B	422087

Analysis Batch: 423173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-1	MW-409B	Total/NA	Water	6020B	422087
310-281530-2	OW-410B	Total/NA	Water	6020B	422087
310-281530-4	OW-220B	Total/NA	Water	6020B	422087
310-281530-5	MW-320B	Total/NA	Water	6020B	422087
310-281530-6	Equipment Blank-2	Total/NA	Water	6020B	422087

Metals (Continued)

Analysis Batch: 423173 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-7	MW-320FD	Total/NA	Water	6020B	422087
MB 310-422087/1-A	Method Blank	Total/NA	Water	6020B	422087
LCS 310-422087/2-A	Lab Control Sample	Total/NA	Water	6020B	422087

General Chemistry

Analysis Batch: 422300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-6	Equipment Blank-2	Total/NA	Water	I-3765-85	
310-281530-7	MW-320FD	Total/NA	Water	I-3765-85	
MB 310-422300/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422300/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 422414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-1	MW-409B	Total/NA	Water	I-3765-85	
310-281530-2	OW-410B	Total/NA	Water	I-3765-85	
310-281530-4	OW-220B	Total/NA	Water	I-3765-85	
310-281530-5	MW-320B	Total/NA	Water	I-3765-85	
MB 310-422414/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422414/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-281530-1 DU	MW-409B	Total/NA	Water	I-3765-85	

Field Service / Mobile Lab

Analysis Batch: 422183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281530-1	MW-409B	Total/NA	Water	Field Sampling	
310-281530-2	OW-410B	Total/NA	Water	Field Sampling	
310-281530-4	OW-220B	Total/NA	Water	Field Sampling	
310-281530-5	MW-320B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-409B
Lab Sample ID: 310-281530-1
Date Collected: 05/16/24 12:30
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 08:46
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423058	NFT2	EET CF	05/29/24 20:55
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 18:29
Total/NA	Analysis	I-3765-85		1	422414	HE7K	EET CF	05/22/24 09:48
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/16/24 12:30

Client Sample ID: OW-410B
Lab Sample ID: 310-281530-2
Date Collected: 05/16/24 11:30
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 09:08
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423058	NFT2	EET CF	05/29/24 20:59
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		4	423173	NFT2	EET CF	05/30/24 18:32
Total/NA	Analysis	I-3765-85		1	422414	HE7K	EET CF	05/22/24 09:48
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/16/24 11:30

Client Sample ID: Trip Blank
Lab Sample ID: 310-281530-3
Date Collected: 05/16/24 05:00
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 02:36

Client Sample ID: OW-220B
Lab Sample ID: 310-281530-4
Date Collected: 05/16/24 13:30
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 09:30
Total/NA	Prep	8151A			510025	K2IL	ELLE	05/23/24 18:46
Total/NA	Analysis	8151A		1	510091	UAMZ	ELLE	05/24/24 19:58
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423058	NFT2	EET CF	05/29/24 21:02
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 18:36
Total/NA	Analysis	I-3765-85		1	422414	HE7K	EET CF	05/22/24 09:48
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/16/24 13:30

Lab Chronicle

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320B
Lab Sample ID: 310-281530-5
Date Collected: 05/16/24 15:00
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 08:25
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423058	NFT2	EET CF	05/29/24 21:06
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 18:39
Total/NA	Analysis	I-3765-85		1	422414	HE7K	EET CF	05/22/24 09:48
Total/NA	Analysis	Field Sampling		1	422183	BJ0R	EET CF	05/16/24 15:00

Client Sample ID: Equipment Blank-2
Lab Sample ID: 310-281530-6
Date Collected: 05/16/24 16:00
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 02:58
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423058	NFT2	EET CF	05/29/24 21:09
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 18:43
Total/NA	Analysis	I-3765-85		1	422300	HE7K	EET CF	05/21/24 10:12

Client Sample ID: MW-320FD
Lab Sample ID: 310-281530-7
Date Collected: 05/16/24 15:00
Matrix: Water
Date Received: 05/17/24 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422420	WSE8	EET CF	05/23/24 03:19
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423058	NFT2	EET CF	05/29/24 21:28
Total/NA	Prep	3005A			422087	KM3E	EET CF	05/20/24 09:30
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 18:47
Total/NA	Analysis	I-3765-85		1	422300	HE7K	EET CF	05/21/24 10:12

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-24 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: AECOM
Job ID: 310-281530-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8151A	Herbicides (GC)	SW846	ELLE
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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310-281530 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Aecom

City/State: CITY Waterloo STATE IA Project:

Receipt Information

Date/Time Received: DATE 5/17/24 TIME 1000 Received By: MCH

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? ↓

All vials

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: Y Correction Factor (°C): 0.0

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-17-24	COC No
AECOM	Email Christopher Oelkers@aecom.com	Lab Contact:	Carrier:	1 of 2 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			
P O #	☐ 2 days			Job / SDG No
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-401B			G	GW		N		X		X		X	X		X	X	X	X	
OW-402B			G	GW		N		X											
MW-409B	4-16-24	1230	G	GW	5	N		X											Turbidity - 18.42 NTU
OW-410B	4-16-24	1130	G	GW	5	N		X											Turbidity - 182.75 NTU
OW-411B			G	GW		N		X											
OW-412B			G	GW		N		X											
OW-413B			G	GW		N		X											
OW-414B			G	GW		N		X											
MW-501B			G	GW		N		X											
MW-602B			G	GW		N		X											
MW-602B-FD			G	GW		N		X											
Trip Blank	4-16-24	0500	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd._____ Corr'd._____ Therm ID No._____		
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-17-24	Received by: MA	Company:	Date/Time: 5-17-24 1000
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

6/4/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom.com	**Site Contact:** / **Date: 5-17-24**	2 of 2 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client: / Lab Sampling
(xxx) xxx-xxxx FAX			
Project Name Black Hawk Co IDNR			Job / SDG No
Site Black Hawk County Landfill			
P O #			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide							Sample Specific Notes
OW-220B	5-16-24	1330	G	GW	7	N		X		X							X								Turbidity - 4.72
OW-221B			G	GW		N		X																	
OW-222B			G	GW		N		X																	
OW-223B			G	GW		N		X																	
OW-224B			G	GW		N		X																	
OW-225B			G	GW		N		X																	
OW-226B			G	GW		N		X										X							
OW-227B			G	GW		N		X										X							
MW-319B			G	GW		N		X																	
MW-320B	5-16-24	1500	G	GW	5	N		X																	Turbidity - 19.41 NTU
Equipment Blank-2	5-16-24	1600	G	GW	5	N		X																	
[redacted] MW-320FD	5-16-24	1500	G	GW	5	N		X																	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd._____ Corr'd _____ | Therm ID No ._____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Aecom	5-17-24	ML		5-17-24 1000
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

6/4/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72552.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-281530-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 6/3/2024			Preservation Codes: -
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	8151A/8151A_AP (MOD) 2,4-D and Silvex	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-220B (310-281530-4)	5/16/24	13:30 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
	5/7/24 1450				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 5/8/24 9:45	Company ECET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R: 6.2 5.9 C: 5.8 5.5

NJ

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-281530-1

Login Number: 281530
List Number: 1
Creator: Costello, Mackenzie K

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: AECOM

Job Number: 310-281530-1

Login Number: 281530
List Number: 2
Creator: Santiago, Nathaniel

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 05/18/24 11:21 AM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 5/31/2024 2:09:20 PM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Spring 2024

JOB NUMBER

310-281866-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
5/31/2024 2:09:20 PM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job ID: 310-281866-1 — Eurofins Cedar Falls

Job Narrative
310-281866-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/23/2024 8:55 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 time was 2.4°C.

GC/MS VOA
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.

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

Sample Summary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-281866-1	P-215CR	Water	05/22/24 16:00	05/23/24 08:55
310-281866-2	P-216CR	Water	05/22/24 14:00	05/23/24 08:55
310-281866-3	P-402A	Water	05/22/24 12:30	05/23/24 08:55
310-281866-4	P-402C	Water	05/22/24 11:00	05/23/24 08:55
310-281866-5	P-604C	Water	05/22/24 08:30	05/23/24 08:55
310-281866-6	P-703C	Water	05/22/24 09:45	05/23/24 08:55
310-281866-7	Trip Blank	Water	05/22/24 00:00	05/23/24 08:55

Detection Summary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-215CR — Lab Sample ID: 310-281866-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	3.28	J	10.0	2.10	ug/L	1		8260D	Total/NA
Acetone	6.75	J	10.0	3.10	ug/L	1		8260D	Total/NA
Antimony	1.70	J	2.00	1.00	ug/L	1		6020B	Total/NA
Arsenic	0.599	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	72.3		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	0.484	J	0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.24	J	5.00	1.80	ug/L	1		6020B	Total/NA
Total Suspended Solids	15.5		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	13.62				NTU	1		Field Sampling	Total/NA

Client Sample ID: P-216CR — Lab Sample ID: 310-281866-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1.12	J	2.00	1.00	ug/L	1		6020B	Total/NA
Barium	26.8		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	0.403	J	0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.97	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	2.42	J	5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	5.00		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	12.82				NTU	1		Field Sampling	Total/NA

Client Sample ID: P-402A — Lab Sample ID: 310-281866-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	2.51		2.00	1.00	ug/L	1		6020B	Total/NA
Barium	4.08		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	4.42	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.172	J	0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	7.73		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.36	J	5.00	1.10	ug/L	1		6020B	Total/NA
Zinc	27.6		20.0	9.70	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.63		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	1.02				NTU	1		Field Sampling	Total/NA

Client Sample ID: P-402C — Lab Sample ID: 310-281866-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	70.3		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	0.380	J	0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.33	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	2.31	J	5.00	2.10	ug/L	1		6020B	Total/NA
Field Turbidity	0.70				NTU	1		Field Sampling	Total/NA

Client Sample ID: P-604C — Lab Sample ID: 310-281866-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	0.417	J	1.00	0.390	ug/L	1		8260D	Total/NA
2-Butanone (MEK)	2.68	J	10.0	2.10	ug/L	1		8260D	Total/NA
Acetone	716		10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	1.40		0.500	0.220	ug/L	1		8260D	Total/NA
Arsenic	1.55	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	23.0		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.229		0.200	0.100	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: P-604C (Continued)
Lab Sample ID: 310-281866-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	4.99	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	29.4		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	5.82		5.00	1.80	ug/L	1		6020B	Total/NA
Lead	0.574		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	81.5		5.00	2.10	ug/L	1		6020B	Total/NA
Zinc	10.5	J	20.0	9.70	ug/L	1		6020B	Total/NA
Total Suspended Solids	80.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	59.32				NTU	1		Field Sampling	Total/NA

Client Sample ID: P-703C
Lab Sample ID: 310-281866-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.24	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	84.8		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	0.531		0.500	0.170	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.00		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	1.24				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank
Lab Sample ID: 310-281866-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-215CR
Lab Sample ID: 310-281866-1
Date Collected: 05/22/24 16:00
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 07:59	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 07:59	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 07:59	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 07:59	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 07:59	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 07:59	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 07:59	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 07:59	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 07:59	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 07:59	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 07:59	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 07:59	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 07:59	1
2-Butanone (MEK)	**3.28**	**J**	10.0	2.10	ug/L			05/25/24 07:59	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 07:59	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 07:59	1
Acetone	**6.75**	**J**	10.0	3.10	ug/L			05/25/24 07:59	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 07:59	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 07:59	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 07:59	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 07:59	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 07:59	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 07:59	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 07:59	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 07:59	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 07:59	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 07:59	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 07:59	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 07:59	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 07:59	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 07:59	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 07:59	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 07:59	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 07:59	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 07:59	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 07:59	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 07:59	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 07:59	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 07:59	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 07:59	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 07:59	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 07:59	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 07:59	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 07:59	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 07:59	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 07:59	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 07:59	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 07:59	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 07:59	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-215CR
Lab Sample ID: 310-281866-1

Date Collected: 05/22/24 16:00
Matrix: Water

Date Received: 05/23/24 08:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*05/25/24 07:59*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/25/24 07:59*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/25/24 07:59*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.70**	**J**	2.00	1.00	ug/L		05/24/24 09:45	05/30/24 23:50	1
Arsenic	**0.599**	**J**	2.00	0.530	ug/L		05/24/24 09:45	05/30/24 23:50	1
Barium	**72.3**		2.00	0.660	ug/L		05/24/24 09:45	05/30/24 23:50	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/30/24 23:50	1
Cadmium	<0.100		0.200	0.100	ug/L		05/24/24 09:45	05/30/24 23:50	1
Chromium	<1.20		5.00	1.20	ug/L		05/24/24 09:45	05/30/24 23:50	1
Cobalt	**0.484**	**J**	0.500	0.170	ug/L		05/24/24 09:45	05/30/24 23:50	1
Copper	**2.24**	**J**	5.00	1.80	ug/L		05/24/24 09:45	05/30/24 23:50	1
Lead	<0.260		0.500	0.260	ug/L		05/24/24 09:45	05/30/24 23:50	1
Nickel	<2.10		5.00	2.10	ug/L		05/24/24 09:45	05/30/24 23:50	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/30/24 23:50	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/30/24 23:50	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/30/24 23:50	1
Vanadium	<1.10		5.00	1.10	ug/L		05/24/24 09:45	05/30/24 23:50	1
Zinc	<9.70		20.0	9.70	ug/L		05/24/24 09:45	05/30/24 23:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**15.5**		1.88	1.39	mg/L			05/23/24 12:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**13.62**				NTU			05/22/24 16:00	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-216CR
Lab Sample ID: 310-281866-2
Date Collected: 05/22/24 14:00
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 08:20	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 08:20	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 08:20	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 08:20	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 08:20	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 08:20	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 08:20	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 08:20	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 08:20	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 08:20	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 08:20	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 08:20	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 08:20	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/25/24 08:20	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 08:20	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 08:20	1
Acetone	<3.10		10.0	3.10	ug/L			05/25/24 08:20	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 08:20	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 08:20	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 08:20	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 08:20	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 08:20	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 08:20	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 08:20	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 08:20	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 08:20	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 08:20	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 08:20	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 08:20	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 08:20	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 08:20	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 08:20	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 08:20	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 08:20	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 08:20	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 08:20	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 08:20	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 08:20	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 08:20	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 08:20	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 08:20	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 08:20	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 08:20	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 08:20	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 08:20	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 08:20	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 08:20	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 08:20	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 08:20	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-216CR
Lab Sample ID: 310-281866-2

Date Collected: 05/22/24 14:00
Matrix: Water

Date Received: 05/23/24 08:55

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*05/25/24 08:20*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/25/24 08:20*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/25/24 08:20*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.12**	**J**	2.00	1.00	ug/L		05/24/24 09:45	05/30/24 23:54	1
Arsenic	<0.530		2.00	0.530	ug/L		05/24/24 09:45	05/30/24 23:54	1
Barium	**26.8**		2.00	0.660	ug/L		05/24/24 09:45	05/30/24 23:54	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/30/24 23:54	1
Cadmium	<0.100		0.200	0.100	ug/L		05/24/24 09:45	05/30/24 23:54	1
Chromium	<1.20		5.00	1.20	ug/L		05/24/24 09:45	05/30/24 23:54	1
Cobalt	**0.403**	**J**	0.500	0.170	ug/L		05/24/24 09:45	05/30/24 23:54	1
Copper	**2.97**	**J**	5.00	1.80	ug/L		05/24/24 09:45	05/30/24 23:54	1
Lead	<0.260		0.500	0.260	ug/L		05/24/24 09:45	05/30/24 23:54	1
Nickel	**2.42**	**J**	5.00	2.10	ug/L		05/24/24 09:45	05/30/24 23:54	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/30/24 23:54	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/30/24 23:54	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/30/24 23:54	1
Vanadium	<1.10		5.00	1.10	ug/L		05/24/24 09:45	05/30/24 23:54	1
Zinc	<9.70		20.0	9.70	ug/L		05/24/24 09:45	05/30/24 23:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**5.00**		1.88	1.39	mg/L			05/23/24 12:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**12.82**				NTU			05/22/24 14:00	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-402A
Lab Sample ID: 310-281866-3
Date Collected: 05/22/24 12:30
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 08:42	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 08:42	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 08:42	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 08:42	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 08:42	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 08:42	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 08:42	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 08:42	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 08:42	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 08:42	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 08:42	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 08:42	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 08:42	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/25/24 08:42	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 08:42	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 08:42	1
Acetone	<3.10		10.0	3.10	ug/L			05/25/24 08:42	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 08:42	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 08:42	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 08:42	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 08:42	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 08:42	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 08:42	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 08:42	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 08:42	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 08:42	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 08:42	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 08:42	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 08:42	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 08:42	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 08:42	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 08:42	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 08:42	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 08:42	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 08:42	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 08:42	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 08:42	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 08:42	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 08:42	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 08:42	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 08:42	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 08:42	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 08:42	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 08:42	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 08:42	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 08:42	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 08:42	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 08:42	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 08:42	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-402A
Lab Sample ID: 310-281866-3

Date Collected: 05/22/24 12:30
Matrix: Water

Date Received: 05/23/24 08:55

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*05/25/24 08:42*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/25/24 08:42*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/25/24 08:42*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**2.51**		2.00	1.00	ug/L		05/24/24 09:45	05/30/24 23:57	1
Arsenic	<0.530		2.00	0.530	ug/L		05/24/24 09:45	05/30/24 23:57	1
Barium	**4.08**		2.00	0.660	ug/L		05/24/24 09:45	05/30/24 23:57	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/30/24 23:57	1
Cadmium	<0.100		0.200	0.100	ug/L		05/24/24 09:45	05/30/24 23:57	1
Chromium	**4.42**	**J**	5.00	1.20	ug/L		05/24/24 09:45	05/30/24 23:57	1
Cobalt	**0.172**	**J**	0.500	0.170	ug/L		05/24/24 09:45	05/30/24 23:57	1
Copper	<1.80		5.00	1.80	ug/L		05/24/24 09:45	05/30/24 23:57	1
Lead	<0.260		0.500	0.260	ug/L		05/24/24 09:45	05/30/24 23:57	1
Nickel	**7.73**		5.00	2.10	ug/L		05/24/24 09:45	05/30/24 23:57	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/30/24 23:57	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/30/24 23:57	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/30/24 23:57	1
Vanadium	**1.36**	**J**	5.00	1.10	ug/L		05/24/24 09:45	05/30/24 23:57	1
Zinc	**27.6**		20.0	9.70	ug/L		05/24/24 09:45	05/30/24 23:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.63**		1.88	1.39	mg/L			05/23/24 12:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.02**				NTU			05/22/24 12:30	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-402C
Lab Sample ID: 310-281866-4
Date Collected: 05/22/24 11:00
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 09:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 09:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 09:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 09:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 09:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 09:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 09:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 09:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 09:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 09:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 09:04	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 09:04	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 09:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/25/24 09:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 09:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 09:04	1
Acetone	<3.10		10.0	3.10	ug/L			05/25/24 09:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 09:04	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 09:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 09:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 09:04	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 09:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 09:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 09:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 09:04	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 09:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 09:04	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 09:04	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 09:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 09:04	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 09:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 09:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 09:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 09:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 09:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 09:04	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 09:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 09:04	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 09:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 09:04	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 09:04	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 09:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 09:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 09:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 09:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 09:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 09:04	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 09:04	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 09:04	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-402C
Date Collected: 05/22/24 11:00
Date Received: 05/23/24 08:55

Lab Sample ID: 310-281866-4
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*05/25/24 09:04*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/25/24 09:04*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/25/24 09:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/24/24 09:45	05/31/24 00:01	1
Arsenic	<0.530		2.00	0.530	ug/L		05/24/24 09:45	05/31/24 00:01	1
Barium	**70.3**		2.00	0.660	ug/L		05/24/24 09:45	05/31/24 00:01	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/31/24 00:01	1
Cadmium	<0.100		0.200	0.100	ug/L		05/24/24 09:45	05/31/24 00:01	1
Chromium	<1.20		5.00	1.20	ug/L		05/24/24 09:45	05/31/24 00:01	1
Cobalt	**0.380**	**J**	0.500	0.170	ug/L		05/24/24 09:45	05/31/24 00:01	1
Copper	**2.33**	**J**	5.00	1.80	ug/L		05/24/24 09:45	05/31/24 00:01	1
Lead	<0.260		0.500	0.260	ug/L		05/24/24 09:45	05/31/24 00:01	1
Nickel	**2.31**	**J**	5.00	2.10	ug/L		05/24/24 09:45	05/31/24 00:01	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/31/24 00:01	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/31/24 00:01	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/31/24 00:01	1
Vanadium	<1.10		5.00	1.10	ug/L		05/24/24 09:45	05/31/24 00:01	1
Zinc	<9.70		20.0	9.70	ug/L		05/24/24 09:45	05/31/24 00:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/23/24 12:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.70**				NTU			05/22/24 11:00	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-604C
Lab Sample ID: 310-281866-5
Date Collected: 05/22/24 08:30
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 09:26	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 09:26	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 09:26	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 09:26	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 09:26	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 09:26	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 09:26	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 09:26	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 09:26	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 09:26	1
1,2-Dichloroethane	**0.417**	**J**	1.00	0.390	ug/L			05/25/24 09:26	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 09:26	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 09:26	1
2-Butanone (MEK)	**2.68**	**J**	10.0	2.10	ug/L			05/25/24 09:26	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 09:26	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 09:26	1
Acetone	**716**		10.0	3.10	ug/L			05/25/24 09:26	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 09:26	1
Benzene	**1.40**		0.500	0.220	ug/L			05/25/24 09:26	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 09:26	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 09:26	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 09:26	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 09:26	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 09:26	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 09:26	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 09:26	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 09:26	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 09:26	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 09:26	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 09:26	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 09:26	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 09:26	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 09:26	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 09:26	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 09:26	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 09:26	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 09:26	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 09:26	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 09:26	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 09:26	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 09:26	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 09:26	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 09:26	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 09:26	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 09:26	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 09:26	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 09:26	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 09:26	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 09:26	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-604C
Lab Sample ID: 310-281866-5

Date Collected: 05/22/24 08:30
Matrix: Water

Date Received: 05/23/24 08:55

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*05/25/24 09:26*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/25/24 09:26*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/25/24 09:26*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/24/24 09:45	05/31/24 00:05	1
Arsenic	**1.55**	**J**	2.00	0.530	ug/L		05/24/24 09:45	05/31/24 00:05	1
Barium	**23.0**		2.00	0.660	ug/L		05/24/24 09:45	05/31/24 00:05	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/31/24 00:05	1
Cadmium	**0.229**		0.200	0.100	ug/L		05/24/24 09:45	05/31/24 00:05	1
Chromium	**4.99**	**J**	5.00	1.20	ug/L		05/24/24 09:45	05/31/24 00:05	1
Cobalt	**29.4**		0.500	0.170	ug/L		05/24/24 09:45	05/31/24 00:05	1
Copper	**5.82**		5.00	1.80	ug/L		05/24/24 09:45	05/31/24 00:05	1
Lead	**0.574**		0.500	0.260	ug/L		05/24/24 09:45	05/31/24 00:05	1
Nickel	**81.5**		5.00	2.10	ug/L		05/24/24 09:45	05/31/24 00:05	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/31/24 00:05	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/31/24 00:05	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/31/24 00:05	1
Vanadium	<1.10		5.00	1.10	ug/L		05/24/24 09:45	05/31/24 00:05	1
Zinc	**10.5**	**J**	20.0	9.70	ug/L		05/24/24 09:45	05/31/24 00:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**80.0**		15.0	11.1	mg/L			05/23/24 12:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**59.32**				NTU			05/22/24 08:30	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-703C
Lab Sample ID: 310-281866-6
Date Collected: 05/22/24 09:45
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 09:47	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 09:47	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 09:47	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 09:47	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 09:47	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 09:47	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 09:47	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 09:47	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 09:47	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 09:47	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 09:47	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 09:47	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 09:47	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/25/24 09:47	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 09:47	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 09:47	1
Acetone	<3.10		10.0	3.10	ug/L			05/25/24 09:47	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 09:47	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 09:47	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 09:47	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 09:47	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 09:47	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 09:47	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 09:47	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 09:47	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 09:47	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 09:47	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 09:47	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 09:47	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 09:47	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 09:47	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 09:47	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 09:47	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 09:47	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 09:47	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 09:47	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 09:47	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 09:47	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 09:47	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 09:47	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 09:47	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 09:47	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 09:47	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 09:47	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 09:47	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 09:47	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 09:47	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 09:47	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 09:47	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-703C
Lab Sample ID: 310-281866-6

Date Collected: 05/22/24 09:45
Matrix: Water

Date Received: 05/23/24 08:55

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*73 - 130*		*05/25/24 09:47*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/25/24 09:47*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*05/25/24 09:47*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/24/24 09:45	05/31/24 00:08	1
Arsenic	**1.24**	**J**	2.00	0.530	ug/L		05/24/24 09:45	05/31/24 00:08	1
Barium	**84.8**		2.00	0.660	ug/L		05/24/24 09:45	05/31/24 00:08	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/31/24 00:08	1
Cadmium	<0.100		0.200	0.100	ug/L		05/24/24 09:45	05/31/24 00:08	1
Chromium	<1.20		5.00	1.20	ug/L		05/24/24 09:45	05/31/24 00:08	1
Cobalt	**0.531**		0.500	0.170	ug/L		05/24/24 09:45	05/31/24 00:08	1
Copper	<1.80		5.00	1.80	ug/L		05/24/24 09:45	05/31/24 00:08	1
Lead	<0.260		0.500	0.260	ug/L		05/24/24 09:45	05/31/24 00:08	1
Nickel	<2.10		5.00	2.10	ug/L		05/24/24 09:45	05/31/24 00:08	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/31/24 00:08	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/31/24 00:08	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/31/24 00:08	1
Vanadium	<1.10		5.00	1.10	ug/L		05/24/24 09:45	05/31/24 00:08	1
Zinc	<9.70		20.0	9.70	ug/L		05/24/24 09:45	05/31/24 00:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.00**		1.88	1.39	mg/L			05/23/24 12:51	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.24**				NTU			05/22/24 09:45	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281866-7
Date Collected: 05/22/24 00:00
Matrix: Water
Date Received: 05/23/24 08:55

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	<0.380		1.00	0.380	ug/L			05/25/24 07:15	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 07:15	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 07:15	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 07:15	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 07:15	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 07:15	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 07:15	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 07:15	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 07:15	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 07:15	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 07:15	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 07:15	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 07:15	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/25/24 07:15	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 07:15	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 07:15	1
Acetone	<3.10		10.0	3.10	ug/L			05/25/24 07:15	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 07:15	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 07:15	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 07:15	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 07:15	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 07:15	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 07:15	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 07:15	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 07:15	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 07:15	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 07:15	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 07:15	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 07:15	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 07:15	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 07:15	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 07:15	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 07:15	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 07:15	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 07:15	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 07:15	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 07:15	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 07:15	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 07:15	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 07:15	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 07:15	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 07:15	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 07:15	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 07:15	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 07:15	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 07:15	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 07:15	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 07:15	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 07:15	1

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-281866-7
Date Collected: 05/22/24 00:00
Matrix: Water
Date Received: 05/23/24 08:55

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	99		73 - 130		05/25/24 07:15	1
Toluene-d8 (Surr)	100		80 - 120		05/25/24 07:15	1
4-Bromofluorobenzene (Surr)	109		80 - 120		05/25/24 07:15	1

Definitions/Glossary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

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.

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: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-281866-1	P-215CR	99	98	104
310-281866-2	P-216CR	101	99	104
310-281866-3	P-402A	101	98	107
310-281866-4	P-402C	102	99	107
310-281866-5	P-604C	100	100	106
310-281866-6	P-703C	104	98	105
310-281866-7	Trip Blank	99	100	109
LCS 310-422726/6	Lab Control Sample	95	105	100
LCS 310-422726/7	Lab Control Sample	100	99	109
MB 310-422726/5	Method Blank	97	98	104

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 310-422726/5
Matrix: Water
Analysis Batch: 422726

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	<0.380		1.00	0.380	ug/L			05/25/24 06:09	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/25/24 06:09	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/25/24 06:09	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/25/24 06:09	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/25/24 06:09	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/25/24 06:09	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/25/24 06:09	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/25/24 06:09	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/25/24 06:09	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/25/24 06:09	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/25/24 06:09	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/25/24 06:09	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/25/24 06:09	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/25/24 06:09	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/25/24 06:09	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/25/24 06:09	1
Acetone	<3.10		10.0	3.10	ug/L			05/25/24 06:09	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/25/24 06:09	1
Benzene	<0.220		0.500	0.220	ug/L			05/25/24 06:09	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/25/24 06:09	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/25/24 06:09	1
Bromoform	<0.780		5.00	0.780	ug/L			05/25/24 06:09	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/25/24 06:09	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/25/24 06:09	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/25/24 06:09	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/25/24 06:09	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/25/24 06:09	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/25/24 06:09	1
Chloroform	<1.30		3.00	1.30	ug/L			05/25/24 06:09	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/25/24 06:09	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/25/24 06:09	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/25/24 06:09	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/25/24 06:09	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/25/24 06:09	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/25/24 06:09	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/25/24 06:09	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/25/24 06:09	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/25/24 06:09	1
Styrene	<0.370		1.00	0.370	ug/L			05/25/24 06:09	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/25/24 06:09	1
Toluene	<0.430		1.00	0.430	ug/L			05/25/24 06:09	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/25/24 06:09	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/25/24 06:09	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/25/24 06:09	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/25/24 06:09	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/25/24 06:09	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/25/24 06:09	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/25/24 06:09	1

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

Lab Sample ID: MB 310-422726/5
Matrix: Water
Analysis Batch: 422726

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/25/24 06:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*73 - 130*		*05/25/24 06:09*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/25/24 06:09*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/25/24 06:09*	*1*

Lab Sample ID: LCS 310-422726/6
Matrix: Water
Analysis Batch: 422726

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	20.24		ug/L		101	71 - 120
1,1,1-Trichloroethane	20.0	18.77		ug/L		94	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.91		ug/L		105	68 - 124
1,1,2-Trichloroethane	20.0	20.53		ug/L		103	73 - 123
1,1-Dichloroethane	20.0	19.86		ug/L		99	70 - 127
1,1-Dichloroethene	20.0	19.30		ug/L		96	63 - 132
1,2,3-Trichloropropane	20.0	20.52		ug/L		103	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.73		ug/L		109	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.94		ug/L		95	75 - 125
1,2-Dichlorobenzene	20.0	21.13		ug/L		106	74 - 120
1,2-Dichloroethane	20.0	18.98		ug/L		95	71 - 125
1,2-Dichloropropane	20.0	20.44		ug/L		102	73 - 124
1,4-Dichlorobenzene	20.0	19.96		ug/L		100	72 - 120
2-Butanone (MEK)	40.0	44.45		ug/L		111	50 - 150
2-Hexanone	40.0	42.94		ug/L		107	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	42.78		ug/L		107	60 - 139
Acetone	40.0	43.04		ug/L		108	50 - 150
Acrylonitrile	200	210.4		ug/L		105	50 - 150
Benzene	20.0	20.05		ug/L		100	72 - 124
Bromochloromethane	20.0	19.40		ug/L		97	73 - 130
Bromodichloromethane	20.0	19.29		ug/L		96	74 - 122
Bromoform	20.0	18.74		ug/L		94	61 - 122
Carbon disulfide	20.0	20.39		ug/L		102	59 - 135
Carbon tetrachloride	20.0	18.80		ug/L		94	67 - 132
Chlorobenzene	20.0	20.42		ug/L		102	76 - 120
Chlorodibromomethane	20.0	18.93		ug/L		95	71 - 121
Chloroform	20.0	18.85		ug/L		94	72 - 125
cis-1,2-Dichloroethene	20.0	19.56		ug/L		98	74 - 123
cis-1,3-Dichloropropene	20.0	19.39		ug/L		97	71 - 125
Dibromomethane	20.0	19.62		ug/L		98	74 - 125
Ethylbenzene	20.0	21.59		ug/L		108	74 - 122
Iodomethane	20.0	11.79		ug/L		59	10 - 150
Methylene Chloride	20.0	21.09		ug/L		105	50 - 150
Styrene	20.0	20.68		ug/L		103	74 - 121
Tetrachloroethene	20.0	19.10		ug/L		96	71 - 130
Toluene	20.0	19.81		ug/L		99	74 - 123

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

Lab Sample ID: LCS 310-422726/6
Matrix: Water
Analysis Batch: 422726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	19.61		ug/L		98	70 - 126
trans-1,3-Dichloropropene	20.0	18.24		ug/L		91	69 - 123
trans-1,4-Dichloro-2-butene	20.0	18.56		ug/L		93	50 - 150
Trichloroethene	20.0	20.07		ug/L		100	72 - 126
Vinyl acetate	40.0	34.95		ug/L		87	50 - 150
Xylenes, Total	40.0	41.61		ug/L		104	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*73 - 130*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-422726/7
Matrix: Water
Analysis Batch: 422726

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	16.65		ug/L		83	23 - 150
Chloroethane	20.0	20.47		ug/L		102	54 - 136
Chloromethane	20.0	22.49		ug/L		112	38 - 150
Trichlorofluoromethane	20.0	20.32		ug/L		102	54 - 149
Vinyl chloride	20.0	22.26		ug/L		111	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-422622/1-A
Matrix: Water
Analysis Batch: 423173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/24/24 09:45	05/30/24 22:09	1
Arsenic	<0.530		2.00	0.530	ug/L		05/24/24 09:45	05/30/24 22:09	1
Barium	<0.660		2.00	0.660	ug/L		05/24/24 09:45	05/30/24 22:09	1
Beryllium	<0.330		1.00	0.330	ug/L		05/24/24 09:45	05/30/24 22:09	1
Cadmium	<0.100		0.200	0.100	ug/L		05/24/24 09:45	05/30/24 22:09	1
Chromium	<1.20		5.00	1.20	ug/L		05/24/24 09:45	05/30/24 22:09	1
Cobalt	<0.170		0.500	0.170	ug/L		05/24/24 09:45	05/30/24 22:09	1
Copper	<1.80		5.00	1.80	ug/L		05/24/24 09:45	05/30/24 22:09	1
Lead	<0.260		0.500	0.260	ug/L		05/24/24 09:45	05/30/24 22:09	1
Nickel	<2.10		5.00	2.10	ug/L		05/24/24 09:45	05/30/24 22:09	1
Selenium	<1.40		5.00	1.40	ug/L		05/24/24 09:45	05/30/24 22:09	1
Silver	<0.500		1.00	0.500	ug/L		05/24/24 09:45	05/30/24 22:09	1
Thallium	<0.570		1.00	0.570	ug/L		05/24/24 09:45	05/30/24 22:09	1

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

Lab Sample ID: MB 310-422622/1-A
Matrix: Water
Analysis Batch: 423173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	<1.10		5.00	1.10	ug/L		05/24/24 09:45	05/30/24 22:09	1
Zinc	<9.70		20.0	9.70	ug/L		05/24/24 09:45	05/30/24 22:09	1

Lab Sample ID: LCS 310-422622/2-A
Matrix: Water
Analysis Batch: 423173

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422622

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	196.8		ug/L		98	80 - 120
Arsenic	200	216.6		ug/L		108	80 - 120
Barium	100	99.87		ug/L		100	80 - 120
Beryllium	100	102.1		ug/L		102	80 - 120
Cadmium	100	90.91		ug/L		91	80 - 120
Chromium	100	104.5		ug/L		104	80 - 120
Cobalt	100	104.7		ug/L		105	80 - 120
Copper	200	207.1		ug/L		104	80 - 120
Lead	200	206.0		ug/L		103	80 - 120
Nickel	200	213.6		ug/L		107	80 - 120
Selenium	400	378.2		ug/L		95	80 - 120
Silver	100	108.8		ug/L		109	80 - 120
Thallium	100	92.63		ug/L		93	80 - 120
Vanadium	100	101.3		ug/L		101	80 - 120
Zinc	200	195.9		ug/L		98	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-422587/1
Matrix: Water
Analysis Batch: 422587

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	<3.70		5.00	3.70	mg/L			05/23/24 12:51	1

Lab Sample ID: LCS 310-422587/2
Matrix: Water
Analysis Batch: 422587

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	96.00		mg/L		96	81 - 116

Lab Sample ID: 310-281866-5 DU
Matrix: Water
Analysis Batch: 422587

Client Sample ID: P-604C
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	80.0		77.00		mg/L		4	35

QC Association Summary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 422726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281866-1	P-215CR	Total/NA	Water	8260D	
310-281866-2	P-216CR	Total/NA	Water	8260D	
310-281866-3	P-402A	Total/NA	Water	8260D	
310-281866-4	P-402C	Total/NA	Water	8260D	
310-281866-5	P-604C	Total/NA	Water	8260D	
310-281866-6	P-703C	Total/NA	Water	8260D	
310-281866-7	Trip Blank	Total/NA	Water	8260D	
MB 310-422726/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422726/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422726/7	Lab Control Sample	Total/NA	Water	8260D	

Metals

Prep Batch: 422622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281866-1	P-215CR	Total/NA	Water	3005A	
310-281866-2	P-216CR	Total/NA	Water	3005A	
310-281866-3	P-402A	Total/NA	Water	3005A	
310-281866-4	P-402C	Total/NA	Water	3005A	
310-281866-5	P-604C	Total/NA	Water	3005A	
310-281866-6	P-703C	Total/NA	Water	3005A	
MB 310-422622/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-422622/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 423173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281866-1	P-215CR	Total/NA	Water	6020B	422622
310-281866-2	P-216CR	Total/NA	Water	6020B	422622
310-281866-3	P-402A	Total/NA	Water	6020B	422622
310-281866-4	P-402C	Total/NA	Water	6020B	422622
310-281866-5	P-604C	Total/NA	Water	6020B	422622
310-281866-6	P-703C	Total/NA	Water	6020B	422622
MB 310-422622/1-A	Method Blank	Total/NA	Water	6020B	422622
LCS 310-422622/2-A	Lab Control Sample	Total/NA	Water	6020B	422622

General Chemistry

Analysis Batch: 422587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281866-1	P-215CR	Total/NA	Water	I-3765-85	
310-281866-2	P-216CR	Total/NA	Water	I-3765-85	
310-281866-3	P-402A	Total/NA	Water	I-3765-85	
310-281866-4	P-402C	Total/NA	Water	I-3765-85	
310-281866-5	P-604C	Total/NA	Water	I-3765-85	
310-281866-6	P-703C	Total/NA	Water	I-3765-85	
MB 310-422587/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422587/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-281866-5 DU	P-604C	Total/NA	Water	I-3765-85	

QC Association Summary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Field Service / Mobile Lab

Analysis Batch: 423239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-281866-1	P-215CR	Total/NA	Water	Field Sampling	
310-281866-2	P-216CR	Total/NA	Water	Field Sampling	
310-281866-3	P-402A	Total/NA	Water	Field Sampling	
310-281866-4	P-402C	Total/NA	Water	Field Sampling	
310-281866-5	P-604C	Total/NA	Water	Field Sampling	
310-281866-6	P-703C	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-215CR
Lab Sample ID: 310-281866-1
Date Collected: 05/22/24 16:00
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 07:59
Total/NA	Prep	3005A			422622	KM3E	EET CF	05/24/24 09:45
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 23:50
Total/NA	Analysis	I-3765-85		1	422587	DGU1	EET CF	05/23/24 12:51
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/22/24 16:00

Client Sample ID: P-216CR
Lab Sample ID: 310-281866-2
Date Collected: 05/22/24 14:00
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 08:20
Total/NA	Prep	3005A			422622	KM3E	EET CF	05/24/24 09:45
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 23:54
Total/NA	Analysis	I-3765-85		1	422587	DGU1	EET CF	05/23/24 12:51
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/22/24 14:00

Client Sample ID: P-402A
Lab Sample ID: 310-281866-3
Date Collected: 05/22/24 12:30
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 08:42
Total/NA	Prep	3005A			422622	KM3E	EET CF	05/24/24 09:45
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/30/24 23:57
Total/NA	Analysis	I-3765-85		1	422587	DGU1	EET CF	05/23/24 12:51
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/22/24 12:30

Client Sample ID: P-402C
Lab Sample ID: 310-281866-4
Date Collected: 05/22/24 11:00
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 09:04
Total/NA	Prep	3005A			422622	KM3E	EET CF	05/24/24 09:45
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/31/24 00:01
Total/NA	Analysis	I-3765-85		1	422587	DGU1	EET CF	05/23/24 12:51
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/22/24 11:00

Lab Chronicle

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-604C
Lab Sample ID: 310-281866-5
Date Collected: 05/22/24 08:30
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 09:26
Total/NA	Prep	3005A			422622	KM3E	EET CF	05/24/24 09:45
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/31/24 00:05
Total/NA	Analysis	I-3765-85		1	422587	DGU1	EET CF	05/23/24 12:51
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/22/24 08:30

Client Sample ID: P-703C
Lab Sample ID: 310-281866-6
Date Collected: 05/22/24 09:45
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 09:47
Total/NA	Prep	3005A			422622	KM3E	EET CF	05/24/24 09:45
Total/NA	Analysis	6020B		1	423173	NFT2	EET CF	05/31/24 00:08
Total/NA	Analysis	I-3765-85		1	422587	DGU1	EET CF	05/23/24 12:51
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/22/24 09:45

Client Sample ID: Trip Blank
Lab Sample ID: 310-281866-7
Date Collected: 05/22/24 00:00
Matrix: Water
Date Received: 05/23/24 08:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422726	WSE8	EET CF	05/25/24 07:15

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Method Summary

Client: AECOM
Job ID: 310-281866-1
Project/Site: Black Hawk County Landfill (IDNR)

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
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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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310-281866 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Ottumwa STATE IA Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 5/23/24 TIME 0855 Received By: TO

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: P Correction Factor (°C): 0.0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.4 Corrected Temp (°C): 2.4

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:** / **Date: 5-23-24**	1 of 1 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client / Lab Sampling
(xxx) xxx-xxxx FAX			
Project Name Black Hawk Co IDNR			Job / SDG No
Site Black Hawk County Landfill			
P O #			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
GUW3-1			G	GW		N		X											
GUX-1			G	GW		N		X											
P-213C			G	GW		N			X										
P-214CR			G	GW		N		X											
P-215CR	5-22-24	1600	G	GW	5	N		X											Turbidity - 13.62 NTU
P-216CR	5-22-24	1400	G	GW	5	N		X											Turbidity - 12.82 NTU
P-402A	5-22-24	1230	G	GW	5	N		X											Turbidity - 1.02 NTU
P-402C	5-22-24	1100	G	GW	5	N		X											Turbidity - 0.70 NTU
P-604C	5-22-24	0830	G	GW	5	N		X											Turbidity - 59.32 NTU
P-703C	5-22-24	0945	G	GW	5	N		X											Turbidity - 1.24 NTU
P-703C-FD			G	GW		N		X											
Trip Blank	5-22-24	0500	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd _____ Corr'd. _____ | Therm ID No. _____

Relinquished by: Ben Porter	Company: Accom	Date/Time: 5-23-24	Received by:	Company:	Date/Time: 5/23/24 0825
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-281866-1

Login Number: 281866

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 6/10/2024 9:49:10 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)

JOB NUMBER

310-282049-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
6/10/2024 9:49:10 AM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job Narrative
310-282049-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/24/2024 11:20 AM. 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 3.1°C and 3.6°C.

GC/MS VOA
Method 8260D: The following samples were collected in a properly preserved vial; however, 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: OW-226B (310-282049-3) and OW-227B (310-282049-4).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-423506 recovered above the upper control limit for Carbon tetrachloride (33.4%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-423506/3).

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 310-422930. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 310-422930 and analytical batch 310-423476 recovered outside control limits for the following analyte(s): p-Phenylene diamine. p-Phenylene diamine has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 310-422930 and analytical batch 310-423476 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 RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 310-422930 and analytical batch 310-423476 recovered outside control limits for the following analytes: 3,3'-Dimethylbenzidine, Methapyrilene and p-Phenylene diamine.

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.

PCBs
Method 8082A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 310-422933. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8082A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated

with preparation batch 310-422933.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 310-422933. 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 310-422933.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.

Metals
Method 6020B: The initial calibration verification (ICV) result for batch 310-423570 was above the upper control limit. The affected analytes are: Silver. Sample results were non-detects, and have been reported as qualified data. OW-226B (310-282049-3), OW-227B (310-282049-4), Equipment Blank 3 (310-282049-5), OW-113B (310-282049-6), Duplicate 5 (310-282049-7), P-213C (310-282049-8) and P-214CR (310-282049-9)

Method 6020B: The low level check standard recovery associated with batch 310-423570 is outside the acceptance criteria for the following analyte(s): Silver. Sample results were non-detects, and have been reported as qualified data. OW-226B (310-282049-3), OW-227B (310-282049-4), Equipment Blank 3 (310-282049-5), OW-113B (310-282049-6), Duplicate 5 (310-282049-7), P-213C (310-282049-8) and P-214CR (310-282049-9)

Method 6020B: The laboratory control sample (LCS) for preparation batch 310-422763 and analytical batch 310-423570 recovered outside control limits for the following analytes: Silver. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. OW-226B (310-282049-3), OW-227B (310-282049-4), Equipment Blank 3 (310-282049-5), OW-113B (310-282049-6), Duplicate 5 (310-282049-7), P-213C (310-282049-8) and P-214CR (310-282049-9)

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.

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

Sample Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-282049-2	Trip Blank	Water	05/23/24 05:00	05/24/24 11:20
310-282049-3	OW-226B	Water	05/23/24 15:30	05/24/24 11:20
310-282049-4	OW-227B	Water	05/23/24 17:00	05/24/24 11:20
310-282049-5	Equipment Blank 3	Water	05/23/24 17:00	05/24/24 11:20
310-282049-6	OW-113B	Water	05/23/24 14:15	05/24/24 11:20
310-282049-7	Duplicate 5	Water	05/23/24 00:00	05/24/24 11:20
310-282049-8	P-213C	Water	05/23/24 10:30	05/24/24 11:20
310-282049-9	P-214CR	Water	05/23/24 13:30	05/24/24 11:20

Detection Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank — Lab Sample ID: 310-282049-2

No Detections.

Client Sample ID: OW-226B — Lab Sample ID: 310-282049-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.755	J	1.00	0.220	ug/L	1		8260D	Total/NA
Acetone	5.36	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.02		0.500	0.220	ug/L	1		8260D	Total/NA
Arsenic	8.05		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1450		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.148	J	0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	9.35		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	18.8		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	3.06	J	5.00	1.80	ug/L	1		6020B	Total/NA
Lead	0.978		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	70.5		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	2.74	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	48.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	24.86				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-227B — Lab Sample ID: 310-282049-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.647	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.371	J	1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	8.33	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.99		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	0.804	J	4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	16.9		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1920		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.216		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	6.53		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	23.5		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.659		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	78.4		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	2.48	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	68.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	9.52				NTU	1		Field Sampling	Total/NA

Client Sample ID: Equipment Blank 3 — Lab Sample ID: 310-282049-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.573	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	24.3		2.00	0.660	ug/L	1		6020B	Total/NA

Client Sample ID: OW-113B — Lab Sample ID: 310-282049-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.19		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	14.1		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	4.10	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	14.4		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	20.9		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	33.0		7.50	5.55	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-113B (Continued) — Lab Sample ID: 310-282049-6

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Field Turbidity	135.60				NTU	1		Field Sampling	Total/NA

Client Sample ID: Duplicate 5 — Lab Sample ID: 310-282049-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.11		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	13.5		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	21.0		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	14.3		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	27.8		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	16.3		5.00	3.70	mg/L	1		I-3765-85	Total/NA

Client Sample ID: P-213C — Lab Sample ID: 310-282049-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	2.30	J	10.0	2.10	ug/L	1		8260D	Total/NA
Barium	8.72		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	3.25		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	9.60		5.00	2.10	ug/L	1		6020B	Total/NA
Field Turbidity	0.66				NTU	1		Field Sampling	Total/NA

Client Sample ID: P-214CR — Lab Sample ID: 310-282049-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.53	J	10.0	3.10	ug/L	1		8260D	Total/NA
Arsenic	0.830	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	130		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	0.190	J	0.500	0.170	ug/L	1		6020B	Total/NA
Total Suspended Solids	39.0		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	35.53				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-282049-2
Date Collected: 05/23/24 05:00
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			05/29/24 11:58	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 11:58	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 11:58	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 11:58	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/29/24 11:58	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 11:58	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 11:58	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 11:58	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 11:58	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 11:58	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 11:58	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 11:58	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/29/24 11:58	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/29/24 11:58	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 11:58	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 11:58	1
Acetone	<3.10		10.0	3.10	ug/L			05/29/24 11:58	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 11:58	1
Benzene	<0.220		0.500	0.220	ug/L			05/29/24 11:58	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 11:58	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 11:58	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 11:58	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 11:58	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 11:58	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 11:58	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 11:58	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 11:58	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/29/24 11:58	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 11:58	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 11:58	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 11:58	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 11:58	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 11:58	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 11:58	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 11:58	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 11:58	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 11:58	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 11:58	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 11:58	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 11:58	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 11:58	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 11:58	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 11:58	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 11:58	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 11:58	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 11:58	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 11:58	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 11:58	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 11:58	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-282049-2
Date Collected: 05/23/24 05:00
Matrix: Water
Date Received: 05/24/24 11:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	114		73 - 130		05/29/24 11:58	1
Toluene-d8 (Surr)	95		80 - 120		05/29/24 11:58	1
4-Bromofluorobenzene (Surr)	104		80 - 120		05/29/24 11:58	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-282049-3
Date Collected: 05/23/24 15:30
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			05/29/24 16:53	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 16:53	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 16:53	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 16:53	1
1,1-Dichloroethane	**0.755**	**J**	1.00	0.220	ug/L			05/29/24 16:53	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 16:53	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 16:53	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 16:53	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 16:53	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 16:53	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 16:53	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 16:53	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/29/24 16:53	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/29/24 16:53	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 16:53	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 16:53	1
Acetone	**5.36**	**J**	10.0	3.10	ug/L			05/29/24 16:53	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 16:53	1
Benzene	**2.02**		0.500	0.220	ug/L			05/29/24 16:53	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 16:53	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 16:53	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 16:53	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 16:53	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 16:53	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 16:53	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 16:53	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 16:53	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/29/24 16:53	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 16:53	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 16:53	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 16:53	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 16:53	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 16:53	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 16:53	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 16:53	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 16:53	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 16:53	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 16:53	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 16:53	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 16:53	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 16:53	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 16:53	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 16:53	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 16:53	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 16:53	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 16:53	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 16:53	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 16:53	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 16:53	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-282049-3
Date Collected: 05/23/24 15:30
Matrix: Water
Date Received: 05/24/24 11:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*118*		*73 - 130*		*05/29/24 16:53*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*05/29/24 16:53*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*05/29/24 16:53*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 19:56	1
Arsenic	**8.05**		2.00	0.530	ug/L		05/28/24 09:00	05/31/24 19:56	1
Barium	**1450**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 19:56	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 19:56	1
Cadmium	**0.148**	**J**	0.200	0.100	ug/L		05/28/24 09:00	05/31/24 19:56	1
Chromium	**9.35**		5.00	1.20	ug/L		05/28/24 09:00	05/31/24 19:56	1
Cobalt	**18.8**		0.500	0.170	ug/L		05/28/24 09:00	05/31/24 19:56	1
Copper	**3.06**	**J**	5.00	1.80	ug/L		05/28/24 09:00	05/31/24 19:56	1
Lead	**0.978**		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 19:56	1
Nickel	**70.5**		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 19:56	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	05/31/24 19:56	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 19:58	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 19:56	1
Vanadium	**2.74**	**J**	5.00	1.10	ug/L		05/28/24 09:00	05/31/24 19:56	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	05/31/24 19:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		05/30/24 07:53	05/30/24 09:40	1
Total Suspended Solids (USGS I-3765-85)	**48.0**		15.0	11.1	mg/L			05/29/24 10:13	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**24.86**				NTU			05/23/24 15:30	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-282049-4
Date Collected: 05/23/24 17:00
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			05/29/24 17:16	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 17:16	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 17:16	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 17:16	1
1,1-Dichloroethane	**0.647**	**J**	1.00	0.220	ug/L			05/29/24 17:16	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 17:16	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 17:16	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 17:16	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 17:16	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 17:16	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 17:16	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 17:16	1
1,4-Dichlorobenzene	**0.371**	**J**	1.00	0.230	ug/L			05/29/24 17:16	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/29/24 17:16	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 17:16	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 17:16	1
Acetone	**8.33**	**J**	10.0	3.10	ug/L			05/29/24 17:16	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 17:16	1
Benzene	**2.99**		0.500	0.220	ug/L			05/29/24 17:16	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 17:16	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 17:16	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 17:16	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 17:16	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 17:16	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 17:16	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 17:16	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 17:16	1
Chloroethane	**0.804**	**J**	4.00	0.790	ug/L			05/29/24 17:16	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 17:16	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 17:16	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 17:16	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 17:16	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 17:16	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 17:16	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 17:16	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 17:16	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 17:16	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 17:16	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 17:16	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 17:16	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 17:16	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 17:16	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 17:16	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 17:16	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 17:16	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 17:16	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 17:16	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 17:16	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 17:16	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-282049-4

Date Collected: 05/23/24 17:00
Matrix: Water

Date Received: 05/24/24 11:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*117*		*73 - 130*		*05/29/24 17:16*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*05/29/24 17:16*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*05/29/24 17:16*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 20:00	1
Arsenic	**16.9**		2.00	0.530	ug/L		05/28/24 09:00	05/31/24 20:00	1
Barium	**1920**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 20:00	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 20:00	1
Cadmium	**0.216**		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 20:00	1
Chromium	**6.53**		5.00	1.20	ug/L		05/28/24 09:00	05/31/24 20:00	1
Cobalt	**23.5**		0.500	0.170	ug/L		05/28/24 09:00	05/31/24 20:00	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	05/31/24 20:00	1
Lead	**0.659**		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 20:00	1
Nickel	**78.4**		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 20:00	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	05/31/24 20:00	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 20:02	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 20:00	1
Vanadium	**2.48**	**J**	5.00	1.10	ug/L		05/28/24 09:00	05/31/24 20:00	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	05/31/24 20:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		05/30/24 07:53	05/30/24 09:40	1
Total Suspended Solids (USGS I-3765-85)	**68.0**		15.0	11.1	mg/L			05/29/24 10:13	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**9.52**				NTU			05/23/24 17:00	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Equipment Blank 3
Lab Sample ID: 310-282049-5
Date Collected: 05/23/24 17:00
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			06/04/24 15:50	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			06/04/24 15:50	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			06/04/24 15:50	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			06/04/24 15:50	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			06/04/24 15:50	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			06/04/24 15:50	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			06/04/24 15:50	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			06/04/24 15:50	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			06/04/24 15:50	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			06/04/24 15:50	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			06/04/24 15:50	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			06/04/24 15:50	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			06/04/24 15:50	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			06/04/24 15:50	1
2-Hexanone	<2.00		10.0	2.00	ug/L			06/04/24 15:50	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			06/04/24 15:50	1
Acetone	<3.10		10.0	3.10	ug/L			06/04/24 15:50	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			06/04/24 15:50	1
Benzene	<0.220		0.500	0.220	ug/L			06/04/24 15:50	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			06/04/24 15:50	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			06/04/24 15:50	1
Bromoform	<0.780		5.00	0.780	ug/L			06/04/24 15:50	1
Bromomethane	<1.10		4.00	1.10	ug/L			06/04/24 15:50	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			06/04/24 15:50	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			06/04/24 15:50	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			06/04/24 15:50	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			06/04/24 15:50	1
Chloroethane	<0.790		4.00	0.790	ug/L			06/04/24 15:50	1
Chloroform	<1.30		3.00	1.30	ug/L			06/04/24 15:50	1
Chloromethane	<0.610		3.00	0.610	ug/L			06/04/24 15:50	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			06/04/24 15:50	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			06/04/24 15:50	1
Dibromomethane	<0.330		1.00	0.330	ug/L			06/04/24 15:50	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			06/04/24 15:50	1
Iodomethane	<7.00		10.0	7.00	ug/L			06/04/24 15:50	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			06/04/24 15:50	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			06/04/24 15:50	1
o-Xylene	<0.400		1.00	0.400	ug/L			06/04/24 15:50	1
Styrene	<0.370		1.00	0.370	ug/L			06/04/24 15:50	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			06/04/24 15:50	1
Toluene	<0.430		1.00	0.430	ug/L			06/04/24 15:50	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			06/04/24 15:50	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			06/04/24 15:50	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			06/04/24 15:50	1
Trichloroethene	<0.430		1.00	0.430	ug/L			06/04/24 15:50	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			06/04/24 15:50	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			06/04/24 15:50	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			06/04/24 15:50	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			06/04/24 15:50	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Equipment Blank 3
Lab Sample ID: 310-282049-5

Date Collected: 05/23/24 17:00
Matrix: Water

Date Received: 05/24/24 11:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*116*		*73 - 130*		*06/04/24 15:50*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*06/04/24 15:50*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/04/24 15:50*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 20:03	1
Arsenic	**0.573**	**J**	2.00	0.530	ug/L		05/28/24 09:00	05/31/24 20:03	1
Barium	**24.3**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 20:03	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 20:03	1
Cadmium	<0.100		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 20:03	1
Chromium	<1.20		5.00	1.20	ug/L		05/28/24 09:00	06/04/24 20:05	1
Cobalt	<0.170		0.500	0.170	ug/L		05/28/24 09:00	06/04/24 20:05	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	06/04/24 20:05	1
Lead	<0.260		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 20:03	1
Nickel	<2.10		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 20:03	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	06/04/24 20:05	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 20:05	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 20:03	1
Vanadium	<1.10		5.00	1.10	ug/L		05/28/24 09:00	06/04/24 20:05	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	06/04/24 20:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/29/24 09:32	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-113B
Lab Sample ID: 310-282049-6
Date Collected: 05/23/24 14:15
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			06/04/24 16:12	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			06/04/24 16:12	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			06/04/24 16:12	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			06/04/24 16:12	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			06/04/24 16:12	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			06/04/24 16:12	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			06/04/24 16:12	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			06/04/24 16:12	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			06/04/24 16:12	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			06/04/24 16:12	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			06/04/24 16:12	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			06/04/24 16:12	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			06/04/24 16:12	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			06/04/24 16:12	1
2-Hexanone	<2.00		10.0	2.00	ug/L			06/04/24 16:12	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			06/04/24 16:12	1
Acetone	<3.10		10.0	3.10	ug/L			06/04/24 16:12	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			06/04/24 16:12	1
Benzene	<0.220		0.500	0.220	ug/L			06/04/24 16:12	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			06/04/24 16:12	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			06/04/24 16:12	1
Bromoform	<0.780		5.00	0.780	ug/L			06/04/24 16:12	1
Bromomethane	<1.10		4.00	1.10	ug/L			06/04/24 16:12	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			06/04/24 16:12	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			06/04/24 16:12	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			06/04/24 16:12	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			06/04/24 16:12	1
Chloroethane	<0.790		4.00	0.790	ug/L			06/04/24 16:12	1
Chloroform	<1.30		3.00	1.30	ug/L			06/04/24 16:12	1
Chloromethane	<0.610		3.00	0.610	ug/L			06/04/24 16:12	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			06/04/24 16:12	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			06/04/24 16:12	1
Dibromomethane	<0.330		1.00	0.330	ug/L			06/04/24 16:12	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			06/04/24 16:12	1
Iodomethane	<7.00		10.0	7.00	ug/L			06/04/24 16:12	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			06/04/24 16:12	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			06/04/24 16:12	1
o-Xylene	<0.400		1.00	0.400	ug/L			06/04/24 16:12	1
Styrene	<0.370		1.00	0.370	ug/L			06/04/24 16:12	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			06/04/24 16:12	1
Toluene	<0.430		1.00	0.430	ug/L			06/04/24 16:12	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			06/04/24 16:12	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			06/04/24 16:12	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			06/04/24 16:12	1
Trichloroethene	<0.430		1.00	0.430	ug/L			06/04/24 16:12	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			06/04/24 16:12	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			06/04/24 16:12	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			06/04/24 16:12	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			06/04/24 16:12	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-113B
Lab Sample ID: 310-282049-6

Date Collected: 05/23/24 14:15
Matrix: Water

Date Received: 05/24/24 11:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*115*		*73 - 130*		*06/04/24 16:12*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*06/04/24 16:12*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/04/24 16:12*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 20:07	1
Arsenic	**2.19**		2.00	0.530	ug/L		05/28/24 09:00	05/31/24 20:07	1
Barium	**14.1**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 20:07	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 20:07	1
Cadmium	<0.100		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 20:07	1
Chromium	**4.10**	**J**	5.00	1.20	ug/L		05/28/24 09:00	05/31/24 20:07	1
Cobalt	**14.4**		0.500	0.170	ug/L		05/28/24 09:00	05/31/24 20:07	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	05/31/24 20:07	1
Lead	<0.260		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 20:07	1
Nickel	**20.9**		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 20:07	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	05/31/24 20:07	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 20:09	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 20:07	1
Vanadium	<1.10		5.00	1.10	ug/L		05/28/24 09:00	05/31/24 20:07	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	05/31/24 20:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		05/30/24 07:53	05/30/24 09:40	1
Total Suspended Solids (USGS I-3765-85)	**33.0**		7.50	5.55	mg/L			05/29/24 10:13	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**135.60**				NTU			05/23/24 14:15	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Duplicate 5
Lab Sample ID: 310-282049-7
Date Collected: 05/23/24 00:00
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			06/04/24 16:35	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			06/04/24 16:35	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			06/04/24 16:35	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			06/04/24 16:35	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			06/04/24 16:35	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			06/04/24 16:35	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			06/04/24 16:35	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			06/04/24 16:35	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			06/04/24 16:35	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			06/04/24 16:35	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			06/04/24 16:35	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			06/04/24 16:35	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			06/04/24 16:35	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			06/04/24 16:35	1
2-Hexanone	<2.00		10.0	2.00	ug/L			06/04/24 16:35	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			06/04/24 16:35	1
Acetone	<3.10		10.0	3.10	ug/L			06/04/24 16:35	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			06/04/24 16:35	1
Benzene	<0.220		0.500	0.220	ug/L			06/04/24 16:35	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			06/04/24 16:35	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			06/04/24 16:35	1
Bromoform	<0.780		5.00	0.780	ug/L			06/04/24 16:35	1
Bromomethane	<1.10		4.00	1.10	ug/L			06/04/24 16:35	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			06/04/24 16:35	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			06/04/24 16:35	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			06/04/24 16:35	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			06/04/24 16:35	1
Chloroethane	<0.790		4.00	0.790	ug/L			06/04/24 16:35	1
Chloroform	<1.30		3.00	1.30	ug/L			06/04/24 16:35	1
Chloromethane	<0.610		3.00	0.610	ug/L			06/04/24 16:35	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			06/04/24 16:35	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			06/04/24 16:35	1
Dibromomethane	<0.330		1.00	0.330	ug/L			06/04/24 16:35	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			06/04/24 16:35	1
Iodomethane	<7.00		10.0	7.00	ug/L			06/04/24 16:35	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			06/04/24 16:35	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			06/04/24 16:35	1
o-Xylene	<0.400		1.00	0.400	ug/L			06/04/24 16:35	1
Styrene	<0.370		1.00	0.370	ug/L			06/04/24 16:35	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			06/04/24 16:35	1
Toluene	<0.430		1.00	0.430	ug/L			06/04/24 16:35	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			06/04/24 16:35	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			06/04/24 16:35	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			06/04/24 16:35	1
Trichloroethene	<0.430		1.00	0.430	ug/L			06/04/24 16:35	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			06/04/24 16:35	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			06/04/24 16:35	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			06/04/24 16:35	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			06/04/24 16:35	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Duplicate 5
Lab Sample ID: 310-282049-7
Date Collected: 05/23/24 00:00
Matrix: Water
Date Received: 05/24/24 11:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*117*		*73 - 130*		*06/04/24 16:35*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*06/04/24 16:35*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*06/04/24 16:35*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 20:10	1
Arsenic	**2.11**		2.00	0.530	ug/L		05/28/24 09:00	05/31/24 20:10	1
Barium	**13.5**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 20:10	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 20:10	1
Cadmium	<0.100		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 20:10	1
Chromium	**21.0**		5.00	1.20	ug/L		05/28/24 09:00	05/31/24 20:10	1
Cobalt	**14.3**		0.500	0.170	ug/L		05/28/24 09:00	05/31/24 20:10	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	05/31/24 20:10	1
Lead	<0.260		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 20:10	1
Nickel	**27.8**		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 20:10	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	05/31/24 20:10	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 20:13	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 20:10	1
Vanadium	<1.10		5.00	1.10	ug/L		05/28/24 09:00	05/31/24 20:10	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	05/31/24 20:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**16.3**		5.00	3.70	mg/L			05/29/24 10:13	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			05/29/24 19:30	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 19:30	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 19:30	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 19:30	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/29/24 19:30	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 19:30	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			05/29/24 19:30	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 19:30	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			05/29/24 19:30	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 19:30	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 19:30	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 19:30	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 19:30	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 19:30	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			05/29/24 19:30	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			05/29/24 19:30	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/29/24 19:30	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			05/29/24 19:30	1
2-Butanone (MEK)	**2.30**	**J**	10.0	2.10	ug/L			05/29/24 19:30	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 19:30	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 19:30	1
Acetone	<3.10		10.0	3.10	ug/L			05/29/24 19:30	1
Acrolein	<3.60		10.0	3.60	ug/L			05/29/24 19:30	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 19:30	1
Allyl chloride	<0.700		2.00	0.700	ug/L			05/29/24 19:30	1
Benzene	<0.220		0.500	0.220	ug/L			05/29/24 19:30	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 19:30	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 19:30	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 19:30	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 19:30	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 19:30	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 19:30	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 19:30	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 19:30	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/29/24 19:30	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 19:30	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 19:30	1
Chloroprene	<0.230		1.00	0.230	ug/L			05/29/24 19:30	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 19:30	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 19:30	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 19:30	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			05/29/24 19:30	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			05/29/24 19:30	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 19:30	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 19:30	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 19:30	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			05/29/24 19:30	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			05/29/24 19:30	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 19:30	1

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			05/29/24 19:30	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 19:30	1
Propionitrile	<3.40		10.0	3.40	ug/L			05/29/24 19:30	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 19:30	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 19:30	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 19:30	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 19:30	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 19:30	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 19:30	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 19:30	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 19:30	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 19:30	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 19:30	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*05/29/24 19:30*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/29/24 19:30*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/29/24 19:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.614		11.4	0.614	ug/L		05/29/24 07:35	06/03/24 22:25	1
1,3,5-Trinitrobenzene	<2.61		11.4	2.61	ug/L		05/29/24 07:35	06/04/24 16:39	1
1,3-Dinitrobenzene	<3.64		11.4	3.64	ug/L		05/29/24 07:35	06/03/24 22:25	1
1,4-Naphthoquinone	<4.09		11.4	4.09	ug/L		05/29/24 07:35	06/04/24 16:39	1
1,4-phenylenediamine	<2.16	*- *1	11.4	2.16	ug/L		05/29/24 07:35	06/04/24 16:39	1
1-Naphthylamine	<2.84		11.4	2.84	ug/L		05/29/24 07:35	06/04/24 16:39	1
2,3,4,6-Tetrachlorophenol	<6.02		11.4	6.02	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,4,5-Trichlorophenol	<6.02		11.4	6.02	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,4,6-Trichlorophenol	<5.68		11.4	5.68	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,4-Dichlorophenol	<0.966		11.4	0.966	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,4-Dimethylphenol	<0.659		11.4	0.659	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,4-Dinitrophenol	<14.8		22.7	14.8	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,4-Dinitrotoluene	<7.27		11.4	7.27	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,6-Dichlorophenol	<0.784		11.4	0.784	ug/L		05/29/24 07:35	06/03/24 22:25	1
2,6-Dinitrotoluene	<0.591		11.4	0.591	ug/L		05/29/24 07:35	06/03/24 22:25	1
2-Acetylaminofluorene	<3.07		11.4	3.07	ug/L		05/29/24 07:35	06/04/24 16:39	1
2-Chloronaphthalene	<0.727		11.4	0.727	ug/L		05/29/24 07:35	06/03/24 22:25	1
2-Chlorophenol	<0.614		11.4	0.614	ug/L		05/29/24 07:35	06/03/24 22:25	1
2-Methylnaphthalene	<0.670		11.4	0.670	ug/L		05/29/24 07:35	06/03/24 22:25	1
2-Methylphenol	<0.739		11.4	0.739	ug/L		05/29/24 07:35	06/03/24 22:25	1
2-Naphthylamine	<2.39		11.4	2.39	ug/L		05/29/24 07:35	06/04/24 16:39	1
2-Nitroaniline	<6.70		11.4	6.70	ug/L		05/29/24 07:35	06/03/24 22:25	1
2-Nitrophenol	<7.73		11.4	7.73	ug/L		05/29/24 07:35	06/03/24 22:25	1
3,3'-Dichlorobenzidine	<1.59		11.4	1.59	ug/L		05/29/24 07:35	06/03/24 22:25	1
3,3'-Dimethylbenzidine	<1.70	*1	11.4	1.70	ug/L		05/29/24 07:35	06/04/24 16:39	1
3-Methylcholanthrene	<0.364		11.4	0.364	ug/L		05/29/24 07:35	06/04/24 16:39	1
3-Nitroaniline	<3.07		11.4	3.07	ug/L		05/29/24 07:35	06/03/24 22:25	1
4,6-Dinitro-2-methylphenol	<7.84		11.4	7.84	ug/L		05/29/24 07:35	06/03/24 22:25	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Aminobiphenyl	<2.50		11.4	2.50	ug/L		05/29/24 07:35	06/04/24 16:39	1
4-Bromophenyl phenyl ether	<0.795		11.4	0.795	ug/L		05/29/24 07:35	06/03/24 22:25	1
4-Chloro-3-methylphenol	<0.955		11.4	0.955	ug/L		05/29/24 07:35	06/03/24 22:25	1
4-Chloroaniline	<0.705		11.4	0.705	ug/L		05/29/24 07:35	06/03/24 22:25	1
4-Chlorophenyl phenyl ether	<0.784		11.4	0.784	ug/L		05/29/24 07:35	06/03/24 22:25	1
Methylphenol, 3 & 4	<0.795		11.4	0.795	ug/L		05/29/24 07:35	06/03/24 22:25	1
4-Nitroaniline	<1.48		11.4	1.48	ug/L		05/29/24 07:35	06/03/24 22:25	1
4-Nitrophenol	<8.64		11.4	8.64	ug/L		05/29/24 07:35	06/03/24 22:25	1
5-Nitro-o-toluidine	<3.18		11.4	3.18	ug/L		05/29/24 07:35	06/04/24 16:39	1
7,12-Dimethylbenz(a)anthracene	<2.16		11.4	2.16	ug/L		05/29/24 07:35	06/04/24 16:39	1
Acenaphthene	<0.727		11.4	0.727	ug/L		05/29/24 07:35	06/03/24 22:25	1
Acenaphthylene	<0.818		11.4	0.818	ug/L		05/29/24 07:35	06/03/24 22:25	1
Acetophenone	<0.784		11.4	0.784	ug/L		05/29/24 07:35	06/03/24 22:25	1
Anthracene	<0.989		11.4	0.989	ug/L		05/29/24 07:35	06/03/24 22:25	1
Benzo[a]anthracene	<0.966		11.4	0.966	ug/L		05/29/24 07:35	06/03/24 22:25	1
Benzo[a]pyrene	<9.20		11.4	9.20	ug/L		05/29/24 07:35	06/03/24 22:25	1
Benzo[b]fluoranthene	<5.57		11.4	5.57	ug/L		05/29/24 07:35	06/03/24 22:25	1
Benzo[g,h,i]perylene	<7.16		11.4	7.16	ug/L		05/29/24 07:35	06/03/24 22:25	1
Benzo[k]fluoranthene	<2.50		11.4	2.50	ug/L		05/29/24 07:35	06/03/24 22:25	1
Benzyl alcohol	<1.48		11.4	1.48	ug/L		05/29/24 07:35	06/03/24 22:25	1
Bis(2-chloroethoxy)methane	<0.864		11.4	0.864	ug/L		05/29/24 07:35	06/03/24 22:25	1
Bis(2-chloroethyl)ether	<0.932		11.4	0.932	ug/L		05/29/24 07:35	06/03/24 22:25	1
bis (2-chloroisopropyl) ether	<0.614		11.4	0.614	ug/L		05/29/24 07:35	06/03/24 22:25	1
Bis(2-ethylhexyl) phthalate	<6.25		11.4	6.25	ug/L		05/29/24 07:35	06/03/24 22:25	1
Butyl benzyl phthalate	<6.14		11.4	6.14	ug/L		05/29/24 07:35	06/03/24 22:25	1
Chlorobenzilate	<4.09		11.4	4.09	ug/L		05/29/24 07:35	06/04/24 16:39	1
Chrysene	<0.989		11.4	0.989	ug/L		05/29/24 07:35	06/03/24 22:25	1
Diallate	<4.55		11.4	4.55	ug/L		05/29/24 07:35	06/04/24 16:39	1
Dibenzo(a,h)anthracene	<4.43		11.4	4.43	ug/L		05/29/24 07:35	06/03/24 22:25	1
Dibenzofuran	<0.841		11.4	0.841	ug/L		05/29/24 07:35	06/03/24 22:25	1
Diethyl phthalate	<1.93		11.4	1.93	ug/L		05/29/24 07:35	06/03/24 22:25	1
Dimethoate	<4.09		11.4	4.09	ug/L		05/29/24 07:35	06/04/24 16:39	1
Dimethyl phthalate	<1.14		11.4	1.14	ug/L		05/29/24 07:35	06/03/24 22:25	1
Di-n-butyl phthalate	<6.36		11.4	6.36	ug/L		05/29/24 07:35	06/03/24 22:25	1
Di-n-octyl phthalate	<7.95		22.7	7.95	ug/L		05/29/24 07:35	06/03/24 22:25	1
Dinoseb	<2.73		11.4	2.73	ug/L		05/29/24 07:35	06/04/24 16:39	1
Diphenylamine	<6.82		11.4	6.82	ug/L		05/29/24 07:35	06/03/24 22:25	1
Disulfoton	<2.73		11.4	2.73	ug/L		05/29/24 07:35	06/04/24 16:39	1
Ethyl methanesulfonate	<4.09		11.4	4.09	ug/L		05/29/24 07:35	06/04/24 16:39	1
Ethyl Parathion	<2.50		11.4	2.50	ug/L		05/29/24 07:35	06/04/24 16:39	1
Famphur	<4.32	*+	11.4	4.32	ug/L		05/29/24 07:35	06/04/24 16:39	1
Fluoranthene	<1.93		11.4	1.93	ug/L		05/29/24 07:35	06/03/24 22:25	1
Fluorene	<0.898		11.4	0.898	ug/L		05/29/24 07:35	06/03/24 22:25	1
Hexachlorobenzene	<0.795		11.4	0.795	ug/L		05/29/24 07:35	06/03/24 22:25	1
Hexachlorobutadiene	<0.977		11.4	0.977	ug/L		05/29/24 07:35	06/03/24 22:25	1
Hexachlorocyclopentadiene	<5.80		11.4	5.80	ug/L		05/29/24 07:35	06/03/24 22:25	1
Hexachloroethane	<1.10		11.4	1.10	ug/L		05/29/24 07:35	06/03/24 22:25	1
Hexachloropropene	<2.95		11.4	2.95	ug/L		05/29/24 07:35	06/04/24 16:39	1
Indeno[1,2,3-cd]pyrene	<4.77		11.4	4.77	ug/L		05/29/24 07:35	06/03/24 22:25	1

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isodrin	<5.34		11.4	5.34	ug/L		05/29/24 07:35	06/04/24 16:39	1
Isophorone	<1.06		11.4	1.06	ug/L		05/29/24 07:35	06/03/24 22:25	1
Isosafrole	<2.61		11.4	2.61	ug/L		05/29/24 07:35	06/04/24 16:39	1
Kepone	<1.14	*+	11.4	1.14	ug/L		05/29/24 07:35	06/04/24 16:39	1
Methapyrilene	<0.864	*1	11.4	0.864	ug/L		05/29/24 07:35	06/04/24 16:39	1
Methyl methanesulfonate	<3.75		11.4	3.75	ug/L		05/29/24 07:35	06/04/24 16:39	1
Methyl parathion	<2.61		11.4	2.61	ug/L		05/29/24 07:35	06/04/24 16:39	1
Nitrobenzene	<0.909		11.4	0.909	ug/L		05/29/24 07:35	06/03/24 22:25	1
N-Nitrosodiethylamine	<3.86		11.4	3.86	ug/L		05/29/24 07:35	06/04/24 16:39	1
N-Nitrosodimethylamine	<0.818		11.4	0.818	ug/L		05/29/24 07:35	06/03/24 22:25	1
N-Nitrosodi-n-butylamine	<4.43		11.4	4.43	ug/L		05/29/24 07:35	06/04/24 16:39	1
N-Nitrosodi-n-propylamine	<1.05		11.4	1.05	ug/L		05/29/24 07:35	06/03/24 22:25	1
N-Nitrosodiphenylamine	<0.852		11.4	0.852	ug/L		05/29/24 07:35	06/03/24 22:25	1
N-Nitrosomethylethylamine	<5.57		11.4	5.57	ug/L		05/29/24 07:35	06/04/24 16:39	1
N-Nitrosopiperidine	<3.07		11.4	3.07	ug/L		05/29/24 07:35	06/04/24 16:39	1
N-Nitrosopyrrolidine	<4.09		11.4	4.09	ug/L		05/29/24 07:35	06/04/24 16:39	1
o,o',o''-Triethylphosphorothioate	<3.64		11.4	3.64	ug/L		05/29/24 07:35	06/04/24 16:39	1
o-Toluidine	<3.30		11.4	3.30	ug/L		05/29/24 07:35	06/04/24 16:39	1
p-Dimethylamino azobenzene	<2.50		11.4	2.50	ug/L		05/29/24 07:35	06/04/24 16:39	1
Pentachlorobenzene	<3.18		11.4	3.18	ug/L		05/29/24 07:35	06/04/24 16:39	1
Pentachloronitrobenzene	<6.59		11.4	6.59	ug/L		05/29/24 07:35	06/04/24 16:39	1
Pentachlorophenol	<10.9		11.4	10.9	ug/L		05/29/24 07:35	06/03/24 22:25	1
Phenacetin	<2.16		11.4	2.16	ug/L		05/29/24 07:35	06/04/24 16:39	1
Phenanthrene	<0.898		11.4	0.898	ug/L		05/29/24 07:35	06/03/24 22:25	1
Phenol	<1.25		11.4	1.25	ug/L		05/29/24 07:35	06/03/24 22:25	1
Phorate	<3.64		11.4	3.64	ug/L		05/29/24 07:35	06/04/24 16:39	1
Pronamide	<3.07		11.4	3.07	ug/L		05/29/24 07:35	06/04/24 16:39	1
Pyrene	<0.898		11.4	0.898	ug/L		05/29/24 07:35	06/03/24 22:25	1
Safrole	<3.18		11.4	3.18	ug/L		05/29/24 07:35	06/04/24 16:39	1
Thionazin	<3.98		11.4	3.98	ug/L		05/29/24 07:35	06/04/24 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*71*		*25 - 110*	*05/29/24 07:35*	*06/03/24 22:25*	*1*
Phenol-d5 (Surr)	*59*		*21 - 110*	*05/29/24 07:35*	*06/03/24 22:25*	*1*
Nitrobenzene-d5 (Surr)	*96*		*45 - 129*	*05/29/24 07:35*	*06/03/24 22:25*	*1*
2-Fluorobiphenyl (Surr)	*80*		*39 - 118*	*05/29/24 07:35*	*06/03/24 22:25*	*1*
2,4,6-Tribromophenol (Surr)	*86*		*27 - 136*	*05/29/24 07:35*	*06/03/24 22:25*	*1*
Terphenyl-d14 (Surr)	*90*		*12 - 144*	*05/29/24 07:35*	*06/03/24 22:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			05/28/24 17:12	1
Isobutanol	<2400		10000	2400	ug/L			05/28/24 17:12	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0321		0.0762	0.0321	ug/L		05/29/24 07:55	06/04/24 18:30	1
4,4'-DDE	<0.0321		0.0762	0.0321	ug/L		05/29/24 07:55	06/04/24 18:30	1
4,4'-DDT	<0.0500		0.0762	0.0500	ug/L		05/29/24 07:55	06/04/24 18:30	1
Aldrin	<0.0381		0.0762	0.0381	ug/L		05/29/24 07:55	06/04/24 18:30	1

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	<0.0345		0.0762	0.0345	ug/L		05/29/24 07:55	06/04/24 18:30	1
beta-BHC	<0.0440		0.0762	0.0440	ug/L		05/29/24 07:55	06/04/24 18:30	1
Chlordane (technical)	<0.964		2.38	0.964	ug/L		05/29/24 07:55	06/04/24 18:30	1
delta-BHC	<0.0321		0.0762	0.0321	ug/L		05/29/24 07:55	06/04/24 18:30	1
Dieldrin	<0.0310		0.0762	0.0310	ug/L		05/29/24 07:55	06/04/24 18:30	1
Endosulfan I	<0.0393		0.0762	0.0393	ug/L		05/29/24 07:55	06/04/24 18:30	1
Endosulfan II	<0.0345		0.0762	0.0345	ug/L		05/29/24 07:55	06/04/24 18:30	1
Endosulfan sulfate	<0.0357		0.0762	0.0357	ug/L		05/29/24 07:55	06/04/24 18:30	1
Endrin	<0.0310		0.0762	0.0310	ug/L		05/29/24 07:55	06/04/24 18:30	1
Endrin aldehyde	<0.0345		0.0762	0.0345	ug/L		05/29/24 07:55	06/04/24 18:30	1
gamma-BHC (Lindane)	<0.0429		0.0762	0.0429	ug/L		05/29/24 07:55	06/04/24 18:30	1
Heptachlor	<0.0393		0.0762	0.0393	ug/L		05/29/24 07:55	06/04/24 18:30	1
Heptachlor epoxide	<0.0345		0.0762	0.0345	ug/L		05/29/24 07:55	06/04/24 18:30	1
Methoxychlor	<0.0488		0.0762	0.0488	ug/L		05/29/24 07:55	06/04/24 18:30	1
Toxaphene	<0.821		2.38	0.821	ug/L		05/29/24 07:55	06/04/24 18:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*97*		*10 - 136*	*05/29/24 07:55*	*06/04/24 18:30*	*1*
Tetrachloro-m-xylene (Surr)	*72*		*10 - 130*	*05/29/24 07:55*	*06/04/24 18:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.202		0.952	0.202	ug/L		05/29/24 07:55	06/04/24 18:30	1
PCB-1221	<0.202		0.952	0.202	ug/L		05/29/24 07:55	06/04/24 18:30	1
PCB-1232	<0.202		0.952	0.202	ug/L		05/29/24 07:55	06/04/24 18:30	1
PCB-1242	<0.202		0.952	0.202	ug/L		05/29/24 07:55	06/04/24 18:30	1
PCB-1248	<0.131		0.952	0.131	ug/L		05/29/24 07:55	06/04/24 18:30	1
PCB-1254	<0.131		0.952	0.131	ug/L		05/29/24 07:55	06/04/24 18:30	1
PCB-1260	<0.131		0.952	0.131	ug/L		05/29/24 07:55	06/04/24 18:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*97*		*10 - 136*	*05/29/24 07:55*	*06/04/24 18:30*	*1*
Tetrachloro-m-xylene (Surr)	*72*		*10 - 130*	*05/29/24 07:55*	*06/04/24 18:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 20:14	1
Arsenic	<0.530		2.00	0.530	ug/L		05/28/24 09:00	05/31/24 20:14	1
Barium	**8.72**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 20:14	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 20:14	1
Cadmium	<0.100		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 20:14	1
Chromium	<1.20		5.00	1.20	ug/L		05/28/24 09:00	05/31/24 20:14	1
Cobalt	**3.25**		0.500	0.170	ug/L		05/28/24 09:00	05/31/24 20:14	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	05/31/24 20:14	1
Lead	<0.260		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 20:14	1
Nickel	**9.60**		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 20:14	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	05/31/24 20:14	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 20:16	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 20:14	1
Vanadium	<1.10		5.00	1.10	ug/L		05/28/24 09:00	05/31/24 20:14	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	05/31/24 20:14	1
Tin	<2.30		5.00	2.30	ug/L		05/28/24 09:00	05/31/24 20:14	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		05/28/24 13:59	05/29/24 15:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<3.50		10.0	3.50	ug/L		05/30/24 09:42	05/30/24 17:15	1
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		05/30/24 07:53	05/30/24 09:40	1
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			05/29/24 10:13	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.66**				NTU			05/23/24 10:30	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-214CR
Lab Sample ID: 310-282049-9
Date Collected: 05/23/24 13:30
Matrix: Water
Date Received: 05/24/24 11:20

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	<0.380		1.00	0.380	ug/L			05/29/24 19:52	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 19:52	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 19:52	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 19:52	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/29/24 19:52	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 19:52	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 19:52	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 19:52	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 19:52	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 19:52	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 19:52	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 19:52	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/29/24 19:52	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/29/24 19:52	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 19:52	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 19:52	1
Acetone	**3.53**	**J**	10.0	3.10	ug/L			05/29/24 19:52	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 19:52	1
Benzene	<0.220		0.500	0.220	ug/L			05/29/24 19:52	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 19:52	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 19:52	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 19:52	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 19:52	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 19:52	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 19:52	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 19:52	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 19:52	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/29/24 19:52	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 19:52	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 19:52	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 19:52	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 19:52	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 19:52	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 19:52	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 19:52	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 19:52	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 19:52	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 19:52	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 19:52	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 19:52	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 19:52	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 19:52	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 19:52	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 19:52	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 19:52	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 19:52	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 19:52	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 19:52	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 19:52	1

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-214CR
Lab Sample ID: 310-282049-9

Date Collected: 05/23/24 13:30
Matrix: Water

Date Received: 05/24/24 11:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*05/29/24 19:52*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*05/29/24 19:52*	*1*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*05/29/24 19:52*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 20:32	1
Arsenic	**0.830**	**J**	2.00	0.530	ug/L		05/28/24 09:00	05/31/24 20:32	1
Barium	**130**		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 20:32	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 20:32	1
Cadmium	<0.100		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 20:32	1
Chromium	<1.20		5.00	1.20	ug/L		05/28/24 09:00	05/31/24 20:32	1
Cobalt	**0.190**	**J**	0.500	0.170	ug/L		05/28/24 09:00	05/31/24 20:32	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	05/31/24 20:32	1
Lead	<0.260		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 20:32	1
Nickel	<2.10		5.00	2.10	ug/L		05/28/24 09:00	05/31/24 20:32	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	05/31/24 20:32	1
Silver	<0.500	^3+ *+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 20:34	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 20:32	1
Vanadium	<1.10		5.00	1.10	ug/L		05/28/24 09:00	05/31/24 20:32	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	05/31/24 20:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**39.0**		1.88	1.39	mg/L			05/29/24 10:13	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**35.53**				NTU			05/23/24 13:30	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.

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
^1+	Initial Calibration Verification (ICV) 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.

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)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

Surrogate Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-282049-2	Trip Blank	114	95	104
310-282049-3	OW-226B	118	94	102
310-282049-4	OW-227B	117	95	104
310-282049-5	Equipment Blank 3	116	96	103
310-282049-6	OW-113B	115	96	103
310-282049-6 MS	OW-113B	103	99	103
310-282049-6 MSD	OW-113B	102	100	103
310-282049-7	Duplicate 5	117	96	104
310-282049-8	P-213C	101	100	106
310-282049-9	P-214CR	102	99	106
LCS 310-422854/6	Lab Control Sample	104	97	103
LCS 310-422854/7	Lab Control Sample	117	94	103
LCS 310-422943/6	Lab Control Sample	96	104	100
LCS 310-422943/7	Lab Control Sample	101	101	104
LCS 310-423506/6	Lab Control Sample	101	99	102
LCS 310-423506/7	Lab Control Sample	117	97	104
MB 310-422854/5	Method Blank	115	96	103
MB 310-422943/5	Method Blank	102	101	107
MB 310-423506/5	Method Blank	115	98	102

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	PHL	NBZ	FBP	TBP	TPHL
Lab Sample ID	Client Sample ID	(25-110)	(21-110)	(45-129)	(39-118)	(27-136)	(12-144)
310-282049-8	P-213C	71	59	96	80	86	90
LCS 310-422930/2-A	Lab Control Sample	76	59	99	86	93	95
LCSD 310-422930/3-A	Lab Control Sample Dup	73	57	95	79	92	92
MB 310-422930/1-A	Method Blank	81	64	109	90	88	96

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14 (Surr)

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)
310-282049-8	P-213C	97	72

Surrogate Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DCB1	TCX1								
Lab Sample ID	Client Sample ID	(10-136)	(10-130)								
LCS 310-422933/2-A	Lab Control Sample	75	67								
LCSD 310-422933/3-A	Lab Control Sample Dup	73	54								
MB 310-422933/1-A	Method Blank	81	62								

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)								
310-282049-8	P-213C	97	72								
LCS 310-422933/4-A	Lab Control Sample	81	62								
LCSD 310-422933/5-A	Lab Control Sample Dup	68	44								
MB 310-422933/1-A	Method Blank	81	62								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

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

Lab Sample ID: MB 310-422854/5
Matrix: Water
Analysis Batch: 422854

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	<0.380		1.00	0.380	ug/L			05/29/24 10:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 10:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 10:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 10:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/29/24 10:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 10:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 10:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 10:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 10:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 10:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 10:04	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 10:04	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/29/24 10:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/29/24 10:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 10:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 10:04	1
Acetone	<3.10		10.0	3.10	ug/L			05/29/24 10:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 10:04	1
Benzene	<0.220		0.500	0.220	ug/L			05/29/24 10:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 10:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 10:04	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 10:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 10:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 10:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 10:04	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 10:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 10:04	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/29/24 10:04	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 10:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 10:04	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 10:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 10:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 10:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 10:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 10:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 10:04	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 10:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 10:04	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 10:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 10:04	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 10:04	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 10:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 10:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 10:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 10:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 10:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 10:04	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 10:04	1

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

Lab Sample ID: MB 310-422854/5
Matrix: Water
Analysis Batch: 422854

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 10:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*115*		*73 - 130*		*05/29/24 10:04*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/29/24 10:04*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*05/29/24 10:04*	*1*

Lab Sample ID: LCS 310-422854/6
Matrix: Water
Analysis Batch: 422854

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	22.03		ug/L		110	71 - 120
1,1,1-Trichloroethane	20.0	22.45		ug/L		112	73 - 129
1,1,2,2-Tetrachloroethane	20.0	18.78		ug/L		94	68 - 124
1,1,2-Trichloroethane	20.0	20.39		ug/L		102	73 - 123
1,1-Dichloroethane	20.0	18.91		ug/L		95	70 - 127
1,1-Dichloroethene	20.0	19.54		ug/L		98	63 - 132
1,2,3-Trichloropropane	20.0	21.42		ug/L		107	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.03		ug/L		105	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.75		ug/L		109	75 - 125
1,2-Dichlorobenzene	20.0	21.61		ug/L		108	74 - 120
1,2-Dichloroethane	20.0	20.22		ug/L		101	71 - 125
1,2-Dichloropropane	20.0	20.74		ug/L		104	73 - 124
1,4-Dichlorobenzene	20.0	21.38		ug/L		107	72 - 120
2-Butanone (MEK)	40.0	34.43		ug/L		86	50 - 150
2-Hexanone	40.0	33.50		ug/L		84	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	34.00		ug/L		85	60 - 139
Acetone	40.0	33.27		ug/L		83	50 - 150
Acrylonitrile	200	185.2		ug/L		93	50 - 150
Benzene	20.0	20.41		ug/L		102	72 - 124
Bromochloromethane	20.0	21.53		ug/L		108	73 - 130
Bromodichloromethane	20.0	21.21		ug/L		106	74 - 122
Bromoform	20.0	21.93		ug/L		110	61 - 122
Carbon disulfide	20.0	18.28		ug/L		91	59 - 135
Carbon tetrachloride	20.0	25.02		ug/L		125	67 - 132
Chlorobenzene	20.0	21.06		ug/L		105	76 - 120
Chlorodibromomethane	20.0	22.45		ug/L		112	71 - 121
Chloroform	20.0	20.31		ug/L		102	72 - 125
cis-1,2-Dichloroethene	20.0	20.27		ug/L		101	74 - 123
cis-1,3-Dichloropropene	20.0	19.98		ug/L		100	71 - 125
Dibromomethane	20.0	20.74		ug/L		104	74 - 125
Ethylbenzene	20.0	20.93		ug/L		105	74 - 122
Iodomethane	20.0	19.33		ug/L		97	10 - 150
Methylene Chloride	20.0	18.74		ug/L		94	50 - 150
Styrene	20.0	21.92		ug/L		110	74 - 121
Tetrachloroethene	20.0	22.63		ug/L		113	71 - 130
Toluene	20.0	19.96		ug/L		100	74 - 123

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

Lab Sample ID: LCS 310-422854/6
Matrix: Water
Analysis Batch: 422854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	20.47		ug/L		102	70 - 126
trans-1,3-Dichloropropene	20.0	20.54		ug/L		103	69 - 123
trans-1,4-Dichloro-2-butene	20.0	17.55		ug/L		88	50 - 150
Trichloroethene	20.0	22.88		ug/L		114	72 - 126
Vinyl acetate	40.0	36.82		ug/L		92	50 - 150
Xylenes, Total	40.0	42.34		ug/L		106	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*104*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: LCS 310-422854/7
Matrix: Water
Analysis Batch: 422854

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	17.75		ug/L		89	23 - 150
Chloroethane	20.0	17.76		ug/L		89	54 - 136
Chloromethane	20.0	16.07		ug/L		80	38 - 150
Trichlorofluoromethane	20.0	23.63		ug/L		118	54 - 149
Vinyl chloride	20.0	18.00		ug/L		90	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*117*		*73 - 130*
Toluene-d8 (Surr)	*94*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: MB 310-422943/5
Matrix: Water
Analysis Batch: 422943

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	<0.380		1.00	0.380	ug/L			05/29/24 17:41	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			05/29/24 17:41	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			05/29/24 17:41	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			05/29/24 17:41	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			05/29/24 17:41	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			05/29/24 17:41	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			05/29/24 17:41	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			05/29/24 17:41	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			05/29/24 17:41	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			05/29/24 17:41	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			05/29/24 17:41	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			05/29/24 17:41	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			05/29/24 17:41	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			05/29/24 17:41	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			05/29/24 17:41	1

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

Lab Sample ID: MB 310-422943/5
Matrix: Water
Analysis Batch: 422943

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			05/29/24 17:41	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			05/29/24 17:41	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			05/29/24 17:41	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			05/29/24 17:41	1
2-Hexanone	<2.00		10.0	2.00	ug/L			05/29/24 17:41	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			05/29/24 17:41	1
Acetone	<3.10		10.0	3.10	ug/L			05/29/24 17:41	1
Acrolein	<3.60		10.0	3.60	ug/L			05/29/24 17:41	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			05/29/24 17:41	1
Allyl chloride	<0.700		2.00	0.700	ug/L			05/29/24 17:41	1
Benzene	<0.220		0.500	0.220	ug/L			05/29/24 17:41	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			05/29/24 17:41	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			05/29/24 17:41	1
Bromoform	<0.780		5.00	0.780	ug/L			05/29/24 17:41	1
Bromomethane	<1.10		4.00	1.10	ug/L			05/29/24 17:41	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			05/29/24 17:41	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			05/29/24 17:41	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			05/29/24 17:41	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			05/29/24 17:41	1
Chloroethane	<0.790		4.00	0.790	ug/L			05/29/24 17:41	1
Chloroform	<1.30		3.00	1.30	ug/L			05/29/24 17:41	1
Chloromethane	<0.610		3.00	0.610	ug/L			05/29/24 17:41	1
Chloroprene	<0.230		1.00	0.230	ug/L			05/29/24 17:41	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			05/29/24 17:41	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			05/29/24 17:41	1
Dibromomethane	<0.330		1.00	0.330	ug/L			05/29/24 17:41	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			05/29/24 17:41	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			05/29/24 17:41	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			05/29/24 17:41	1
Iodomethane	<7.00		10.0	7.00	ug/L			05/29/24 17:41	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			05/29/24 17:41	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			05/29/24 17:41	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			05/29/24 17:41	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			05/29/24 17:41	1
Naphthalene	<3.00		5.00	3.00	ug/L			05/29/24 17:41	1
o-Xylene	<0.400		1.00	0.400	ug/L			05/29/24 17:41	1
Propionitrile	<3.40		10.0	3.40	ug/L			05/29/24 17:41	1
Styrene	<0.370		1.00	0.370	ug/L			05/29/24 17:41	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			05/29/24 17:41	1
Toluene	<0.430		1.00	0.430	ug/L			05/29/24 17:41	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			05/29/24 17:41	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			05/29/24 17:41	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			05/29/24 17:41	1
Trichloroethene	<0.430		1.00	0.430	ug/L			05/29/24 17:41	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			05/29/24 17:41	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			05/29/24 17:41	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			05/29/24 17:41	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			05/29/24 17:41	1

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

Lab Sample ID: MB 310-422943/5
Matrix: Water
Analysis Batch: 422943

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*05/29/24 17:41*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/29/24 17:41*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*05/29/24 17:41*	*1*

Lab Sample ID: LCS 310-422943/6
Matrix: Water
Analysis Batch: 422943

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	19.56		ug/L		98	71 - 120
1,1,1-Trichloroethane	20.0	18.86		ug/L		94	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.30		ug/L		97	68 - 124
1,1,2-Trichloroethane	20.0	19.50		ug/L		97	73 - 123
1,1-Dichloroethane	20.0	19.73		ug/L		99	70 - 127
1,1-Dichloroethene	20.0	19.65		ug/L		98	63 - 132
1,1-Dichloropropene	20.0	20.16		ug/L		101	69 - 132
1,2,3-Trichloropropane	20.0	18.79		ug/L		94	65 - 127
1,2,4-Trichlorobenzene	20.0	17.93		ug/L		90	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	18.67		ug/L		93	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.50		ug/L		92	75 - 125
1,2-Dichlorobenzene	20.0	19.72		ug/L		99	74 - 120
1,2-Dichloroethane	20.0	18.14		ug/L		91	71 - 125
1,2-Dichloropropane	20.0	19.58		ug/L		98	73 - 124
1,3-Dichlorobenzene	20.0	18.91		ug/L		95	72 - 120
1,3-Dichloropropane	20.0	19.15		ug/L		96	72 - 125
1,4-Dichlorobenzene	20.0	18.94		ug/L		95	72 - 120
2,2-Dichloropropane	20.0	17.29		ug/L		86	50 - 150
2-Butanone (MEK)	40.0	39.48		ug/L		99	50 - 150
2-Hexanone	40.0	38.58		ug/L		96	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	39.01		ug/L		98	60 - 139
Acetone	40.0	39.27		ug/L		98	50 - 150
Acrolein	94.8	95.76		ug/L		101	49 - 150
Acrylonitrile	200	197.7		ug/L		99	50 - 150
Allyl chloride	20.0	19.07		ug/L		95	49 - 150
Benzene	20.0	19.92		ug/L		100	72 - 124
Bromochloromethane	20.0	19.15		ug/L		96	73 - 130
Bromodichloromethane	20.0	18.39		ug/L		92	74 - 122
Bromoform	20.0	17.76		ug/L		89	61 - 122
Carbon disulfide	20.0	20.20		ug/L		101	59 - 135
Carbon tetrachloride	20.0	19.40		ug/L		97	67 - 132
Chlorobenzene	20.0	19.58		ug/L		98	76 - 120
Chlorodibromomethane	20.0	18.04		ug/L		90	71 - 121
Chloroform	20.0	18.43		ug/L		92	72 - 125
Chloroprene	20.0	21.09		ug/L		105	69 - 133
cis-1,2-Dichloroethene	20.0	19.18		ug/L		96	74 - 123
cis-1,3-Dichloropropene	20.0	19.66		ug/L		98	71 - 125
Dibromomethane	20.0	18.65		ug/L		93	74 - 125
Ethyl methacrylate	20.0	18.43		ug/L		92	70 - 129

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

Lab Sample ID: LCS 310-422943/6
Matrix: Water
Analysis Batch: 422943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	20.0	20.83		ug/L		104	74 - 122
Iodomethane	20.0	13.50		ug/L		67	10 - 150
Methacrylonitrile	200	194.5		ug/L		97	69 - 129
Methyl methacrylate	40.0	39.40		ug/L		98	68 - 131
Methylene Chloride	20.0	21.21		ug/L		106	50 - 150
Naphthalene	20.0	17.86		ug/L		89	50 - 150
Propionitrile	200	199.3		ug/L		100	63 - 135
Styrene	20.0	19.94		ug/L		100	74 - 121
Tetrachloroethene	20.0	18.92		ug/L		95	71 - 130
Toluene	20.0	19.22		ug/L		96	74 - 123
trans-1,2-Dichloroethene	20.0	18.86		ug/L		94	70 - 126
trans-1,3-Dichloropropene	20.0	18.40		ug/L		92	69 - 123
trans-1,4-Dichloro-2-butene	20.0	18.46		ug/L		92	50 - 150
Trichloroethene	20.0	19.65		ug/L		98	72 - 126
Vinyl acetate	40.0	34.99		ug/L		87	50 - 150
Xylenes, Total	40.0	40.56		ug/L		101	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-422943/7
Matrix: Water
Analysis Batch: 422943

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	16.63		ug/L		83	23 - 150
Chloroethane	20.0	19.44		ug/L		97	54 - 136
Chloromethane	20.0	20.77		ug/L		104	38 - 150
Dichlorodifluoromethane	20.0	17.03		ug/L		85	39 - 150
Trichlorofluoromethane	20.0	17.96		ug/L		90	54 - 149
Vinyl chloride	20.0	20.30		ug/L		101	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*

Lab Sample ID: MB 310-423506/5
Matrix: Water
Analysis Batch: 423506

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	<0.380		1.00	0.380	ug/L			06/04/24 13:33	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			06/04/24 13:33	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			06/04/24 13:33	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			06/04/24 13:33	1

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

Lab Sample ID: MB 310-423506/5
Matrix: Water
Analysis Batch: 423506

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			06/04/24 13:33	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			06/04/24 13:33	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			06/04/24 13:33	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			06/04/24 13:33	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			06/04/24 13:33	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			06/04/24 13:33	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			06/04/24 13:33	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			06/04/24 13:33	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			06/04/24 13:33	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			06/04/24 13:33	1
2-Hexanone	<2.00		10.0	2.00	ug/L			06/04/24 13:33	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			06/04/24 13:33	1
Acetone	<3.10		10.0	3.10	ug/L			06/04/24 13:33	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			06/04/24 13:33	1
Benzene	<0.220		0.500	0.220	ug/L			06/04/24 13:33	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			06/04/24 13:33	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			06/04/24 13:33	1
Bromoform	<0.780		5.00	0.780	ug/L			06/04/24 13:33	1
Bromomethane	<1.10		4.00	1.10	ug/L			06/04/24 13:33	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			06/04/24 13:33	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			06/04/24 13:33	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			06/04/24 13:33	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			06/04/24 13:33	1
Chloroethane	<0.790		4.00	0.790	ug/L			06/04/24 13:33	1
Chloroform	<1.30		3.00	1.30	ug/L			06/04/24 13:33	1
Chloromethane	<0.610		3.00	0.610	ug/L			06/04/24 13:33	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			06/04/24 13:33	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			06/04/24 13:33	1
Dibromomethane	<0.330		1.00	0.330	ug/L			06/04/24 13:33	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			06/04/24 13:33	1
Iodomethane	<7.00		10.0	7.00	ug/L			06/04/24 13:33	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			06/04/24 13:33	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			06/04/24 13:33	1
o-Xylene	<0.400		1.00	0.400	ug/L			06/04/24 13:33	1
Styrene	<0.370		1.00	0.370	ug/L			06/04/24 13:33	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			06/04/24 13:33	1
Toluene	<0.430		1.00	0.430	ug/L			06/04/24 13:33	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			06/04/24 13:33	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			06/04/24 13:33	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			06/04/24 13:33	1
Trichloroethene	<0.430		1.00	0.430	ug/L			06/04/24 13:33	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			06/04/24 13:33	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			06/04/24 13:33	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			06/04/24 13:33	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			06/04/24 13:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*115*		*73 - 130*		*06/04/24 13:33*	*1*

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

Lab Sample ID: MB 310-423506/5
Matrix: Water
Analysis Batch: 423506

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120		06/04/24 13:33	1
4-Bromofluorobenzene (Surr)	102		80 - 120		06/04/24 13:33	1

Lab Sample ID: LCS 310-423506/6
Matrix: Water
Analysis Batch: 423506

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	20.64		ug/L		103	71 - 120
1,1,1-Trichloroethane	20.0	21.27		ug/L		106	73 - 129
1,1,2,2-Tetrachloroethane	20.0	18.80		ug/L		94	68 - 124
1,1,2-Trichloroethane	20.0	19.42		ug/L		97	73 - 123
1,1-Dichloroethane	20.0	17.99		ug/L		90	70 - 127
1,1-Dichloroethene	20.0	18.15		ug/L		91	63 - 132
1,2,3-Trichloropropane	20.0	19.90		ug/L		100	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	19.78		ug/L		99	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.62		ug/L		103	75 - 125
1,2-Dichlorobenzene	20.0	20.15		ug/L		101	74 - 120
1,2-Dichloroethane	20.0	19.37		ug/L		97	71 - 125
1,2-Dichloropropane	20.0	19.91		ug/L		100	73 - 124
1,4-Dichlorobenzene	20.0	19.99		ug/L		100	72 - 120
2-Butanone (MEK)	40.0	37.72		ug/L		94	50 - 150
2-Hexanone	40.0	39.44		ug/L		99	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	37.64		ug/L		94	60 - 139
Acetone	40.0	31.37		ug/L		78	50 - 150
Acrylonitrile	200	173.3		ug/L		87	50 - 150
Benzene	20.0	18.79		ug/L		94	72 - 124
Bromochloromethane	20.0	20.24		ug/L		101	73 - 130
Bromodichloromethane	20.0	20.32		ug/L		102	74 - 122
Bromoform	20.0	20.74		ug/L		104	61 - 122
Carbon disulfide	20.0	17.12		ug/L		86	59 - 135
Carbon tetrachloride	20.0	24.06		ug/L		120	67 - 132
Chlorobenzene	20.0	19.87		ug/L		99	76 - 120
Chlorodibromomethane	20.0	20.80		ug/L		104	71 - 121
Chloroform	20.0	19.47		ug/L		97	72 - 125
cis-1,2-Dichloroethene	20.0	18.31		ug/L		92	74 - 123
cis-1,3-Dichloropropene	20.0	20.77		ug/L		104	71 - 125
Dibromomethane	20.0	19.33		ug/L		97	74 - 125
Ethylbenzene	20.0	20.29		ug/L		101	74 - 122
Iodomethane	20.0	15.69		ug/L		78	10 - 150
Methylene Chloride	20.0	17.28		ug/L		86	50 - 150
Styrene	20.0	20.39		ug/L		102	74 - 121
Tetrachloroethene	20.0	20.67		ug/L		103	71 - 130
Toluene	20.0	19.61		ug/L		98	74 - 123
trans-1,2-Dichloroethene	20.0	18.80		ug/L		94	70 - 126
trans-1,3-Dichloropropene	20.0	20.64		ug/L		103	69 - 123
trans-1,4-Dichloro-2-butene	20.0	19.99		ug/L		100	50 - 150
Trichloroethene	20.0	20.41		ug/L		102	72 - 126

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

Lab Sample ID: LCS 310-423506/6
Matrix: Water
Analysis Batch: 423506

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl acetate	40.0	40.38		ug/L		101	50 - 150
Xylenes, Total	40.0	39.86		ug/L		100	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

Lab Sample ID: LCS 310-423506/7
Matrix: Water
Analysis Batch: 423506

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	18.11		ug/L		91	23 - 150
Chloroethane	20.0	20.11		ug/L		101	54 - 136
Chloromethane	20.0	17.81		ug/L		89	38 - 150
Trichlorofluoromethane	20.0	24.46		ug/L		122	54 - 149
Vinyl chloride	20.0	20.68		ug/L		103	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*117*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*

Lab Sample ID: 310-282049-6 MS
Matrix: Water
Analysis Batch: 423506

Client Sample ID: OW-113B
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	<0.380		20.0	17.17		ug/L		86	55 - 130
1,1,1-Trichloroethane	<0.190		20.0	19.74		ug/L		99	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		20.0	15.68		ug/L		78	54 - 130
1,1,2-Trichloroethane	<0.450		20.0	16.37		ug/L		82	58 - 130
1,1-Dichloroethane	<0.220		20.0	17.94		ug/L		90	49 - 130
1,1-Dichloroethene	<0.560		20.0	18.48		ug/L		92	37 - 132
1,2,3-Trichloropropane	<0.590		20.0	16.01		ug/L		80	49 - 130
1,2-Dibromo-3-Chloropropane	<1.20		20.0	15.67		ug/L		78	38 - 150
1,2-Dibromoethane (EDB)	<0.340		20.0	18.00		ug/L		90	60 - 130
1,2-Dichlorobenzene	<0.370		20.0	16.06		ug/L		80	59 - 130
1,2-Dichloroethane	<0.390		20.0	18.29		ug/L		91	51 - 130
1,2-Dichloropropane	<0.270		20.0	18.44		ug/L		92	57 - 130
1,4-Dichlorobenzene	<0.230		20.0	16.15		ug/L		81	57 - 130
2-Butanone (MEK)	<2.10		40.0	31.96		ug/L		80	38 - 150
2-Hexanone	<2.00		40.0	29.16		ug/L		73	46 - 140
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	29.82		ug/L		75	47 - 139
Acetone	<3.10		40.0	29.61		ug/L		74	31 - 150
Acrylonitrile	<2.20		200	166.1		ug/L		83	40 - 150
Benzene	<0.220		20.0	18.76		ug/L		94	46 - 130

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

Lab Sample ID: 310-282049-6 MS
Matrix: Water
Analysis Batch: 423506

Client Sample ID: OW-113B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Bromochloromethane	<0.540		20.0	20.26		ug/L		101	57 - 130
Bromodichloromethane	<0.390		20.0	17.87		ug/L		89	57 - 130
Bromoform	<0.780		20.0	15.79		ug/L		79	44 - 130
Carbon disulfide	<0.450		20.0	20.29		ug/L		101	38 - 135
Carbon tetrachloride	<0.650		20.0	21.27		ug/L		106	45 - 132
Chlorobenzene	<0.400		20.0	16.86		ug/L		84	59 - 130
Chlorodibromomethane	<0.750		20.0	16.84		ug/L		84	54 - 130
Chloroform	<1.30		20.0	18.43		ug/L		92	51 - 130
cis-1,2-Dichloroethene	<0.210		20.0	18.10		ug/L		91	45 - 130
cis-1,3-Dichloropropene	<0.250		20.0	18.10		ug/L		90	53 - 130
Dibromomethane	<0.330		20.0	17.88		ug/L		89	59 - 130
Ethylbenzene	<0.310		20.0	17.17		ug/L		86	45 - 130
Iodomethane	<7.00		20.0	15.98		ug/L		80	10 - 150
Methylene Chloride	<1.70		20.0	18.73		ug/L		94	37 - 150
Styrene	<0.370		20.0	17.27		ug/L		86	47 - 130
Tetrachloroethene	<0.480		20.0	17.61		ug/L		88	47 - 130
Toluene	<0.430		20.0	17.80		ug/L		89	51 - 130
trans-1,2-Dichloroethene	<0.270		20.0	19.69		ug/L		98	48 - 130
trans-1,3-Dichloropropene	<0.560		20.0	17.48		ug/L		87	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		20.0	15.27		ug/L		76	26 - 150
Trichloroethene	<0.430		20.0	19.08		ug/L		95	51 - 130
Vinyl acetate	<2.50		40.0	37.34		ug/L		93	29 - 150
Xylenes, Total	<0.400		40.0	35.48		ug/L		89	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

Lab Sample ID: 310-282049-6 MSD
Matrix: Water
Analysis Batch: 423506

Client Sample ID: OW-113B
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	<0.380		20.0	17.07		ug/L		85	55 - 130	1	20
1,1,1-Trichloroethane	<0.190		20.0	18.82		ug/L		94	52 - 130	5	20
1,1,2,2-Tetrachloroethane	<0.470		20.0	15.38		ug/L		77	54 - 130	2	20
1,1,2-Trichloroethane	<0.450		20.0	15.87		ug/L		79	58 - 130	3	20
1,1-Dichloroethane	<0.220		20.0	17.00		ug/L		85	49 - 130	5	20
1,1-Dichloroethene	<0.560		20.0	17.28		ug/L		86	37 - 132	7	26
1,2,3-Trichloropropane	<0.590		20.0	16.09		ug/L		80	49 - 130	0	26
1,2-Dibromo-3-Chloropropane	<1.20		20.0	15.37		ug/L		77	38 - 150	2	20
1,2-Dibromoethane (EDB)	<0.340		20.0	17.36		ug/L		87	60 - 130	4	20
1,2-Dichlorobenzene	<0.370		20.0	16.42		ug/L		82	59 - 130	2	20
1,2-Dichloroethane	<0.390		20.0	17.70		ug/L		89	51 - 130	3	20
1,2-Dichloropropane	<0.270		20.0	17.47		ug/L		87	57 - 130	5	20
1,4-Dichlorobenzene	<0.230		20.0	16.37		ug/L		82	57 - 130	1	20
2-Butanone (MEK)	<2.10		40.0	31.17		ug/L		78	38 - 150	3	20

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

Lab Sample ID: 310-282049-6 MSD
Matrix: Water
Analysis Batch: 423506

Client Sample ID: OW-113B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Hexanone	<2.00		40.0	30.73		ug/L		77	46 - 140	5	20
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	30.69		ug/L		77	47 - 139	3	20
Acetone	<3.10		40.0	28.91		ug/L		72	31 - 150	2	29
Acrylonitrile	<2.20		200	166.3		ug/L		83	40 - 150	0	20
Benzene	<0.220		20.0	17.75		ug/L		89	46 - 130	6	20
Bromochloromethane	<0.540		20.0	19.19		ug/L		96	57 - 130	5	20
Bromodichloromethane	<0.390		20.0	17.72		ug/L		89	57 - 130	1	20
Bromoform	<0.780		20.0	16.03		ug/L		80	44 - 130	2	20
Carbon disulfide	<0.450		20.0	18.06		ug/L		90	38 - 135	12	30
Carbon tetrachloride	<0.650		20.0	20.34		ug/L		102	45 - 132	4	20
Chlorobenzene	<0.400		20.0	16.36		ug/L		82	59 - 130	3	20
Chlorodibromomethane	<0.750		20.0	17.07		ug/L		85	54 - 130	1	20
Chloroform	<1.30		20.0	18.04		ug/L		90	51 - 130	2	20
cis-1,2-Dichloroethene	<0.210		20.0	17.23		ug/L		86	45 - 130	5	20
cis-1,3-Dichloropropene	<0.250		20.0	17.52		ug/L		88	53 - 130	3	20
Dibromomethane	<0.330		20.0	17.34		ug/L		87	59 - 130	3	20
Ethylbenzene	<0.310		20.0	16.65		ug/L		83	45 - 130	3	20
Iodomethane	<7.00		20.0	18.39		ug/L		92	10 - 150	14	35
Methylene Chloride	<1.70		20.0	17.57		ug/L		88	37 - 150	6	24
Styrene	<0.370		20.0	16.95		ug/L		85	47 - 130	2	20
Tetrachloroethene	<0.480		20.0	17.49		ug/L		87	47 - 130	1	20
Toluene	<0.430		20.0	17.25		ug/L		86	51 - 130	3	20
trans-1,2-Dichloroethene	<0.270		20.0	18.04		ug/L		90	48 - 130	9	22
trans-1,3-Dichloropropene	<0.560		20.0	17.08		ug/L		85	50 - 130	2	20
trans-1,4-Dichloro-2-butene	<1.10		20.0	15.62		ug/L		78	26 - 150	2	23
Trichloroethene	<0.430		20.0	18.15		ug/L		91	51 - 130	5	20
Vinyl acetate	<2.50		40.0	37.87		ug/L		95	29 - 150	1	23
Xylenes, Total	<0.400		40.0	33.90		ug/L		85	43 - 130	5	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*

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

Lab Sample ID: MB 310-422930/1-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422930

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.540		10.0	0.540	ug/L		05/29/24 07:35	06/03/24 20:40	1
1,3-Dinitrobenzene	<3.20		10.0	3.20	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,3,4,6-Tetrachlorophenol	<5.30		10.0	5.30	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,4,5-Trichlorophenol	<5.30		10.0	5.30	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,4,6-Trichlorophenol	<5.00		10.0	5.00	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,4-Dichlorophenol	<0.850		10.0	0.850	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,4-Dimethylphenol	<0.580		10.0	0.580	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,4-Dinitrophenol	<13.0		20.0	13.0	ug/L		05/29/24 07:35	06/03/24 20:40	1

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

Lab Sample ID: MB 310-422930/1-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422930

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	<6.40		10.0	6.40	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,6-Dichlorophenol	<0.690		10.0	0.690	ug/L		05/29/24 07:35	06/03/24 20:40	1
2,6-Dinitrotoluene	<0.520		10.0	0.520	ug/L		05/29/24 07:35	06/03/24 20:40	1
2-Chloronaphthalene	<0.640		10.0	0.640	ug/L		05/29/24 07:35	06/03/24 20:40	1
2-Chlorophenol	<0.540		10.0	0.540	ug/L		05/29/24 07:35	06/03/24 20:40	1
2-Methylnaphthalene	<0.590		10.0	0.590	ug/L		05/29/24 07:35	06/03/24 20:40	1
2-Methylphenol	<0.650		10.0	0.650	ug/L		05/29/24 07:35	06/03/24 20:40	1
2-Nitroaniline	<5.90		10.0	5.90	ug/L		05/29/24 07:35	06/03/24 20:40	1
2-Nitrophenol	<6.80		10.0	6.80	ug/L		05/29/24 07:35	06/03/24 20:40	1
3,3'-Dichlorobenzidine	<1.40		10.0	1.40	ug/L		05/29/24 07:35	06/03/24 20:40	1
3-Nitroaniline	<2.70		10.0	2.70	ug/L		05/29/24 07:35	06/03/24 20:40	1
4,6-Dinitro-2-methylphenol	<6.90		10.0	6.90	ug/L		05/29/24 07:35	06/03/24 20:40	1
4-Bromophenyl phenyl ether	<0.700		10.0	0.700	ug/L		05/29/24 07:35	06/03/24 20:40	1
4-Chloro-3-methylphenol	<0.840		10.0	0.840	ug/L		05/29/24 07:35	06/03/24 20:40	1
4-Chloroaniline	<0.620		10.0	0.620	ug/L		05/29/24 07:35	06/03/24 20:40	1
4-Chlorophenyl phenyl ether	<0.690		10.0	0.690	ug/L		05/29/24 07:35	06/03/24 20:40	1
Methylphenol, 3 & 4	<0.700		10.0	0.700	ug/L		05/29/24 07:35	06/03/24 20:40	1
4-Nitroaniline	<1.30		10.0	1.30	ug/L		05/29/24 07:35	06/03/24 20:40	1
4-Nitrophenol	<7.60		10.0	7.60	ug/L		05/29/24 07:35	06/03/24 20:40	1
Acenaphthene	<0.640		10.0	0.640	ug/L		05/29/24 07:35	06/03/24 20:40	1
Acenaphthylene	<0.720		10.0	0.720	ug/L		05/29/24 07:35	06/03/24 20:40	1
Acetophenone	<0.690		10.0	0.690	ug/L		05/29/24 07:35	06/03/24 20:40	1
Anthracene	<0.870		10.0	0.870	ug/L		05/29/24 07:35	06/03/24 20:40	1
Benzo[a]anthracene	<0.850		10.0	0.850	ug/L		05/29/24 07:35	06/03/24 20:40	1
Benzo[a]pyrene	<8.10		10.0	8.10	ug/L		05/29/24 07:35	06/03/24 20:40	1
Benzo[b]fluoranthene	<4.90		10.0	4.90	ug/L		05/29/24 07:35	06/03/24 20:40	1
Benzo[g,h,i]perylene	<6.30		10.0	6.30	ug/L		05/29/24 07:35	06/03/24 20:40	1
Benzo[k]fluoranthene	<2.20		10.0	2.20	ug/L		05/29/24 07:35	06/03/24 20:40	1
Benzyl alcohol	<1.30		10.0	1.30	ug/L		05/29/24 07:35	06/03/24 20:40	1
Bis(2-chloroethoxy)methane	<0.760		10.0	0.760	ug/L		05/29/24 07:35	06/03/24 20:40	1
Bis(2-chloroethyl)ether	<0.820		10.0	0.820	ug/L		05/29/24 07:35	06/03/24 20:40	1
bis (2-chloroisopropyl) ether	<0.540		10.0	0.540	ug/L		05/29/24 07:35	06/03/24 20:40	1
Bis(2-ethylhexyl) phthalate	<5.50		10.0	5.50	ug/L		05/29/24 07:35	06/03/24 20:40	1
Butyl benzyl phthalate	<5.40		10.0	5.40	ug/L		05/29/24 07:35	06/03/24 20:40	1
Chrysene	<0.870		10.0	0.870	ug/L		05/29/24 07:35	06/03/24 20:40	1
Dibenzo(a,h)anthracene	<3.90		10.0	3.90	ug/L		05/29/24 07:35	06/03/24 20:40	1
Dibenzofuran	<0.740		10.0	0.740	ug/L		05/29/24 07:35	06/03/24 20:40	1
Diethyl phthalate	<1.70		10.0	1.70	ug/L		05/29/24 07:35	06/03/24 20:40	1
Dimethyl phthalate	<1.00		10.0	1.00	ug/L		05/29/24 07:35	06/03/24 20:40	1
Di-n-butyl phthalate	<5.60		10.0	5.60	ug/L		05/29/24 07:35	06/03/24 20:40	1
Di-n-octyl phthalate	<7.00		20.0	7.00	ug/L		05/29/24 07:35	06/03/24 20:40	1
Diphenylamine	<6.00		10.0	6.00	ug/L		05/29/24 07:35	06/03/24 20:40	1
Fluoranthene	<1.70		10.0	1.70	ug/L		05/29/24 07:35	06/03/24 20:40	1
Fluorene	<0.790		10.0	0.790	ug/L		05/29/24 07:35	06/03/24 20:40	1
Hexachlorobenzene	<0.700		10.0	0.700	ug/L		05/29/24 07:35	06/03/24 20:40	1
Hexachlorobutadiene	<0.860		10.0	0.860	ug/L		05/29/24 07:35	06/03/24 20:40	1
Hexachlorocyclopentadiene	<5.10		10.0	5.10	ug/L		05/29/24 07:35	06/03/24 20:40	1
Hexachloroethane	<0.970		10.0	0.970	ug/L		05/29/24 07:35	06/03/24 20:40	1
Indeno[1,2,3-cd]pyrene	<4.20		10.0	4.20	ug/L		05/29/24 07:35	06/03/24 20:40	1

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

Lab Sample ID: MB 310-422930/1-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422930

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	<0.930		10.0	0.930	ug/L		05/29/24 07:35	06/03/24 20:40	1
Nitrobenzene	<0.800		10.0	0.800	ug/L		05/29/24 07:35	06/03/24 20:40	1
N-Nitrosodimethylamine	<0.720		10.0	0.720	ug/L		05/29/24 07:35	06/03/24 20:40	1
N-Nitrosodi-n-propylamine	<0.920		10.0	0.920	ug/L		05/29/24 07:35	06/03/24 20:40	1
N-Nitrosodiphenylamine	<0.750		10.0	0.750	ug/L		05/29/24 07:35	06/03/24 20:40	1
Pentachlorophenol	<9.60		10.0	9.60	ug/L		05/29/24 07:35	06/03/24 20:40	1
Phenanthrene	<0.790		10.0	0.790	ug/L		05/29/24 07:35	06/03/24 20:40	1
Phenol	<1.10		10.0	1.10	ug/L		05/29/24 07:35	06/03/24 20:40	1
Pyrene	<0.790		10.0	0.790	ug/L		05/29/24 07:35	06/03/24 20:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*81*		*25 - 110*	*05/29/24 07:35*	*06/03/24 20:40*	*1*
Phenol-d5 (Surr)	*64*		*21 - 110*	*05/29/24 07:35*	*06/03/24 20:40*	*1*
Nitrobenzene-d5 (Surr)	*109*		*45 - 129*	*05/29/24 07:35*	*06/03/24 20:40*	*1*
2-Fluorobiphenyl (Surr)	*90*		*39 - 118*	*05/29/24 07:35*	*06/03/24 20:40*	*1*
2,4,6-Tribromophenol (Surr)	*88*		*27 - 136*	*05/29/24 07:35*	*06/03/24 20:40*	*1*
Terphenyl-d14 (Surr)	*96*		*12 - 144*	*05/29/24 07:35*	*06/03/24 20:40*	*1*

Lab Sample ID: MB 310-422930/1-A
Matrix: Water
Analysis Batch: 423476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422930

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	<2.30		10.0	2.30	ug/L		05/29/24 07:35	06/04/24 15:23	1
1,4-Naphthoquinone	<3.60		10.0	3.60	ug/L		05/29/24 07:35	06/04/24 15:23	1
1,4-phenylenediamine	<1.90		10.0	1.90	ug/L		05/29/24 07:35	06/04/24 15:23	1
1-Naphthylamine	<2.50		10.0	2.50	ug/L		05/29/24 07:35	06/04/24 15:23	1
2-Acetylaminofluorene	<2.70		10.0	2.70	ug/L		05/29/24 07:35	06/04/24 15:23	1
2-Naphthylamine	<2.10		10.0	2.10	ug/L		05/29/24 07:35	06/04/24 15:23	1
3,3'-Dimethylbenzidine	<1.50		10.0	1.50	ug/L		05/29/24 07:35	06/04/24 15:23	1
3-Methylcholanthrene	<0.320		10.0	0.320	ug/L		05/29/24 07:35	06/04/24 15:23	1
4-Aminobiphenyl	<2.20		10.0	2.20	ug/L		05/29/24 07:35	06/04/24 15:23	1
5-Nitro-o-toluidine	<2.80		10.0	2.80	ug/L		05/29/24 07:35	06/04/24 15:23	1
7,12-Dimethylbenz(a)anthracene	<1.90		10.0	1.90	ug/L		05/29/24 07:35	06/04/24 15:23	1
Chlorobenzilate	<3.60		10.0	3.60	ug/L		05/29/24 07:35	06/04/24 15:23	1
Diallate	<4.00		10.0	4.00	ug/L		05/29/24 07:35	06/04/24 15:23	1
Dimethoate	<3.60		10.0	3.60	ug/L		05/29/24 07:35	06/04/24 15:23	1
Dinoseb	<2.40		10.0	2.40	ug/L		05/29/24 07:35	06/04/24 15:23	1
Disulfoton	<2.40		10.0	2.40	ug/L		05/29/24 07:35	06/04/24 15:23	1
Ethyl methanesulfonate	<3.60		10.0	3.60	ug/L		05/29/24 07:35	06/04/24 15:23	1
Ethyl Parathion	<2.20		10.0	2.20	ug/L		05/29/24 07:35	06/04/24 15:23	1
Famphur	<3.80		10.0	3.80	ug/L		05/29/24 07:35	06/04/24 15:23	1
Hexachloropropene	<2.60		10.0	2.60	ug/L		05/29/24 07:35	06/04/24 15:23	1
Isodrin	<4.70		10.0	4.70	ug/L		05/29/24 07:35	06/04/24 15:23	1
Isosafrole	<2.30		10.0	2.30	ug/L		05/29/24 07:35	06/04/24 15:23	1
Kepone	<1.00		10.0	1.00	ug/L		05/29/24 07:35	06/04/24 15:23	1
Methapyrilene	<0.760		10.0	0.760	ug/L		05/29/24 07:35	06/04/24 15:23	1
Methyl methanesulfonate	<3.30		10.0	3.30	ug/L		05/29/24 07:35	06/04/24 15:23	1

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

Lab Sample ID: MB 310-422930/1-A
Matrix: Water
Analysis Batch: 423476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422930

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl parathion	<2.30		10.0	2.30	ug/L		05/29/24 07:35	06/04/24 15:23	1
N-Nitrosodiethylamine	<3.40		10.0	3.40	ug/L		05/29/24 07:35	06/04/24 15:23	1
N-Nitrosodi-n-butylamine	<3.90		10.0	3.90	ug/L		05/29/24 07:35	06/04/24 15:23	1
N-Nitrosomethylethylamine	<4.90		10.0	4.90	ug/L		05/29/24 07:35	06/04/24 15:23	1
N-Nitrosopiperidine	<2.70		10.0	2.70	ug/L		05/29/24 07:35	06/04/24 15:23	1
N-Nitrosopyrrolidine	<3.60		10.0	3.60	ug/L		05/29/24 07:35	06/04/24 15:23	1
o,o',o''-Triethylphosphorothioate	<3.20		10.0	3.20	ug/L		05/29/24 07:35	06/04/24 15:23	1
o-Toluidine	<2.90		10.0	2.90	ug/L		05/29/24 07:35	06/04/24 15:23	1
p-Dimethylamino azobenzene	<2.20		10.0	2.20	ug/L		05/29/24 07:35	06/04/24 15:23	1
Pentachlorobenzene	<2.80		10.0	2.80	ug/L		05/29/24 07:35	06/04/24 15:23	1
Pentachloronitrobenzene	<5.80		10.0	5.80	ug/L		05/29/24 07:35	06/04/24 15:23	1
Phenacetin	<1.90		10.0	1.90	ug/L		05/29/24 07:35	06/04/24 15:23	1
Phorate	<3.20		10.0	3.20	ug/L		05/29/24 07:35	06/04/24 15:23	1
Pronamide	<2.70		10.0	2.70	ug/L		05/29/24 07:35	06/04/24 15:23	1
Safrole	<2.80		10.0	2.80	ug/L		05/29/24 07:35	06/04/24 15:23	1
Thionazin	<3.50		10.0	3.50	ug/L		05/29/24 07:35	06/04/24 15:23	1

Lab Sample ID: LCS 310-422930/2-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422930

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4,5-Tetrachlorobenzene	100	80.62		ug/L		81	36 - 110
1,3-Dinitrobenzene	100	91.77		ug/L		92	45 - 138
2,3,4,6-Tetrachlorophenol	100	94.93		ug/L		95	33 - 134
2,4,5-Trichlorophenol	100	95.06		ug/L		95	35 - 133
2,4,6-Trichlorophenol	100	102.6		ug/L		103	28 - 139
2,4-Dichlorophenol	100	96.41		ug/L		96	41 - 124
2,4-Dimethylphenol	100	94.72		ug/L		95	31 - 142
2,4-Dinitrophenol	200	97.66		ug/L		49	10 - 138
2,4-Dinitrotoluene	100	88.36		ug/L		88	47 - 137
2,6-Dichlorophenol	100	96.03		ug/L		96	30 - 130
2,6-Dinitrotoluene	100	100.2		ug/L		100	51 - 130
2-Chloronaphthalene	100	89.99		ug/L		90	37 - 110
2-Chlorophenol	100	89.26		ug/L		89	44 - 117
2-Methylnaphthalene	100	80.10		ug/L		80	33 - 110
2-Methylphenol	100	87.26		ug/L		87	47 - 118
2-Nitroaniline	100	101.7		ug/L		102	50 - 135
2-Nitrophenol	100	105.7		ug/L		106	41 - 129
3-Nitroaniline	100	94.44		ug/L		94	42 - 139
4,6-Dinitro-2-methylphenol	200	162.5		ug/L		81	22 - 143
4-Bromophenyl phenyl ether	100	95.80		ug/L		96	45 - 119
4-Chloro-3-methylphenol	100	93.27		ug/L		93	49 - 130
4-Chloroaniline	100	93.86		ug/L		94	21 - 139
4-Chlorophenyl phenyl ether	100	84.59		ug/L		85	44 - 116
Methylphenol, 3 & 4	100	85.48		ug/L		85	46 - 117
4-Nitroaniline	100	97.23		ug/L		97	31 - 145
4-Nitrophenol	200	113.0		ug/L		56	18 - 110
Acenaphthene	100	98.94		ug/L		99	43 - 110

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

Lab Sample ID: LCS 310-422930/2-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422930

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthylene	100	89.66		ug/L		90	40 - 110
Acetophenone	100	84.23		ug/L		84	48 - 119
Anthracene	100	94.97		ug/L		95	51 - 120
Benzo[a]anthracene	100	95.99		ug/L		96	51 - 123
Benzo[a]pyrene	100	102.4		ug/L		102	48 - 125
Benzo[b]fluoranthene	100	118.5		ug/L		118	49 - 129
Benzo[g,h,i]perylene	100	101.8		ug/L		102	43 - 139
Benzo[k]fluoranthene	100	92.00		ug/L		92	47 - 130
Benzyl alcohol	100	95.15		ug/L		95	39 - 128
Bis(2-chloroethoxy)methane	100	91.76		ug/L		92	48 - 121
Bis(2-chloroethyl)ether	100	85.65		ug/L		86	43 - 123
bis (2-chloroisopropyl) ether	100	78.80		ug/L		79	34 - 123
Bis(2-ethylhexyl) phthalate	100	101.4		ug/L		101	43 - 143
Butyl benzyl phthalate	100	101.7		ug/L		102	46 - 135
Chrysene	100	98.68		ug/L		99	51 - 125
Dibenzo(a,h)anthracene	100	116.3		ug/L		116	38 - 149
Dibenzofuran	100	85.55		ug/L		86	45 - 112
Diethyl phthalate	100	85.44		ug/L		85	43 - 135
Dimethyl phthalate	100	89.61		ug/L		90	43 - 129
Di-n-butyl phthalate	100	98.25		ug/L		98	50 - 133
Di-n-octyl phthalate	100	112.8		ug/L		113	34 - 150
Fluoranthene	100	99.38		ug/L		99	47 - 128
Fluorene	100	92.28		ug/L		92	45 - 119
Hexachlorobenzene	100	97.55		ug/L		98	48 - 119
Hexachlorobutadiene	100	75.18		ug/L		75	32 - 110
Hexachlorocyclopentadiene	100	39.69		ug/L		40	10 - 110
Hexachloroethane	100	65.44		ug/L		65	31 - 110
Indeno[1,2,3-cd]pyrene	100	117.3		ug/L		117	37 - 150
Isophorone	100	93.45		ug/L		93	50 - 125
Nitrobenzene	100	97.41		ug/L		97	47 - 116
N-Nitrosodimethylamine	100	81.30		ug/L		81	37 - 110
N-Nitrosodi-n-propylamine	100	92.89		ug/L		93	45 - 130
N-Nitrosodiphenylamine	100	100.5		ug/L		100	49 - 121
Pentachlorophenol	200	167.1		ug/L		84	26 - 133
Phenanthrene	100	92.46		ug/L		92	51 - 117
Phenol	100	64.68		ug/L		65	29 - 110
Pyrene	100	91.40		ug/L		91	48 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*76*		*25 - 110*
Phenol-d5 (Surr)	*59*		*21 - 110*
Nitrobenzene-d5 (Surr)	*99*		*45 - 129*
2-Fluorobiphenyl (Surr)	*86*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*93*		*27 - 136*
Terphenyl-d14 (Surr)	*95*		*12 - 144*

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

Lab Sample ID: LCS 310-422930/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423476
Prep Batch: 422930

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,3,5-Trinitrobenzene	64.0	58.26		ug/L		91	39 - 144
1,4-Naphthoquinone	64.0	62.32		ug/L		97	37 - 149
1,4-phenylenediamine	64.0	<1.90	*-	ug/L		-1	20 - 120
1-Naphthylamine	64.0	40.86		ug/L		64	19 - 110
2-Acetylaminofluorene	64.0	66.19		ug/L		103	35 - 150
2-Naphthylamine	64.0	47.60		ug/L		74	18 - 127
3,3'-Dimethylbenzidine	64.0	38.89		ug/L		61	10 - 150
3-Methylcholanthrene	64.0	65.19		ug/L		102	43 - 150
4-Aminobiphenyl	64.0	51.74		ug/L		81	24 - 138
5-Nitro-o-toluidine	64.0	66.00		ug/L		103	47 - 145
7,12-Dimethylbenz(a)anthracene	64.0	62.71		ug/L		98	51 - 129
Chlorobenzilate	64.0	61.87		ug/L		97	52 - 138
Diallate	64.0	54.82		ug/L		86	42 - 141
Dimethoate	64.0	79.59		ug/L		124	51 - 150
Dinoseb	64.0	79.32		ug/L		124	25 - 146
Disulfoton	64.0	51.71		ug/L		81	54 - 131
Ethyl methanesulfonate	64.0	52.70		ug/L		82	48 - 120
Ethyl Parathion	64.0	69.44		ug/L		109	52 - 149
Famphur	64.0	151.4	E *+	ug/L		237	44 - 150
Hexachloropropene	64.0	31.22		ug/L		49	10 - 110
Isodrin	64.0	62.48		ug/L		98	52 - 125
Methapyrilene	64.0	13.65		ug/L		21	10 - 110
Methyl methanesulfonate	64.0	37.80		ug/L		59	36 - 110
Methyl parathion	64.0	78.57		ug/L		123	50 - 150
N-Nitrosodiethylamine	64.0	56.89		ug/L		89	47 - 138
N-Nitrosodi-n-butylamine	64.0	63.59		ug/L		99	52 - 142
N-Nitrosomethylethylamine	64.0	55.77		ug/L		87	54 - 123
N-Nitrosopiperidine	64.0	57.60		ug/L		90	60 - 127
N-Nitrosopyrrolidine	64.0	59.59		ug/L		93	56 - 143
o,o',o''-Triethylphosphorothioate	64.0	63.60		ug/L		99	45 - 113
o-Toluidine	64.0	55.02		ug/L		86	24 - 142
p-Dimethylamino azobenzene	64.0	66.46		ug/L		104	42 - 138
Pentachlorobenzene	64.0	51.42		ug/L		80	33 - 110
Pentachloronitrobenzene	64.0	68.17		ug/L		107	65 - 127
Phenacetin	64.0	66.30		ug/L		104	56 - 146
Phorate	64.0	51.04		ug/L		80	57 - 135
Pronamide	64.0	65.20		ug/L		102	61 - 144
Safrole	64.0	59.88		ug/L		94	34 - 110
Thionazin	64.0	64.19		ug/L		100	52 - 147

Lab Sample ID: LCSD 310-422930/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423326
Prep Batch: 422930

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene	100	74.66		ug/L		75	36 - 110	8	35
1,3-Dinitrobenzene	100	87.93		ug/L		88	45 - 138	4	35
2,3,4,6-Tetrachlorophenol	100	88.29		ug/L		88	33 - 134	7	35
2,4,5-Trichlorophenol	100	88.59		ug/L		89	35 - 133	7	35

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

Lab Sample ID: LCSD 310-422930/3-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422930

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,6-Trichlorophenol			100	93.80		ug/L		94	28 - 139	9	35
2,4-Dichlorophenol			100	89.72		ug/L		90	41 - 124	7	35
2,4-Dimethylphenol			100	88.39		ug/L		88	31 - 142	7	35
2,4-Dinitrophenol			200	89.93		ug/L		45	10 - 138	8	35
2,4-Dinitrotoluene			100	83.75		ug/L		84	47 - 137	5	35
2,6-Dichlorophenol			100	87.81		ug/L		88	30 - 130	9	35
2,6-Dinitrotoluene			100	91.32		ug/L		91	51 - 130	9	35
2-Chloronaphthalene			100	81.95		ug/L		82	37 - 110	9	35
2-Chlorophenol			100	81.54		ug/L		82	44 - 117	9	35
2-Methylnaphthalene			100	70.84		ug/L		71	33 - 110	12	35
2-Methylphenol			100	81.06		ug/L		81	47 - 118	7	35
2-Nitroaniline			100	96.76		ug/L		97	50 - 135	5	35
2-Nitrophenol			100	98.80		ug/L		99	41 - 129	7	35
3-Nitroaniline			100	92.01		ug/L		92	42 - 139	3	35
4,6-Dinitro-2-methylphenol			200	157.0		ug/L		79	22 - 143	3	35
4-Bromophenyl phenyl ether			100	90.29		ug/L		90	45 - 119	6	35
4-Chloro-3-methylphenol			100	88.22		ug/L		88	49 - 130	6	35
4-Chloroaniline			100	91.95		ug/L		92	21 - 139	2	35
4-Chlorophenyl phenyl ether			100	78.59		ug/L		79	44 - 116	7	35
Methylphenol, 3 & 4			100	80.29		ug/L		80	46 - 117	6	35
4-Nitroaniline			100	95.40		ug/L		95	31 - 145	2	35
4-Nitrophenol			200	109.9		ug/L		55	18 - 110	3	35
Acenaphthene			100	89.51		ug/L		90	43 - 110	10	35
Acenaphthylene			100	79.99		ug/L		80	40 - 110	11	35
Acetophenone			100	76.96		ug/L		77	48 - 119	9	35
Anthracene			100	91.52		ug/L		92	51 - 120	4	35
Benzo[a]anthracene			100	93.92		ug/L		94	51 - 123	2	35
Benzo[a]pyrene			100	97.90		ug/L		98	48 - 125	4	35
Benzo[b]fluoranthene			100	112.4		ug/L		112	49 - 129	5	35
Benzo[g,h,i]perylene			100	98.28		ug/L		98	43 - 139	4	35
Benzo[k]fluoranthene			100	88.45		ug/L		88	47 - 130	4	35
Benzyl alcohol			100	87.80		ug/L		88	39 - 128	8	35
Bis(2-chloroethoxy)methane			100	85.42		ug/L		85	48 - 121	7	35
Bis(2-chloroethyl)ether			100	78.10		ug/L		78	43 - 123	9	35
bis (2-chloroisopropyl) ether			100	71.41		ug/L		71	34 - 123	10	35
Bis(2-ethylhexyl) phthalate			100	95.91		ug/L		96	43 - 143	6	35
Butyl benzyl phthalate			100	96.85		ug/L		97	46 - 135	5	35
Chrysene			100	93.08		ug/L		93	51 - 125	6	35
Dibenzo(a,h)anthracene			100	112.8		ug/L		113	38 - 149	3	35
Dibenzofuran			100	78.61		ug/L		79	45 - 112	8	35
Diethyl phthalate			100	81.13		ug/L		81	43 - 135	5	35
Dimethyl phthalate			100	84.26		ug/L		84	43 - 129	6	35
Di-n-butyl phthalate			100	93.76		ug/L		94	50 - 133	5	35
Di-n-octyl phthalate			100	107.9		ug/L		108	34 - 150	4	35
Fluoranthene			100	99.52		ug/L		100	47 - 128	0	35
Fluorene			100	85.84		ug/L		86	45 - 119	7	35
Hexachlorobenzene			100	90.99		ug/L		91	48 - 119	7	35
Hexachlorobutadiene			100	72.42		ug/L		72	32 - 110	4	35
Hexachlorocyclopentadiene			100	32.78		ug/L		33	10 - 110	19	35

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

Lab Sample ID: LCSD 310-422930/3-A
Matrix: Water
Analysis Batch: 423326

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422930

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexachloroethane			100	62.27		ug/L		62	31 - 110	5	35
Indeno[1,2,3-cd]pyrene			100	112.4		ug/L		112	37 - 150	4	35
Isophorone			100	88.39		ug/L		88	50 - 125	6	35
Nitrobenzene			100	89.95		ug/L		90	47 - 116	8	35
N-Nitrosodimethylamine			100	78.07		ug/L		78	37 - 110	4	35
N-Nitrosodi-n-propylamine			100	85.14		ug/L		85	45 - 130	9	35
N-Nitrosodiphenylamine			100	94.00		ug/L		94	49 - 121	7	35
Pentachlorophenol			200	157.5		ug/L		79	26 - 133	6	35
Phenanthrene			100	90.00		ug/L		90	51 - 117	3	35
Phenol			100	61.16		ug/L		61	29 - 110	6	35
Pyrene			100	85.87		ug/L		86	48 - 127	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*73*		*25 - 110*
Phenol-d5 (Surr)	*57*		*21 - 110*
Nitrobenzene-d5 (Surr)	*95*		*45 - 129*
2-Fluorobiphenyl (Surr)	*79*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*92*		*27 - 136*
Terphenyl-d14 (Surr)	*92*		*12 - 144*

Lab Sample ID: LCSD 310-422930/3-A
Matrix: Water
Analysis Batch: 423476

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422930

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene			64.0	58.07		ug/L		91	39 - 144	0	35
1,4-Naphthoquinone			64.0	60.82		ug/L		95	37 - 149	2	29
1,4-phenylenediamine			64.0	<1.90	*- *1	ug/L		-0.8	20 - 120	36	35
1-Naphthylamine			64.0	42.67		ug/L		67	19 - 110	4	35
2-Acetylaminofluorene			64.0	61.70		ug/L		96	35 - 150	7	28
2-Naphthylamine			64.0	46.78		ug/L		73	18 - 127	2	35
3,3'-Dimethylbenzidine			64.0	61.08	*1	ug/L		95	10 - 150	44	35
3-Methylcholanthrene			64.0	58.24		ug/L		91	43 - 150	11	32
4-Aminobiphenyl			64.0	50.45		ug/L		79	24 - 138	3	35
5-Nitro-o-toluidine			64.0	62.27		ug/L		97	47 - 145	6	31
7,12-Dimethylbenz(a)anthracene			64.0	58.76		ug/L		92	51 - 129	7	28
Chlorobenzilate			64.0	60.44		ug/L		94	52 - 138	2	28
Diallate			64.0	52.03		ug/L		81	42 - 141	5	35
Dimethoate			64.0	74.87		ug/L		117	51 - 150	6	26
Dinoseb			64.0	78.25		ug/L		122	25 - 146	1	35
Disulfoton			64.0	48.78		ug/L		76	54 - 131	6	24
Ethyl methanesulfonate			64.0	52.04		ug/L		81	48 - 120	1	27
Ethyl Parathion			64.0	65.12		ug/L		102	52 - 149	6	26
Famphur			64.0	128.9	E *+	ug/L		201	44 - 150	16	35
Hexachloropropene			64.0	30.38		ug/L		47	10 - 110	3	35
Isodrin			64.0	61.72		ug/L		96	52 - 125	1	26
Methapyrilene			64.0	33.96	*1	ug/L		53	10 - 110	85	35
Methyl methanesulfonate			64.0	36.19		ug/L		57	36 - 110	4	26

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

Lab Sample ID: LCSD 310-422930/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 423476 — **Prep Batch: 422930**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl parathion	64.0	75.88		ug/L		119	50 - 150	3	25
N-Nitrosodiethylamine	64.0	56.27		ug/L		88	47 - 138	1	26
N-Nitrosodi-n-butylamine	64.0	56.49		ug/L		88	52 - 142	12	27
N-Nitrosomethylethylamine	64.0	51.64		ug/L		81	54 - 123	8	26
N-Nitrosopiperidine	64.0	54.63		ug/L		85	60 - 127	5	26
N-Nitrosopyrrolidine	64.0	59.00		ug/L		92	56 - 143	1	25
o,o',o''-Triethylphosphorothioate	64.0	55.47		ug/L		87	45 - 113	14	33
o-Toluidine	64.0	55.43		ug/L		87	24 - 142	1	35
p-Dimethylamino azobenzene	64.0	62.67		ug/L		98	42 - 138	6	29
Pentachlorobenzene	64.0	47.92		ug/L		75	33 - 110	7	35
Pentachloronitrobenzene	64.0	64.84		ug/L		101	65 - 127	5	29
Phenacetin	64.0	62.66		ug/L		98	56 - 146	6	25
Phorate	64.0	48.47		ug/L		76	57 - 135	5	26
Pronamide	64.0	62.82		ug/L		98	61 - 144	4	27
Safrole	64.0	49.83		ug/L		78	34 - 110	18	35
Thionazin	64.0	61.54		ug/L		96	52 - 147	4	28

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

Lab Sample ID: MB 310-422817/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 422817

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			05/28/24 12:59	1
Isobutanol	<2400		10000	2400	ug/L			05/28/24 12:59	1

Lab Sample ID: LCS 310-422817/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 422817

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetonitrile	113000	107300		ug/L		95	67 - 132
Isobutanol	104000	98140		ug/L		94	80 - 121

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-422933/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 423446 — **Prep Batch: 422933**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0270		0.0640	0.0270	ug/L		05/29/24 07:55	06/04/24 16:36	1
4,4'-DDE	<0.0270		0.0640	0.0270	ug/L		05/29/24 07:55	06/04/24 16:36	1
4,4'-DDT	<0.0420		0.0640	0.0420	ug/L		05/29/24 07:55	06/04/24 16:36	1
Aldrin	<0.0320		0.0640	0.0320	ug/L		05/29/24 07:55	06/04/24 16:36	1
alpha-BHC	<0.0290		0.0640	0.0290	ug/L		05/29/24 07:55	06/04/24 16:36	1
beta-BHC	<0.0370		0.0640	0.0370	ug/L		05/29/24 07:55	06/04/24 16:36	1
Chlordane (technical)	<0.810		2.00	0.810	ug/L		05/29/24 07:55	06/04/24 16:36	1
delta-BHC	<0.0270		0.0640	0.0270	ug/L		05/29/24 07:55	06/04/24 16:36	1

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

Lab Sample ID: MB 310-422933/1-A
Matrix: Water
Analysis Batch: 423446

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dieldrin	<0.0260		0.0640	0.0260	ug/L		05/29/24 07:55	06/04/24 16:36	1
Endosulfan I	<0.0330		0.0640	0.0330	ug/L		05/29/24 07:55	06/04/24 16:36	1
Endosulfan II	<0.0290		0.0640	0.0290	ug/L		05/29/24 07:55	06/04/24 16:36	1
Endosulfan sulfate	<0.0300		0.0640	0.0300	ug/L		05/29/24 07:55	06/04/24 16:36	1
Endrin	<0.0260		0.0640	0.0260	ug/L		05/29/24 07:55	06/04/24 16:36	1
Endrin aldehyde	<0.0290		0.0640	0.0290	ug/L		05/29/24 07:55	06/04/24 16:36	1
gamma-BHC (Lindane)	<0.0360		0.0640	0.0360	ug/L		05/29/24 07:55	06/04/24 16:36	1
Heptachlor	<0.0330		0.0640	0.0330	ug/L		05/29/24 07:55	06/04/24 16:36	1
Heptachlor epoxide	<0.0290		0.0640	0.0290	ug/L		05/29/24 07:55	06/04/24 16:36	1
Methoxychlor	<0.0410		0.0640	0.0410	ug/L		05/29/24 07:55	06/04/24 16:36	1
Toxaphene	<0.690		2.00	0.690	ug/L		05/29/24 07:55	06/04/24 16:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*81*		*10 - 136*	*05/29/24 07:55*	*06/04/24 16:36*	*1*
Tetrachloro-m-xylene (Surr)	*62*		*10 - 130*	*05/29/24 07:55*	*06/04/24 16:36*	*1*

Lab Sample ID: LCS 310-422933/2-A
Matrix: Water
Analysis Batch: 423446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422933

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
4,4'-DDD			1.00	0.9852		ug/L		99	36 - 149		
4,4'-DDE			1.00	0.9159		ug/L		92	34 - 130		
4,4'-DDT			1.00	1.076		ug/L		108	23 - 150		
Aldrin			1.00	0.6097		ug/L		61	13 - 120		
alpha-BHC			1.00	0.9943		ug/L		99	36 - 127		
beta-BHC			1.00	1.016		ug/L		102	37 - 136		
delta-BHC			1.00	1.005		ug/L		101	33 - 134		
Dieldrin			1.00	1.009		ug/L		101	39 - 130		
Endosulfan I			1.00	0.9430		ug/L		94	10 - 120		
Endosulfan II			1.00	0.9579		ug/L		96	14 - 120		
Endosulfan sulfate			1.00	1.036		ug/L		104	36 - 147		
Endrin			1.00	1.027		ug/L		103	39 - 140		
Endrin aldehyde			1.00	0.9107		ug/L		91	32 - 137		
gamma-BHC (Lindane)			1.00	1.006		ug/L		101	36 - 132		
Heptachlor			1.00	0.7881		ug/L		79	27 - 120		
Heptachlor epoxide			1.00	1.006		ug/L		101	38 - 133		
Methoxychlor			1.00	1.012		ug/L		101	10 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*75*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*67*		*10 - 130*

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

Lab Sample ID: LCSD 310-422933/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423446
Prep Batch: 422933

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			1.00	0.9680		ug/L		97	36 - 149	2	35
4,4'-DDE			1.00	0.8649		ug/L		86	34 - 130	6	35
4,4'-DDT			1.00	1.057		ug/L		106	23 - 150	2	35
Aldrin			1.00	0.5218		ug/L		52	13 - 120	16	35
alpha-BHC			1.00	0.9258		ug/L		93	36 - 127	7	35
beta-BHC			1.00	0.9711		ug/L		97	37 - 136	5	35
delta-BHC			1.00	0.9708		ug/L		97	33 - 134	3	35
Dieldrin			1.00	0.9818		ug/L		98	39 - 130	3	35
Endosulfan I			1.00	0.9096	p	ug/L		91	10 - 120	1	35
Endosulfan II			1.00	0.9414		ug/L		94	14 - 120	2	35
Endosulfan sulfate			1.00	1.021		ug/L		102	36 - 147	1	35
Endrin			1.00	1.001		ug/L		100	39 - 140	3	35
Endrin aldehyde			1.00	0.8859		ug/L		89	32 - 137	3	35
gamma-BHC (Lindane)			1.00	0.9438		ug/L		94	36 - 132	6	35
Heptachlor			1.00	0.6967		ug/L		70	27 - 120	12	35
Heptachlor epoxide			1.00	0.9677		ug/L		97	38 - 133	4	35
Methoxychlor			1.00	1.010		ug/L		101	10 - 150	0	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*73*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*54*		*10 - 130*

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

Lab Sample ID: MB 310-422933/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423447
Prep Batch: 422933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.170		0.800	0.170	ug/L		05/29/24 07:55	06/04/24 16:36	1
PCB-1221	<0.170		0.800	0.170	ug/L		05/29/24 07:55	06/04/24 16:36	1
PCB-1232	<0.170		0.800	0.170	ug/L		05/29/24 07:55	06/04/24 16:36	1
PCB-1242	<0.170		0.800	0.170	ug/L		05/29/24 07:55	06/04/24 16:36	1
PCB-1248	<0.110		0.800	0.110	ug/L		05/29/24 07:55	06/04/24 16:36	1
PCB-1254	<0.110		0.800	0.110	ug/L		05/29/24 07:55	06/04/24 16:36	1
PCB-1260	<0.110		0.800	0.110	ug/L		05/29/24 07:55	06/04/24 16:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*81*		*10 - 136*	*05/29/24 07:55*	*06/04/24 16:36*	*1*
Tetrachloro-m-xylene (Surr)	*62*		*10 - 130*	*05/29/24 07:55*	*06/04/24 16:36*	*1*

Lab Sample ID: LCS 310-422933/4-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423447
Prep Batch: 422933

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016			10.0	8.573		ug/L		86	30 - 133		
PCB-1260			10.0	9.241		ug/L		92	31 - 133		

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

Lab Sample ID: LCS 310-422933/4-A
Matrix: Water
Analysis Batch: 423447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422933

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	*81*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*62*		*10 - 130*

Lab Sample ID: LCSD 310-422933/5-A
Matrix: Water
Analysis Batch: 423447

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422933

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1260			10.0	7.914		ug/L		79	31 - 133	15	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	*68*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*44*		*10 - 130*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-422763/1-A
Matrix: Water
Analysis Batch: 423330

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		05/28/24 09:00	05/31/24 18:23	1
Arsenic	<0.530		2.00	0.530	ug/L		05/28/24 09:00	05/31/24 18:23	1
Barium	<0.660		2.00	0.660	ug/L		05/28/24 09:00	05/31/24 18:23	1
Beryllium	<0.330		1.00	0.330	ug/L		05/28/24 09:00	05/31/24 18:23	1
Cadmium	<0.100		0.200	0.100	ug/L		05/28/24 09:00	05/31/24 18:23	1
Lead	<0.260		0.500	0.260	ug/L		05/28/24 09:00	05/31/24 18:23	1
Thallium	<0.570		1.00	0.570	ug/L		05/28/24 09:00	05/31/24 18:23	1

Lab Sample ID: MB 310-422763/1-A
Matrix: Water
Analysis Batch: 423570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.530		2.00	0.530	ug/L		05/28/24 09:00	06/04/24 17:16	1
Chromium	<1.20		5.00	1.20	ug/L		05/28/24 09:00	06/04/24 17:16	1
Cobalt	<0.170		0.500	0.170	ug/L		05/28/24 09:00	06/04/24 17:16	1
Copper	<1.80		5.00	1.80	ug/L		05/28/24 09:00	06/04/24 17:16	1
Nickel	<2.10		5.00	2.10	ug/L		05/28/24 09:00	06/04/24 17:16	1
Selenium	<1.40		5.00	1.40	ug/L		05/28/24 09:00	06/04/24 17:16	1
Silver	<0.500	^3+ ^1+	1.00	0.500	ug/L		05/28/24 09:00	06/04/24 17:16	1
Vanadium	<1.10		5.00	1.10	ug/L		05/28/24 09:00	06/04/24 17:16	1
Zinc	<9.70		20.0	9.70	ug/L		05/28/24 09:00	06/04/24 17:16	1
Tin	<2.30		5.00	2.30	ug/L		05/28/24 09:00	06/04/24 17:16	1

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

Lab Sample ID: LCS 310-422763/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423330
Prep Batch: 422763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	207.2		ug/L		104	80 - 120
Arsenic	200	216.4		ug/L		108	80 - 120
Barium	100	105.3		ug/L		105	80 - 120
Beryllium	100	95.99		ug/L		96	80 - 120
Cadmium	100	91.87		ug/L		92	80 - 120
Lead	200	203.7		ug/L		102	80 - 120
Nickel	200	204.6		ug/L		102	80 - 120
Thallium	100	92.55		ug/L		93	80 - 120
Tin	200	187.6		ug/L		94	80 - 120

Lab Sample ID: LCS 310-422763/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423570
Prep Batch: 422763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	218.1		ug/L		109	80 - 120
Chromium	100	104.0		ug/L		104	80 - 120
Cobalt	100	105.7		ug/L		106	80 - 120
Copper	200	207.6		ug/L		104	80 - 120
Selenium	400	380.8		ug/L		95	80 - 120
Silver	100	146.0	^3+ *+ ^1+	ug/L		146	80 - 120
Vanadium	100	102.0		ug/L		102	80 - 120
Zinc	200	198.0		ug/L		99	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-422881/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423023
Prep Batch: 422881

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		05/28/24 13:59	05/29/24 14:52	1

Lab Sample ID: LCS 310-422881/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423023
Prep Batch: 422881

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.538		ug/L		92	80 - 120

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 310-423077/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423153
Prep Batch: 423077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<3.50		10.0	3.50	ug/L		05/30/24 09:42	05/30/24 16:57	1

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: LCS 310-423077/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 423153
Prep Batch: 423077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	200	192.0		ug/L		96	90 - 110

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-614846/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 614874
Prep Batch: 614846

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		05/30/24 07:53	05/30/24 09:40	1

Lab Sample ID: LCS 240-614846/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 614874
Prep Batch: 614846

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	8.67	9.067		mg/L		105	70 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-422958/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422958

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			05/29/24 09:32	1

Lab Sample ID: LCS 310-422958/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422958

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	104.0		mg/L		104	81 - 116

Lab Sample ID: MB 310-422966/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			05/29/24 10:13	1

Lab Sample ID: LCS 310-422966/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 422966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	96.00		mg/L		96	81 - 116

GC/MS VOA

Analysis Batch: 422854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-2	Trip Blank	Total/NA	Water	8260D	
310-282049-3	OW-226B	Total/NA	Water	8260D	
310-282049-4	OW-227B	Total/NA	Water	8260D	
MB 310-422854/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422854/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422854/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 422943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	8260D	
310-282049-9	P-214CR	Total/NA	Water	8260D	
MB 310-422943/5	Method Blank	Total/NA	Water	8260D	
LCS 310-422943/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-422943/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 423506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-5	Equipment Blank 3	Total/NA	Water	8260D	
310-282049-6	OW-113B	Total/NA	Water	8260D	
310-282049-7	Duplicate 5	Total/NA	Water	8260D	
MB 310-423506/5	Method Blank	Total/NA	Water	8260D	
LCS 310-423506/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-423506/7	Lab Control Sample	Total/NA	Water	8260D	
310-282049-6 MS	OW-113B	Total/NA	Water	8260D	
310-282049-6 MSD	OW-113B	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 422930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	3510C	
MB 310-422930/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-422930/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-422930/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 423326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	8270E	422930
MB 310-422930/1-A	Method Blank	Total/NA	Water	8270E	422930
LCS 310-422930/2-A	Lab Control Sample	Total/NA	Water	8270E	422930
LCSD 310-422930/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	422930

Analysis Batch: 423476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	8270E	422930
MB 310-422930/1-A	Method Blank	Total/NA	Water	8270E	422930
LCS 310-422930/2-A	Lab Control Sample	Total/NA	Water	8270E	422930
LCSD 310-422930/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	422930

GC Semi VOA

Analysis Batch: 422817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	8015C	
MB 310-422817/4	Method Blank	Total/NA	Water	8015C	
LCS 310-422817/5	Lab Control Sample	Total/NA	Water	8015C	

Prep Batch: 422933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	3510C	
MB 310-422933/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-422933/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 310-422933/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-422933/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 310-422933/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 423446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	8081B	422933
MB 310-422933/1-A	Method Blank	Total/NA	Water	8081B	422933
LCS 310-422933/2-A	Lab Control Sample	Total/NA	Water	8081B	422933
LCSD 310-422933/3-A	Lab Control Sample Dup	Total/NA	Water	8081B	422933

Analysis Batch: 423447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	8082A	422933
MB 310-422933/1-A	Method Blank	Total/NA	Water	8082A	422933
LCS 310-422933/4-A	Lab Control Sample	Total/NA	Water	8082A	422933
LCSD 310-422933/5-A	Lab Control Sample Dup	Total/NA	Water	8082A	422933

Metals

Prep Batch: 422763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	3005A	
310-282049-4	OW-227B	Total/NA	Water	3005A	
310-282049-5	Equipment Blank 3	Total/NA	Water	3005A	
310-282049-6	OW-113B	Total/NA	Water	3005A	
310-282049-7	Duplicate 5	Total/NA	Water	3005A	
310-282049-8	P-213C	Total/NA	Water	3005A	
310-282049-9	P-214CR	Total/NA	Water	3005A	
MB 310-422763/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-422763/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 422881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	7470A	
MB 310-422881/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-422881/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 423023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	7470A	422881
MB 310-422881/1-A	Method Blank	Total/NA	Water	7470A	422881

Metals (Continued)

Analysis Batch: 423023 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-422881/2-A	Lab Control Sample	Total/NA	Water	7470A	422881

Analysis Batch: 423330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	6020B	422763
310-282049-4	OW-227B	Total/NA	Water	6020B	422763
310-282049-5	Equipment Blank 3	Total/NA	Water	6020B	422763
310-282049-6	OW-113B	Total/NA	Water	6020B	422763
310-282049-7	Duplicate 5	Total/NA	Water	6020B	422763
310-282049-8	P-213C	Total/NA	Water	6020B	422763
310-282049-9	P-214CR	Total/NA	Water	6020B	422763
MB 310-422763/1-A	Method Blank	Total/NA	Water	6020B	422763
LCS 310-422763/2-A	Lab Control Sample	Total/NA	Water	6020B	422763

Analysis Batch: 423570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	6020B	422763
310-282049-4	OW-227B	Total/NA	Water	6020B	422763
310-282049-5	Equipment Blank 3	Total/NA	Water	6020B	422763
310-282049-6	OW-113B	Total/NA	Water	6020B	422763
310-282049-7	Duplicate 5	Total/NA	Water	6020B	422763
310-282049-8	P-213C	Total/NA	Water	6020B	422763
310-282049-9	P-214CR	Total/NA	Water	6020B	422763
MB 310-422763/1-A	Method Blank	Total/NA	Water	6020B	422763
LCS 310-422763/2-A	Lab Control Sample	Total/NA	Water	6020B	422763

General Chemistry

Analysis Batch: 422958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-5	Equipment Blank 3	Total/NA	Water	I-3765-85	
MB 310-422958/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422958/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 422966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	I-3765-85	
310-282049-4	OW-227B	Total/NA	Water	I-3765-85	
310-282049-6	OW-113B	Total/NA	Water	I-3765-85	
310-282049-7	Duplicate 5	Total/NA	Water	I-3765-85	
310-282049-8	P-213C	Total/NA	Water	I-3765-85	
310-282049-9	P-214CR	Total/NA	Water	I-3765-85	
MB 310-422966/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-422966/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 423077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	9012B	
MB 310-423077/1-A	Method Blank	Total/NA	Water	9012B	
LCS 310-423077/2-A	Lab Control Sample	Total/NA	Water	9012B	

QC Association Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

General Chemistry

Analysis Batch: 423153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-8	P-213C	Total/NA	Water	9012B	423077
MB 310-423077/1-A	Method Blank	Total/NA	Water	9012B	423077
LCS 310-423077/2-A	Lab Control Sample	Total/NA	Water	9012B	423077

Prep Batch: 614846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	9030B	
310-282049-4	OW-227B	Total/NA	Water	9030B	
310-282049-6	OW-113B	Total/NA	Water	9030B	
310-282049-8	P-213C	Total/NA	Water	9030B	
MB 240-614846/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-614846/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 614874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	9034	614846
310-282049-4	OW-227B	Total/NA	Water	9034	614846
310-282049-6	OW-113B	Total/NA	Water	9034	614846
310-282049-8	P-213C	Total/NA	Water	9034	614846
MB 240-614846/1-A	Method Blank	Total/NA	Water	9034	614846
LCS 240-614846/2-A	Lab Control Sample	Total/NA	Water	9034	614846

Field Service / Mobile Lab

Analysis Batch: 423239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282049-3	OW-226B	Total/NA	Water	Field Sampling	
310-282049-4	OW-227B	Total/NA	Water	Field Sampling	
310-282049-6	OW-113B	Total/NA	Water	Field Sampling	
310-282049-8	P-213C	Total/NA	Water	Field Sampling	
310-282049-9	P-214CR	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-282049-2
Date Collected: 05/23/24 05:00
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422854	FE5V	EET CF	05/29/24 11:58

Client Sample ID: OW-226B
Lab Sample ID: 310-282049-3
Date Collected: 05/23/24 15:30
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422854	FE5V	EET CF	05/29/24 16:53
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 19:56
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 19:58
Total/NA	Prep	9030B			614846	BLW	EET CLE	05/30/24 07:53
Total/NA	Analysis	9034		1	614874	BLW	EET CLE	05/30/24 09:40
Total/NA	Analysis	I-3765-85		1	422966	HE7K	EET CF	05/29/24 10:13
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/23/24 15:30

Client Sample ID: OW-227B
Lab Sample ID: 310-282049-4
Date Collected: 05/23/24 17:00
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422854	FE5V	EET CF	05/29/24 17:16
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 20:00
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 20:02
Total/NA	Prep	9030B			614846	BLW	EET CLE	05/30/24 07:53
Total/NA	Analysis	9034		1	614874	BLW	EET CLE	05/30/24 09:40
Total/NA	Analysis	I-3765-85		1	422966	HE7K	EET CF	05/29/24 10:13
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/23/24 17:00

Client Sample ID: Equipment Blank 3
Lab Sample ID: 310-282049-5
Date Collected: 05/23/24 17:00
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	423506	FE5V	EET CF	06/04/24 15:50
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 20:03
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 20:05
Total/NA	Analysis	I-3765-85		1	422958	HE7K	EET CF	05/29/24 09:32

Lab Chronicle

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-113B
Lab Sample ID: 310-282049-6

Date Collected: 05/23/24 14:15
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	423506	FE5V	EET CF	06/04/24 16:12
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 20:07
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 20:09
Total/NA	Prep	9030B			614846	BLW	EET CLE	05/30/24 07:53
Total/NA	Analysis	9034		1	614874	BLW	EET CLE	05/30/24 09:40
Total/NA	Analysis	I-3765-85		1	422966	HE7K	EET CF	05/29/24 10:13
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/23/24 14:15

Client Sample ID: Duplicate 5
Lab Sample ID: 310-282049-7

Date Collected: 05/23/24 00:00
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	423506	FE5V	EET CF	06/04/24 16:35
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 20:10
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 20:13
Total/NA	Analysis	I-3765-85		1	422966	HE7K	EET CF	05/29/24 10:13

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8

Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422943	WSE8	EET CF	05/29/24 19:30
Total/NA	Prep	3510C			422930	JT8P	EET CF	05/29/24 07:35
Total/NA	Analysis	8270E		1	423476	L0FS	EET CF	06/04/24 16:39
Total/NA	Prep	3510C			422930	JT8P	EET CF	05/29/24 07:35
Total/NA	Analysis	8270E		1	423326	L0FS	EET CF	06/03/24 22:25
Total/NA	Analysis	8015C		1	422817	V7YZ	EET CF	05/28/24 17:12
Total/NA	Prep	3510C			422933	JT8P	EET CF	05/29/24 07:55
Total/NA	Analysis	8081B		1	423446	BW2O	EET CF	06/04/24 18:30
Total/NA	Prep	3510C			422933	JT8P	EET CF	05/29/24 07:55
Total/NA	Analysis	8082A		1	423447	BW2O	EET CF	06/04/24 18:30
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 20:14
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 20:16
Total/NA	Prep	7470A			422881	A6US	EET CF	05/28/24 13:59
Total/NA	Analysis	7470A		1	423023	A6US	EET CF	05/29/24 15:08

Lab Chronicle

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: P-213C
Lab Sample ID: 310-282049-8
Date Collected: 05/23/24 10:30
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	9012B			423077	WZC8	EET CF	05/30/24 09:42
Total/NA	Analysis	9012B		1	423153	ZJX4	EET CF	05/30/24 17:15
Total/NA	Prep	9030B			614846	BLW	EET CLE	05/30/24 07:53
Total/NA	Analysis	9034		1	614874	BLW	EET CLE	05/30/24 09:40
Total/NA	Analysis	I-3765-85		1	422966	HE7K	EET CF	05/29/24 10:13
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/23/24 10:30

Client Sample ID: P-214CR
Lab Sample ID: 310-282049-9
Date Collected: 05/23/24 13:30
Matrix: Water
Date Received: 05/24/24 11:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	422943	WSE8	EET CF	05/29/24 19:52
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423330	NFT2	EET CF	05/31/24 20:32
Total/NA	Prep	3005A			422763	KM3E	EET CF	05/28/24 09:00
Total/NA	Analysis	6020B		1	423570	NFT2	EET CF	06/04/24 20:34
Total/NA	Analysis	I-3765-85		1	422966	HE7K	EET CF	05/29/24 10:13
Total/NA	Analysis	Field Sampling		1	423239	BJ0R	EET CF	05/23/24 13:30

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	07-31-24
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Jersey	NELAP	OH001	06-30-24
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-24
Texas	NELAP	T104704517-22-19	08-31-24
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-24
West Virginia DEP	State	210	12-31-24

Method Summary

Client: AECOM
Job ID: 310-282049-1
Project/Site: Black Hawk County Landfill (IDNR)

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
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 CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	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
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	EET CF
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

eurofins | Environment Testing America

310-282049 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY | STATE TX | Project:

Receipt Information

Date/Time Received: DATE 5/24/24 | TIME 0910 | 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 # 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? ↓

ALL

Temperature Record

Coolant: ☒ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ Other: ☐ NONE

Thermometer ID: R | Correction Factor (°C): +0.0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): | Corrected Temp (°C):

Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	PLANT	
Uncorrected Temp (°C):	3.1	
Corrected Temp (°C):	3.1	

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

rcvd Sample Dup #4 not 5

eurofins | Environment Testing America

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 5/24/24 | TIME 1120 | Received By: N

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: R | Correction Factor (°C): +0.0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 3.6 | Corrected Temp (°C): 3.6

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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319 277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom com	Site Contact: / Date: 5-24-24	1 of 4 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	Lab Contact: / Carrier:	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**		Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS		**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____		Walk-in Client
Project Name Black Hawk Co IDNR	☑ 2 weeks		Lab Sampling
Site Black Hawk County Landfill	☐ 1 week		
P O #	☐ 2 days		Job / SDG No
	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	HERBICIDES	Sample Specific Notes
OW-401B	5-23-24	1800	G	GW	2	N		X		X		X	X		X	X	X	X	X	Resample
OW-402B			G	GW		N		X												
MW-409B			G	GW		N		X												
OW-410B			G	GW		N		X												
OW-411B			G	GW		N		X												
OW-412B			G	GW		N		X												
OW-413B			G	GW		N		X												
OW-414B			G	GW		N		X												
MW-501B			G	GW		N		X												
MW-602B			G	GW		N		X												
MW-602B-FD			G	GW		N		X												
Trip Blank	5-23-24	0500	G	W	2	N		X												

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd. ____ Corr'd ____ | Therm ID No. ____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 5-24-24	Received by:	Company:	Date/Time: 5-24-24 1120
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-24-24	COC No
AECOM	Email Christopher Oelkers@aecom.com			2 of 4 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	Lab Contact:	Carrier:	TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			
P O #	☐ 2 days			Job / SDG No
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide							Sample Specific Notes
OW-220B			G	GW		N		X		X							X								
OW-221B			G	GW		N		X																	
OW-222B			G	GW		N		X																	
OW-223B			G	GW		N		X																	
OW-224B			G	GW		N		X																	
OW-225B			G	GW		N		X																	
OW-226B	5-23-24	1530	G	GW	6	N		X										X							Turbidity - 24.86 NTU
OW-227B	5-23-24	1700	G	GW	6	N		X										X							Turbidity - 9.52 NTU
MW-319B			G	GW		N		X																	
MW-320B			G	GW		N		X																	
Equipment Blank-3	5-23-24	1700	G	GW	5	N		X																	
MW-319B-FD			G	GW		N		X																	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd.____ Corr'd.____ | Therm ID No.____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Aecom	5-24-24			1120
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

6/10/2024

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277 2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-24-24	COC No
AECOM	Email Christopher Oelkers@aecom com	Lab Contact:	Carrier:	3 of 4 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-101B			G	GW		N		X											
OW-105B			G	GW		N		X											
OW-113B	5-23-24	1415	G	GW	6	N		X										X	Turbidity - 135.60 NTU
OW-114B			G	GW		N		X											
OW-205B			G	GW		N		X			X			X				X	
OW-209B			G	GW		N		X											
OW-212B			G	GW		N		X											
OW-213BR			G	GW		N		X											
OW-216BR			G	GW		N		X											
OW-219B			G	GW		N		X											
OW-219B-FD			G	GW		N		X											
Duplicate#5	5-23-24		G	GW	5	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd._____ Corr'd _____ | Therm ID No ._____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Aecom	5-24-24			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

6/10/2024

› Cedar Falls
.ure Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 5-24-24	COC No
AECOM	Email Christopher Oelkers@aecom.com	Lab Contact:	Carrier:	1 of 1 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below			Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
GUW3-1			G	GW		N		X											
GUX-1			G	GW		N		X											
P-213C	5-23-24	1030	G	GW	18	N			X										Turbidity - 0.66 NTU
P-214CR	5-23-24	1330	G	GW	5	N		X											Turbidity - 35.53 NTU
P-215CR			G	GW		N		X											
P-216CR			G	GW		N		X											
P-402A			G	GW		N		X											
P-402C			G	GW		N		X											
P-604C			G	GW		N		X											
P-703C			G	GW		N		X											
P-703C-FD			G	GW		N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd _____ Corr'd. _____ | Therm ID No. _____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Ben Porter	Aecom	5-24-24			5/24/24 1120
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

1.8\3.2

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72802.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-282049-1
Address: 180 S. Van Buren Avenue,	Due Date Requested: 6/10/2024			Preservation Codes: -
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			Other: G022 ~~M049~~ 5-25-24

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)	9034_Calc/9030B Sulfide	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-226B (310-282049-3)	5/23/24	15:30 Central		Water			X	1	
OW-227B (310-282049-4)	5/23/24	17:00 Central		Water			X	1	
OW-113B (310-282049-6)	5/23/24	14:15 Central		Water			X	1	
P-213C (310-282049-8)	5/23/24	10:30 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 *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: [signature]	Date/Time: 5/24/24 1445	Company	Received by: JESSICA RIGDON	Date/Time: 5-25-24 0930	Company EETNC
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:		

Ver: 04/02/2024 6/10/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72803.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-282049-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 6/10/2024			Preservation Codes: -
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	8151A/8151A_AP Default List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-401B (310-282049-1)	5/23/24	18:00 Central		Water			X	2	
P-213C (310-282049-8)	5/23/24	10:30 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 *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: 5/24/24 1958	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 5/25/24 0955	Company EURT

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 6.5-10.1/6.2-9.8

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-282049-1

Login Number: 282049

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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: Russ Henning
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 6/6/2024 1:09:13 AM

JOB DESCRIPTION

Black Hawk County - OW-401B and P-213C

JOB NUMBER

310-282397-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
6/6/2024 1:09:13 AM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Job ID: 310-282397-1 — Eurofins Cedar Falls

Job Narrative
310-282397-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/30/2024 4:25 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 2.0°C.

Herbicides
Method 8151A: The continuing calibration verification (CCV) associated with batch 410-513167 recovered outside acceptance criteria, low biased, for DCAA on one column. Results are reported from the passing column. OW-401B (310-282397-1) and P-213C (310-282397-2)

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

Sample Summary

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-282397-1	OW-401B	Water	05/30/24 11:30	05/30/24 16:25
310-282397-2	P-213C	Water	05/30/24 12:30	05/30/24 16:25

Detection Summary

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Client Sample ID: OW-401B
Lab Sample ID: 310-282397-1

No Detections.

Client Sample ID: P-213C
Lab Sample ID: 310-282397-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Client Sample ID: OW-401B
Lab Sample ID: 310-282397-1
Date Collected: 05/30/24 11:30
Matrix: Water
Date Received: 05/30/24 16:25

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.302		0.724	0.302	ug/L		06/03/24 15:46	06/04/24 13:07	1
Silvex (2,4,5-TP)	<0.0266		0.0603	0.0266	ug/L		06/03/24 15:46	06/04/24 13:07	1
2,4,5-T	<0.0784		0.181	0.0784	ug/L		06/03/24 15:46	06/04/24 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*58*		*34 - 142*	*06/03/24 15:46*	*06/04/24 13:07*	*1*
DCAA	*81*		*34 - 142*	*06/03/24 15:46*	*06/04/24 13:07*	*1*

Client Sample Results

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Client Sample ID: P-213C
Lab Sample ID: 310-282397-2
Date Collected: 05/30/24 12:30
Matrix: Water
Date Received: 05/30/24 16:25

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.286		0.687	0.286	ug/L		06/03/24 15:46	06/04/24 13:35	1
Silvex (2,4,5-TP)	<0.0252		0.0573	0.0252	ug/L		06/03/24 15:46	06/04/24 13:35	1
2,4,5-T	<0.0744		0.172	0.0744	ug/L		06/03/24 15:46	06/04/24 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*38*		*34 - 142*	*06/03/24 15:46*	*06/04/24 13:35*	*1*
DCAA	*46*		*34 - 142*	*06/03/24 15:46*	*06/04/24 13:35*	*1*

Definitions/Glossary

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Qualifiers

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.

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: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	DCPAA1 (34-142)	DCPAA2 (34-142)										
310-282397-1	OW-401B	58	81										
310-282397-2	P-213C	38	46										
LCS 410-513048/2-A	Lab Control Sample	41	50										
LCSD 410-513048/3-A	Lab Control Sample Dup	50	63										
MB 410-513048/1-A	Method Blank	38	43										

Surrogate Legend

DCPAA = DCAA

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-513048/1-A
Matrix: Water
Analysis Batch: 513167

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 513048

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	0.3494	J	0.600	0.250	ug/L		06/03/24 15:46	06/04/24 08:53	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		06/03/24 15:46	06/04/24 08:53	1
2,4,5-T	<0.0650		0.150	0.0650	ug/L		06/03/24 15:46	06/04/24 08:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*38*		*34 - 142*	*06/03/24 15:46*	*06/04/24 08:53*	*1*
DCAA	*43*		*34 - 142*	*06/03/24 15:46*	*06/04/24 08:53*	*1*

Lab Sample ID: LCS 410-513048/2-A
Matrix: Water
Analysis Batch: 513167

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 513048

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D			2.51	1.738		ug/L		69	53 - 159		
Silvex (2,4,5-TP)			0.250	0.1800		ug/L		72	62 - 170		
2,4,5-T			0.250	0.1807		ug/L		72	57 - 171		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*41*		*34 - 142*
DCAA	*50*		*34 - 142*

Lab Sample ID: LCSD 410-513048/3-A
Matrix: Water
Analysis Batch: 513167

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 513048

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D			2.51	1.682		ug/L		67	53 - 159	3	30
Silvex (2,4,5-TP)			0.250	0.1794		ug/L		72	62 - 170	0	30
2,4,5-T			0.250	0.1751		ug/L		70	57 - 171	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA	*50*		*34 - 142*
DCAA	*63*		*34 - 142*

QC Association Summary

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

GC Semi VOA

Prep Batch: 513048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282397-1	OW-401B	Total/NA	Water	8151A	
310-282397-2	P-213C	Total/NA	Water	8151A	
MB 410-513048/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-513048/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 410-513048/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 513167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-282397-1	OW-401B	Total/NA	Water	8151A	513048
310-282397-2	P-213C	Total/NA	Water	8151A	513048
MB 410-513048/1-A	Method Blank	Total/NA	Water	8151A	513048
LCS 410-513048/2-A	Lab Control Sample	Total/NA	Water	8151A	513048
LCSD 410-513048/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	513048

Lab Chronicle

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Client Sample ID: OW-401B
Lab Sample ID: 310-282397-1

Date Collected: 05/30/24 11:30
Matrix: Water
Date Received: 05/30/24 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			513048	QJZ6	ELLE	06/03/24 15:46
Total/NA	Analysis	8151A		1	513167	UAMZ	ELLE	06/04/24 13:07

Client Sample ID: P-213C
Lab Sample ID: 310-282397-2

Date Collected: 05/30/24 12:30
Matrix: Water
Date Received: 05/30/24 16:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	8151A			513048	QJZ6	ELLE	06/03/24 15:46
Total/NA	Analysis	8151A		1	513167	UAMZ	ELLE	06/04/24 13:35

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-24 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: AECOM
Job ID: 310-282397-1
Project/Site: Black Hawk County - OW-401B and P-213C

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	ELLE
8151A	Extraction (Herbicides)	SW846	ELLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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310-282397 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Doterico STATE IA | Project: BHC / 93811

Receipt Information

Date/Time Received: DATE 53024 TIME 1625 | Received By: ID

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: X | Correction Factor (°C): 0.0

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): | Corrected Temp (°C):

Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	Amber QT N P213C ~~P213~~	
Uncorrected Temp (°C):	2.0	
Corrected Temp (°C):	2.0	

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 Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information	Sampler: Ben Porter	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-93811-25685 1
Client Contact: Russ Henning	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #:
Address: 501 Sycamore Street Suite #222	Due Date Requested:			
City: Waterloo	TAT Requested (days): Standard			
State, Zip: IA, 50703	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email: Russ.Henning@aecom com	WO #:			
Project Name: Black Hawk County - OW-401B and P-213C	Project #: 31017149			
Site: Iowa	SSOW#:			

Analysis Requested

Preservation Codes: N - None

Other:

Sample Identification	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)	8151A - Default List: Herbicides	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	X	
OW-401B	5-30-24	1130	G	Water			X		
P-213C	5-30-24	1230	G	Water			X		

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

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)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Ben Porter	5-30-24	Aecom		53024 1625	
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:

Ver: 04/02/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-72994.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-282397-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 6/12/2024			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County - OW-401B and P-213C	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

Analysis Requested

Preservation Codes:
-
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)	8151A/8151A_AP Default List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-401B (310-282397-1)	5/30/24	11:30 Central		Water			X	2	
P-213C (310-282397-2)	5/30/24	12:30 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
	5/31/24 1255				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 6/1/24 1000	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.1/0.7 3.5/3.2

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-282397-1

Login Number: 282397

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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: AECOM

Job Number: 310-282397-1

Login Number: 282397
List Number: 2
Creator: McCaskey, Jonathan

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 06/01/24 02:09 PM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 10/13/2024 8:59:28 PM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-291802-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job ID: 310-291802-1 — Eurofins Cedar Falls

Job Narrative
310-291802-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/2/2024 9:00 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 time was 1.7°C.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 310-435093 recovered above the upper control limit for 2-Hexanone (50.7%D), trans-1,3-Dichloropropene (24.6%D), 4-Methyl-2-pentanone (44.0%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-435093/3).

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

Metals
Method 6020B: The initial calibration verification (ICV) result for batch 310-435360 was above the upper control limit. The affected analytes are: Silver. Sample results were non-detects, and have been reported as qualified data.

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.

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

Sample Summary

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-291802-1	OW-101B	Water	10/01/24 09:30	10/02/24 09:00
310-291802-2	OW-105B	Water	10/01/24 10:30	10/02/24 09:00
310-291802-3	OW-113B	Water	10/01/24 13:00	10/02/24 09:00
310-291802-4	Trip Blank	Water	10/01/24 00:00	10/02/24 09:00

Detection Summary

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-101B — Lab Sample ID: 310-291802-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	193		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	2.51	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.334	J	0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	4.96	J	5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	3.38		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	5.83				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-105B — Lab Sample ID: 310-291802-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	89.0		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	2.10	J	5.00	1.20	ug/L	1		6020B	Total/NA
Nickel	3.61	J	5.00	2.10	ug/L	1		6020B	Total/NA
Field Turbidity	5.38				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-113B — Lab Sample ID: 310-291802-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.52	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	15.8		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.27	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	12.6		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	15.9		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	11.3		5.00	3.70	mg/L	1		I-3765-85	Total/NA
Field Turbidity	29.25				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-291802-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-101B
Lab Sample ID: 310-291802-1
Date Collected: 10/01/24 09:30
Matrix: Water
Date Received: 10/02/24 09:00

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	<0.380		1.00	0.380	ug/L			10/03/24 14:39	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/03/24 14:39	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/03/24 14:39	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/03/24 14:39	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/03/24 14:39	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/03/24 14:39	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/03/24 14:39	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/03/24 14:39	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/03/24 14:39	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/03/24 14:39	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/03/24 14:39	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/03/24 14:39	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/03/24 14:39	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/03/24 14:39	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/03/24 14:39	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/03/24 14:39	1
Acetone	<3.10		10.0	3.10	ug/L			10/10/24 15:01	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/03/24 14:39	1
Benzene	<0.220		0.500	0.220	ug/L			10/03/24 14:39	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/03/24 14:39	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/03/24 14:39	1
Bromoform	<0.780		5.00	0.780	ug/L			10/03/24 14:39	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/03/24 14:39	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/03/24 14:39	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/03/24 14:39	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/03/24 14:39	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/03/24 14:39	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/03/24 14:39	1
Chloroform	<1.30		3.00	1.30	ug/L			10/03/24 14:39	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/03/24 14:39	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/03/24 14:39	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/03/24 14:39	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/03/24 14:39	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/03/24 14:39	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/03/24 14:39	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/03/24 14:39	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/03/24 14:39	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/03/24 14:39	1
Styrene	<0.370		1.00	0.370	ug/L			10/03/24 14:39	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/03/24 14:39	1
Toluene	<0.430		1.00	0.430	ug/L			10/03/24 14:39	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/03/24 14:39	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/03/24 14:39	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/03/24 14:39	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/03/24 14:39	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/03/24 14:39	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/03/24 14:39	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/03/24 14:39	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/03/24 14:39	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-101B
Lab Sample ID: 310-291802-1
Date Collected: 10/01/24 09:30
Matrix: Water
Date Received: 10/02/24 09:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*73 - 130*		*10/03/24 14:39*	*1*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/10/24 15:01*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*10/03/24 14:39*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/10/24 15:01*	*1*
4-Bromofluorobenzene (Surr)	*90*		*80 - 120*		*10/03/24 14:39*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/10/24 15:01*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/03/24 09:30	10/04/24 22:15	1
Arsenic	<0.530		2.00	0.530	ug/L		10/03/24 09:30	10/04/24 22:15	1
Barium	**193**		2.00	0.660	ug/L		10/03/24 09:30	10/04/24 22:15	1
Beryllium	<0.330		1.00	0.330	ug/L		10/03/24 09:30	10/04/24 22:15	1
Cadmium	<0.100		0.200	0.100	ug/L		10/03/24 09:30	10/04/24 22:15	1
Chromium	**2.51**	**J**	5.00	1.20	ug/L		10/03/24 09:30	10/04/24 22:15	1
Cobalt	**0.334**	**J**	0.500	0.170	ug/L		10/03/24 09:30	10/04/24 22:15	1
Copper	<1.80		5.00	1.80	ug/L		10/03/24 09:30	10/04/24 22:15	1
Lead	<0.260		0.500	0.260	ug/L		10/03/24 09:30	10/04/24 22:15	1
Nickel	**4.96**	**J**	5.00	2.10	ug/L		10/03/24 09:30	10/04/24 22:15	1
Selenium	<1.40		5.00	1.40	ug/L		10/03/24 09:30	10/04/24 22:15	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/03/24 09:30	10/04/24 22:15	1
Thallium	<0.570		1.00	0.570	ug/L		10/03/24 09:30	10/04/24 22:15	1
Vanadium	<1.10		5.00	1.10	ug/L		10/03/24 09:30	10/04/24 22:15	1
Zinc	<9.70		20.0	9.70	ug/L		10/03/24 09:30	10/04/24 22:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3.38**		1.88	1.39	mg/L			10/02/24 16:58	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**5.83**				NTU			10/01/24 09:30	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-105B
Lab Sample ID: 310-291802-2
Date Collected: 10/01/24 10:30
Matrix: Water
Date Received: 10/02/24 09:00

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	<0.380		1.00	0.380	ug/L			10/03/24 15:01	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/03/24 15:01	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/03/24 15:01	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/03/24 15:01	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/03/24 15:01	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/03/24 15:01	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/03/24 15:01	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/03/24 15:01	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/03/24 15:01	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/03/24 15:01	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/03/24 15:01	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/03/24 15:01	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/03/24 15:01	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/03/24 15:01	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/03/24 15:01	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/03/24 15:01	1
Acetone	<3.10		10.0	3.10	ug/L			10/03/24 15:01	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/03/24 15:01	1
Benzene	<0.220		0.500	0.220	ug/L			10/03/24 15:01	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/03/24 15:01	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/03/24 15:01	1
Bromoform	<0.780		5.00	0.780	ug/L			10/03/24 15:01	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/03/24 15:01	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/03/24 15:01	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/03/24 15:01	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/03/24 15:01	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/03/24 15:01	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/03/24 15:01	1
Chloroform	<1.30		3.00	1.30	ug/L			10/03/24 15:01	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/03/24 15:01	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/03/24 15:01	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/03/24 15:01	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/03/24 15:01	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/03/24 15:01	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/03/24 15:01	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/03/24 15:01	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/03/24 15:01	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/03/24 15:01	1
Styrene	<0.370		1.00	0.370	ug/L			10/03/24 15:01	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/03/24 15:01	1
Toluene	<0.430		1.00	0.430	ug/L			10/03/24 15:01	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/03/24 15:01	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/03/24 15:01	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/03/24 15:01	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/03/24 15:01	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/03/24 15:01	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/03/24 15:01	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/03/24 15:01	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/03/24 15:01	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-105B
Lab Sample ID: 310-291802-2

Date Collected: 10/01/24 10:30
Matrix: Water

Date Received: 10/02/24 09:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*110*		*73 - 130*		*10/03/24 15:01*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*10/03/24 15:01*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/03/24 15:01*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/03/24 09:30	10/04/24 22:17	1
Arsenic	<0.530		2.00	0.530	ug/L		10/03/24 09:30	10/04/24 22:17	1
Barium	**89.0**		2.00	0.660	ug/L		10/03/24 09:30	10/04/24 22:17	1
Beryllium	<0.330		1.00	0.330	ug/L		10/03/24 09:30	10/04/24 22:17	1
Cadmium	<0.100		0.200	0.100	ug/L		10/03/24 09:30	10/04/24 22:17	1
Chromium	**2.10**	**J**	5.00	1.20	ug/L		10/03/24 09:30	10/04/24 22:17	1
Cobalt	<0.170		0.500	0.170	ug/L		10/03/24 09:30	10/04/24 22:17	1
Copper	<1.80		5.00	1.80	ug/L		10/03/24 09:30	10/04/24 22:17	1
Lead	<0.260		0.500	0.260	ug/L		10/03/24 09:30	10/04/24 22:17	1
Nickel	**3.61**	**J**	5.00	2.10	ug/L		10/03/24 09:30	10/04/24 22:17	1
Selenium	<1.40		5.00	1.40	ug/L		10/03/24 09:30	10/04/24 22:17	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/03/24 09:30	10/04/24 22:17	1
Thallium	<0.570		1.00	0.570	ug/L		10/03/24 09:30	10/04/24 22:17	1
Vanadium	<1.10		5.00	1.10	ug/L		10/03/24 09:30	10/04/24 22:17	1
Zinc	<9.70		20.0	9.70	ug/L		10/03/24 09:30	10/04/24 22:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			10/02/24 16:58	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**5.38**				NTU			10/01/24 10:30	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-113B
Lab Sample ID: 310-291802-3
Date Collected: 10/01/24 13:00
Matrix: Water
Date Received: 10/02/24 09:00

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	<0.380		1.00	0.380	ug/L			10/03/24 15:22	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/03/24 15:22	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/03/24 15:22	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/03/24 15:22	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/03/24 15:22	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/03/24 15:22	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/03/24 15:22	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/03/24 15:22	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/03/24 15:22	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/03/24 15:22	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/03/24 15:22	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/03/24 15:22	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/03/24 15:22	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/03/24 15:22	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/03/24 15:22	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/03/24 15:22	1
Acetone	<3.10		10.0	3.10	ug/L			10/03/24 15:22	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/03/24 15:22	1
Benzene	<0.220		0.500	0.220	ug/L			10/03/24 15:22	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/03/24 15:22	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/03/24 15:22	1
Bromoform	<0.780		5.00	0.780	ug/L			10/03/24 15:22	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/03/24 15:22	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/03/24 15:22	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/03/24 15:22	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/03/24 15:22	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/03/24 15:22	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/03/24 15:22	1
Chloroform	<1.30		3.00	1.30	ug/L			10/03/24 15:22	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/03/24 15:22	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/03/24 15:22	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/03/24 15:22	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/03/24 15:22	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/03/24 15:22	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/03/24 15:22	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/03/24 15:22	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/03/24 15:22	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/03/24 15:22	1
Styrene	<0.370		1.00	0.370	ug/L			10/03/24 15:22	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/03/24 15:22	1
Toluene	<0.430		1.00	0.430	ug/L			10/03/24 15:22	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/03/24 15:22	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/03/24 15:22	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/03/24 15:22	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/03/24 15:22	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/03/24 15:22	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/03/24 15:22	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/03/24 15:22	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/03/24 15:22	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-113B
Lab Sample ID: 310-291802-3
Date Collected: 10/01/24 13:00
Matrix: Water
Date Received: 10/02/24 09:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*108*		*73 - 130*		*10/03/24 15:22*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*10/03/24 15:22*	*1*
4-Bromofluorobenzene (Surr)	*90*		*80 - 120*		*10/03/24 15:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/03/24 09:30	10/04/24 22:20	1
Arsenic	**1.52**	**J**	2.00	0.530	ug/L		10/03/24 09:30	10/04/24 22:20	1
Barium	**15.8**		2.00	0.660	ug/L		10/03/24 09:30	10/04/24 22:20	1
Beryllium	<0.330		1.00	0.330	ug/L		10/03/24 09:30	10/04/24 22:20	1
Cadmium	<0.100		0.200	0.100	ug/L		10/03/24 09:30	10/04/24 22:20	1
Chromium	**1.27**	**J**	5.00	1.20	ug/L		10/03/24 09:30	10/04/24 22:20	1
Cobalt	**12.6**		0.500	0.170	ug/L		10/03/24 09:30	10/04/24 22:20	1
Copper	<1.80		5.00	1.80	ug/L		10/03/24 09:30	10/04/24 22:20	1
Lead	<0.260		0.500	0.260	ug/L		10/03/24 09:30	10/04/24 22:20	1
Nickel	**15.9**		5.00	2.10	ug/L		10/03/24 09:30	10/04/24 22:20	1
Selenium	<1.40		5.00	1.40	ug/L		10/03/24 09:30	10/04/24 22:20	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/03/24 09:30	10/04/24 22:20	1
Thallium	<0.570		1.00	0.570	ug/L		10/03/24 09:30	10/04/24 22:20	1
Vanadium	<1.10		5.00	1.10	ug/L		10/03/24 09:30	10/04/24 22:20	1
Zinc	<9.70		20.0	9.70	ug/L		10/03/24 09:30	10/04/24 22:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		10/07/24 10:56	10/07/24 10:58	1
Total Suspended Solids (USGS I-3765-85)	**11.3**		5.00	3.70	mg/L			10/02/24 16:58	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**29.25**				NTU			10/01/24 13:00	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-291802-4
Date Collected: 10/01/24 00:00
Matrix: Water
Date Received: 10/02/24 09:00

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	<0.380		1.00	0.380	ug/L			10/03/24 11:22	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/03/24 11:22	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/03/24 11:22	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/03/24 11:22	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/03/24 11:22	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/03/24 11:22	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/03/24 11:22	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/03/24 11:22	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/03/24 11:22	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/03/24 11:22	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/03/24 11:22	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/03/24 11:22	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/03/24 11:22	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/03/24 11:22	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/03/24 11:22	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/03/24 11:22	1
Acetone	<3.10		10.0	3.10	ug/L			10/03/24 11:22	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/03/24 11:22	1
Benzene	<0.220		0.500	0.220	ug/L			10/03/24 11:22	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/03/24 11:22	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/03/24 11:22	1
Bromoform	<0.780		5.00	0.780	ug/L			10/03/24 11:22	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/03/24 11:22	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/03/24 11:22	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/03/24 11:22	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/03/24 11:22	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/03/24 11:22	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/03/24 11:22	1
Chloroform	<1.30		3.00	1.30	ug/L			10/03/24 11:22	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/03/24 11:22	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/03/24 11:22	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/03/24 11:22	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/03/24 11:22	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/03/24 11:22	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/03/24 11:22	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/03/24 11:22	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/03/24 11:22	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/03/24 11:22	1
Styrene	<0.370		1.00	0.370	ug/L			10/03/24 11:22	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/03/24 11:22	1
Toluene	<0.430		1.00	0.430	ug/L			10/03/24 11:22	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/03/24 11:22	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/03/24 11:22	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/03/24 11:22	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/03/24 11:22	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/03/24 11:22	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/03/24 11:22	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/03/24 11:22	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/03/24 11:22	1

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-291802-4
Date Collected: 10/01/24 00:00
Matrix: Water
Date Received: 10/02/24 09:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	106		73 - 130		10/03/24 11:22	1
Toluene-d8 (Surr)	96		80 - 120		10/03/24 11:22	1
4-Bromofluorobenzene (Surr)	90		80 - 120		10/03/24 11:22	1

Definitions/Glossary

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Qualifiers

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) 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.

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: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)						
310-291802-1	OW-101B	103	97	90						
310-291802-1	OW-101B	101	98	101						
310-291802-2	OW-105B	110	96	92						
310-291802-2 MS	OW-105B	89	102	96						
310-291802-2 MSD	OW-105B	90	101	99						
310-291802-3	OW-113B	108	95	90						
310-291802-4	Trip Blank	106	96	90						
LCS 310-435093/6	Lab Control Sample	90	104	95						
LCS 310-435093/7	Lab Control Sample	109	96	91						
LCS 310-435841/6	Lab Control Sample	101	100	99						
LCS 310-435841/7	Lab Control Sample	100	99	100						
MB 310-435093/5	Method Blank	105	95	91						
MB 310-435841/5	Method Blank	100	98	101						

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 310-435093/5
Matrix: Water
Analysis Batch: 435093

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	<0.380		1.00	0.380	ug/L			10/03/24 10:16	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/03/24 10:16	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/03/24 10:16	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/03/24 10:16	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/03/24 10:16	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/03/24 10:16	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/03/24 10:16	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/03/24 10:16	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/03/24 10:16	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/03/24 10:16	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/03/24 10:16	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/03/24 10:16	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/03/24 10:16	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/03/24 10:16	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/03/24 10:16	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/03/24 10:16	1
Acetone	<3.10		10.0	3.10	ug/L			10/03/24 10:16	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/03/24 10:16	1
Benzene	<0.220		0.500	0.220	ug/L			10/03/24 10:16	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/03/24 10:16	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/03/24 10:16	1
Bromoform	<0.780		5.00	0.780	ug/L			10/03/24 10:16	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/03/24 10:16	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/03/24 10:16	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/03/24 10:16	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/03/24 10:16	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/03/24 10:16	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/03/24 10:16	1
Chloroform	<1.30		3.00	1.30	ug/L			10/03/24 10:16	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/03/24 10:16	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/03/24 10:16	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/03/24 10:16	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/03/24 10:16	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/03/24 10:16	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/03/24 10:16	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/03/24 10:16	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/03/24 10:16	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/03/24 10:16	1
Styrene	<0.370		1.00	0.370	ug/L			10/03/24 10:16	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/03/24 10:16	1
Toluene	<0.430		1.00	0.430	ug/L			10/03/24 10:16	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/03/24 10:16	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/03/24 10:16	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/03/24 10:16	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/03/24 10:16	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/03/24 10:16	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/03/24 10:16	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/03/24 10:16	1

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

Lab Sample ID: MB 310-435093/5
Matrix: Water
Analysis Batch: 435093

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/03/24 10:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*73 - 130*		*10/03/24 10:16*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*10/03/24 10:16*	*1*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*		*10/03/24 10:16*	*1*

Lab Sample ID: LCS 310-435093/6
Matrix: Water
Analysis Batch: 435093

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	17.50		ug/L		87	71 - 120
1,1,1-Trichloroethane	20.0	18.09		ug/L		90	73 - 129
1,1,2,2-Tetrachloroethane	20.0	22.29		ug/L		111	68 - 124
1,1,2-Trichloroethane	20.0	19.41		ug/L		97	73 - 123
1,1-Dichloroethane	20.0	22.77		ug/L		114	70 - 127
1,1-Dichloroethene	20.0	20.74		ug/L		104	63 - 132
1,2,3-Trichloropropane	20.0	19.90		ug/L		100	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	24.26		ug/L		121	50 - 150
1,2-Dibromoethane (EDB)	20.0	18.75		ug/L		94	75 - 125
1,2-Dichlorobenzene	20.0	17.21		ug/L		86	74 - 120
1,2-Dichloroethane	20.0	17.86		ug/L		89	71 - 125
1,2-Dichloropropane	20.0	20.88		ug/L		104	73 - 124
1,4-Dichlorobenzene	20.0	17.74		ug/L		89	72 - 120
2-Butanone (MEK)	40.0	43.16		ug/L		108	50 - 150
2-Hexanone	40.0	51.30		ug/L		128	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	46.62		ug/L		117	60 - 139
Acetone	40.0	55.29		ug/L		138	50 - 150
Acrylonitrile	200	233.9		ug/L		117	50 - 150
Benzene	20.0	19.77		ug/L		99	72 - 124
Bromochloromethane	20.0	17.70		ug/L		88	73 - 130
Bromodichloromethane	20.0	17.48		ug/L		87	74 - 122
Bromoform	20.0	17.99		ug/L		90	61 - 122
Carbon disulfide	20.0	21.73		ug/L		109	59 - 135
Carbon tetrachloride	20.0	16.94		ug/L		85	67 - 132
Chlorobenzene	20.0	18.14		ug/L		91	76 - 120
Chlorodibromomethane	20.0	16.17		ug/L		81	71 - 121
Chloroform	20.0	19.44		ug/L		97	72 - 125
cis-1,2-Dichloroethene	20.0	18.47		ug/L		92	74 - 123
cis-1,3-Dichloropropene	20.0	19.55		ug/L		98	71 - 125
Dibromomethane	20.0	18.06		ug/L		90	74 - 125
Ethylbenzene	20.0	20.39		ug/L		102	74 - 122
Iodomethane	20.0	13.24		ug/L		66	10 - 150
Methylene Chloride	20.0	21.05		ug/L		105	50 - 150
Styrene	20.0	19.47		ug/L		97	74 - 121
Tetrachloroethene	20.0	16.16		ug/L		81	71 - 130
Toluene	20.0	19.49		ug/L		97	74 - 123

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

Lab Sample ID: LCS 310-435093/6
Matrix: Water
Analysis Batch: 435093

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	19.17		ug/L		96	70 - 126
trans-1,3-Dichloropropene	20.0	21.25		ug/L		106	69 - 123
trans-1,4-Dichloro-2-butene	20.0	24.34		ug/L		122	50 - 150
Trichloroethene	20.0	18.37		ug/L		92	72 - 126
Vinyl acetate	40.0	39.36		ug/L		98	50 - 150
Xylenes, Total	40.0	37.56		ug/L		94	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*90*		*73 - 130*
Toluene-d8 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*

Lab Sample ID: LCS 310-435093/7
Matrix: Water
Analysis Batch: 435093

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	17.64		ug/L		88	23 - 150
Chloroethane	20.0	21.60		ug/L		108	54 - 136
Chloromethane	20.0	27.69		ug/L		138	38 - 150
Trichlorofluoromethane	20.0	19.10		ug/L		95	54 - 149
Vinyl chloride	20.0	23.49		ug/L		117	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*109*		*73 - 130*
Toluene-d8 (Surr)	*96*		*80 - 120*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*

Lab Sample ID: 310-291802-2 MS
Matrix: Water
Analysis Batch: 435093

Client Sample ID: OW-105B
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	<0.380		25.0	16.70		ug/L		67	55 - 130
1,1,1-Trichloroethane	<0.190		25.0	16.81		ug/L		67	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		25.0	22.53		ug/L		90	54 - 130
1,1,2-Trichloroethane	<0.450		25.0	19.27		ug/L		77	58 - 130
1,1-Dichloroethane	<0.220		25.0	22.18		ug/L		89	49 - 130
1,1-Dichloroethene	<0.560		25.0	21.12		ug/L		84	37 - 132
1,2,3-Trichloropropane	<0.590		25.0	19.68		ug/L		79	49 - 130
1,2-Dibromo-3-Chloropropane	<1.20		25.0	23.03		ug/L		92	38 - 150
1,2-Dibromoethane (EDB)	<0.340		25.0	19.08		ug/L		76	60 - 130
1,2-Dichlorobenzene	<0.370		25.0	18.04		ug/L		72	59 - 130
1,2-Dichloroethane	<0.390		25.0	18.05		ug/L		72	51 - 130
1,2-Dichloropropane	<0.270		25.0	20.79		ug/L		83	57 - 130
1,4-Dichlorobenzene	<0.230		25.0	17.98		ug/L		72	57 - 130
2-Butanone (MEK)	<2.10		50.0	42.74		ug/L		85	38 - 150
2-Hexanone	<2.00		50.0	46.10		ug/L		92	46 - 140

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

Lab Sample ID: 310-291802-2 MS
Matrix: Water
Analysis Batch: 435093

Client Sample ID: OW-105B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	48.14		ug/L		96	47 - 139
Acetone	<3.10		50.0	51.25		ug/L		102	31 - 150
Acrylonitrile	<2.20		250	238.0		ug/L		95	40 - 150
Benzene	<0.220		25.0	20.58		ug/L		82	46 - 130
Bromochloromethane	<0.540		25.0	17.94		ug/L		72	57 - 130
Bromodichloromethane	<0.390		25.0	16.85		ug/L		67	57 - 130
Bromoform	<0.780		25.0	16.65		ug/L		67	44 - 130
Carbon disulfide	<0.450		25.0	23.70		ug/L		95	38 - 135
Carbon tetrachloride	<0.650		25.0	14.87		ug/L		59	45 - 132
Chlorobenzene	<0.400		25.0	18.49		ug/L		74	59 - 130
Chlorodibromomethane	<0.750		25.0	16.18		ug/L		65	54 - 130
Chloroform	<1.30		25.0	18.89		ug/L		76	51 - 130
cis-1,2-Dichloroethene	<0.210		25.0	18.60		ug/L		74	45 - 130
cis-1,3-Dichloropropene	<0.250		25.0	19.79		ug/L		79	53 - 130
Dibromomethane	<0.330		25.0	17.53		ug/L		70	59 - 130
Ethylbenzene	<0.310		25.0	20.57		ug/L		82	45 - 130
Iodomethane	<7.00		25.0	17.08		ug/L		68	10 - 150
Methylene Chloride	<1.70		25.0	22.57		ug/L		90	37 - 150
Styrene	<0.370		25.0	19.79		ug/L		79	47 - 130
Tetrachloroethene	<0.480		25.0	16.79		ug/L		67	47 - 130
Toluene	<0.430		25.0	19.74		ug/L		79	51 - 130
trans-1,2-Dichloroethene	<0.270		25.0	18.32		ug/L		73	48 - 130
trans-1,3-Dichloropropene	<0.560		25.0	21.19		ug/L		85	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		25.0	22.69		ug/L		91	26 - 150
Trichloroethene	<0.430		25.0	18.48		ug/L		74	51 - 130
Vinyl acetate	<2.50		50.0	40.32		ug/L		81	29 - 150
Xylenes, Total	<0.400		50.0	37.07		ug/L		74	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*89*		*73 - 130*
Toluene-d8 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*

Lab Sample ID: 310-291802-2 MSD
Matrix: Water
Analysis Batch: 435093

Client Sample ID: OW-105B
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	<0.380		25.0	17.05		ug/L		68	55 - 130	2	20
1,1,1-Trichloroethane	<0.190		25.0	16.93		ug/L		68	52 - 130	1	20
1,1,2,2-Tetrachloroethane	<0.470		25.0	23.50		ug/L		94	54 - 130	4	20
1,1,2-Trichloroethane	<0.450		25.0	19.65		ug/L		79	58 - 130	2	20
1,1-Dichloroethane	<0.220		25.0	22.06		ug/L		88	49 - 130	1	20
1,1-Dichloroethene	<0.560		25.0	19.57		ug/L		78	37 - 132	8	26
1,2,3-Trichloropropane	<0.590		25.0	20.68		ug/L		83	49 - 130	5	26
1,2-Dibromo-3-Chloropropane	<1.20		25.0	24.36		ug/L		97	38 - 150	6	20
1,2-Dibromoethane (EDB)	<0.340		25.0	19.01		ug/L		76	60 - 130	0	20
1,2-Dichlorobenzene	<0.370		25.0	18.35		ug/L		73	59 - 130	2	20

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

Lab Sample ID: 310-291802-2 MSD
Client Sample ID: OW-105B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 435093

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	<0.390		25.0	18.35		ug/L		73	51 - 130	2	20
1,2-Dichloropropane	<0.270		25.0	20.92		ug/L		84	57 - 130	1	20
1,4-Dichlorobenzene	<0.230		25.0	18.19		ug/L		73	57 - 130	1	20
2-Butanone (MEK)	<2.10		50.0	44.91		ug/L		90	38 - 150	5	20
2-Hexanone	<2.00		50.0	51.73		ug/L		103	46 - 140	12	20
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	49.97		ug/L		100	47 - 139	4	20
Acetone	<3.10		50.0	59.70		ug/L		119	31 - 150	15	29
Acrylonitrile	<2.20		250	234.5		ug/L		94	40 - 150	1	20
Benzene	<0.220		25.0	19.28		ug/L		77	46 - 130	7	20
Bromochloromethane	<0.540		25.0	17.53		ug/L		70	57 - 130	2	20
Bromodichloromethane	<0.390		25.0	16.65		ug/L		67	57 - 130	1	20
Bromoform	<0.780		25.0	16.68		ug/L		67	44 - 130	0	20
Carbon disulfide	<0.450		25.0	20.56		ug/L		82	38 - 135	14	30
Carbon tetrachloride	<0.650		25.0	15.94		ug/L		64	45 - 132	7	20
Chlorobenzene	<0.400		25.0	17.93		ug/L		72	59 - 130	3	20
Chlorodibromomethane	<0.750		25.0	16.28		ug/L		65	54 - 130	1	20
Chloroform	<1.30		25.0	18.74		ug/L		75	51 - 130	1	20
cis-1,2-Dichloroethene	<0.210		25.0	17.81		ug/L		71	45 - 130	4	20
cis-1,3-Dichloropropene	<0.250		25.0	19.41		ug/L		78	53 - 130	2	20
Dibromomethane	<0.330		25.0	18.13		ug/L		73	59 - 130	3	20
Ethylbenzene	<0.310		25.0	20.08		ug/L		80	45 - 130	2	20
Iodomethane	<7.00		25.0	16.55		ug/L		66	10 - 150	3	35
Methylene Chloride	<1.70		25.0	21.01		ug/L		84	37 - 150	7	24
Styrene	<0.370		25.0	19.15		ug/L		77	47 - 130	3	20
Tetrachloroethene	<0.480		25.0	16.63		ug/L		67	47 - 130	1	20
Toluene	<0.430		25.0	18.98		ug/L		76	51 - 130	4	20
trans-1,2-Dichloroethene	<0.270		25.0	17.57		ug/L		70	48 - 130	4	22
trans-1,3-Dichloropropene	<0.560		25.0	21.12		ug/L		84	50 - 130	0	20
trans-1,4-Dichloro-2-butene	<1.10		25.0	24.40		ug/L		98	26 - 150	7	23
Trichloroethene	<0.430		25.0	17.49		ug/L		70	51 - 130	5	20
Vinyl acetate	<2.50		50.0	41.53		ug/L		83	29 - 150	3	23
Xylenes, Total	<0.400		50.0	36.00		ug/L		72	43 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*90*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 310-435841/5
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 435841

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.380		1.00	0.380	ug/L			10/10/24 13:52	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/10/24 13:52	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/10/24 13:52	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/10/24 13:52	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/10/24 13:52	1

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

Lab Sample ID: MB 310-435841/5
Matrix: Water
Analysis Batch: 435841

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/10/24 13:52	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/10/24 13:52	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/10/24 13:52	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/10/24 13:52	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/10/24 13:52	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/10/24 13:52	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/10/24 13:52	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/10/24 13:52	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/10/24 13:52	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/10/24 13:52	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/10/24 13:52	1
Acetone	<3.10		10.0	3.10	ug/L			10/10/24 13:52	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/10/24 13:52	1
Benzene	<0.220		0.500	0.220	ug/L			10/10/24 13:52	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/10/24 13:52	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/10/24 13:52	1
Bromoform	<0.780		5.00	0.780	ug/L			10/10/24 13:52	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/10/24 13:52	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/10/24 13:52	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/10/24 13:52	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/10/24 13:52	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/10/24 13:52	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/10/24 13:52	1
Chloroform	<1.30		3.00	1.30	ug/L			10/10/24 13:52	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/10/24 13:52	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/10/24 13:52	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/10/24 13:52	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/10/24 13:52	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/10/24 13:52	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/10/24 13:52	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/10/24 13:52	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/10/24 13:52	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/10/24 13:52	1
Styrene	<0.370		1.00	0.370	ug/L			10/10/24 13:52	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/10/24 13:52	1
Toluene	<0.430		1.00	0.430	ug/L			10/10/24 13:52	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/10/24 13:52	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/10/24 13:52	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/10/24 13:52	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/10/24 13:52	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/10/24 13:52	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/10/24 13:52	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/10/24 13:52	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/10/24 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/10/24 13:52*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/10/24 13:52*	*1*

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

Lab Sample ID: MB 310-435841/5
Matrix: Water
Analysis Batch: 435841

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		10/10/24 13:52	1

Lab Sample ID: LCS 310-435841/6
Matrix: Water
Analysis Batch: 435841

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	21.64		ug/L		108	71 - 120
1,1,1-Trichloroethane	20.0	21.36		ug/L		107	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.73		ug/L		109	68 - 124
1,1,2-Trichloroethane	20.0	21.87		ug/L		109	73 - 123
1,1-Dichloroethane	20.0	20.51		ug/L		103	70 - 127
1,1-Dichloroethene	20.0	20.61		ug/L		103	63 - 132
1,2,3-Trichloropropane	20.0	21.52		ug/L		108	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	20.76		ug/L		104	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.25		ug/L		106	75 - 125
1,2-Dichlorobenzene	20.0	21.41		ug/L		107	74 - 120
1,2-Dichloroethane	20.0	20.58		ug/L		103	71 - 125
1,2-Dichloropropane	20.0	20.66		ug/L		103	73 - 124
1,4-Dichlorobenzene	20.0	21.25		ug/L		106	72 - 120
2-Butanone (MEK)	40.0	41.95		ug/L		105	50 - 150
2-Hexanone	40.0	44.19		ug/L		110	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	43.46		ug/L		109	60 - 139
Acetone	40.0	40.85		ug/L		102	50 - 150
Acrylonitrile	200	201.9		ug/L		101	50 - 150
Benzene	20.0	20.74		ug/L		104	72 - 124
Bromochloromethane	20.0	20.66		ug/L		103	73 - 130
Bromodichloromethane	20.0	21.17		ug/L		106	74 - 122
Bromoform	20.0	21.33		ug/L		107	61 - 122
Carbon disulfide	20.0	20.04		ug/L		100	59 - 135
Carbon tetrachloride	20.0	21.32		ug/L		107	67 - 132
Chlorobenzene	20.0	21.47		ug/L		107	76 - 120
Chlorodibromomethane	20.0	21.44		ug/L		107	71 - 121
Chloroform	20.0	20.10		ug/L		100	72 - 125
cis-1,2-Dichloroethene	20.0	20.79		ug/L		104	74 - 123
cis-1,3-Dichloropropene	20.0	21.54		ug/L		108	71 - 125
Dibromomethane	20.0	20.72		ug/L		104	74 - 125
Ethylbenzene	20.0	22.07		ug/L		110	74 - 122
Iodomethane	20.0	14.61		ug/L		73	10 - 150
Methylene Chloride	20.0	19.87		ug/L		99	50 - 150
Styrene	20.0	22.41		ug/L		112	74 - 121
Tetrachloroethene	20.0	21.95		ug/L		110	71 - 130
Toluene	20.0	21.08		ug/L		105	74 - 123
trans-1,2-Dichloroethene	20.0	20.80		ug/L		104	70 - 126
trans-1,3-Dichloropropene	20.0	21.67		ug/L		108	69 - 123
trans-1,4-Dichloro-2-butene	20.0	20.12		ug/L		101	50 - 150
Trichloroethene	20.0	21.20		ug/L		106	72 - 126
Vinyl acetate	40.0	43.17		ug/L		108	50 - 150

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

Lab Sample ID: LCS 310-435841/6
Matrix: Water
Analysis Batch: 435841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Xylenes, Total			40.0	43.80		ug/L		110	73 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-435841/7
Matrix: Water
Analysis Batch: 435841

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	16.21		ug/L		81	23 - 150		
Chloroethane			20.0	19.65		ug/L		98	54 - 136		
Chloromethane			20.0	20.27		ug/L		101	38 - 150		
Trichlorofluoromethane			20.0	21.81		ug/L		109	54 - 149		
Vinyl chloride			20.0	20.72		ug/L		104	56 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-435034/1-A
Matrix: Water
Analysis Batch: 435360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/03/24 09:30	10/04/24 21:01	1
Arsenic	<0.530		2.00	0.530	ug/L		10/03/24 09:30	10/04/24 21:01	1
Barium	<0.660		2.00	0.660	ug/L		10/03/24 09:30	10/04/24 21:01	1
Beryllium	<0.330		1.00	0.330	ug/L		10/03/24 09:30	10/04/24 21:01	1
Cadmium	<0.100		0.200	0.100	ug/L		10/03/24 09:30	10/04/24 21:01	1
Chromium	<1.20		5.00	1.20	ug/L		10/03/24 09:30	10/04/24 21:01	1
Cobalt	<0.170		0.500	0.170	ug/L		10/03/24 09:30	10/04/24 21:01	1
Copper	<1.80		5.00	1.80	ug/L		10/03/24 09:30	10/04/24 21:01	1
Lead	<0.260		0.500	0.260	ug/L		10/03/24 09:30	10/04/24 21:01	1
Nickel	<2.10		5.00	2.10	ug/L		10/03/24 09:30	10/04/24 21:01	1
Selenium	<1.40		5.00	1.40	ug/L		10/03/24 09:30	10/04/24 21:01	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/03/24 09:30	10/04/24 21:01	1
Thallium	<0.570		1.00	0.570	ug/L		10/03/24 09:30	10/04/24 21:01	1
Vanadium	<1.10		5.00	1.10	ug/L		10/03/24 09:30	10/04/24 21:01	1
Zinc	<9.70		20.0	9.70	ug/L		10/03/24 09:30	10/04/24 21:01	1

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

Lab Sample ID: LCS 310-435034/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 435360
Prep Batch: 435034

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	222.3		ug/L		111	80 - 120
Arsenic	200	216.7		ug/L		108	80 - 120
Barium	100	108.1		ug/L		108	80 - 120
Beryllium	100	91.59		ug/L		92	80 - 120
Cadmium	100	103.3		ug/L		103	80 - 120
Chromium	100	98.44		ug/L		98	80 - 120
Cobalt	100	110.9		ug/L		111	80 - 120
Copper	200	221.4		ug/L		111	80 - 120
Lead	200	211.0		ug/L		105	80 - 120
Nickel	200	202.1		ug/L		101	80 - 120
Selenium	400	412.6		ug/L		103	80 - 120
Silver	100	109.2	^1+	ug/L		109	80 - 120
Thallium	100	95.44		ug/L		95	80 - 120
Vanadium	100	94.70		ug/L		95	80 - 120
Zinc	200	189.2		ug/L		95	80 - 120

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-629766/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 629772
Prep Batch: 629766

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		10/07/24 10:56	10/07/24 10:58	1

Lab Sample ID: LCS 240-629766/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 629772
Prep Batch: 629766

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	8.53	8.400		mg/L		98	70 - 120

Lab Sample ID: 310-291802-3 MS
Client Sample ID: OW-113B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 629772
Prep Batch: 629766

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	<1.41		8.53	6.400		mg/L		75	32 - 130

Lab Sample ID: 310-291802-3 MSD
Client Sample ID: OW-113B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 629772
Prep Batch: 629766

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	<1.41		8.53	6.800		mg/L		80	32 - 130	6	30

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-435037/1
Matrix: Water
Analysis Batch: 435037

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	<3.70		5.00	3.70	mg/L			10/02/24 16:58	1

Lab Sample ID: LCS 310-435037/2
Matrix: Water
Analysis Batch: 435037

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	104.0		mg/L		104	81 - 116

GC/MS VOA

Analysis Batch: 435093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-1	OW-101B	Total/NA	Water	8260D	
310-291802-2	OW-105B	Total/NA	Water	8260D	
310-291802-3	OW-113B	Total/NA	Water	8260D	
310-291802-4	Trip Blank	Total/NA	Water	8260D	
MB 310-435093/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435093/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435093/7	Lab Control Sample	Total/NA	Water	8260D	
310-291802-2 MS	OW-105B	Total/NA	Water	8260D	
310-291802-2 MSD	OW-105B	Total/NA	Water	8260D	

Analysis Batch: 435841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-1	OW-101B	Total/NA	Water	8260D	
MB 310-435841/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435841/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435841/7	Lab Control Sample	Total/NA	Water	8260D	

Metals

Prep Batch: 435034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-1	OW-101B	Total/NA	Water	3005A	
310-291802-2	OW-105B	Total/NA	Water	3005A	
310-291802-3	OW-113B	Total/NA	Water	3005A	
MB 310-435034/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-435034/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 435360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-1	OW-101B	Total/NA	Water	6020B	435034
310-291802-2	OW-105B	Total/NA	Water	6020B	435034
310-291802-3	OW-113B	Total/NA	Water	6020B	435034
MB 310-435034/1-A	Method Blank	Total/NA	Water	6020B	435034
LCS 310-435034/2-A	Lab Control Sample	Total/NA	Water	6020B	435034

General Chemistry

Analysis Batch: 435037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-1	OW-101B	Total/NA	Water	I-3765-85	
310-291802-2	OW-105B	Total/NA	Water	I-3765-85	
310-291802-3	OW-113B	Total/NA	Water	I-3765-85	
MB 310-435037/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-435037/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 629766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-3	OW-113B	Total/NA	Water	9030B	
MB 240-629766/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-629766/2-A	Lab Control Sample	Total/NA	Water	9030B	
310-291802-3 MS	OW-113B	Total/NA	Water	9030B	
310-291802-3 MSD	OW-113B	Total/NA	Water	9030B	

QC Association Summary

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

General Chemistry

Analysis Batch: 629772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-3	OW-113B	Total/NA	Water	9034	629766
MB 240-629766/1-A	Method Blank	Total/NA	Water	9034	629766
LCS 240-629766/2-A	Lab Control Sample	Total/NA	Water	9034	629766
310-291802-3 MS	OW-113B	Total/NA	Water	9034	629766
310-291802-3 MSD	OW-113B	Total/NA	Water	9034	629766

Field Service / Mobile Lab

Analysis Batch: 435709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291802-1	OW-101B	Total/NA	Water	Field Sampling	
310-291802-2	OW-105B	Total/NA	Water	Field Sampling	
310-291802-3	OW-113B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-101B
Lab Sample ID: 310-291802-1
Date Collected: 10/01/24 09:30
Matrix: Water
Date Received: 10/02/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435093	WSE8	EET CF	10/03/24 14:39
Total/NA	Analysis	8260D		1	435841	WSE8	EET CF	10/10/24 15:01
Total/NA	Prep	3005A			435034	F5MW	EET CF	10/03/24 09:30
Total/NA	Analysis	6020B		1	435360	NFT2	EET CF	10/04/24 22:15
Total/NA	Analysis	I-3765-85		1	435037	MDU9	EET CF	10/02/24 16:58
Total/NA	Analysis	Field Sampling		1	435709	BJ0R	EET CF	10/01/24 09:30

Client Sample ID: OW-105B
Lab Sample ID: 310-291802-2
Date Collected: 10/01/24 10:30
Matrix: Water
Date Received: 10/02/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435093	WSE8	EET CF	10/03/24 15:01
Total/NA	Prep	3005A			435034	F5MW	EET CF	10/03/24 09:30
Total/NA	Analysis	6020B		1	435360	NFT2	EET CF	10/04/24 22:17
Total/NA	Analysis	I-3765-85		1	435037	MDU9	EET CF	10/02/24 16:58
Total/NA	Analysis	Field Sampling		1	435709	BJ0R	EET CF	10/01/24 10:30

Client Sample ID: OW-113B
Lab Sample ID: 310-291802-3
Date Collected: 10/01/24 13:00
Matrix: Water
Date Received: 10/02/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435093	WSE8	EET CF	10/03/24 15:22
Total/NA	Prep	3005A			435034	F5MW	EET CF	10/03/24 09:30
Total/NA	Analysis	6020B		1	435360	NFT2	EET CF	10/04/24 22:20
Total/NA	Prep	9030B			629766	BLW	EET CLE	10/07/24 10:56
Total/NA	Analysis	9034		1	629772	BLW	EET CLE	10/07/24 10:58
Total/NA	Analysis	I-3765-85		1	435037	MDU9	EET CF	10/02/24 16:58
Total/NA	Analysis	Field Sampling		1	435709	BJ0R	EET CF	10/01/24 13:00

Client Sample ID: Trip Blank
Lab Sample ID: 310-291802-4
Date Collected: 10/01/24 00:00
Matrix: Water
Date Received: 10/02/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435093	WSE8	EET CF	10/03/24 11:22

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

Method Summary

Client: AECOM
Job ID: 310-291802-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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310-291802 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: AECOM			
City/State: CITY Waterloo	STATE IA	Project: Black Hawk Co SDNR	
Receipt Information			
Date/Time Received: DATE 10 2 24	TIME 0900	Received By: [illegible]	
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: P		Correction Factor (°C): 0.0	
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): 1.7		Corrected Temp (°C): 1.7	
• **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			

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:** / **Date: 10-2-24** / 1 of 1 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	**Lab Contact:** / **Carrier:** / TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**	Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS	**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below ____	Walk-in Client:
Project Name Black Hawk Co IDNR	☑ 2 weeks	Lab Sampling
Site Black Hawk County Landfill	☐ 1 week	Job / SDG No
P O #	☐ 2 days	
	☐ 1 day	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-101B	10-1-24	0930	G	GW	5	N		X											Turbidity - 5.83 NTU
OW-105B	10-1-24	1030	G	GW	5	N		X											Turbidity - 5.38 NTU
OW-113B	10-1-24	1300	G	GW	6	N		X										X	Turbidity - 29.25 NTU
OW-114B			G	GW		N		X											
OW-205B			G	GW		N		X			X			X				X	
OW-209B			G	GW		N		X											
OW-209B-FD			G	GW		N		X											
OW-212B			G	GW		N		X											
OW-213BR			G	GW		N		X											
OW-216BR			G	GW		N		X											
OW-219B			G	GW		N		X											
Trip Blank	10-1-24	0600	G	W	3	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd.____ Corr'd ____ | Therm ID No .____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-2-24	Received by:	Company:	Date/Time: 10 2 24 0900
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

10/13/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

14/15

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-76942.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-291802-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 10/15/2024	Analysis Requested		Preservation Codes:
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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:						
OW-113B (310-291802-3)	10/1/24	13:00 Central	G	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
	10-2-24 1540			10/3/24 915	EUR
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:

Ver: 05/06/2024

10/13/2024

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :** _____
Barberton Facility

Client Interlab En Jour Site Name _____ Cooler unpacked by: TF

Cooler Received on 10/3/24 Opened on 10/3/24

FedEx: 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag (None) Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 1.5 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity_____	Yes (No)	**Tests that are not checked for pH by Receiving:**
-Were the seals on the outside of the cooler(s) signed & dated?	Yes No (NA)	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	**VOAs**
-Were tamper/custody seals intact and uncompromised?	Yes No (NA)	**Oil and Grease**
3. Shippers' packing slip attached to the cooler(s)?	(Yes) No	**TOC**
4. Did custody papers accompany the sample(s)?	(Yes) No	
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes (No)	
7. Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No	
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
11. Sufficient quantity received to perform indicated analyses?	(Yes) No	
12. Are these work share samples and all listed on the COC?	(Yes) No	
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes No	
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes No NA	
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes No	
17. Was a LL Hg or Me Hg trip blank present? _____	Yes No	

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____

_____

_____

_____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

ORIGIN ID:HLOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

ACTWGT: 16.16 LB
CAD: 0870970/CAFE3808

BILL SENDER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF: S310-98706

FedEx Express

TRK# 0201 4085 8612 6173

THU - 0. OCT 10:30A
PRIORI Y OVERNIGHT

XS CAKA

44203
OH-US CLE

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-291802-1

Login Number: 291802

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Bunker, Xavier M

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: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 10/18/2024 9:59:56 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-291902-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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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10/18/2024 9:59:56 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job ID: 310-291902-1 — Eurofins Cedar Falls

Job Narrative
310-291902-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/3/2024 9:25 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 time was 5.6°C.

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 310-435270 recovered above the upper control limit for Methyl methacrylate (21.1%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-435270/3).

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

Metals
Method 6020B: The initial calibration verification (ICV) result for batch 310-435770 was above the upper control limit. The affected analytes are: Silver. Sample results were non-detects, and have been reported as qualified data.

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.

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

Sample Summary

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-291902-1	OW-114B	Ground Water	10/02/24 09:40	10/03/24 09:25
310-291902-2	OW-209B	Ground Water	10/02/24 10:30	10/03/24 09:25
310-291902-3	OW-209B-FD	Ground Water	10/02/24 10:30	10/03/24 09:25
310-291902-4	OW-212B	Groundwater	10/02/24 13:30	10/03/24 09:25
310-291902-5	Trip Blank	Water	10/02/24 06:00	10/03/24 09:25

Detection Summary

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B — Lab Sample ID: 310-291902-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.697	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	56.6		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	1.69	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	1.92		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	14.0		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	1.50		1.00	0.570	ug/L	1		6020B	Total/NA
Field Turbidity	1.55				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-209B — Lab Sample ID: 310-291902-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	39.3		2.00	0.660	ug/L	1		6020B	Total/NA
Copper	3.13	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	7.39		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.88		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	1.24				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-209B-FD — Lab Sample ID: 310-291902-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	39.9		2.00	0.660	ug/L	1		6020B	Total/NA
Copper	3.30	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	7.71		5.00	2.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.00		1.88	1.39	mg/L	1		I-3765-85	Total/NA

Client Sample ID: OW-212B — Lab Sample ID: 310-291902-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.12	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	22.8		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.247		0.200	0.100	ug/L	1		6020B	Total/NA
Cobalt	20.6		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.85	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	42.4		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	1.24		1.00	0.570	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.88		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	4.68				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-291902-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-291902-1
Date Collected: 10/02/24 09:40
Matrix: Ground Water
Date Received: 10/03/24 09:25

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	<0.380		1.00	0.380	ug/L			10/05/24 02:56	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/05/24 02:56	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/05/24 02:56	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/05/24 02:56	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/05/24 02:56	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/05/24 02:56	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/05/24 02:56	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/05/24 02:56	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/05/24 02:56	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/05/24 02:56	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/05/24 02:56	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/05/24 02:56	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/05/24 02:56	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/05/24 02:56	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/05/24 02:56	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/05/24 02:56	1
Acetone	<3.10		10.0	3.10	ug/L			10/05/24 02:56	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/05/24 02:56	1
Benzene	<0.220		0.500	0.220	ug/L			10/05/24 02:56	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/05/24 02:56	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/05/24 02:56	1
Bromoform	<0.780		5.00	0.780	ug/L			10/05/24 02:56	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/05/24 02:56	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/05/24 02:56	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/05/24 02:56	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/05/24 02:56	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/05/24 02:56	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/05/24 02:56	1
Chloroform	<1.30		3.00	1.30	ug/L			10/05/24 02:56	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/05/24 02:56	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/10/24 16:54	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/05/24 02:56	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/05/24 02:56	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/05/24 02:56	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/05/24 02:56	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/05/24 02:56	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/05/24 02:56	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/05/24 02:56	1
Styrene	<0.370		1.00	0.370	ug/L			10/05/24 02:56	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/05/24 02:56	1
Toluene	<0.430		1.00	0.430	ug/L			10/05/24 02:56	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/05/24 02:56	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/05/24 02:56	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/05/24 02:56	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/05/24 02:56	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/05/24 02:56	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/05/24 02:56	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/05/24 02:56	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/05/24 02:56	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-291902-1
Date Collected: 10/02/24 09:40
Matrix: Ground Water
Date Received: 10/03/24 09:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*73 - 130*		*10/05/24 02:56*	*1*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/10/24 16:54*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*10/05/24 02:56*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/10/24 16:54*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/05/24 02:56*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/10/24 16:54*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/07/24 09:30	10/09/24 17:59	1
Arsenic	**0.697**	**J**	2.00	0.530	ug/L		10/07/24 09:30	10/09/24 17:59	1
Barium	**56.6**		2.00	0.660	ug/L		10/07/24 09:30	10/09/24 17:59	1
Beryllium	<0.330		1.00	0.330	ug/L		10/07/24 09:30	10/09/24 17:59	1
Cadmium	<0.100		0.200	0.100	ug/L		10/07/24 09:30	10/09/24 17:59	1
Chromium	**1.69**	**J**	5.00	1.20	ug/L		10/07/24 09:30	10/09/24 17:59	1
Cobalt	**1.92**		0.500	0.170	ug/L		10/07/24 09:30	10/09/24 17:59	1
Copper	<1.80		5.00	1.80	ug/L		10/07/24 09:30	10/09/24 17:59	1
Lead	<0.260		0.500	0.260	ug/L		10/07/24 09:30	10/09/24 17:59	1
Nickel	**14.0**		5.00	2.10	ug/L		10/07/24 09:30	10/09/24 17:59	1
Selenium	<1.40		5.00	1.40	ug/L		10/07/24 09:30	10/09/24 17:59	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/07/24 09:30	10/09/24 17:59	1
Thallium	**1.50**		1.00	0.570	ug/L		10/07/24 09:30	10/14/24 17:57	1
Vanadium	<1.10		5.00	1.10	ug/L		10/07/24 09:30	10/09/24 17:59	1
Zinc	<9.70		20.0	9.70	ug/L		10/07/24 09:30	10/09/24 17:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			10/04/24 11:09	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.55**				NTU			10/02/24 09:40	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-209B
Lab Sample ID: 310-291902-2
Date Collected: 10/02/24 10:30
Matrix: Ground Water
Date Received: 10/03/24 09:25

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	<0.380		1.00	0.380	ug/L			10/05/24 03:18	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/05/24 03:18	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/05/24 03:18	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/05/24 03:18	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/05/24 03:18	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/05/24 03:18	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/05/24 03:18	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/05/24 03:18	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/05/24 03:18	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/05/24 03:18	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/05/24 03:18	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/05/24 03:18	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/05/24 03:18	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/05/24 03:18	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/05/24 03:18	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/05/24 03:18	1
Acetone	<3.10		10.0	3.10	ug/L			10/05/24 03:18	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/05/24 03:18	1
Benzene	<0.220		0.500	0.220	ug/L			10/05/24 03:18	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/05/24 03:18	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/05/24 03:18	1
Bromoform	<0.780		5.00	0.780	ug/L			10/05/24 03:18	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/05/24 03:18	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/05/24 03:18	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/05/24 03:18	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/05/24 03:18	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/05/24 03:18	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/05/24 03:18	1
Chloroform	<1.30		3.00	1.30	ug/L			10/05/24 03:18	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/05/24 03:18	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/05/24 03:18	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/05/24 03:18	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/05/24 03:18	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/05/24 03:18	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/05/24 03:18	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/05/24 03:18	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/05/24 03:18	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/05/24 03:18	1
Styrene	<0.370		1.00	0.370	ug/L			10/05/24 03:18	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/05/24 03:18	1
Toluene	<0.430		1.00	0.430	ug/L			10/05/24 03:18	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/05/24 03:18	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/05/24 03:18	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/05/24 03:18	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/05/24 03:18	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/05/24 03:18	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/05/24 03:18	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/05/24 03:18	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/05/24 03:18	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-209B
Lab Sample ID: 310-291902-2

Date Collected: 10/02/24 10:30
Matrix: Ground Water

Date Received: 10/03/24 09:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*73 - 130*		*10/05/24 03:18*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/05/24 03:18*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/05/24 03:18*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/07/24 09:30	10/09/24 18:01	1
Arsenic	<0.530		2.00	0.530	ug/L		10/07/24 09:30	10/09/24 18:01	1
Barium	**39.3**		2.00	0.660	ug/L		10/07/24 09:30	10/09/24 18:01	1
Beryllium	<0.330		1.00	0.330	ug/L		10/07/24 09:30	10/09/24 18:01	1
Cadmium	<0.100		0.200	0.100	ug/L		10/07/24 09:30	10/09/24 18:01	1
Chromium	<1.20		5.00	1.20	ug/L		10/07/24 09:30	10/09/24 18:01	1
Cobalt	<0.170		0.500	0.170	ug/L		10/07/24 09:30	10/09/24 18:01	1
Copper	**3.13**	**J**	5.00	1.80	ug/L		10/07/24 09:30	10/09/24 18:01	1
Lead	<0.260		0.500	0.260	ug/L		10/07/24 09:30	10/09/24 18:01	1
Nickel	**7.39**		5.00	2.10	ug/L		10/07/24 09:30	10/09/24 18:01	1
Selenium	<1.40		5.00	1.40	ug/L		10/07/24 09:30	10/09/24 18:01	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/07/24 09:30	10/09/24 18:01	1
Thallium	<0.570		1.00	0.570	ug/L		10/07/24 09:30	10/14/24 17:59	1
Vanadium	<1.10		5.00	1.10	ug/L		10/07/24 09:30	10/09/24 18:01	1
Zinc	<9.70		20.0	9.70	ug/L		10/07/24 09:30	10/09/24 18:01	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	1.39	mg/L			10/04/24 11:09	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.24**				NTU			10/02/24 10:30	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-209B-FD
Lab Sample ID: 310-291902-3
Date Collected: 10/02/24 10:30
Matrix: Ground Water
Date Received: 10/03/24 09:25

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	<0.380		1.00	0.380	ug/L			10/05/24 03:41	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/05/24 03:41	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/05/24 03:41	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/05/24 03:41	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/05/24 03:41	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/05/24 03:41	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/05/24 03:41	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/05/24 03:41	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/05/24 03:41	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/05/24 03:41	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/05/24 03:41	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/05/24 03:41	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/05/24 03:41	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/05/24 03:41	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/05/24 03:41	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/05/24 03:41	1
Acetone	<3.10		10.0	3.10	ug/L			10/05/24 03:41	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/05/24 03:41	1
Benzene	<0.220		0.500	0.220	ug/L			10/05/24 03:41	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/05/24 03:41	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/05/24 03:41	1
Bromoform	<0.780		5.00	0.780	ug/L			10/05/24 03:41	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/05/24 03:41	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/05/24 03:41	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/05/24 03:41	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/05/24 03:41	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/05/24 03:41	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/05/24 03:41	1
Chloroform	<1.30		3.00	1.30	ug/L			10/05/24 03:41	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/05/24 03:41	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/05/24 03:41	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/05/24 03:41	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/05/24 03:41	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/05/24 03:41	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/05/24 03:41	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/05/24 03:41	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/05/24 03:41	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/05/24 03:41	1
Styrene	<0.370		1.00	0.370	ug/L			10/05/24 03:41	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/05/24 03:41	1
Toluene	<0.430		1.00	0.430	ug/L			10/05/24 03:41	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/05/24 03:41	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/05/24 03:41	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/05/24 03:41	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/05/24 03:41	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/05/24 03:41	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/05/24 03:41	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/05/24 03:41	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/05/24 03:41	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-209B-FD
Lab Sample ID: 310-291902-3
Date Collected: 10/02/24 10:30
Matrix: Ground Water
Date Received: 10/03/24 09:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*73 - 130*		*10/05/24 03:41*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/05/24 03:41*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/05/24 03:41*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/07/24 09:30	10/09/24 18:03	1
Arsenic	<0.530		2.00	0.530	ug/L		10/07/24 09:30	10/09/24 18:03	1
Barium	**39.9**		2.00	0.660	ug/L		10/07/24 09:30	10/09/24 18:03	1
Beryllium	<0.330		1.00	0.330	ug/L		10/07/24 09:30	10/09/24 18:03	1
Cadmium	<0.100		0.200	0.100	ug/L		10/07/24 09:30	10/09/24 18:03	1
Chromium	<1.20		5.00	1.20	ug/L		10/07/24 09:30	10/09/24 18:03	1
Cobalt	<0.170		0.500	0.170	ug/L		10/07/24 09:30	10/09/24 18:03	1
Copper	**3.30**	**J**	5.00	1.80	ug/L		10/07/24 09:30	10/09/24 18:03	1
Lead	<0.260		0.500	0.260	ug/L		10/07/24 09:30	10/09/24 18:03	1
Nickel	**7.71**		5.00	2.10	ug/L		10/07/24 09:30	10/09/24 18:03	1
Selenium	<1.40		5.00	1.40	ug/L		10/07/24 09:30	10/09/24 18:03	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/07/24 09:30	10/09/24 18:03	1
Thallium	<0.570		1.00	0.570	ug/L		10/07/24 09:30	10/14/24 18:01	1
Vanadium	<1.10		5.00	1.10	ug/L		10/07/24 09:30	10/09/24 18:03	1
Zinc	<9.70		20.0	9.70	ug/L		10/07/24 09:30	10/09/24 18:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.00**		1.88	1.39	mg/L			10/04/24 11:09	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-212B
Lab Sample ID: 310-291902-4
Date Collected: 10/02/24 13:30
Matrix: Groundwater
Date Received: 10/03/24 09:25

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	<0.380		1.00	0.380	ug/L			10/05/24 04:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/05/24 04:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/05/24 04:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/05/24 04:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/05/24 04:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/05/24 04:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/05/24 04:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/05/24 04:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/05/24 04:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/05/24 04:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/05/24 04:04	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/05/24 04:04	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/05/24 04:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/05/24 04:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/05/24 04:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/05/24 04:04	1
Acetone	<3.10		10.0	3.10	ug/L			10/05/24 04:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/05/24 04:04	1
Benzene	<0.220		0.500	0.220	ug/L			10/05/24 04:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/05/24 04:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/05/24 04:04	1
Bromoform	<0.780		5.00	0.780	ug/L			10/05/24 04:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/05/24 04:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/05/24 04:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/05/24 04:04	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/05/24 04:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/05/24 04:04	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/05/24 04:04	1
Chloroform	<1.30		3.00	1.30	ug/L			10/05/24 04:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/05/24 04:04	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/05/24 04:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/05/24 04:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/05/24 04:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/05/24 04:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/05/24 04:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/05/24 04:04	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/05/24 04:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/05/24 04:04	1
Styrene	<0.370		1.00	0.370	ug/L			10/05/24 04:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/05/24 04:04	1
Toluene	<0.430		1.00	0.430	ug/L			10/05/24 04:04	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/05/24 04:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/05/24 04:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/05/24 04:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/05/24 04:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/05/24 04:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/05/24 04:04	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/05/24 04:04	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/05/24 04:04	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-212B
Lab Sample ID: 310-291902-4

Date Collected: 10/02/24 13:30
Matrix: Groundwater
Date Received: 10/03/24 09:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*73 - 130*		*10/05/24 04:04*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/05/24 04:04*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/05/24 04:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/07/24 09:30	10/09/24 18:06	1
Arsenic	**1.12**	**J**	2.00	0.530	ug/L		10/07/24 09:30	10/09/24 18:06	1
Barium	**22.8**		2.00	0.660	ug/L		10/07/24 09:30	10/09/24 18:06	1
Beryllium	<0.330		1.00	0.330	ug/L		10/07/24 09:30	10/09/24 18:06	1
Cadmium	**0.247**		0.200	0.100	ug/L		10/07/24 09:30	10/09/24 18:06	1
Chromium	<1.20		5.00	1.20	ug/L		10/07/24 09:30	10/09/24 18:06	1
Cobalt	**20.6**		0.500	0.170	ug/L		10/07/24 09:30	10/09/24 18:06	1
Copper	**2.85**	**J**	5.00	1.80	ug/L		10/07/24 09:30	10/09/24 18:06	1
Lead	<0.260		0.500	0.260	ug/L		10/07/24 09:30	10/09/24 18:06	1
Nickel	**42.4**		5.00	2.10	ug/L		10/07/24 09:30	10/09/24 18:06	1
Selenium	<1.40		5.00	1.40	ug/L		10/07/24 09:30	10/09/24 18:06	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/07/24 09:30	10/09/24 18:06	1
Thallium	**1.24**		1.00	0.570	ug/L		10/07/24 09:30	10/14/24 18:04	1
Vanadium	<1.10		5.00	1.10	ug/L		10/07/24 09:30	10/09/24 18:06	1
Zinc	<9.70		20.0	9.70	ug/L		10/07/24 09:30	10/09/24 18:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.88**		1.88	1.39	mg/L			10/04/24 11:09	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**4.68**				NTU			10/02/24 13:30	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-291902-5
Date Collected: 10/02/24 06:00
Matrix: Water
Date Received: 10/03/24 09:25

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	<0.380		1.00	0.380	ug/L			10/05/24 01:01	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/05/24 01:01	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/05/24 01:01	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/05/24 01:01	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/05/24 01:01	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/05/24 01:01	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/05/24 01:01	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/05/24 01:01	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/05/24 01:01	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/05/24 01:01	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/05/24 01:01	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/05/24 01:01	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/05/24 01:01	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/05/24 01:01	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/05/24 01:01	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/05/24 01:01	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/05/24 01:01	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/05/24 01:01	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/05/24 01:01	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/05/24 01:01	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/05/24 01:01	1
Acetone	<3.10		10.0	3.10	ug/L			10/05/24 01:01	1
Acrolein	<3.60		10.0	3.60	ug/L			10/05/24 01:01	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/05/24 01:01	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/05/24 01:01	1
Benzene	<0.220		0.500	0.220	ug/L			10/05/24 01:01	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/05/24 01:01	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/05/24 01:01	1
Bromoform	<0.780		5.00	0.780	ug/L			10/05/24 01:01	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/05/24 01:01	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/05/24 01:01	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/05/24 01:01	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/05/24 01:01	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/05/24 01:01	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/05/24 01:01	1
Chloroform	<1.30		3.00	1.30	ug/L			10/05/24 01:01	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/05/24 01:01	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/05/24 01:01	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/05/24 01:01	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/05/24 01:01	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/05/24 01:01	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/05/24 01:01	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/05/24 01:01	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/05/24 01:01	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/05/24 01:01	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/05/24 01:01	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/05/24 01:01	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/05/24 01:01	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/05/24 01:01	1

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-291902-5
Date Collected: 10/02/24 06:00
Matrix: Water
Date Received: 10/03/24 09:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/05/24 01:01	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/05/24 01:01	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/05/24 01:01	1
Styrene	<0.370		1.00	0.370	ug/L			10/05/24 01:01	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/05/24 01:01	1
Toluene	<0.430		1.00	0.430	ug/L			10/05/24 01:01	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/05/24 01:01	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/05/24 01:01	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/05/24 01:01	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/05/24 01:01	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/05/24 01:01	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/05/24 01:01	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/05/24 01:01	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/05/24 01:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*73 - 130*		*10/05/24 01:01*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/05/24 01:01*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/05/24 01:01*	*1*

Definitions/Glossary

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Qualifiers

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) 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.

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: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-291902-1	OW-114B	105	91	98
310-291902-1	OW-114B	101	99	100
310-291902-1 MS	OW-114B	106	93	97
310-291902-1 MSD	OW-114B	105	93	98
310-291902-2	OW-209B	105	92	99
310-291902-3	OW-209B-FD	106	92	98

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Groundwater — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(73-130)	(80-120)	(80-120)
310-291902-4	OW-212B	104	92	98

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	(73-130)	(80-120)	(80-120)
310-291902-5	Trip Blank	105	92	99
LCS 310-435270/6	Lab Control Sample	106	93	98
LCS 310-435270/7	Lab Control Sample	106	92	98
LCS 310-435841/6	Lab Control Sample	101	100	99
LCS 310-435841/7	Lab Control Sample	100	99	100
MB 310-435270/5	Method Blank	106	93	98
MB 310-435841/5	Method Blank	100	98	101

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 310-435270/5
Matrix: Water
Analysis Batch: 435270

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	<0.380		1.00	0.380	ug/L			10/04/24 23:53	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/04/24 23:53	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/04/24 23:53	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/04/24 23:53	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/04/24 23:53	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/04/24 23:53	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/04/24 23:53	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/04/24 23:53	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/04/24 23:53	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/04/24 23:53	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/04/24 23:53	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/04/24 23:53	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/04/24 23:53	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/04/24 23:53	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/04/24 23:53	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/04/24 23:53	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/04/24 23:53	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/04/24 23:53	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/04/24 23:53	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/04/24 23:53	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/04/24 23:53	1
Acetone	<3.10		10.0	3.10	ug/L			10/04/24 23:53	1
Acrolein	<3.60		10.0	3.60	ug/L			10/04/24 23:53	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/04/24 23:53	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/04/24 23:53	1
Benzene	<0.220		0.500	0.220	ug/L			10/04/24 23:53	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/04/24 23:53	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/04/24 23:53	1
Bromoform	<0.780		5.00	0.780	ug/L			10/04/24 23:53	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/04/24 23:53	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/04/24 23:53	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/04/24 23:53	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/04/24 23:53	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/04/24 23:53	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/04/24 23:53	1
Chloroform	<1.30		3.00	1.30	ug/L			10/04/24 23:53	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/04/24 23:53	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/04/24 23:53	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/04/24 23:53	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/04/24 23:53	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/04/24 23:53	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/04/24 23:53	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/04/24 23:53	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/04/24 23:53	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/04/24 23:53	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/04/24 23:53	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/04/24 23:53	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/04/24 23:53	1

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

Lab Sample ID: MB 310-435270/5
Matrix: Water
Analysis Batch: 435270

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/04/24 23:53	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/04/24 23:53	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/04/24 23:53	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/04/24 23:53	1
Styrene	<0.370		1.00	0.370	ug/L			10/04/24 23:53	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/04/24 23:53	1
Toluene	<0.430		1.00	0.430	ug/L			10/04/24 23:53	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/04/24 23:53	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/04/24 23:53	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/04/24 23:53	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/04/24 23:53	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/04/24 23:53	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/04/24 23:53	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/04/24 23:53	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/04/24 23:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*106*		*73 - 130*		*10/04/24 23:53*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*10/04/24 23:53*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/04/24 23:53*	*1*

Lab Sample ID: LCS 310-435270/6
Matrix: Water
Analysis Batch: 435270

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	20.23		ug/L		101	71 - 120
1,1,1-Trichloroethane	20.0	22.92		ug/L		115	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.33		ug/L		102	68 - 124
1,1,2-Trichloroethane	20.0	20.03		ug/L		100	73 - 123
1,1-Dichloroethane	20.0	22.63		ug/L		113	70 - 127
1,1-Dichloroethene	20.0	23.89		ug/L		119	63 - 132
1,1-Dichloropropene	20.0	23.68		ug/L		118	69 - 132
1,2,3-Trichloropropane	20.0	20.77		ug/L		104	65 - 127
1,2,4-Trichlorobenzene	20.0	19.21		ug/L		96	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	19.74		ug/L		99	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.10		ug/L		100	75 - 125
1,2-Dichlorobenzene	20.0	19.78		ug/L		99	74 - 120
1,2-Dichloroethane	20.0	22.19		ug/L		111	71 - 125
1,2-Dichloropropane	20.0	23.20		ug/L		116	73 - 124
1,3-Dichlorobenzene	20.0	19.60		ug/L		98	72 - 120
1,3-Dichloropropane	20.0	23.26		ug/L		116	72 - 125
1,4-Dichlorobenzene	20.0	19.65		ug/L		98	72 - 120
2,2-Dichloropropane	20.0	21.47		ug/L		107	50 - 150
2-Butanone (MEK)	40.0	47.69		ug/L		119	50 - 150
2-Hexanone	40.0	43.74		ug/L		109	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	42.95		ug/L		107	60 - 139
Acetone	40.0	46.53		ug/L		116	50 - 150

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

Lab Sample ID: LCS 310-435270/6
Matrix: Water
Analysis Batch: 435270

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Acrolein			95.5	97.85		ug/L		102	49 - 150		
Acrylonitrile			200	223.6		ug/L		112	50 - 150		
Allyl chloride			20.0	23.34		ug/L		117	49 - 150		
Benzene			20.0	22.93		ug/L		115	72 - 124		
Bromochloromethane			20.0	22.48		ug/L		112	73 - 130		
Bromodichloromethane			20.0	21.41		ug/L		107	74 - 122		
Bromoform			20.0	19.17		ug/L		96	61 - 122		
Carbon disulfide			20.0	22.33		ug/L		112	59 - 135		
Carbon tetrachloride			20.0	23.10		ug/L		116	67 - 132		
Chlorobenzene			20.0	19.95		ug/L		100	76 - 120		
Chlorodibromomethane			20.0	19.83		ug/L		99	71 - 121		
Chloroform			20.0	22.61		ug/L		113	72 - 125		
Chloroprene			20.0	22.99		ug/L		115	69 - 133		
cis-1,2-Dichloroethene			20.0	22.81		ug/L		114	74 - 123		
cis-1,3-Dichloropropene			20.0	19.37		ug/L		97	71 - 125		
Dibromomethane			20.0	22.75		ug/L		114	74 - 125		
Ethyl methacrylate			20.0	21.39		ug/L		107	70 - 129		
Ethylbenzene			20.0	20.50		ug/L		102	74 - 122		
Iodomethane			20.0	14.34		ug/L		72	10 - 150		
Methacrylonitrile			200	228.7		ug/L		114	69 - 129		
Methyl methacrylate			40.0	47.76		ug/L		119	68 - 131		
Methylene Chloride			20.0	22.68		ug/L		113	50 - 150		
Naphthalene			20.0	19.60		ug/L		98	50 - 150		
Propionitrile			200	234.1		ug/L		117	63 - 135		
Styrene			20.0	20.78		ug/L		104	74 - 121		
Tetrachloroethene			20.0	20.55		ug/L		103	71 - 130		
Toluene			20.0	19.91		ug/L		100	74 - 123		
trans-1,2-Dichloroethene			20.0	23.19		ug/L		116	70 - 126		
trans-1,3-Dichloropropene			20.0	21.97		ug/L		110	69 - 123		
trans-1,4-Dichloro-2-butene			20.0	18.58		ug/L		93	50 - 150		
Trichloroethene			20.0	23.54		ug/L		118	72 - 126		
Vinyl acetate			40.0	43.05		ug/L		108	50 - 150		
Xylenes, Total			40.0	40.47		ug/L		101	73 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*73 - 130*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Lab Sample ID: LCS 310-435270/7
Matrix: Water
Analysis Batch: 435270

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	17.98		ug/L		90	23 - 150		
Chloroethane			20.0	22.57		ug/L		113	54 - 136		
Chloromethane			20.0	19.99		ug/L		100	38 - 150		
Dichlorodifluoromethane			20.0	20.82		ug/L		104	39 - 150		

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

Lab Sample ID: LCS 310-435270/7
Matrix: Water
Analysis Batch: 435270

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Trichlorofluoromethane			20.0	22.58		ug/L		113	54 - 149		
Vinyl chloride			20.0	22.31		ug/L		112	56 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*73 - 130*
Toluene-d8 (Surr)	*92*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Lab Sample ID: 310-291902-1 MS
Matrix: Ground Water
Analysis Batch: 435270

Client Sample ID: OW-114B
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	<0.380		20.0	18.28		ug/L		91	55 - 130		
1,1,1-Trichloroethane	<0.190		20.0	20.63		ug/L		103	52 - 130		
1,1,2,2-Tetrachloroethane	<0.470		20.0	19.09		ug/L		95	54 - 130		
1,1,2-Trichloroethane	<0.450		20.0	18.53		ug/L		93	58 - 130		
1,1-Dichloroethane	<0.220		20.0	21.32		ug/L		107	49 - 130		
1,1-Dichloroethene	<0.560		20.0	21.57		ug/L		108	37 - 132		
1,1-Dichloropropene	<0.430		20.0	21.25		ug/L		106	50 - 132		
1,2,3-Trichloropropane	<0.590		20.0	19.95		ug/L		100	49 - 130		
1,2,4-Trichlorobenzene	<0.750		20.0	17.46		ug/L		87	55 - 130		
1,2-Dibromo-3-Chloropropane	<1.20		20.0	18.47		ug/L		92	38 - 150		
1,2-Dibromoethane (EDB)	<0.340		20.0	18.72		ug/L		94	60 - 130		
1,2-Dichlorobenzene	<0.370		20.0	17.99		ug/L		90	59 - 130		
1,2-Dichloroethane	<0.390		20.0	21.41		ug/L		107	51 - 130		
1,2-Dichloropropane	<0.270		20.0	22.00		ug/L		110	57 - 130		
1,3-Dichlorobenzene	<0.300		20.0	17.81		ug/L		89	57 - 130		
1,3-Dichloropropane	<0.400		20.0	22.00		ug/L		110	56 - 130		
1,4-Dichlorobenzene	<0.230		20.0	17.88		ug/L		89	57 - 130		
2,2-Dichloropropane	<0.690		20.0	17.77		ug/L		89	25 - 150		
2-Butanone (MEK)	<2.10		40.0	48.57		ug/L		121	38 - 150		
2-Hexanone	<2.00		40.0	42.31		ug/L		106	46 - 140		
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	41.19		ug/L		103	47 - 139		
Acetone	<3.10		40.0	45.97		ug/L		115	31 - 150		
Acrolein	<3.60		95.5	106.1		ug/L		111	25 - 150		
Acrylonitrile	<2.20		200	218.4		ug/L		109	40 - 150		
Allyl chloride	<0.700		20.0	21.26		ug/L		106	28 - 150		
Benzene	<0.220		20.0	21.54		ug/L		108	46 - 130		
Bromochloromethane	<0.540		20.0	21.96		ug/L		110	57 - 130		
Bromodichloromethane	<0.390		20.0	20.27		ug/L		101	57 - 130		
Bromoform	<0.780		20.0	17.52		ug/L		88	44 - 130		
Carbon disulfide	<0.450		20.0	21.37		ug/L		107	38 - 135		
Carbon tetrachloride	<0.650		20.0	20.43		ug/L		102	45 - 132		
Chlorobenzene	<0.400		20.0	18.35		ug/L		92	59 - 130		
Chlorodibromomethane	<0.750		20.0	18.20		ug/L		91	54 - 130		
Chloroform	<1.30		20.0	21.16		ug/L		106	51 - 130		
Chloroprene	<0.230		20.0	21.19		ug/L		106	43 - 133		

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

Lab Sample ID: 310-291902-1 MS
Matrix: Ground Water
Analysis Batch: 435270

Client Sample ID: OW-114B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	0.469	J	20.0	21.73		ug/L		106	45 - 130
cis-1,3-Dichloropropene	<0.250		20.0	17.52		ug/L		88	53 - 130
Dibromomethane	<0.330		20.0	21.90		ug/L		110	59 - 130
Ethyl methacrylate	<0.680		20.0	19.89		ug/L		99	54 - 130
Ethylbenzene	<0.310		20.0	18.42		ug/L		92	45 - 130
Iodomethane	<7.00		20.0	15.47		ug/L		77	10 - 150
Methacrylonitrile	<3.30		200	222.7		ug/L		111	55 - 130
Methyl methacrylate	<0.760		40.0	44.67		ug/L		112	44 - 139
Methylene Chloride	<1.70		20.0	21.53		ug/L		108	37 - 150
Naphthalene	<3.00		20.0	18.37		ug/L		92	40 - 150
Propionitrile	<3.40		200	224.6		ug/L		112	49 - 135
Styrene	<0.370		20.0	19.13		ug/L		96	47 - 130
Tetrachloroethene	<0.480		20.0	18.11		ug/L		91	47 - 130
Toluene	<0.430		20.0	18.39		ug/L		92	51 - 130
trans-1,2-Dichloroethene	<0.270		20.0	21.82		ug/L		109	48 - 130
trans-1,3-Dichloropropene	<0.560		20.0	19.71		ug/L		99	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		20.0	17.04		ug/L		85	26 - 150
Trichloroethene	<0.430		20.0	21.51		ug/L		108	51 - 130
Vinyl acetate	<2.50		40.0	38.60		ug/L		96	29 - 150
Xylenes, Total	<0.400		40.0	37.06		ug/L		93	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*106*		*73 - 130*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*

Lab Sample ID: 310-291902-1 MSD
Matrix: Ground Water
Analysis Batch: 435270

Client Sample ID: OW-114B
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	<0.380		20.0	18.23		ug/L		91	55 - 130	0	20
1,1,1-Trichloroethane	<0.190		20.0	20.39		ug/L		102	52 - 130	1	20
1,1,2,2-Tetrachloroethane	<0.470		20.0	19.16		ug/L		96	54 - 130	0	20
1,1,2-Trichloroethane	<0.450		20.0	18.57		ug/L		93	58 - 130	0	20
1,1-Dichloroethane	<0.220		20.0	21.04		ug/L		105	49 - 130	1	20
1,1-Dichloroethene	<0.560		20.0	21.26		ug/L		106	37 - 132	1	26
1,1-Dichloropropene	<0.430		20.0	20.76		ug/L		104	50 - 132	2	20
1,2,3-Trichloropropane	<0.590		20.0	19.60		ug/L		98	49 - 130	2	26
1,2,4-Trichlorobenzene	<0.750		20.0	18.81		ug/L		94	55 - 130	7	20
1,2-Dibromo-3-Chloropropane	<1.20		20.0	18.64		ug/L		93	38 - 150	1	20
1,2-Dibromoethane (EDB)	<0.340		20.0	18.53		ug/L		93	60 - 130	1	20
1,2-Dichlorobenzene	<0.370		20.0	18.42		ug/L		92	59 - 130	2	20
1,2-Dichloroethane	<0.390		20.0	21.17		ug/L		106	51 - 130	1	20
1,2-Dichloropropane	<0.270		20.0	21.62		ug/L		108	57 - 130	2	20
1,3-Dichlorobenzene	<0.300		20.0	18.09		ug/L		90	57 - 130	2	20
1,3-Dichloropropane	<0.400		20.0	21.55		ug/L		108	56 - 130	2	20
1,4-Dichlorobenzene	<0.230		20.0	18.08		ug/L		90	57 - 130	1	20

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

Lab Sample ID: 310-291902-1 MSD
Matrix: Ground Water
Analysis Batch: 435270

Client Sample ID: OW-114B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,2-Dichloropropane	<0.690		20.0	17.50		ug/L		87	25 - 150	2	25
2-Butanone (MEK)	<2.10		40.0	47.84		ug/L		120	38 - 150	2	20
2-Hexanone	<2.00		40.0	41.64		ug/L		104	46 - 140	2	20
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	41.23		ug/L		103	47 - 139	0	20
Acetone	<3.10		40.0	46.98		ug/L		117	31 - 150	2	29
Acrolein	<3.60		95.5	106.8		ug/L		112	25 - 150	1	31
Acrylonitrile	<2.20		200	220.3		ug/L		110	40 - 150	1	20
Allyl chloride	<0.700		20.0	21.20		ug/L		106	28 - 150	0	35
Benzene	<0.220		20.0	20.99		ug/L		105	46 - 130	3	20
Bromochloromethane	<0.540		20.0	21.27		ug/L		106	57 - 130	3	20
Bromodichloromethane	<0.390		20.0	20.14		ug/L		101	57 - 130	1	20
Bromoform	<0.780		20.0	17.50		ug/L		88	44 - 130	0	20
Carbon disulfide	<0.450		20.0	19.87		ug/L		99	38 - 135	7	30
Carbon tetrachloride	<0.650		20.0	20.02		ug/L		100	45 - 132	2	20
Chlorobenzene	<0.400		20.0	18.14		ug/L		91	59 - 130	1	20
Chlorodibromomethane	<0.750		20.0	18.17		ug/L		91	54 - 130	0	20
Chloroform	<1.30		20.0	21.02		ug/L		105	51 - 130	1	20
Chloroprene	<0.230		20.0	20.50		ug/L		103	43 - 133	3	20
cis-1,2-Dichloroethene	0.469	J	20.0	21.15		ug/L		103	45 - 130	3	20
cis-1,3-Dichloropropene	<0.250		20.0	17.46		ug/L		87	53 - 130	0	20
Dibromomethane	<0.330		20.0	21.17		ug/L		106	59 - 130	3	20
Ethyl methacrylate	<0.680		20.0	19.81		ug/L		99	54 - 130	0	20
Ethylbenzene	<0.310		20.0	18.37		ug/L		92	45 - 130	0	20
Iodomethane	<7.00		20.0	16.73		ug/L		84	10 - 150	8	35
Methacrylonitrile	<3.30		200	220.5		ug/L		110	55 - 130	1	20
Methyl methacrylate	<0.760		40.0	44.97		ug/L		112	44 - 139	1	20
Methylene Chloride	<1.70		20.0	21.43		ug/L		107	37 - 150	0	24
Naphthalene	<3.00		20.0	19.08		ug/L		95	40 - 150	4	30
Propionitrile	<3.40		200	226.7		ug/L		113	49 - 135	1	20
Styrene	<0.370		20.0	18.91		ug/L		95	47 - 130	1	20
Tetrachloroethene	<0.480		20.0	17.94		ug/L		90	47 - 130	1	20
Toluene	<0.430		20.0	18.07		ug/L		90	51 - 130	2	20
trans-1,2-Dichloroethene	<0.270		20.0	21.27		ug/L		106	48 - 130	3	22
trans-1,3-Dichloropropene	<0.560		20.0	19.75		ug/L		99	50 - 130	0	20
trans-1,4-Dichloro-2-butene	<1.10		20.0	17.31		ug/L		87	26 - 150	2	23
Trichloroethene	<0.430		20.0	21.07		ug/L		105	51 - 130	2	20
Vinyl acetate	<2.50		40.0	39.08		ug/L		98	29 - 150	1	23
Xylenes, Total	<0.400		40.0	36.68		ug/L		92	43 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*105*		*73 - 130*
Toluene-d8 (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

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

Lab Sample ID: MB 310-435841/5
Matrix: Water
Analysis Batch: 435841

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	<0.380		1.00	0.380	ug/L			10/10/24 13:52	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/10/24 13:52	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/10/24 13:52	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/10/24 13:52	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/10/24 13:52	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/10/24 13:52	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/10/24 13:52	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/10/24 13:52	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/10/24 13:52	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/10/24 13:52	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/10/24 13:52	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/10/24 13:52	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/10/24 13:52	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/10/24 13:52	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/10/24 13:52	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/10/24 13:52	1
Acetone	<3.10		10.0	3.10	ug/L			10/10/24 13:52	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/10/24 13:52	1
Benzene	<0.220		0.500	0.220	ug/L			10/10/24 13:52	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/10/24 13:52	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/10/24 13:52	1
Bromoform	<0.780		5.00	0.780	ug/L			10/10/24 13:52	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/10/24 13:52	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/10/24 13:52	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/10/24 13:52	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/10/24 13:52	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/10/24 13:52	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/10/24 13:52	1
Chloroform	<1.30		3.00	1.30	ug/L			10/10/24 13:52	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/10/24 13:52	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/10/24 13:52	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/10/24 13:52	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/10/24 13:52	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/10/24 13:52	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/10/24 13:52	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/10/24 13:52	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/10/24 13:52	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/10/24 13:52	1
Styrene	<0.370		1.00	0.370	ug/L			10/10/24 13:52	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/10/24 13:52	1
Toluene	<0.430		1.00	0.430	ug/L			10/10/24 13:52	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/10/24 13:52	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/10/24 13:52	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/10/24 13:52	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/10/24 13:52	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/10/24 13:52	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/10/24 13:52	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/10/24 13:52	1

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

Lab Sample ID: MB 310-435841/5
Matrix: Water
Analysis Batch: 435841

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/10/24 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/10/24 13:52*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/10/24 13:52*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/10/24 13:52*	*1*

Lab Sample ID: LCS 310-435841/6
Matrix: Water
Analysis Batch: 435841

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	21.64		ug/L		108	71 - 120
1,1,1-Trichloroethane	20.0	21.36		ug/L		107	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.73		ug/L		109	68 - 124
1,1,2-Trichloroethane	20.0	21.87		ug/L		109	73 - 123
1,1-Dichloroethane	20.0	20.51		ug/L		103	70 - 127
1,1-Dichloroethene	20.0	20.61		ug/L		103	63 - 132
1,2,3-Trichloropropane	20.0	21.52		ug/L		108	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	20.76		ug/L		104	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.25		ug/L		106	75 - 125
1,2-Dichlorobenzene	20.0	21.41		ug/L		107	74 - 120
1,2-Dichloroethane	20.0	20.58		ug/L		103	71 - 125
1,2-Dichloropropane	20.0	20.66		ug/L		103	73 - 124
1,4-Dichlorobenzene	20.0	21.25		ug/L		106	72 - 120
2-Butanone (MEK)	40.0	41.95		ug/L		105	50 - 150
2-Hexanone	40.0	44.19		ug/L		110	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	43.46		ug/L		109	60 - 139
Acetone	40.0	40.85		ug/L		102	50 - 150
Acrylonitrile	200	201.9		ug/L		101	50 - 150
Benzene	20.0	20.74		ug/L		104	72 - 124
Bromochloromethane	20.0	20.66		ug/L		103	73 - 130
Bromodichloromethane	20.0	21.17		ug/L		106	74 - 122
Bromoform	20.0	21.33		ug/L		107	61 - 122
Carbon disulfide	20.0	20.04		ug/L		100	59 - 135
Carbon tetrachloride	20.0	21.32		ug/L		107	67 - 132
Chlorobenzene	20.0	21.47		ug/L		107	76 - 120
Chlorodibromomethane	20.0	21.44		ug/L		107	71 - 121
Chloroform	20.0	20.10		ug/L		100	72 - 125
cis-1,2-Dichloroethene	20.0	20.79		ug/L		104	74 - 123
cis-1,3-Dichloropropene	20.0	21.54		ug/L		108	71 - 125
Dibromomethane	20.0	20.72		ug/L		104	74 - 125
Ethylbenzene	20.0	22.07		ug/L		110	74 - 122
Iodomethane	20.0	14.61		ug/L		73	10 - 150
Methylene Chloride	20.0	19.87		ug/L		99	50 - 150
Styrene	20.0	22.41		ug/L		112	74 - 121
Tetrachloroethene	20.0	21.95		ug/L		110	71 - 130
Toluene	20.0	21.08		ug/L		105	74 - 123

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

Lab Sample ID: LCS 310-435841/6
Matrix: Water
Analysis Batch: 435841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	20.80		ug/L		104	70 - 126
trans-1,3-Dichloropropene	20.0	21.67		ug/L		108	69 - 123
trans-1,4-Dichloro-2-butene	20.0	20.12		ug/L		101	50 - 150
Trichloroethene	20.0	21.20		ug/L		106	72 - 126
Vinyl acetate	40.0	43.17		ug/L		108	50 - 150
Xylenes, Total	40.0	43.80		ug/L		110	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-435841/7
Matrix: Water
Analysis Batch: 435841

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	16.21		ug/L		81	23 - 150
Chloroethane	20.0	19.65		ug/L		98	54 - 136
Chloromethane	20.0	20.27		ug/L		101	38 - 150
Trichlorofluoromethane	20.0	21.81		ug/L		109	54 - 149
Vinyl chloride	20.0	20.72		ug/L		104	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-435317/1-A
Matrix: Water
Analysis Batch: 435770

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/07/24 09:30	10/09/24 17:02	1
Arsenic	<0.530		2.00	0.530	ug/L		10/07/24 09:30	10/09/24 17:02	1
Barium	<0.660		2.00	0.660	ug/L		10/07/24 09:30	10/09/24 17:02	1
Beryllium	<0.330		1.00	0.330	ug/L		10/07/24 09:30	10/09/24 17:02	1
Cadmium	<0.100		0.200	0.100	ug/L		10/07/24 09:30	10/09/24 17:02	1
Chromium	<1.20		5.00	1.20	ug/L		10/07/24 09:30	10/09/24 17:02	1
Cobalt	<0.170		0.500	0.170	ug/L		10/07/24 09:30	10/09/24 17:02	1
Copper	<1.80		5.00	1.80	ug/L		10/07/24 09:30	10/09/24 17:02	1
Lead	<0.260		0.500	0.260	ug/L		10/07/24 09:30	10/09/24 17:02	1
Nickel	<2.10		5.00	2.10	ug/L		10/07/24 09:30	10/09/24 17:02	1
Selenium	<1.40		5.00	1.40	ug/L		10/07/24 09:30	10/09/24 17:02	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/07/24 09:30	10/09/24 17:02	1
Vanadium	<1.10		5.00	1.10	ug/L		10/07/24 09:30	10/09/24 17:02	1

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

Lab Sample ID: MB 310-435317/1-A
Matrix: Water
Analysis Batch: 435770
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<9.70		20.0	9.70	ug/L		10/07/24 09:30	10/09/24 17:02	1

Lab Sample ID: MB 310-435317/1-A
Matrix: Water
Analysis Batch: 436234
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.570		1.00	0.570	ug/L		10/07/24 09:30	10/14/24 17:27	1

Lab Sample ID: LCS 310-435317/2-A
Matrix: Water
Analysis Batch: 435770
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435317

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	237.1		ug/L		119	80 - 120
Arsenic	200	224.2		ug/L		112	80 - 120
Barium	100	109.2		ug/L		109	80 - 120
Beryllium	100	103.0		ug/L		103	80 - 120
Cadmium	100	104.7		ug/L		105	80 - 120
Chromium	100	100.8		ug/L		101	80 - 120
Cobalt	100	116.8		ug/L		117	80 - 120
Copper	200	223.3		ug/L		112	80 - 120
Lead	200	221.4		ug/L		111	80 - 120
Nickel	200	215.1		ug/L		108	80 - 120
Selenium	400	420.0		ug/L		105	80 - 120
Silver	100	117.3	^1+	ug/L		117	80 - 120
Vanadium	100	99.27		ug/L		99	80 - 120
Zinc	200	193.9		ug/L		97	80 - 120

Lab Sample ID: LCS 310-435317/2-A
Matrix: Water
Analysis Batch: 436234
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435317

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	100	82.12		ug/L		82	80 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-435272/1
Matrix: Water
Analysis Batch: 435272
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	<3.70		5.00	3.70	mg/L			10/04/24 11:09	1

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: LCS 310-435272/2
Matrix: Water
Analysis Batch: 435272

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	97.00		mg/L		97	81 - 116		

GC/MS VOA

Analysis Batch: 435270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	8260D	
310-291902-2	OW-209B	Total/NA	Ground Water	8260D	
310-291902-3	OW-209B-FD	Total/NA	Ground Water	8260D	
310-291902-4	OW-212B	Total/NA	Groundwater	8260D	
310-291902-5	Trip Blank	Total/NA	Water	8260D	
MB 310-435270/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435270/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435270/7	Lab Control Sample	Total/NA	Water	8260D	
310-291902-1 MS	OW-114B	Total/NA	Ground Water	8260D	
310-291902-1 MSD	OW-114B	Total/NA	Ground Water	8260D	

Analysis Batch: 435841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	8260D	
MB 310-435841/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435841/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435841/7	Lab Control Sample	Total/NA	Water	8260D	

Metals

Prep Batch: 435317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	3005A	
310-291902-2	OW-209B	Total/NA	Ground Water	3005A	
310-291902-3	OW-209B-FD	Total/NA	Ground Water	3005A	
310-291902-4	OW-212B	Total/NA	Groundwater	3005A	
MB 310-435317/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-435317/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 435770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	6020B	435317
310-291902-2	OW-209B	Total/NA	Ground Water	6020B	435317
310-291902-3	OW-209B-FD	Total/NA	Ground Water	6020B	435317
310-291902-4	OW-212B	Total/NA	Groundwater	6020B	435317
MB 310-435317/1-A	Method Blank	Total/NA	Water	6020B	435317
LCS 310-435317/2-A	Lab Control Sample	Total/NA	Water	6020B	435317

Analysis Batch: 436234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	6020B	435317
310-291902-2	OW-209B	Total/NA	Ground Water	6020B	435317
310-291902-3	OW-209B-FD	Total/NA	Ground Water	6020B	435317
310-291902-4	OW-212B	Total/NA	Groundwater	6020B	435317
MB 310-435317/1-A	Method Blank	Total/NA	Water	6020B	435317
LCS 310-435317/2-A	Lab Control Sample	Total/NA	Water	6020B	435317

General Chemistry

Analysis Batch: 435272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	I-3765-85	

General Chemistry (Continued)

Analysis Batch: 435272 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-2	OW-209B	Total/NA	Ground Water	I-3765-85	
310-291902-3	OW-209B-FD	Total/NA	Ground Water	I-3765-85	
310-291902-4	OW-212B	Total/NA	Groundwater	I-3765-85	
MB 310-435272/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-435272/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Field Service / Mobile Lab

Analysis Batch: 435786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-291902-1	OW-114B	Total/NA	Ground Water	Field Sampling	
310-291902-2	OW-209B	Total/NA	Ground Water	Field Sampling	
310-291902-4	OW-212B	Total/NA	Groundwater	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-114B
Lab Sample ID: 310-291902-1
Date Collected: 10/02/24 09:40
Matrix: Ground Water
Date Received: 10/03/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435270	FE5V	EET CF	10/05/24 02:56
Total/NA	Analysis	8260D		1	435841	WSE8	EET CF	10/10/24 16:54
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	435770	NFT2	EET CF	10/09/24 17:59
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 17:57
Total/NA	Analysis	I-3765-85		1	435272	DGU1	EET CF	10/04/24 11:09
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/02/24 09:40

Client Sample ID: OW-209B
Lab Sample ID: 310-291902-2
Date Collected: 10/02/24 10:30
Matrix: Ground Water
Date Received: 10/03/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435270	FE5V	EET CF	10/05/24 03:18
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	435770	NFT2	EET CF	10/09/24 18:01
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 17:59
Total/NA	Analysis	I-3765-85		1	435272	DGU1	EET CF	10/04/24 11:09
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/02/24 10:30

Client Sample ID: OW-209B-FD
Lab Sample ID: 310-291902-3
Date Collected: 10/02/24 10:30
Matrix: Ground Water
Date Received: 10/03/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435270	FE5V	EET CF	10/05/24 03:41
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	435770	NFT2	EET CF	10/09/24 18:03
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 18:01
Total/NA	Analysis	I-3765-85		1	435272	DGU1	EET CF	10/04/24 11:09

Client Sample ID: OW-212B
Lab Sample ID: 310-291902-4
Date Collected: 10/02/24 13:30
Matrix: Groundwater
Date Received: 10/03/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435270	FE5V	EET CF	10/05/24 04:04
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	435770	NFT2	EET CF	10/09/24 18:06
Total/NA	Prep	3005A			435317	F5MW	EET CF	10/07/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 18:04

Lab Chronicle

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-212B
Lab Sample ID: 310-291902-4
Date Collected: 10/02/24 13:30
Matrix: Groundwater
Date Received: 10/03/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	435272	DGU1	EET CF	10/04/24 11:09
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/02/24 13:30

Client Sample ID: Trip Blank
Lab Sample ID: 310-291902-5
Date Collected: 10/02/24 06:00
Matrix: Water
Date Received: 10/03/24 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435270	FE5V	EET CF	10/05/24 01:01

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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	m,p-Xylene
8260D		Ground Water	o-Xylene
8260D		Groundwater	m,p-Xylene
8260D		Groundwater	o-Xylene
8260D		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Ground Water	Field Turbidity
Field Sampling		Groundwater	Field Turbidity

Method Summary

Client: AECOM
Job ID: 310-291902-1
Project/Site: Black Hawk County Landfill (IDNR)

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
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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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310-291902 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo STATE IA Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 10/3/24 TIME 0925 Received By: TO

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: R Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 5.6 Corrected Temp (°C): 5.6

• **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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom.com	Site Contact: / Date: 10-3-24	1 of 1 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	Lab Contact: / Carrier:	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time**		Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS		**For Lab Use Only:**
(xxx) xxx-xxxx FAX	TAT if different from Below _____		Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks		Lab Sampling
Site Black Hawk County Landfill	☐ 1 week		
P O #	☐ 2 days		Job / SDG No
	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-101B			G	GW		N		X											
OW-105B			G	GW		N		X											
OW-113B			G	GW		N		X										X	
OW-114B	10-2-24	0940	G	GW	5	N		X											Turbidity – 1.55 NTU
OW-205B			G	GW		N		X			X			X				X	
OW-209B	10-2-24	1030	G	GW	5	N		X											Turbidity – 1.24 NTU
OW-209B-FD	10-2-24	1030	G	GW	5	N		X											
OW-212B	10-2-24	1330	G	GW	5	N		X											Turbidity – 4.68 NTU
OW-213BR			G	GW		N		X											
OW-216BR			G	GW		N		X											
OW-219B			G	GW		N		X											
Trip Blank	10-2-24	0600	G	W	2	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd._____ Corr'd._____		Therm ID No._____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-3-24	Received by:	Company:	Date/Time: 10/3/24 0925
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-291902-1

Login Number: 291902

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 10/18/2024 10:48:38 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-292086-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job ID: 310-292086-1 — Eurofins Cedar Falls

Job Narrative
310-292086-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/4/2024 1:20 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 7.6°C.

GC/MS VOA
Method 8260D: The following sample(s) was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed within the 7-day holding time specified for unpreserved samples: OW-220B (310-292086-7).

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): Trip Blank (310-292086-8).

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

Herbicides
Method 8151A: Surrogate recovery for the following sample was outside upper control limits: OW-220B (310-292086-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. See prep tech notes matrix is orange cloudy.

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

Metals
Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: OW-220B (310-292086-7). The sample(s) was preserved to the appropriate pH in the laboratory.

Method 6020B: The initial calibration verification (ICV) result for batch 310-436234 was above the upper control limit. The affected analytes are: silver. Sample results were non-detects, and have been reported as qualified data.

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.

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

Sample Summary

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292086-5	OW-213BR	Water	10/04/24 09:20	10/04/24 13:20
310-292086-6	OW-219B	Water	10/04/24 10:00	10/04/24 13:20
310-292086-7	OW-220B	Water	10/04/24 13:00	10/04/24 13:20
310-292086-8	Trip Blank	Water	10/04/24 06:00	10/04/24 13:20

Detection Summary

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-213BR — Lab Sample ID: 310-292086-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.404	J	0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.528	J	1.00	0.210	ug/L	1		8260D	Total/NA
Barium	75.4		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.405		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	2.04	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.01		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	5.64	B	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	45.2		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	1.58		1.00	0.570	ug/L	1		6020B	Total/NA
Vanadium	1.48	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	2.25		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	8.22				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-219B — Lab Sample ID: 310-292086-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	29.0		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.186	J	0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	4.19	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.37		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.14	J B	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	12.1		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	0.793	J	1.00	0.570	ug/L	1		6020B	Total/NA
Total Suspended Solids	10.6		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	0.62				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-220B — Lab Sample ID: 310-292086-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.540	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	2.35		1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	7.67	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.29		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	1.26	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.407	J	1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	25.3		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1010		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	6.62		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	15.8		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.697		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	130		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	1.54		1.00	0.570	ug/L	1		6020B	Total/NA
Vanadium	1.92	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	81.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	5.01				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-292086-8

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-213BR
Lab Sample ID: 310-292086-5
Date Collected: 10/04/24 09:20
Matrix: Water
Date Received: 10/04/24 13:20

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	<0.380		1.00	0.380	ug/L			10/11/24 05:24	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 05:24	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 05:24	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 05:24	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 05:24	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 05:24	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 05:24	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 05:24	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 05:24	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 05:24	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 05:24	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 05:24	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 05:24	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 05:24	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 05:24	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 05:24	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 05:24	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 05:24	1
Benzene	**0.404**	**J**	0.500	0.220	ug/L			10/11/24 05:24	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 05:24	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 05:24	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 05:24	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 05:24	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 05:24	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 05:24	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 05:24	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 05:24	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 05:24	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 05:24	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 05:24	1
cis-1,2-Dichloroethene	**0.528**	**J**	1.00	0.210	ug/L			10/11/24 05:24	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 05:24	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 05:24	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 05:24	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 05:24	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 05:24	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 05:24	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 05:24	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 05:24	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 05:24	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 05:24	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 05:24	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 05:24	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 05:24	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 05:24	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 05:24	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 05:24	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 05:24	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 05:24	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-213BR
Lab Sample ID: 310-292086-5

Date Collected: 10/04/24 09:20
Matrix: Water

Date Received: 10/04/24 13:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/11/24 05:24*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/11/24 05:24*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/11/24 05:24*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/09/24 09:30	10/11/24 19:45	1
Arsenic	<0.530		2.00	0.530	ug/L		10/09/24 09:30	10/11/24 19:45	1
Barium	**75.4**		2.00	0.660	ug/L		10/09/24 09:30	10/14/24 12:36	1
Beryllium	<0.330		1.00	0.330	ug/L		10/09/24 09:30	10/14/24 12:36	1
Cadmium	**0.405**		0.200	0.100	ug/L		10/09/24 09:30	10/11/24 19:45	1
Chromium	**2.04**	**J**	5.00	1.20	ug/L		10/09/24 09:30	10/11/24 19:45	1
Cobalt	**2.01**		0.500	0.170	ug/L		10/09/24 09:30	10/11/24 19:45	1
Copper	**5.64**	**B**	5.00	1.80	ug/L		10/09/24 09:30	10/11/24 19:45	1
Lead	<0.260		0.500	0.260	ug/L		10/09/24 09:30	10/11/24 19:45	1
Nickel	**45.2**		5.00	2.10	ug/L		10/09/24 09:30	10/11/24 19:45	1
Selenium	<1.40		5.00	1.40	ug/L		10/09/24 09:30	10/11/24 19:45	1
Silver	<0.500		1.00	0.500	ug/L		10/09/24 09:30	10/11/24 19:45	1
Thallium	**1.58**		1.00	0.570	ug/L		10/09/24 09:30	10/14/24 12:36	1
Vanadium	**1.48**	**J**	5.00	1.10	ug/L		10/09/24 09:30	10/11/24 19:45	1
Zinc	<9.70		20.0	9.70	ug/L		10/09/24 09:30	10/11/24 19:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**2.25**		1.88	1.39	mg/L			10/07/24 12:50	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**8.22**				NTU			10/04/24 09:20	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-219B
Lab Sample ID: 310-292086-6
Date Collected: 10/04/24 10:00
Matrix: Water
Date Received: 10/04/24 13:20

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	<0.380		1.00	0.380	ug/L			10/11/24 05:47	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 05:47	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 05:47	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 05:47	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 05:47	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 05:47	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 05:47	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 05:47	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 05:47	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 05:47	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 05:47	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 05:47	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 05:47	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 05:47	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 05:47	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 05:47	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 05:47	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 05:47	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 05:47	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 05:47	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 05:47	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 05:47	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 05:47	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 05:47	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 05:47	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 05:47	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 05:47	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 05:47	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 05:47	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 05:47	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 05:47	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 05:47	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 05:47	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 05:47	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 05:47	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 05:47	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 05:47	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 05:47	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 05:47	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 05:47	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 05:47	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 05:47	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 05:47	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 05:47	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 05:47	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 05:47	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 05:47	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 05:47	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 05:47	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-219B
Lab Sample ID: 310-292086-6

Date Collected: 10/04/24 10:00
Matrix: Water

Date Received: 10/04/24 13:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/11/24 05:47*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/11/24 05:47*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/11/24 05:47*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/09/24 09:30	10/11/24 19:55	1
Arsenic	<0.530		2.00	0.530	ug/L		10/09/24 09:30	10/11/24 19:55	1
Barium	**29.0**		2.00	0.660	ug/L		10/09/24 09:30	10/11/24 19:55	1
Beryllium	<0.330		1.00	0.330	ug/L		10/09/24 09:30	10/14/24 12:42	1
Cadmium	**0.186**	**J**	0.200	0.100	ug/L		10/09/24 09:30	10/11/24 19:55	1
Chromium	**4.19**	**J**	5.00	1.20	ug/L		10/09/24 09:30	10/11/24 19:55	1
Cobalt	**2.37**		0.500	0.170	ug/L		10/09/24 09:30	10/11/24 19:55	1
Copper	**2.14**	**J B**	5.00	1.80	ug/L		10/09/24 09:30	10/11/24 19:55	1
Lead	<0.260		0.500	0.260	ug/L		10/09/24 09:30	10/11/24 19:55	1
Nickel	**12.1**		5.00	2.10	ug/L		10/09/24 09:30	10/11/24 19:55	1
Selenium	<1.40		5.00	1.40	ug/L		10/09/24 09:30	10/11/24 19:55	1
Silver	<0.500		1.00	0.500	ug/L		10/09/24 09:30	10/11/24 19:55	1
Thallium	**0.793**	**J**	1.00	0.570	ug/L		10/09/24 09:30	10/14/24 12:42	1
Vanadium	<1.10		5.00	1.10	ug/L		10/09/24 09:30	10/11/24 19:55	1
Zinc	<9.70		20.0	9.70	ug/L		10/09/24 09:30	10/11/24 19:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**10.6**		1.88	1.39	mg/L			10/07/24 12:50	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.62**				NTU			10/04/24 10:00	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-220B
Lab Sample ID: 310-292086-7
Date Collected: 10/04/24 13:00
Matrix: Water
Date Received: 10/04/24 13:20

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	<0.380		1.00	0.380	ug/L			10/11/24 06:10	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 06:10	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 06:10	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 06:10	1
1,1-Dichloroethane	**0.540**	**J**	1.00	0.220	ug/L			10/11/24 06:10	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 06:10	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 06:10	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 06:10	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 06:10	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 06:10	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 06:10	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 06:10	1
1,4-Dichlorobenzene	**2.35**		1.00	0.230	ug/L			10/11/24 06:10	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 06:10	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 06:10	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 06:10	1
Acetone	**7.67**	**J**	10.0	3.10	ug/L			10/11/24 06:10	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 06:10	1
Benzene	**2.29**		0.500	0.220	ug/L			10/11/24 06:10	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 06:10	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 06:10	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 06:10	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 06:10	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 06:10	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 06:10	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 06:10	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 06:10	1
Chloroethane	**1.26**	**J**	4.00	0.790	ug/L			10/11/24 06:10	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 06:10	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 06:10	1
cis-1,2-Dichloroethene	**0.407**	**J**	1.00	0.210	ug/L			10/11/24 06:10	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 06:10	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 06:10	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 06:10	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 06:10	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 06:10	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 06:10	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 06:10	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 06:10	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 06:10	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 06:10	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 06:10	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 06:10	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 06:10	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 06:10	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 06:10	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 06:10	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 06:10	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 06:10	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-220B
Lab Sample ID: 310-292086-7

Date Collected: 10/04/24 13:00
Matrix: Water

Date Received: 10/04/24 13:20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/11/24 06:10*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/11/24 06:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/11/24 06:10*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<1.26		3.03	1.26	ug/L		10/08/24 07:36	10/09/24 08:03	5
Silvex (2,4,5-TP)	<0.111		0.252	0.111	ug/L		10/08/24 07:36	10/09/24 08:03	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*107*	*p*	*34 - 142*	*10/08/24 07:36*	*10/09/24 08:03*	*5*
DCAA	*290*	*S1+*	*34 - 142*	*10/08/24 07:36*	*10/09/24 08:03*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/09/24 09:30	10/11/24 19:57	1
Arsenic	**25.3**		2.00	0.530	ug/L		10/09/24 09:30	10/11/24 19:57	1
Barium	**1010**		2.00	0.660	ug/L		10/09/24 09:30	10/11/24 19:57	1
Beryllium	<0.330		1.00	0.330	ug/L		10/09/24 09:30	10/14/24 12:44	1
Cadmium	<0.100		0.200	0.100	ug/L		10/09/24 09:30	10/11/24 19:57	1
Chromium	**6.62**		5.00	1.20	ug/L		10/09/24 09:30	10/11/24 19:57	1
Cobalt	**15.8**		0.500	0.170	ug/L		10/09/24 09:30	10/11/24 19:57	1
Copper	<1.80		5.00	1.80	ug/L		10/09/24 09:30	10/11/24 19:57	1
Lead	**0.697**		0.500	0.260	ug/L		10/09/24 09:30	10/11/24 19:57	1
Nickel	**130**		5.00	2.10	ug/L		10/09/24 09:30	10/11/24 19:57	1
Selenium	<1.40		5.00	1.40	ug/L		10/09/24 09:30	10/11/24 19:57	1
Silver	<0.500		1.00	0.500	ug/L		10/09/24 09:30	10/11/24 19:57	1
Thallium	**1.54**		1.00	0.570	ug/L		10/09/24 09:30	10/14/24 12:44	1
Vanadium	**1.92**	**J**	5.00	1.10	ug/L		10/09/24 09:30	10/11/24 19:57	1
Zinc	<9.70		20.0	9.70	ug/L		10/09/24 09:30	10/11/24 19:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**81.0**		15.0	11.1	mg/L			10/07/24 12:50	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**5.01**				NTU			10/04/24 13:00	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292086-8
Date Collected: 10/04/24 06:00
Matrix: Water
Date Received: 10/04/24 13:20

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	<0.380		1.00	0.380	ug/L			10/11/24 02:45	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 02:45	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 02:45	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 02:45	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 02:45	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 02:45	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/11/24 02:45	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 02:45	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/11/24 02:45	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 02:45	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 02:45	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 02:45	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 02:45	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 02:45	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/11/24 02:45	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/11/24 02:45	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 02:45	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/11/24 02:45	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 02:45	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 02:45	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 02:45	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 02:45	1
Acrolein	<3.60		10.0	3.60	ug/L			10/11/24 02:45	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 02:45	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/11/24 02:45	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 02:45	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 02:45	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 02:45	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 02:45	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 02:45	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 02:45	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 02:45	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 02:45	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 02:45	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 02:45	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 02:45	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 02:45	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/11/24 02:45	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 02:45	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 02:45	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 02:45	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/11/24 02:45	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/11/24 02:45	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 02:45	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 02:45	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 02:45	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/11/24 02:45	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/11/24 02:45	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 02:45	1

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292086-8
Date Collected: 10/04/24 06:00
Matrix: Water
Date Received: 10/04/24 13:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/11/24 02:45	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 02:45	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/11/24 02:45	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 02:45	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 02:45	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 02:45	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 02:45	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 02:45	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 02:45	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 02:45	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 02:45	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 02:45	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 02:45	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/11/24 02:45*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/11/24 02:45*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/11/24 02:45*	*1*

Definitions/Glossary

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

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 Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
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.

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: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-292086-5	OW-213BR	100	99	100
310-292086-6	OW-219B	101	98	99
310-292086-7	OW-220B	100	99	99
310-292086-8	Trip Blank	101	99	100
LCS 310-435843/6	Lab Control Sample	101	101	99
LCS 310-435843/7	Lab Control Sample	101	99	100
MB 310-435843/5	Method Blank	101	99	101

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1	DCPAA2
Lab Sample ID	Client Sample ID	(34-142)	(34-142)
310-292086-7	OW-220B	107 p	290 S1+
LCS 410-560532/2-A	Lab Control Sample	95	98
MB 410-560532/1-A	Method Blank	82	69

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-435843/5
Matrix: Water
Analysis Batch: 435843

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	<0.380		1.00	0.380	ug/L			10/11/24 00:51	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 00:51	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 00:51	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 00:51	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 00:51	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 00:51	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/11/24 00:51	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 00:51	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/11/24 00:51	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 00:51	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 00:51	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 00:51	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 00:51	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 00:51	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/11/24 00:51	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/11/24 00:51	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 00:51	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/11/24 00:51	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 00:51	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 00:51	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 00:51	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 00:51	1
Acrolein	<3.60		10.0	3.60	ug/L			10/11/24 00:51	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 00:51	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/11/24 00:51	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 00:51	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 00:51	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 00:51	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 00:51	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 00:51	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 00:51	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 00:51	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 00:51	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 00:51	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 00:51	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 00:51	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 00:51	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/11/24 00:51	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 00:51	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 00:51	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 00:51	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/11/24 00:51	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/11/24 00:51	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 00:51	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 00:51	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 00:51	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/11/24 00:51	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/11/24 00:51	1

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

Lab Sample ID: MB 310-435843/5
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 00:51	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/11/24 00:51	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 00:51	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/11/24 00:51	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 00:51	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 00:51	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 00:51	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 00:51	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 00:51	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 00:51	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 00:51	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 00:51	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 00:51	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 00:51	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 00:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/11/24 00:51*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/11/24 00:51*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/11/24 00:51*	*1*

Lab Sample ID: LCS 310-435843/6
Matrix: Water
Analysis Batch: 435843

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	22.29		ug/L		111	71 - 120
1,1,1-Trichloroethane	20.0	21.76		ug/L		109	73 - 129
1,1,2,2-Tetrachloroethane	20.0	21.96		ug/L		110	68 - 124
1,1,2-Trichloroethane	20.0	22.17		ug/L		111	73 - 123
1,1-Dichloroethane	20.0	20.96		ug/L		105	70 - 127
1,1-Dichloroethene	20.0	21.16		ug/L		106	63 - 132
1,1-Dichloropropene	20.0	21.81		ug/L		109	69 - 132
1,2,3-Trichloropropane	20.0	21.51		ug/L		108	65 - 127
1,2,4-Trichlorobenzene	20.0	22.35		ug/L		112	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	20.85		ug/L		104	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.86		ug/L		109	75 - 125
1,2-Dichlorobenzene	20.0	22.11		ug/L		111	74 - 120
1,2-Dichloroethane	20.0	20.79		ug/L		104	71 - 125
1,2-Dichloropropane	20.0	21.16		ug/L		106	73 - 124
1,3-Dichlorobenzene	20.0	22.15		ug/L		111	72 - 120
1,3-Dichloropropane	20.0	21.75		ug/L		109	72 - 125
1,4-Dichlorobenzene	20.0	21.75		ug/L		109	72 - 120
2,2-Dichloropropane	20.0	20.89		ug/L		104	50 - 150
2-Butanone (MEK)	40.0	41.41		ug/L		104	50 - 150
2-Hexanone	40.0	43.80		ug/L		110	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	44.59		ug/L		111	60 - 139
Acetone	40.0	40.80		ug/L		102	50 - 150

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

Lab Sample ID: LCS 310-435843/6
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Acrolein			95.5	93.57		ug/L		98	49 - 150		
Acrylonitrile			200	205.6		ug/L		103	50 - 150		
Allyl chloride			20.0	20.83		ug/L		104	49 - 150		
Benzene			20.0	21.28		ug/L		106	72 - 124		
Bromochloromethane			20.0	21.44		ug/L		107	73 - 130		
Bromodichloromethane			20.0	21.52		ug/L		108	74 - 122		
Bromoform			20.0	21.31		ug/L		107	61 - 122		
Carbon disulfide			20.0	20.28		ug/L		101	59 - 135		
Carbon tetrachloride			20.0	21.63		ug/L		108	67 - 132		
Chlorobenzene			20.0	22.00		ug/L		110	76 - 120		
Chlorodibromomethane			20.0	21.70		ug/L		109	71 - 121		
Chloroform			20.0	20.61		ug/L		103	72 - 125		
Chloroprene			20.0	21.19		ug/L		106	69 - 133		
cis-1,2-Dichloroethene			20.0	21.01		ug/L		105	74 - 123		
cis-1,3-Dichloropropene			20.0	21.61		ug/L		108	71 - 125		
Dibromomethane			20.0	21.25		ug/L		106	74 - 125		
Ethyl methacrylate			20.0	22.16		ug/L		111	70 - 129		
Ethylbenzene			20.0	22.68		ug/L		113	74 - 122		
Iodomethane			20.0	16.58		ug/L		83	10 - 150		
Methacrylonitrile			200	212.4		ug/L		106	69 - 129		
Methyl methacrylate			40.0	44.48		ug/L		111	68 - 131		
Methylene Chloride			20.0	20.36		ug/L		102	50 - 150		
Naphthalene			20.0	22.38		ug/L		112	50 - 150		
Propionitrile			200	212.7		ug/L		106	63 - 135		
Styrene			20.0	23.08		ug/L		115	74 - 121		
Tetrachloroethene			20.0	22.27		ug/L		111	71 - 130		
Toluene			20.0	21.61		ug/L		108	74 - 123		
trans-1,2-Dichloroethene			20.0	21.08		ug/L		105	70 - 126		
trans-1,3-Dichloropropene			20.0	21.35		ug/L		107	69 - 123		
trans-1,4-Dichloro-2-butene			20.0	19.89		ug/L		99	50 - 150		
Trichloroethene			20.0	21.74		ug/L		109	72 - 126		
Vinyl acetate			40.0	41.19		ug/L		103	50 - 150		
Xylenes, Total			40.0	45.14		ug/L		113	73 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-435843/7
Matrix: Water
Analysis Batch: 435843

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	16.32		ug/L		82	23 - 150		
Chloroethane			20.0	18.50		ug/L		92	54 - 136		
Chloromethane			20.0	18.78		ug/L		94	38 - 150		
Dichlorodifluoromethane			20.0	22.03		ug/L		110	39 - 150		

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

Lab Sample ID: LCS 310-435843/7
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Trichlorofluoromethane	20.0	20.87		ug/L		104	54 - 149
Vinyl chloride	20.0	19.80		ug/L		99	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-560532/1-A
Matrix: Water
Analysis Batch: 560964

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 560532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.250		0.600	0.250	ug/L		10/08/24 07:36	10/09/24 05:14	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		10/08/24 07:36	10/09/24 05:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*82*		*34 - 142*	*10/08/24 07:36*	*10/09/24 05:14*	*1*
DCAA	*69*		*34 - 142*	*10/08/24 07:36*	*10/09/24 05:14*	*1*

Lab Sample ID: LCS 410-560532/2-A
Matrix: Water
Analysis Batch: 560964

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 560532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-D	2.50	2.795		ug/L		112	53 - 159
Silvex (2,4,5-TP)	0.250	0.3191		ug/L		128	62 - 170

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*95*		*34 - 142*
DCAA	*98*		*34 - 142*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-435581/1-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435581

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/09/24 09:30	10/11/24 19:40	1
Arsenic	<0.530		2.00	0.530	ug/L		10/09/24 09:30	10/11/24 19:40	1
Barium	<0.660		2.00	0.660	ug/L		10/09/24 09:30	10/11/24 19:40	1
Cadmium	<0.100		0.200	0.100	ug/L		10/09/24 09:30	10/11/24 19:40	1
Chromium	<1.20		5.00	1.20	ug/L		10/09/24 09:30	10/11/24 19:40	1
Cobalt	<0.170		0.500	0.170	ug/L		10/09/24 09:30	10/11/24 19:40	1
Copper	1.931	J	5.00	1.80	ug/L		10/09/24 09:30	10/11/24 19:40	1

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

Lab Sample ID: MB 310-435581/1-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435581

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.260		0.500	0.260	ug/L		10/09/24 09:30	10/11/24 19:40	1
Nickel	<2.10		5.00	2.10	ug/L		10/09/24 09:30	10/11/24 19:40	1
Selenium	<1.40		5.00	1.40	ug/L		10/09/24 09:30	10/11/24 19:40	1
Vanadium	<1.10		5.00	1.10	ug/L		10/09/24 09:30	10/11/24 19:40	1

Lab Sample ID: MB 310-435581/1-A
Matrix: Water
Analysis Batch: 436234

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435581

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	<0.330		1.00	0.330	ug/L		10/09/24 09:30	10/14/24 12:31	1
Silver	<0.500	^1+	1.00	0.500	ug/L		10/09/24 09:30	10/14/24 12:31	1
Thallium	<0.570		1.00	0.570	ug/L		10/09/24 09:30	10/14/24 12:31	1
Zinc	<9.70		20.0	9.70	ug/L		10/09/24 09:30	10/14/24 12:31	1

Lab Sample ID: LCS 310-435581/2-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	224.9		ug/L		112	80 - 120
Barium	100	109.2		ug/L		109	80 - 120
Chromium	100	120.1		ug/L		120	80 - 120
Copper	200	234.6		ug/L		117	80 - 120
Nickel	200	219.4		ug/L		110	80 - 120
Selenium	400	424.4		ug/L		106	80 - 120
Silver	100	106.0		ug/L		106	80 - 120
Vanadium	100	106.2		ug/L		106	80 - 120
Zinc	200	200.5		ug/L		100	80 - 120

Lab Sample ID: LCS 310-435581/2-A
Matrix: Water
Analysis Batch: 436234

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	238.7		ug/L		119	80 - 120
Beryllium	100	108.5		ug/L		108	80 - 120
Cadmium	100	108.9		ug/L		109	80 - 120
Lead	200	226.1		ug/L		113	80 - 120
Thallium	100	84.57		ug/L		85	80 - 120

Lab Sample ID: LCS 310-435581/2-A
Matrix: Water
Analysis Batch: 436382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	100	112.3		ug/L		112	80 - 120

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

Lab Sample ID: 310-292086-5 MS
Matrix: Water
Analysis Batch: 436085

Client Sample ID: OW-213BR
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<1.00		200	214.7		ug/L		107	75 - 125
Arsenic	<0.530		200	211.1		ug/L		106	75 - 125
Barium	67.0		100	166.9		ug/L		100	75 - 125
Cadmium	0.405		100	93.88		ug/L		93	75 - 125
Chromium	2.04	J	100	99.66		ug/L		98	75 - 125
Cobalt	2.01		100	111.8		ug/L		110	75 - 125
Copper	5.64	B	200	214.6	B	ug/L		104	75 - 125
Lead	<0.260		200	199.0		ug/L		100	75 - 125
Nickel	45.2		200	276.4		ug/L		116	75 - 125
Selenium	<1.40		400	402.5		ug/L		101	75 - 125
Silver	<0.500		100	104.6		ug/L		105	75 - 125
Vanadium	1.48	J	100	100.4		ug/L		99	75 - 125
Zinc	<9.70		200	184.1		ug/L		92	75 - 125

Lab Sample ID: 310-292086-5 MS
Matrix: Water
Analysis Batch: 436234

Client Sample ID: OW-213BR
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	<0.330		100	107.8		ug/L		108	75 - 125
Thallium	1.58		100	82.88		ug/L		81	75 - 125

Lab Sample ID: 310-292086-5 MSD
Matrix: Water
Analysis Batch: 436085

Client Sample ID: OW-213BR
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<1.00		200	221.0		ug/L		111	75 - 125	3	20
Arsenic	<0.530		200	215.6		ug/L		108	75 - 125	2	20
Barium	67.0		100	169.6		ug/L		103	75 - 125	2	20
Cadmium	0.405		100	96.23		ug/L		96	75 - 125	2	20
Chromium	2.04	J	100	102.4		ug/L		100	75 - 125	3	20
Cobalt	2.01		100	115.2		ug/L		113	75 - 125	3	20
Copper	5.64	B	200	220.8	B	ug/L		108	75 - 125	3	20
Lead	<0.260		200	205.6		ug/L		103	75 - 125	3	20
Nickel	45.2		200	254.8		ug/L		105	75 - 125	8	20
Selenium	<1.40		400	408.5		ug/L		102	75 - 125	1	20
Silver	<0.500		100	112.4		ug/L		112	75 - 125	7	20
Vanadium	1.48	J	100	103.2		ug/L		102	75 - 125	3	20
Zinc	<9.70		200	188.0		ug/L		94	75 - 125	2	20

Lab Sample ID: 310-292086-5 MSD
Matrix: Water
Analysis Batch: 436234

Client Sample ID: OW-213BR
Prep Type: Total/NA
Prep Batch: 435581

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	<0.330		100	107.9		ug/L		108	75 - 125	0	20
Thallium	1.58		100	85.65		ug/L		84	75 - 125	3	20

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-435425/1
Matrix: Water
Analysis Batch: 435425

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	<3.70		5.00	3.70	mg/L			10/07/24 12:50	1

Lab Sample ID: LCS 310-435425/2
Matrix: Water
Analysis Batch: 435425

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	96.00		mg/L		96	81 - 116		

Lab Sample ID: 310-292086-7 DU
Matrix: Water
Analysis Batch: 435425

Client Sample ID: OW-220B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	81.0			84.00		mg/L				4	35

QC Association Summary

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 435843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5	OW-213BR	Total/NA	Water	8260D	
310-292086-6	OW-219B	Total/NA	Water	8260D	
310-292086-7	OW-220B	Total/NA	Water	8260D	
310-292086-8	Trip Blank	Total/NA	Water	8260D	
MB 310-435843/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435843/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435843/7	Lab Control Sample	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 560532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-7	OW-220B	Total/NA	Water	8151A	
MB 410-560532/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-560532/2-A	Lab Control Sample	Total/NA	Water	8151A	

Analysis Batch: 560964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-7	OW-220B	Total/NA	Water	8151A	560532
MB 410-560532/1-A	Method Blank	Total/NA	Water	8151A	560532
LCS 410-560532/2-A	Lab Control Sample	Total/NA	Water	8151A	560532

Metals

Prep Batch: 435581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5	OW-213BR	Total/NA	Water	3005A	
310-292086-6	OW-219B	Total/NA	Water	3005A	
310-292086-7	OW-220B	Total/NA	Water	3005A	
MB 310-435581/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-435581/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-292086-5 MS	OW-213BR	Total/NA	Water	3005A	
310-292086-5 MSD	OW-213BR	Total/NA	Water	3005A	

Analysis Batch: 436085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5	OW-213BR	Total/NA	Water	6020B	435581
310-292086-6	OW-219B	Total/NA	Water	6020B	435581
310-292086-7	OW-220B	Total/NA	Water	6020B	435581
MB 310-435581/1-A	Method Blank	Total/NA	Water	6020B	435581
LCS 310-435581/2-A	Lab Control Sample	Total/NA	Water	6020B	435581
310-292086-5 MS	OW-213BR	Total/NA	Water	6020B	435581
310-292086-5 MSD	OW-213BR	Total/NA	Water	6020B	435581

Analysis Batch: 436234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5	OW-213BR	Total/NA	Water	6020B	435581
310-292086-6	OW-219B	Total/NA	Water	6020B	435581
310-292086-7	OW-220B	Total/NA	Water	6020B	435581
MB 310-435581/1-A	Method Blank	Total/NA	Water	6020B	435581
LCS 310-435581/2-A	Lab Control Sample	Total/NA	Water	6020B	435581
310-292086-5 MS	OW-213BR	Total/NA	Water	6020B	435581

Metals (Continued)

Analysis Batch: 436234 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5 MSD	OW-213BR	Total/NA	Water	6020B	435581

Analysis Batch: 436382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-435581/2-A	Lab Control Sample	Total/NA	Water	6020B	435581

General Chemistry

Analysis Batch: 435425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5	OW-213BR	Total/NA	Water	I-3765-85	
310-292086-6	OW-219B	Total/NA	Water	I-3765-85	
310-292086-7	OW-220B	Total/NA	Water	I-3765-85	
MB 310-435425/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-435425/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-292086-7 DU	OW-220B	Total/NA	Water	I-3765-85	

Field Service / Mobile Lab

Analysis Batch: 435786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292086-5	OW-213BR	Total/NA	Water	Field Sampling	
310-292086-6	OW-219B	Total/NA	Water	Field Sampling	
310-292086-7	OW-220B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-213BR
Lab Sample ID: 310-292086-5
Date Collected: 10/04/24 09:20
Matrix: Water
Date Received: 10/04/24 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435843	WSE8	EET CF	10/11/24 05:24
Total/NA	Prep	3005A			435581	F5MW	EET CF	10/09/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 19:45
Total/NA	Prep	3005A			435581	F5MW	EET CF	10/09/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 12:36
Total/NA	Analysis	I-3765-85		1	435425	DGU1	EET CF	10/07/24 12:50
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/04/24 09:20

Client Sample ID: OW-219B
Lab Sample ID: 310-292086-6
Date Collected: 10/04/24 10:00
Matrix: Water
Date Received: 10/04/24 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435843	WSE8	EET CF	10/11/24 05:47
Total/NA	Prep	3005A			435581	F5MW	EET CF	10/09/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 19:55
Total/NA	Prep	3005A			435581	F5MW	EET CF	10/09/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 12:42
Total/NA	Analysis	I-3765-85		1	435425	DGU1	EET CF	10/07/24 12:50
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/04/24 10:00

Client Sample ID: OW-220B
Lab Sample ID: 310-292086-7
Date Collected: 10/04/24 13:00
Matrix: Water
Date Received: 10/04/24 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435843	WSE8	EET CF	10/11/24 06:10
Total/NA	Prep	8151A			560532	XU9L	ELLE	10/08/24 07:36
Total/NA	Analysis	8151A		5	560964	UAMZ	ELLE	10/09/24 08:03
Total/NA	Prep	3005A			435581	F5MW	EET CF	10/09/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 19:57
Total/NA	Prep	3005A			435581	F5MW	EET CF	10/09/24 09:30
Total/NA	Analysis	6020B		1	436234	NFT2	EET CF	10/14/24 12:44
Total/NA	Analysis	I-3765-85		1	435425	DGU1	EET CF	10/07/24 12:50
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/04/24 13:00

Client Sample ID: Trip Blank
Lab Sample ID: 310-292086-8
Date Collected: 10/04/24 06:00
Matrix: Water
Date Received: 10/04/24 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435843	WSE8	EET CF	10/11/24 02:45

Lab Chronicle

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-26

Method Summary

Client: AECOM
Job ID: 310-292086-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8151A	Herbicides (GC)	SW846	ELLE
6020B	Metals (ICP/MS)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE

Protocol References:

EPA = US Environmental Protection Agency

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

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

eurofins | Environment Testing America

310-292086 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AE Com

City/State: CITY Waterloo STATE PA Project:

Receipt Information

Date/Time Received: DATE 10/4/24 TIME 1320 Received By: PH

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? ↓

All

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: P 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): 7.6 Corrected Temp (°C): 7.6

• 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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 10-4-24	COC No
AECOM	Email Christopher Oelkers@aecom.com	Lab Contact:	Carrier:	1 of 2 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below			Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B	10-4-24	1300	G	GW	7	N		X		X							X		Turbidity - 8.22 NTU
OW-221B			G	GW		N		X											
OW-222B			G	GW		N		X											
OW-223B			G	GW		N		X											
OW-223B-FD			G	GW		N		X											
OW-224B			G	GW		N			X										
OW-225B			G	GW		N			X										
OW-226B			G	GW		N			X										
OW-227B			G	GW		N			X										
MW-319B			G	GW		N		X											
MW-320B			G	GW		N		X											
Equipment Blank-1			G	GW		N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd._____ Corr'd._____ Therm ID No._____			
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-4-24	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by: CGL	Company: Eurofins	Date/Time: 10.4.24 1320

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 10-4-24	COC No
AECOM	Email Christopher Oelkers@aecom com			2 of 2 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878	Lab Contact:	Carrier:	TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			
P O #	☐ 2 days			Job / SDG No
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-101B			G	GW		N		X											
OW-105B			G	GW		N		X											
OW-113B			G	GW		N		X										X	
OW-114B			G	GW		N		X											
OW-205B			G	GW		N		X			X			X				X	
OW-209B			G	GW		N		X											
OW-209B-FD			G	GW		N		X											
OW-212B			G	GW		N		X											
OW-213BR	10-4-24	0920	G	GW	5	N		X											Turbidity – 0.62 NTU
OW-216BR			G	GW		N		X											
OW-219B	10-4-24	1000	G	GW	5	N		X											Turbidity – 5.01 NTU
Trip Blank	10-4-24	0600	G	W	3	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd.____ Corr'd.____	Therm ID No.____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-4-24	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by: CGL	Company: Eurofins	Date/Time: 10-4-24 1320

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77046.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292086-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 10/17/2024			Preservation Codes: -
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	8151A/8151A_AP 2,4-D and Silvex	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-220B (310-292086-7)	10/4/24	13.00 Central	G	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]	10-4-24 1630				
2						
3				Debra A. Byers	10-5-24 10:00	ELLET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R 3.8 C 3.8

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292086-1

Login Number: 292086

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Collins, Charlotte G

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.	False	Received same day of collection; chilling process has begun.
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: AECOM

Job Number: 310-292086-1

Login Number: 292086
List Number: 2
Creator: Kanagy, Nicholas

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 10/05/24 03:34 PM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 10/24/2024 9:34:42 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-292200-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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
10/24/2024 9:34:42 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job Narrative
310-292200-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/8/2024 9:15 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 time was 2.4°C.

GC/MS VOA
Method 8260D: The following sample was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed within the 7-day holding time specified for unpreserved samples: OW-224B (310-292200-3).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-435986 recovered above the upper control limit for Carbon disulfide(23.5%D) and 2-Chloro-1,3-butadiene (23.4%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-435986/3).

Method 8260D: The initial calibration verification (ICV) result for batch 310-435986 was above the upper control limit. The affected analyte is: Iodomethane. Sample results were non-detects, and have been reported as qualified data.

Method 8260D: The following sample was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed within the 7-day holding time specified for unpreserved samples: OW-224B (310-292200-3).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-436121 recovered above the upper control limit for 2-Chloro-1,3-butadiene (20.9%D). The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated sample is impacted: (CCV 310-436121/3).

Method 8260D: The initial calibration verification (ICV) result for batch 310-436121 was above the upper control limit. The affected analyte is: Iodomethane. Sample results were non-detects, and have been reported as qualified data.

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: Surrogate recovery for the following sample was outside control limits: OW-224B (310-292200-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The continuing calibration verification (CCV) associated with batch 310-436080 recovered above the upper control limit for 3,3'-Dimethylbenzidine (20.7%D) and Diallate Peak 2 (21.5%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270E: The method blank for preparation batch 310-435704 and analytical batch 310-436080 contained Benzo[a]pyrene above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8270E: The laboratory control sample (LCS) for preparation batch 310-435704 and analytical batch 310-436080 recovered outside acceptance limits for 2,4-Dinitrophenol, 2,3,4,6-Tetrachlorophenol, 4,6-Dinitro-2-methylphenol and Pentachlorophenol. There was insufficient holding time to perform a re-extraction or re-analysis; therefore, the data have been reported.

Job ID: 310-292200-1 (Continued) Eurofins Cedar Falls

Method 8270E: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 310-435704 and analytical batch 310-436080 recovered outside control limits for multiple analytes.

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
Method 8151A: Surrogate recovery for the following sample was outside the upper control limit: OW-224B (310-292200-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8151A: The following sample was diluted due to the nature of the sample matrix: OW-224B (310-292200-3). 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.

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

Pesticides
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.

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

Sample Summary

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292200-1	OW-221B	Water	10/07/24 09:30	10/08/24 09:15
310-292200-2	OW-222B	Water	10/07/24 10:20	10/08/24 09:15
310-292200-3	OW-224B	Water	10/07/24 13:00	10/08/24 09:15
310-292200-4	Trip Blank	Water	10/07/24 06:00	10/08/24 09:15

Detection Summary

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-221B — Lab Sample ID: 310-292200-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.63	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	0.856		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	1.29		1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	13.9		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	575		2.00	0.660	ug/L	1		6020B	Total/NA
Cobalt	3.40		0.500	0.170	ug/L	1		6020B	Total/NA
Nickel	2.67	J	5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	0.784	J	1.00	0.570	ug/L	1		6020B	Total/NA
Total Suspended Solids	71.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	11.65				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-222B — Lab Sample ID: 310-292200-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.73	J	10.0	3.10	ug/L	1		8260D	Total/NA
Arsenic	2.40		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	154		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	2.27	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	5.21		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	3.72	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	3.66	J	5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	0.981	J	1.00	0.570	ug/L	1		6020B	Total/NA
Total Suspended Solids	18.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	5.59				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-224B — Lab Sample ID: 310-292200-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	3.52		1.00	0.230	ug/L	1		8260D	Total/NA
2-Butanone (MEK)	5.07	J	10.0	2.10	ug/L	1		8260D	Total/NA
Acetone	10.5		10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	4.21		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.260	J	1.00	0.210	ug/L	1		8260D	Total/NA
Thionazin	5.25	J	10.0	3.50	ug/L	1		8270E	Total/NA
Arsenic	7.70		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	2570		8.00	2.64	ug/L	4		6020B	Total/NA
Cadmium	0.240		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	8.20		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	23.0		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	2.45	J	5.00	1.80	ug/L	1		6020B	Total/NA
Lead	1.74		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	116		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	1.37		1.00	0.570	ug/L	1		6020B	Total/NA
Vanadium	3.16	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	25.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	22.29				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-292200-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-221B
Lab Sample ID: 310-292200-1
Date Collected: 10/07/24 09:30
Matrix: Water
Date Received: 10/08/24 09:15

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	<0.380		1.00	0.380	ug/L			10/12/24 04:02	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/12/24 04:02	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/12/24 04:02	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/12/24 04:02	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/12/24 04:02	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/12/24 04:02	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/12/24 04:02	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/12/24 04:02	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/12/24 04:02	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/12/24 04:02	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/12/24 04:02	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/12/24 04:02	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/12/24 04:02	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/12/24 04:02	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/12/24 04:02	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/12/24 04:02	1
Acetone	**4.63**	**J**	10.0	3.10	ug/L			10/12/24 04:02	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/12/24 04:02	1
Benzene	**0.856**		0.500	0.220	ug/L			10/12/24 04:02	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/12/24 04:02	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/12/24 04:02	1
Bromoform	<0.780		5.00	0.780	ug/L			10/12/24 04:02	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/12/24 04:02	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/12/24 04:02	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/12/24 04:02	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/12/24 04:02	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/12/24 04:02	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/12/24 04:02	1
Chloroform	<1.30		3.00	1.30	ug/L			10/12/24 04:02	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/12/24 04:02	1
cis-1,2-Dichloroethene	**1.29**		1.00	0.210	ug/L			10/12/24 04:02	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/12/24 04:02	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/12/24 04:02	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/12/24 04:02	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/12/24 04:02	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/12/24 04:02	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/12/24 04:02	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/12/24 04:02	1
Styrene	<0.370		1.00	0.370	ug/L			10/12/24 04:02	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/12/24 04:02	1
Toluene	<0.430		1.00	0.430	ug/L			10/12/24 04:02	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/12/24 04:02	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/12/24 04:02	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/12/24 04:02	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/12/24 04:02	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/12/24 04:02	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/12/24 04:02	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/12/24 04:02	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/12/24 04:02	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-221B
Lab Sample ID: 310-292200-1

Date Collected: 10/07/24 09:30
Matrix: Water

Date Received: 10/08/24 09:15

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*10/12/24 04:02*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/12/24 04:02*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*10/12/24 04:02*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/10/24 09:30	10/11/24 19:23	1
Arsenic	**13.9**		2.00	0.530	ug/L		10/10/24 09:30	10/11/24 19:23	1
Barium	**575**		2.00	0.660	ug/L		10/10/24 09:30	10/11/24 19:23	1
Beryllium	<0.330		1.00	0.330	ug/L		10/10/24 09:30	10/14/24 16:02	1
Cadmium	<0.100		0.200	0.100	ug/L		10/10/24 09:30	10/11/24 19:23	1
Chromium	<1.20		5.00	1.20	ug/L		10/10/24 09:30	10/11/24 19:23	1
Cobalt	**3.40**		0.500	0.170	ug/L		10/10/24 09:30	10/11/24 19:23	1
Copper	<1.80		5.00	1.80	ug/L		10/10/24 09:30	10/11/24 19:23	1
Lead	<0.260		0.500	0.260	ug/L		10/10/24 09:30	10/11/24 19:23	1
Nickel	**2.67**	**J**	5.00	2.10	ug/L		10/10/24 09:30	10/11/24 19:23	1
Selenium	<1.40		5.00	1.40	ug/L		10/10/24 09:30	10/11/24 19:23	1
Silver	<0.500		1.00	0.500	ug/L		10/10/24 09:30	10/11/24 19:23	1
Thallium	**0.784**	**J**	1.00	0.570	ug/L		10/10/24 09:30	10/18/24 13:45	1
Vanadium	<1.10		5.00	1.10	ug/L		10/10/24 09:30	10/11/24 19:23	1
Zinc	<9.70		20.0	9.70	ug/L		10/10/24 09:30	10/11/24 19:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**71.0**		15.0	11.1	mg/L			10/08/24 19:39	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**11.65**				NTU			10/07/24 09:30	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-222B
Lab Sample ID: 310-292200-2
Date Collected: 10/07/24 10:20
Matrix: Water
Date Received: 10/08/24 09:15

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	<0.380		1.00	0.380	ug/L			10/12/24 04:25	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/12/24 04:25	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/12/24 04:25	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/12/24 04:25	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/12/24 04:25	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/12/24 04:25	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/12/24 04:25	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/12/24 04:25	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/12/24 04:25	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/12/24 04:25	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/12/24 04:25	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/12/24 04:25	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/12/24 04:25	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/12/24 04:25	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/12/24 04:25	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/12/24 04:25	1
Acetone	**3.73**	**J**	10.0	3.10	ug/L			10/12/24 04:25	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/12/24 04:25	1
Benzene	<0.220		0.500	0.220	ug/L			10/12/24 04:25	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/12/24 04:25	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/12/24 04:25	1
Bromoform	<0.780		5.00	0.780	ug/L			10/12/24 04:25	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/12/24 04:25	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/12/24 04:25	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/12/24 04:25	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/12/24 04:25	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/12/24 04:25	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/12/24 04:25	1
Chloroform	<1.30		3.00	1.30	ug/L			10/12/24 04:25	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/12/24 04:25	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/12/24 04:25	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/12/24 04:25	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/12/24 04:25	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/12/24 04:25	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/12/24 04:25	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/12/24 04:25	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/12/24 04:25	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/12/24 04:25	1
Styrene	<0.370		1.00	0.370	ug/L			10/12/24 04:25	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/12/24 04:25	1
Toluene	<0.430		1.00	0.430	ug/L			10/12/24 04:25	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/12/24 04:25	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/12/24 04:25	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/12/24 04:25	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/12/24 04:25	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/12/24 04:25	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/12/24 04:25	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/12/24 04:25	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/12/24 04:25	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-222B
Lab Sample ID: 310-292200-2
Date Collected: 10/07/24 10:20
Matrix: Water
Date Received: 10/08/24 09:15

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*73 - 130*		*10/12/24 04:25*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/12/24 04:25*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*10/12/24 04:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/10/24 09:30	10/11/24 19:25	1
Arsenic	**2.40**		2.00	0.530	ug/L		10/10/24 09:30	10/11/24 19:25	1
Barium	**154**		2.00	0.660	ug/L		10/10/24 09:30	10/14/24 16:06	1
Beryllium	<0.330		1.00	0.330	ug/L		10/10/24 09:30	10/14/24 16:06	1
Cadmium	<0.100		0.200	0.100	ug/L		10/10/24 09:30	10/11/24 19:25	1
Chromium	**2.27**	**J**	5.00	1.20	ug/L		10/10/24 09:30	10/11/24 19:25	1
Cobalt	**5.21**		0.500	0.170	ug/L		10/10/24 09:30	10/11/24 19:25	1
Copper	**3.72**	**J**	5.00	1.80	ug/L		10/10/24 09:30	10/11/24 19:25	1
Lead	<0.260		0.500	0.260	ug/L		10/10/24 09:30	10/11/24 19:25	1
Nickel	**3.66**	**J**	5.00	2.10	ug/L		10/10/24 09:30	10/11/24 19:25	1
Selenium	<1.40		5.00	1.40	ug/L		10/10/24 09:30	10/11/24 19:25	1
Silver	<0.500		1.00	0.500	ug/L		10/10/24 09:30	10/11/24 19:25	1
Thallium	**0.981**	**J**	1.00	0.570	ug/L		10/10/24 09:30	10/18/24 13:48	1
Vanadium	<1.10		5.00	1.10	ug/L		10/10/24 09:30	10/11/24 19:25	1
Zinc	<9.70		20.0	9.70	ug/L		10/10/24 09:30	10/11/24 19:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**18.0**		15.0	11.1	mg/L			10/08/24 19:39	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**5.59**				NTU			10/07/24 10:20	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

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	<0.380		1.00	0.380	ug/L			10/12/24 05:33	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/12/24 05:33	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/12/24 05:33	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/12/24 05:33	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/12/24 05:33	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/12/24 05:33	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/12/24 05:33	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/12/24 05:33	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/12/24 05:33	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/12/24 05:33	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/12/24 05:33	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/12/24 05:33	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/12/24 05:33	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/12/24 05:33	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/12/24 05:33	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/12/24 05:33	1
1,4-Dichlorobenzene	**3.52**		1.00	0.230	ug/L			10/12/24 05:33	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/12/24 05:33	1
2-Butanone (MEK)	**5.07**	**J**	10.0	2.10	ug/L			10/12/24 05:33	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/12/24 05:33	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/12/24 05:33	1
Acetone	**10.5**		10.0	3.10	ug/L			10/12/24 05:33	1
Acrolein	<3.60		10.0	3.60	ug/L			10/12/24 05:33	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/12/24 05:33	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/12/24 05:33	1
Benzene	**4.21**		0.500	0.220	ug/L			10/12/24 05:33	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/12/24 05:33	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/12/24 05:33	1
Bromoform	<0.780		5.00	0.780	ug/L			10/12/24 05:33	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/12/24 05:33	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/12/24 05:33	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/12/24 05:33	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/12/24 05:33	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/12/24 05:33	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/12/24 05:33	1
Chloroform	<1.30		3.00	1.30	ug/L			10/12/24 05:33	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/12/24 05:33	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/12/24 05:33	1
cis-1,2-Dichloroethene	**0.260**	**J**	1.00	0.210	ug/L			10/14/24 13:19	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/12/24 05:33	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/12/24 05:33	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/12/24 05:33	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/12/24 05:33	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/12/24 05:33	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/12/24 05:33	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/12/24 05:33	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/12/24 05:33	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/12/24 05:33	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/12/24 05:33	1

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/12/24 05:33	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/12/24 05:33	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/12/24 05:33	1
Styrene	<0.370		1.00	0.370	ug/L			10/12/24 05:33	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/12/24 05:33	1
Toluene	<0.430		1.00	0.430	ug/L			10/12/24 05:33	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/14/24 13:19	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/12/24 05:33	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/12/24 05:33	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/12/24 05:33	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/12/24 05:33	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/12/24 05:33	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/14/24 13:19	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/12/24 05:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*10/12/24 05:33*	*1*
Dibromofluoromethane (Surr)	*104*		*73 - 130*		*10/14/24 13:19*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/12/24 05:33*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/14/24 13:19*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*10/12/24 05:33*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/14/24 13:19*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.540		10.0	0.540	ug/L		10/09/24 13:46	10/14/24 12:25	1
1,3,5-Trinitrobenzene	<2.30		10.0	2.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
1,3-Dinitrobenzene	<3.20		10.0	3.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
1,4-Naphthoquinone	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
1,4-phenylenediamine	<1.90		10.0	1.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
1-Naphthylamine	<2.50		10.0	2.50	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,3,4,6-Tetrachlorophenol	<5.30	*1 *-	10.0	5.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,4,5-Trichlorophenol	<5.30	*1	10.0	5.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,4,6-Trichlorophenol	<5.00	*1	10.0	5.00	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,4-Dichlorophenol	<0.850		10.0	0.850	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,4-Dimethylphenol	<0.580		10.0	0.580	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,4-Dinitrophenol	<13.0	*1 *-	20.0	13.0	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,4-Dinitrotoluene	<6.40		10.0	6.40	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,6-Dichlorophenol	<0.690	*1	10.0	0.690	ug/L		10/09/24 13:46	10/14/24 12:25	1
2,6-Dinitrotoluene	<0.520		10.0	0.520	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Acetylaminofluorene	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Chloronaphthalene	<0.640		10.0	0.640	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Chlorophenol	<0.540		10.0	0.540	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Methylnaphthalene	<0.590		10.0	0.590	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Methylphenol	<0.650		10.0	0.650	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Naphthylamine	<2.10		10.0	2.10	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Nitroaniline	<5.90		10.0	5.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
2-Nitrophenol	<6.80		10.0	6.80	ug/L		10/09/24 13:46	10/14/24 12:25	1
3,3'-Dichlorobenzidine	<1.40		10.0	1.40	ug/L		10/09/24 13:46	10/14/24 12:25	1
3,3'-Dimethylbenzidine	<1.50		10.0	1.50	ug/L		10/09/24 13:46	10/14/24 12:25	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Methylcholanthrene	<0.320		10.0	0.320	ug/L		10/09/24 13:46	10/14/24 12:25	1
3-Nitroaniline	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
4,6-Dinitro-2-methylphenol	<6.90	*1 *-	10.0	6.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Aminobiphenyl	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Bromophenyl phenyl ether	<0.700		10.0	0.700	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Chloro-3-methylphenol	<0.840		10.0	0.840	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Chloroaniline	<0.620		10.0	0.620	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Chlorophenyl phenyl ether	<0.690		10.0	0.690	ug/L		10/09/24 13:46	10/14/24 12:25	1
Methylphenol, 3 & 4	<0.700		10.0	0.700	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Nitroaniline	<1.30		10.0	1.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
4-Nitrophenol	<7.60	*1	10.0	7.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
5-Nitro-o-toluidine	<2.80		10.0	2.80	ug/L		10/09/24 13:46	10/14/24 12:25	1
7,12-Dimethylbenz(a)anthracene	<1.90		10.0	1.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
Acenaphthene	<0.640		10.0	0.640	ug/L		10/09/24 13:46	10/14/24 12:25	1
Acenaphthylene	<0.720		10.0	0.720	ug/L		10/09/24 13:46	10/14/24 12:25	1
Acetophenone	<0.690		10.0	0.690	ug/L		10/09/24 13:46	10/14/24 12:25	1
Anthracene	<0.870		10.0	0.870	ug/L		10/09/24 13:46	10/14/24 12:25	1
Benzo[a]anthracene	<0.850		10.0	0.850	ug/L		10/09/24 13:46	10/14/24 12:25	1
Benzo[a]pyrene	<8.10		10.0	8.10	ug/L		10/09/24 13:46	10/14/24 12:25	1
Benzo[b]fluoranthene	<4.90		10.0	4.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
Benzo[g,h,i]perylene	<6.30		10.0	6.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
Benzo[k]fluoranthene	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
Benzyl alcohol	<1.30		10.0	1.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
Bis(2-chloroethoxy)methane	<0.760		10.0	0.760	ug/L		10/09/24 13:46	10/14/24 12:25	1
Bis(2-chloroethyl)ether	<0.820		10.0	0.820	ug/L		10/09/24 13:46	10/14/24 12:25	1
bis (2-chloroisopropyl) ether	<0.540		10.0	0.540	ug/L		10/09/24 13:46	10/14/24 12:25	1
Bis(2-ethylhexyl) phthalate	<5.50		10.0	5.50	ug/L		10/09/24 13:46	10/14/24 12:25	1
Butyl benzyl phthalate	<5.40		10.0	5.40	ug/L		10/09/24 13:46	10/14/24 12:25	1
Chlorobenzilate	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
Chrysene	<0.870		10.0	0.870	ug/L		10/09/24 13:46	10/14/24 12:25	1
Diallate	<4.00		10.0	4.00	ug/L		10/09/24 13:46	10/14/24 12:25	1
Dibenzo(a,h)anthracene	<3.90		10.0	3.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
Dibenzofuran	<0.740		10.0	0.740	ug/L		10/09/24 13:46	10/14/24 12:25	1
Diethyl phthalate	<1.70		10.0	1.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
Dimethoate	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
Dimethyl phthalate	<1.00		10.0	1.00	ug/L		10/09/24 13:46	10/14/24 12:25	1
Di-n-butyl phthalate	<5.60		10.0	5.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
Di-n-octyl phthalate	<7.00		20.0	7.00	ug/L		10/09/24 13:46	10/14/24 12:25	1
Dinoseb	<2.40		10.0	2.40	ug/L		10/09/24 13:46	10/14/24 12:25	1
Diphenylamine	<6.00		10.0	6.00	ug/L		10/09/24 13:46	10/14/24 12:25	1
Disulfoton	<2.40		10.0	2.40	ug/L		10/09/24 13:46	10/14/24 12:25	1
Ethyl methanesulfonate	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
Ethyl Parathion	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
Famphur	<3.80		10.0	3.80	ug/L		10/09/24 13:46	10/14/24 12:25	1
Fluoranthene	<1.70		10.0	1.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
Fluorene	<0.790		10.0	0.790	ug/L		10/09/24 13:46	10/14/24 12:25	1
Hexachlorobenzene	<0.700		10.0	0.700	ug/L		10/09/24 13:46	10/14/24 12:25	1
Hexachlorobutadiene	<0.860		10.0	0.860	ug/L		10/09/24 13:46	10/14/24 12:25	1
Hexachlorocyclopentadiene	<5.10		10.0	5.10	ug/L		10/09/24 13:46	10/14/24 12:25	1

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloroethane	<0.970		10.0	0.970	ug/L		10/09/24 13:46	10/14/24 12:25	1
Hexachloropropene	<2.60		10.0	2.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
Indeno[1,2,3-cd]pyrene	<4.20		10.0	4.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
Isodrin	<4.70		10.0	4.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
Isophorone	<0.930		10.0	0.930	ug/L		10/09/24 13:46	10/14/24 12:25	1
Isosafrole	<2.30		10.0	2.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
Kepone	<1.00		10.0	1.00	ug/L		10/09/24 13:46	10/14/24 12:25	1
Methapyrilene	<0.760		10.0	0.760	ug/L		10/09/24 13:46	10/14/24 12:25	1
Methyl methanesulfonate	<3.30		10.0	3.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
Methyl parathion	<2.30		10.0	2.30	ug/L		10/09/24 13:46	10/14/24 12:25	1
Nitrobenzene	<0.800		10.0	0.800	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosodiethylamine	<3.40		10.0	3.40	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosodimethylamine	<0.720		10.0	0.720	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosodi-n-butylamine	<3.90		10.0	3.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosodi-n-propylamine	<0.920		10.0	0.920	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosodiphenylamine	<0.750		10.0	0.750	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosomethylethylamine	<4.90		10.0	4.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosopiperidine	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
N-Nitrosopyrrolidine	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
o,o',o''-Triethylphosphorothioate	<3.20		10.0	3.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
o-Toluidine	<2.90		10.0	2.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
p-Dimethylamino azobenzene	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
Pentachlorobenzene	<2.80		10.0	2.80	ug/L		10/09/24 13:46	10/14/24 12:25	1
Pentachloronitrobenzene	<5.80		10.0	5.80	ug/L		10/09/24 13:46	10/14/24 12:25	1
Pentachlorophenol	<9.60	*1 *-	10.0	9.60	ug/L		10/09/24 13:46	10/14/24 12:25	1
Phenacetin	<1.90		10.0	1.90	ug/L		10/09/24 13:46	10/14/24 12:25	1
Phenanthrene	<0.790		10.0	0.790	ug/L		10/09/24 13:46	10/14/24 12:25	1
Phenol	<1.10		10.0	1.10	ug/L		10/09/24 13:46	10/14/24 12:25	1
Phorate	<3.20		10.0	3.20	ug/L		10/09/24 13:46	10/14/24 12:25	1
Pronamide	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 12:25	1
Pyrene	<0.790		10.0	0.790	ug/L		10/09/24 13:46	10/14/24 12:25	1
Safrole	<2.80		10.0	2.80	ug/L		10/09/24 13:46	10/14/24 12:25	1
Thionazin	**5.25**	**J**	10.0	3.50	ug/L		10/09/24 13:46	10/14/24 12:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*30*		*25 - 110*	*10/09/24 13:46*	*10/14/24 12:25*	*1*
Phenol-d5 (Surr)	*25*		*21 - 110*	*10/09/24 13:46*	*10/14/24 12:25*	*1*
Nitrobenzene-d5 (Surr)	*40*	*S1-*	*45 - 129*	*10/09/24 13:46*	*10/14/24 12:25*	*1*
2-Fluorobiphenyl (Surr)	*42*		*39 - 118*	*10/09/24 13:46*	*10/14/24 12:25*	*1*
2,4,6-Tribromophenol (Surr)	*47*		*27 - 136*	*10/09/24 13:46*	*10/14/24 12:25*	*1*
Terphenyl-d14 (Surr)	*41*		*12 - 144*	*10/09/24 13:46*	*10/14/24 12:25*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 09:34	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 09:34	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0238		0.0954	0.0238	ug/L		10/14/24 09:17	10/15/24 15:36	1

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDE	<0.0286		0.0954	0.0286	ug/L		10/14/24 09:17	10/15/24 15:36	1
4,4'-DDT	<0.0191		0.0954	0.0191	ug/L		10/14/24 09:17	10/15/24 15:36	1
Aldrin	<0.0210		0.0954	0.0210	ug/L		10/14/24 09:17	10/15/24 15:36	1
alpha-BHC	<0.00954		0.0954	0.00954	ug/L		10/14/24 09:17	10/15/24 15:36	1
beta-BHC	<0.0401		0.0954	0.0401	ug/L		10/14/24 09:17	10/15/24 15:36	1
Chlordane (technical)	<0.372		1.91	0.372	ug/L		10/14/24 09:17	10/15/24 15:36	1
delta-BHC	<0.0305		0.0954	0.0305	ug/L		10/14/24 09:17	10/15/24 15:36	1
Dieldrin	<0.0200		0.0954	0.0200	ug/L		10/14/24 09:17	10/15/24 15:36	1
Endosulfan I	<0.0267		0.0954	0.0267	ug/L		10/14/24 09:17	10/15/24 15:36	1
Endosulfan II	<0.0248		0.0954	0.0248	ug/L		10/14/24 09:17	10/15/24 15:36	1
Endosulfan sulfate	<0.0172		0.0954	0.0172	ug/L		10/14/24 09:17	10/15/24 15:36	1
Endrin	<0.0267		0.0954	0.0267	ug/L		10/14/24 09:17	10/15/24 15:36	1
Endrin aldehyde	<0.0257		0.0954	0.0257	ug/L		10/14/24 09:17	10/15/24 15:36	1
gamma-BHC (Lindane)	<0.00954		0.0954	0.00954	ug/L		10/14/24 09:17	10/15/24 15:36	1
Heptachlor	<0.0219		0.0954	0.0219	ug/L		10/14/24 09:17	10/15/24 15:36	1
Heptachlor epoxide	<0.0305		0.0954	0.0305	ug/L		10/14/24 09:17	10/15/24 15:36	1
Methoxychlor	<0.0305		0.0954	0.0305	ug/L		10/14/24 09:17	10/15/24 15:36	1
Toxaphene	<0.954		1.91	0.954	ug/L		10/14/24 09:17	10/15/24 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*10 - 136*	*10/14/24 09:17*	*10/15/24 15:36*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*10 - 130*	*10/14/24 09:17*	*10/15/24 15:36*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.782		1.91	0.782	ug/L		10/14/24 09:17	10/15/24 15:36	1
PCB-1221	<0.782		1.91	0.782	ug/L		10/14/24 09:17	10/15/24 15:36	1
PCB-1232	<0.782		1.91	0.782	ug/L		10/14/24 09:17	10/15/24 15:36	1
PCB-1242	<0.782		1.91	0.782	ug/L		10/14/24 09:17	10/15/24 15:36	1
PCB-1248	<0.658		1.91	0.658	ug/L		10/14/24 09:17	10/15/24 15:36	1
PCB-1254	<0.658		1.91	0.658	ug/L		10/14/24 09:17	10/15/24 15:36	1
PCB-1260	<0.658		1.91	0.658	ug/L		10/14/24 09:17	10/15/24 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*10 - 136*	*10/14/24 09:17*	*10/15/24 15:36*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*10 - 130*	*10/14/24 09:17*	*10/15/24 15:36*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<1.43		3.42	1.43	ug/L		10/10/24 19:38	10/11/24 14:58	5
Silvex (2,4,5-TP)	<0.126		0.285	0.126	ug/L		10/10/24 19:38	10/11/24 14:58	5
2,4,5-T	<0.371		0.856	0.371	ug/L		10/10/24 19:38	10/11/24 14:58	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*105*	*p*	*34 - 142*	*10/10/24 19:38*	*10/11/24 14:58*	*5*
DCAA	*175*	*S1+*	*34 - 142*	*10/10/24 19:38*	*10/11/24 14:58*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/10/24 09:30	10/11/24 19:36	1
Arsenic	**7.70**		2.00	0.530	ug/L		10/10/24 09:30	10/11/24 19:36	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**2570**		8.00	2.64	ug/L		10/10/24 09:30	10/14/24 16:25	4
Beryllium	<0.330		1.00	0.330	ug/L		10/10/24 09:30	10/17/24 13:43	1
Cadmium	**0.240**		0.200	0.100	ug/L		10/10/24 09:30	10/11/24 19:36	1
Chromium	**8.20**		5.00	1.20	ug/L		10/10/24 09:30	10/11/24 19:36	1
Cobalt	**23.0**		0.500	0.170	ug/L		10/10/24 09:30	10/11/24 19:36	1
Copper	**2.45**	**J**	5.00	1.80	ug/L		10/10/24 09:30	10/11/24 19:36	1
Lead	**1.74**		0.500	0.260	ug/L		10/10/24 09:30	10/11/24 19:36	1
Nickel	**116**		5.00	2.10	ug/L		10/10/24 09:30	10/11/24 19:36	1
Selenium	<1.40		5.00	1.40	ug/L		10/10/24 09:30	10/11/24 19:36	1
Silver	<0.500		1.00	0.500	ug/L		10/10/24 09:30	10/11/24 19:36	1
Thallium	**1.37**		1.00	0.570	ug/L		10/10/24 09:30	10/18/24 13:50	1
Vanadium	**3.16**	**J**	5.00	1.10	ug/L		10/10/24 09:30	10/11/24 19:36	1
Zinc	<9.70		20.0	9.70	ug/L		10/10/24 09:30	10/11/24 19:36	1
Tin	<2.30		5.00	2.30	ug/L		10/10/24 09:30	10/11/24 19:36	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/15/24 15:55	10/16/24 10:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	<3.50		10.0	3.50	ug/L		10/10/24 10:18	10/10/24 17:44	1
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		10/10/24 12:42	10/10/24 15:58	1
Total Suspended Solids (USGS I-3765-85)	**25.0**		15.0	11.1	mg/L			10/08/24 19:39	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**22.29**				NTU			10/07/24 13:00	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292200-4
Date Collected: 10/07/24 06:00
Matrix: Water
Date Received: 10/08/24 09:15

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	<0.380		1.00	0.380	ug/L			10/12/24 01:02	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/12/24 01:02	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/12/24 01:02	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/12/24 01:02	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/12/24 01:02	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/12/24 01:02	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/12/24 01:02	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/12/24 01:02	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/12/24 01:02	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/12/24 01:02	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/12/24 01:02	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/12/24 01:02	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/12/24 01:02	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/12/24 01:02	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/12/24 01:02	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/12/24 01:02	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/12/24 01:02	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/12/24 01:02	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/12/24 01:02	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/12/24 01:02	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/12/24 01:02	1
Acetone	<3.10		10.0	3.10	ug/L			10/12/24 01:02	1
Acrolein	<3.60		10.0	3.60	ug/L			10/12/24 01:02	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/12/24 01:02	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/12/24 01:02	1
Benzene	<0.220		0.500	0.220	ug/L			10/12/24 01:02	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/12/24 01:02	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/12/24 01:02	1
Bromoform	<0.780		5.00	0.780	ug/L			10/12/24 01:02	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/12/24 01:02	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/12/24 01:02	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/12/24 01:02	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/12/24 01:02	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/12/24 01:02	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/12/24 01:02	1
Chloroform	<1.30		3.00	1.30	ug/L			10/12/24 01:02	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/12/24 01:02	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/12/24 01:02	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/12/24 01:02	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/12/24 01:02	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/12/24 01:02	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/12/24 01:02	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/12/24 01:02	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/12/24 01:02	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/12/24 01:02	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/12/24 01:02	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/12/24 01:02	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/12/24 01:02	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/12/24 01:02	1

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292200-4
Date Collected: 10/07/24 06:00
Matrix: Water
Date Received: 10/08/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/12/24 01:02	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/12/24 01:02	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/12/24 01:02	1
Styrene	<0.370		1.00	0.370	ug/L			10/12/24 01:02	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/12/24 01:02	1
Toluene	<0.430		1.00	0.430	ug/L			10/12/24 01:02	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/12/24 01:02	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/12/24 01:02	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/12/24 01:02	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/12/24 01:02	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/12/24 01:02	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/12/24 01:02	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/12/24 01:02	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/12/24 01:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/12/24 01:02*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/12/24 01:02*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*10/12/24 01:02*	*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.
*1	LCS/LCSD RPD 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.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1+	Surrogate recovery exceeds control limits, high biased.

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.

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: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-292200-1	OW-221B	102	98	102
310-292200-1 MS	OW-221B	95	100	100
310-292200-1 MSD	OW-221B	96	100	98
310-292200-2	OW-222B	103	98	103
310-292200-3	OW-224B	102	98	102
310-292200-3	OW-224B	104	99	99
310-292200-4	Trip Blank	100	98	103
LCS 310-435986/6	Lab Control Sample	95	101	100
LCS 310-435986/7	Lab Control Sample	103	98	101
LCS 310-436121/6	Lab Control Sample	97	100	100
LCS 310-436121/7	Lab Control Sample	101	97	102
MB 310-435986/5	Method Blank	102	98	104
MB 310-436121/5	Method Blank	100	98	102

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	PHL	NBZ	FBP	TBP	TPHL
Lab Sample ID	Client Sample ID	(25-110)	(21-110)	(45-129)	(39-118)	(27-136)	(12-144)
310-292200-3	OW-224B	30	25	40 S1-	42	47	41
LCS 310-435704/2-A	Lab Control Sample	50	48	73	77	65	91
LCSD 310-435704/3-A	Lab Control Sample Dup	57	45	73	74	93	95
MB 310-435704/1-A	Method Blank	66	55	85	84	98	108

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14 (Surr)

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)
310-292200-3	OW-224B	98	75
LB 310-435869/1-D	Method Blank	98	75
LCS 310-436103/21-A	Lab Control Sample	105	71
MB 310-436103/1-A	Method Blank	122	79

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Surrogate Summary

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

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)								
310-292200-3	OW-224B	98	75								
LCS 310-436103/22-A	Lab Control Sample	96	50								
MB 310-436103/1-A	Method Blank	122	79								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DCPAA1	DCPAA2								
Lab Sample ID	Client Sample ID	(34-142)	(34-142)								
310-292200-3	OW-224B	105 p	175 S1+								
LCS 410-561937/2-A	Lab Control Sample	85	84								
LCSD 410-561937/3-A	Lab Control Sample Dup	82	87								
MB 410-561937/1-A	Method Blank	67	58								

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-435986/5
Matrix: Water
Analysis Batch: 435986

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	<0.380		1.00	0.380	ug/L			10/11/24 22:46	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 22:46	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 22:46	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 22:46	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 22:46	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 22:46	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/11/24 22:46	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 22:46	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/11/24 22:46	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 22:46	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 22:46	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 22:46	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 22:46	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 22:46	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/11/24 22:46	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/11/24 22:46	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 22:46	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/11/24 22:46	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 22:46	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 22:46	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 22:46	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 22:46	1
Acrolein	<3.60		10.0	3.60	ug/L			10/11/24 22:46	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 22:46	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/11/24 22:46	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 22:46	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 22:46	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 22:46	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 22:46	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 22:46	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 22:46	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 22:46	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 22:46	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 22:46	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 22:46	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 22:46	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 22:46	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/11/24 22:46	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 22:46	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 22:46	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 22:46	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/11/24 22:46	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/11/24 22:46	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 22:46	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 22:46	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 22:46	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/11/24 22:46	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/11/24 22:46	1

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

Lab Sample ID: MB 310-435986/5
Matrix: Water
Analysis Batch: 435986

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 22:46	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/11/24 22:46	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 22:46	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/11/24 22:46	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 22:46	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 22:46	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 22:46	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 22:46	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 22:46	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 22:46	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 22:46	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 22:46	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 22:46	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 22:46	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 22:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*10/11/24 22:46*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/11/24 22:46*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*10/11/24 22:46*	*1*

Lab Sample ID: LCS 310-435986/6
Matrix: Water
Analysis Batch: 435986

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	20.08		ug/L		100	71 - 120
1,1,1-Trichloroethane	20.0	23.34		ug/L		117	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.64		ug/L		103	68 - 124
1,1,2-Trichloroethane	20.0	21.28		ug/L		106	73 - 123
1,1-Dichloroethane	20.0	24.26		ug/L		121	70 - 127
1,1-Dichloroethene	20.0	25.88		ug/L		129	63 - 132
1,1-Dichloropropene	20.0	24.53		ug/L		123	69 - 132
1,2,3-Trichloropropane	20.0	20.06		ug/L		100	65 - 127
1,2,4-Trichlorobenzene	20.0	21.38		ug/L		107	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	21.75		ug/L		109	50 - 150
1,2-Dibromoethane (EDB)	20.0	19.61		ug/L		98	75 - 125
1,2-Dichlorobenzene	20.0	21.07		ug/L		105	74 - 120
1,2-Dichloroethane	20.0	20.88		ug/L		104	71 - 125
1,2-Dichloropropane	20.0	23.28		ug/L		116	73 - 124
1,3-Dichlorobenzene	20.0	19.97		ug/L		100	72 - 120
1,3-Dichloropropane	20.0	21.42		ug/L		107	72 - 125
1,4-Dichlorobenzene	20.0	20.36		ug/L		102	72 - 120
2,2-Dichloropropane	20.0	22.88		ug/L		114	50 - 150
2-Butanone (MEK)	40.0	38.75		ug/L		97	50 - 150
2-Hexanone	40.0	40.00		ug/L		100	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	38.72		ug/L		97	60 - 139
Acetone	40.0	42.76		ug/L		107	50 - 150

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

Lab Sample ID: LCS 310-435986/6
Matrix: Water
Analysis Batch: 435986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Acrolein			95.5	99.54		ug/L		104	49 - 150		
Acrylonitrile			200	224.2		ug/L		112	50 - 150		
Allyl chloride			20.0	22.33		ug/L		112	49 - 150		
Benzene			20.0	23.26		ug/L		116	72 - 124		
Bromochloromethane			20.0	21.57		ug/L		108	73 - 130		
Bromodichloromethane			20.0	20.05		ug/L		100	74 - 122		
Bromoform			20.0	18.86		ug/L		94	61 - 122		
Carbon disulfide			20.0	25.99		ug/L		130	59 - 135		
Carbon tetrachloride			20.0	23.31		ug/L		117	67 - 132		
Chlorobenzene			20.0	20.98		ug/L		105	76 - 120		
Chlorodibromomethane			20.0	19.83		ug/L		99	71 - 121		
Chloroform			20.0	21.41		ug/L		107	72 - 125		
Chloroprene			20.0	25.01		ug/L		125	69 - 133		
cis-1,2-Dichloroethene			20.0	21.65		ug/L		108	74 - 123		
cis-1,3-Dichloropropene			20.0	21.71		ug/L		109	71 - 125		
Dibromomethane			20.0	20.85		ug/L		104	74 - 125		
Ethyl methacrylate			20.0	20.56		ug/L		103	70 - 129		
Ethylbenzene			20.0	21.95		ug/L		110	74 - 122		
Iodomethane			20.0	23.88		ug/L		119	10 - 150		
Methacrylonitrile			200	209.3		ug/L		105	69 - 129		
Methyl methacrylate			40.0	41.58		ug/L		104	68 - 131		
Methylene Chloride			20.0	24.66		ug/L		123	50 - 150		
Naphthalene			20.0	22.11		ug/L		111	50 - 150		
Propionitrile			200	209.9		ug/L		105	63 - 135		
Styrene			20.0	21.25		ug/L		106	74 - 121		
Tetrachloroethene			20.0	21.18		ug/L		106	71 - 130		
Toluene			20.0	21.16		ug/L		106	74 - 123		
trans-1,2-Dichloroethene			20.0	22.44		ug/L		112	70 - 126		
trans-1,3-Dichloropropene			20.0	19.94		ug/L		100	69 - 123		
trans-1,4-Dichloro-2-butene			20.0	19.34		ug/L		97	50 - 150		
Trichloroethene			20.0	22.19		ug/L		111	72 - 126		
Vinyl acetate			40.0	43.81		ug/L		110	50 - 150		
Xylenes, Total			40.0	42.18		ug/L		105	73 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-435986/7
Matrix: Water
Analysis Batch: 435986

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	20.37		ug/L		102	23 - 150		
Chloroethane			20.0	20.04		ug/L		100	54 - 136		
Chloromethane			20.0	19.99		ug/L		100	38 - 150		
Dichlorodifluoromethane			20.0	18.31		ug/L		92	39 - 150		

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

Lab Sample ID: LCS 310-435986/7
Matrix: Water
Analysis Batch: 435986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Trichlorofluoromethane			20.0	18.98		ug/L		95	54 - 149		
Vinyl chloride			20.0	19.78		ug/L		99	56 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*73 - 130*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: 310-292200-1 MS
Matrix: Water
Analysis Batch: 435986

Client Sample ID: OW-221B
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	<0.380		25.0	22.21		ug/L		89	55 - 130		
1,1,1-Trichloroethane	<0.190		25.0	24.58		ug/L		98	52 - 130		
1,1,2,2-Tetrachloroethane	<0.470		25.0	23.46		ug/L		94	54 - 130		
1,1,2-Trichloroethane	<0.450		25.0	23.74		ug/L		95	58 - 130		
1,1-Dichloroethane	<0.220		25.0	26.10		ug/L		104	49 - 130		
1,1-Dichloroethene	<0.560		25.0	29.25		ug/L		117	37 - 132		
1,1-Dichloropropene	<0.430		25.0	26.82		ug/L		107	50 - 132		
1,2,3-Trichloropropane	<0.590		25.0	23.60		ug/L		94	49 - 130		
1,2,4-Trichlorobenzene	<0.750		25.0	24.12		ug/L		96	55 - 130		
1,2-Dibromo-3-Chloropropane	<1.20		25.0	24.67		ug/L		99	38 - 150		
1,2-Dibromoethane (EDB)	<0.340		25.0	23.05		ug/L		92	60 - 130		
1,2-Dichlorobenzene	<0.370		25.0	22.85		ug/L		91	59 - 130		
1,2-Dichloroethane	<0.390		25.0	23.75		ug/L		95	51 - 130		
1,2-Dichloropropane	<0.270		25.0	25.73		ug/L		103	57 - 130		
1,3-Dichlorobenzene	<0.300		25.0	21.84		ug/L		87	57 - 130		
1,3-Dichloropropane	<0.400		25.0	24.02		ug/L		96	56 - 130		
1,4-Dichlorobenzene	<0.230		25.0	22.85		ug/L		91	57 - 130		
2,2-Dichloropropane	<0.690		25.0	22.28		ug/L		89	25 - 150		
2-Butanone (MEK)	<2.10		50.0	47.32		ug/L		95	38 - 150		
2-Hexanone	<2.00		50.0	48.18		ug/L		96	46 - 140		
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	45.98		ug/L		92	47 - 139		
Acetone	4.63	J	50.0	49.09		ug/L		89	31 - 150		
Acrolein	<3.60		119	119.7		ug/L		100	25 - 150		
Acrylonitrile	<2.20		250	257.7		ug/L		103	40 - 150		
Allyl chloride	<0.700		25.0	27.03		ug/L		108	28 - 150		
Benzene	0.856		25.0	26.30		ug/L		102	46 - 130		
Bromochloromethane	<0.540		25.0	23.80		ug/L		95	57 - 130		
Bromodichloromethane	<0.390		25.0	23.00		ug/L		92	57 - 130		
Bromoform	<0.780		25.0	20.79		ug/L		83	44 - 130		
Carbon disulfide	<0.450		25.0	31.71		ug/L		127	38 - 135		
Carbon tetrachloride	<0.650		25.0	24.74		ug/L		99	45 - 132		
Chlorobenzene	<0.400		25.0	22.63		ug/L		91	59 - 130		
Chlorodibromomethane	<0.750		25.0	22.45		ug/L		90	54 - 130		
Chloroform	<1.30		25.0	22.91		ug/L		92	51 - 130		
Chloroprene	<0.230		25.0	27.92		ug/L		112	43 - 133		

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

Lab Sample ID: 310-292200-1 MS
Matrix: Water
Analysis Batch: 435986

Client Sample ID: OW-221B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	1.29		25.0	25.43		ug/L		97	45 - 130
cis-1,3-Dichloropropene	<0.250		25.0	23.51		ug/L		94	53 - 130
Dibromomethane	<0.330		25.0	24.05		ug/L		96	59 - 130
Ethyl methacrylate	<0.680		25.0	23.10		ug/L		92	54 - 130
Ethylbenzene	<0.310		25.0	22.92		ug/L		92	45 - 130
Iodomethane	<7.00		25.0	26.19		ug/L		105	10 - 150
Methacrylonitrile	<3.30		250	250.7		ug/L		100	55 - 130
Methyl methacrylate	<0.760		50.0	48.31		ug/L		97	44 - 139
Methylene Chloride	<1.70		25.0	26.44		ug/L		106	37 - 150
Naphthalene	<3.00		25.0	27.37		ug/L		109	40 - 150
Propionitrile	<3.40		250	250.3		ug/L		100	49 - 135
Styrene	<0.370		25.0	23.34		ug/L		93	47 - 130
Tetrachloroethene	<0.480		25.0	22.70		ug/L		91	47 - 130
Toluene	<0.430		25.0	22.60		ug/L		90	51 - 130
trans-1,2-Dichloroethene	<0.270		25.0	25.52		ug/L		102	48 - 130
trans-1,3-Dichloropropene	<0.560		25.0	21.94		ug/L		88	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		25.0	22.32		ug/L		89	26 - 150
Trichloroethene	<0.430		25.0	23.77		ug/L		95	51 - 130
Vinyl acetate	<2.50		50.0	44.41		ug/L		89	29 - 150
Xylenes, Total	<0.400		50.0	44.47		ug/L		89	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: 310-292200-1 MSD
Matrix: Water
Analysis Batch: 435986

Client Sample ID: OW-221B
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	<0.380		25.0	21.83		ug/L		87	55 - 130	2	20
1,1,1-Trichloroethane	<0.190		25.0	23.88		ug/L		96	52 - 130	3	20
1,1,2,2-Tetrachloroethane	<0.470		25.0	23.30		ug/L		93	54 - 130	1	20
1,1,2-Trichloroethane	<0.450		25.0	23.51		ug/L		94	58 - 130	1	20
1,1-Dichloroethane	<0.220		25.0	25.95		ug/L		104	49 - 130	1	20
1,1-Dichloroethene	<0.560		25.0	27.39		ug/L		110	37 - 132	7	26
1,1-Dichloropropene	<0.430		25.0	26.03		ug/L		104	50 - 132	3	20
1,2,3-Trichloropropane	<0.590		25.0	23.17		ug/L		93	49 - 130	2	26
1,2,4-Trichlorobenzene	<0.750		25.0	24.21		ug/L		97	55 - 130	0	20
1,2-Dibromo-3-Chloropropane	<1.20		25.0	24.76		ug/L		99	38 - 150	0	20
1,2-Dibromoethane (EDB)	<0.340		25.0	22.29		ug/L		89	60 - 130	3	20
1,2-Dichlorobenzene	<0.370		25.0	22.23		ug/L		89	59 - 130	3	20
1,2-Dichloroethane	<0.390		25.0	23.27		ug/L		93	51 - 130	2	20
1,2-Dichloropropane	<0.270		25.0	25.60		ug/L		102	57 - 130	1	20
1,3-Dichlorobenzene	<0.300		25.0	21.65		ug/L		87	57 - 130	1	20
1,3-Dichloropropane	<0.400		25.0	23.41		ug/L		94	56 - 130	3	20
1,4-Dichlorobenzene	<0.230		25.0	21.75		ug/L		87	57 - 130	5	20

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

Lab Sample ID: 310-292200-1 MSD
Client Sample ID: OW-221B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 435986

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,2-Dichloropropane	<0.690		25.0	21.62		ug/L		86	25 - 150	3	25
2-Butanone (MEK)	<2.10		50.0	49.79		ug/L		100	38 - 150	5	20
2-Hexanone	<2.00		50.0	48.30		ug/L		97	46 - 140	0	20
4-Methyl-2-pentanone (MIBK)	<2.10		50.0	47.09		ug/L		94	47 - 139	2	20
Acetone	4.63	J	50.0	47.63		ug/L		86	31 - 150	3	29
Acrolein	<3.60		119	120.3		ug/L		101	25 - 150	1	31
Acrylonitrile	<2.20		250	263.0		ug/L		105	40 - 150	2	20
Allyl chloride	<0.700		25.0	26.37		ug/L		105	28 - 150	2	35
Benzene	0.856		25.0	25.58		ug/L		99	46 - 130	3	20
Bromochloromethane	<0.540		25.0	23.00		ug/L		92	57 - 130	3	20
Bromodichloromethane	<0.390		25.0	22.29		ug/L		89	57 - 130	3	20
Bromoform	<0.780		25.0	20.70		ug/L		83	44 - 130	0	20
Carbon disulfide	<0.450		25.0	27.30		ug/L		109	38 - 135	15	30
Carbon tetrachloride	<0.650		25.0	24.12		ug/L		96	45 - 132	3	20
Chlorobenzene	<0.400		25.0	21.59		ug/L		86	59 - 130	5	20
Chlorodibromomethane	<0.750		25.0	21.66		ug/L		87	54 - 130	4	20
Chloroform	<1.30		25.0	22.40		ug/L		90	51 - 130	2	20
Chloroprene	<0.230		25.0	26.85		ug/L		107	43 - 133	4	20
cis-1,2-Dichloroethene	1.29		25.0	24.48		ug/L		93	45 - 130	4	20
cis-1,3-Dichloropropene	<0.250		25.0	22.83		ug/L		91	53 - 130	3	20
Dibromomethane	<0.330		25.0	23.44		ug/L		94	59 - 130	3	20
Ethyl methacrylate	<0.680		25.0	23.14		ug/L		93	54 - 130	0	20
Ethylbenzene	<0.310		25.0	22.45		ug/L		90	45 - 130	2	20
Iodomethane	<7.00		25.0	26.86		ug/L		107	10 - 150	3	35
Methacrylonitrile	<3.30		250	248.8		ug/L		100	55 - 130	1	20
Methyl methacrylate	<0.760		50.0	48.05		ug/L		96	44 - 139	1	20
Methylene Chloride	<1.70		25.0	26.01		ug/L		104	37 - 150	2	24
Naphthalene	<3.00		25.0	27.57		ug/L		110	40 - 150	1	30
Propionitrile	<3.40		250	247.8		ug/L		99	49 - 135	1	20
Styrene	<0.370		25.0	22.35		ug/L		89	47 - 130	4	20
Tetrachloroethene	<0.480		25.0	21.40		ug/L		86	47 - 130	6	20
Toluene	<0.430		25.0	22.15		ug/L		89	51 - 130	2	20
trans-1,2-Dichloroethene	<0.270		25.0	24.39		ug/L		98	48 - 130	5	22
trans-1,3-Dichloropropene	<0.560		25.0	21.40		ug/L		86	50 - 130	2	20
trans-1,4-Dichloro-2-butene	<1.10		25.0	22.20		ug/L		89	26 - 150	1	23
Trichloroethene	<0.430		25.0	22.91		ug/L		92	51 - 130	4	20
Vinyl acetate	<2.50		50.0	45.85		ug/L		92	29 - 150	3	23
Xylenes, Total	<0.400		50.0	43.89		ug/L		88	43 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

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

Lab Sample ID: MB 310-436121/5
Matrix: Water
Analysis Batch: 436121

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	<0.380		1.00	0.380	ug/L			10/14/24 09:47	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/14/24 09:47	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/14/24 09:47	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/14/24 09:47	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/14/24 09:47	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/14/24 09:47	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/14/24 09:47	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/14/24 09:47	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/14/24 09:47	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/14/24 09:47	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/14/24 09:47	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/14/24 09:47	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/14/24 09:47	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/14/24 09:47	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/14/24 09:47	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/14/24 09:47	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/14/24 09:47	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/14/24 09:47	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/14/24 09:47	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/14/24 09:47	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/14/24 09:47	1
Acetone	<3.10		10.0	3.10	ug/L			10/14/24 09:47	1
Acrolein	<3.60		10.0	3.60	ug/L			10/14/24 09:47	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/14/24 09:47	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/14/24 09:47	1
Benzene	<0.220		0.500	0.220	ug/L			10/14/24 09:47	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/14/24 09:47	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/14/24 09:47	1
Bromoform	<0.780		5.00	0.780	ug/L			10/14/24 09:47	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/14/24 09:47	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/14/24 09:47	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/14/24 09:47	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/14/24 09:47	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/14/24 09:47	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/14/24 09:47	1
Chloroform	<1.30		3.00	1.30	ug/L			10/14/24 09:47	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/14/24 09:47	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/14/24 09:47	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/14/24 09:47	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/14/24 09:47	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/14/24 09:47	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/14/24 09:47	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/14/24 09:47	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/14/24 09:47	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/14/24 09:47	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/14/24 09:47	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/14/24 09:47	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/14/24 09:47	1

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

Lab Sample ID: MB 310-436121/5
Matrix: Water
Analysis Batch: 436121

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/14/24 09:47	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/14/24 09:47	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/14/24 09:47	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/14/24 09:47	1
Styrene	<0.370		1.00	0.370	ug/L			10/14/24 09:47	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/14/24 09:47	1
Toluene	<0.430		1.00	0.430	ug/L			10/14/24 09:47	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/14/24 09:47	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/14/24 09:47	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/14/24 09:47	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/14/24 09:47	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/14/24 09:47	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/14/24 09:47	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/14/24 09:47	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/14/24 09:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/14/24 09:47*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/14/24 09:47*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*10/14/24 09:47*	*1*

Lab Sample ID: LCS 310-436121/6
Matrix: Water
Analysis Batch: 436121

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	19.90		ug/L		99	71 - 120
1,1,1-Trichloroethane	20.0	22.48		ug/L		112	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.54		ug/L		103	68 - 124
1,1,2-Trichloroethane	20.0	20.67		ug/L		103	73 - 123
1,1-Dichloroethane	20.0	23.26		ug/L		116	70 - 127
1,1-Dichloroethene	20.0	25.09		ug/L		125	63 - 132
1,1-Dichloropropene	20.0	23.43		ug/L		117	69 - 132
1,2,3-Trichloropropane	20.0	20.34		ug/L		102	65 - 127
1,2,4-Trichlorobenzene	20.0	20.56		ug/L		103	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	21.41		ug/L		107	50 - 150
1,2-Dibromoethane (EDB)	20.0	19.60		ug/L		98	75 - 125
1,2-Dichlorobenzene	20.0	20.19		ug/L		101	74 - 120
1,2-Dichloroethane	20.0	20.36		ug/L		102	71 - 125
1,2-Dichloropropane	20.0	23.49		ug/L		117	73 - 124
1,3-Dichlorobenzene	20.0	19.08		ug/L		95	72 - 120
1,3-Dichloropropane	20.0	20.81		ug/L		104	72 - 125
1,4-Dichlorobenzene	20.0	20.07		ug/L		100	72 - 120
2,2-Dichloropropane	20.0	25.05		ug/L		125	50 - 150
2-Butanone (MEK)	40.0	40.47		ug/L		101	50 - 150
2-Hexanone	40.0	42.22		ug/L		106	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	39.89		ug/L		100	60 - 139
Acetone	40.0	38.70		ug/L		97	50 - 150

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

Lab Sample ID: LCS 310-436121/6
Matrix: Water
Analysis Batch: 436121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Acrolein			95.5	114.0		ug/L		119	49 - 150		
Acrylonitrile			200	224.3		ug/L		112	50 - 150		
Allyl chloride			20.0	22.19		ug/L		111	49 - 150		
Benzene			20.0	22.47		ug/L		112	72 - 124		
Bromochloromethane			20.0	20.23		ug/L		101	73 - 130		
Bromodichloromethane			20.0	20.09		ug/L		100	74 - 122		
Bromoform			20.0	18.31		ug/L		92	61 - 122		
Carbon disulfide			20.0	25.34		ug/L		127	59 - 135		
Carbon tetrachloride			20.0	22.53		ug/L		113	67 - 132		
Chlorobenzene			20.0	19.70		ug/L		98	76 - 120		
Chlorodibromomethane			20.0	19.55		ug/L		98	71 - 121		
Chloroform			20.0	20.20		ug/L		101	72 - 125		
Chloroprene			20.0	24.23		ug/L		121	69 - 133		
cis-1,2-Dichloroethene			20.0	20.63		ug/L		103	74 - 123		
cis-1,3-Dichloropropene			20.0	21.84		ug/L		109	71 - 125		
Dibromomethane			20.0	20.19		ug/L		101	74 - 125		
Ethyl methacrylate			20.0	20.42		ug/L		102	70 - 129		
Ethylbenzene			20.0	20.69		ug/L		103	74 - 122		
Iodomethane			20.0	23.95		ug/L		120	10 - 150		
Methacrylonitrile			200	217.8		ug/L		109	69 - 129		
Methyl methacrylate			40.0	42.14		ug/L		105	68 - 131		
Methylene Chloride			20.0	23.62		ug/L		118	50 - 150		
Naphthalene			20.0	21.74		ug/L		109	50 - 150		
Propionitrile			200	221.0		ug/L		110	63 - 135		
Styrene			20.0	20.18		ug/L		101	74 - 121		
Tetrachloroethene			20.0	20.33		ug/L		102	71 - 130		
Toluene			20.0	20.29		ug/L		101	74 - 123		
trans-1,2-Dichloroethene			20.0	22.00		ug/L		110	70 - 126		
trans-1,3-Dichloropropene			20.0	19.97		ug/L		100	69 - 123		
trans-1,4-Dichloro-2-butene			20.0	17.78		ug/L		89	50 - 150		
Trichloroethene			20.0	21.12		ug/L		106	72 - 126		
Vinyl acetate			40.0	46.69		ug/L		117	50 - 150		
Xylenes, Total			40.0	39.70		ug/L		99	73 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-436121/7
Matrix: Water
Analysis Batch: 436121

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	19.81		ug/L		99	23 - 150		
Chloroethane			20.0	19.26		ug/L		96	54 - 136		
Chloromethane			20.0	20.44		ug/L		102	38 - 150		
Dichlorodifluoromethane			20.0	17.83		ug/L		89	39 - 150		

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

Lab Sample ID: LCS 310-436121/7
Matrix: Water
Analysis Batch: 436121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Trichlorofluoromethane			20.0	18.65		ug/L		93	54 - 149		
Vinyl chloride			20.0	18.91		ug/L		95	56 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*

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

Lab Sample ID: MB 310-435704/1-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435704

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.540		10.0	0.540	ug/L		10/09/24 13:46	10/14/24 09:49	1
1,3,5-Trinitrobenzene	<2.30		10.0	2.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
1,3-Dinitrobenzene	<3.20		10.0	3.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
1,4-Naphthoquinone	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
1,4-phenylenediamine	<1.90		10.0	1.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
1-Naphthylamine	<2.50		10.0	2.50	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,3,4,6-Tetrachlorophenol	<5.30		10.0	5.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,4,5-Trichlorophenol	<5.30		10.0	5.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,4,6-Trichlorophenol	<5.00		10.0	5.00	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,4-Dichlorophenol	<0.850		10.0	0.850	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,4-Dimethylphenol	<0.580		10.0	0.580	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,4-Dinitrophenol	<13.0		20.0	13.0	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,4-Dinitrotoluene	<6.40		10.0	6.40	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,6-Dichlorophenol	<0.690		10.0	0.690	ug/L		10/09/24 13:46	10/14/24 09:49	1
2,6-Dinitrotoluene	<0.520		10.0	0.520	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Acetylaminofluorene	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Chloronaphthalene	<0.640		10.0	0.640	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Chlorophenol	<0.540		10.0	0.540	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Methylnaphthalene	<0.590		10.0	0.590	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Methylphenol	<0.650		10.0	0.650	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Naphthylamine	<2.10		10.0	2.10	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Nitroaniline	<5.90		10.0	5.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
2-Nitrophenol	<6.80		10.0	6.80	ug/L		10/09/24 13:46	10/14/24 09:49	1
3,3'-Dichlorobenzidine	<1.40		10.0	1.40	ug/L		10/09/24 13:46	10/14/24 09:49	1
3,3'-Dimethylbenzidine	<1.50		10.0	1.50	ug/L		10/09/24 13:46	10/14/24 09:49	1
3-Methylcholanthrene	<0.320		10.0	0.320	ug/L		10/09/24 13:46	10/14/24 09:49	1
3-Nitroaniline	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
4,6-Dinitro-2-methylphenol	<6.90		10.0	6.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
4-Aminobiphenyl	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
4-Bromophenyl phenyl ether	<0.700		10.0	0.700	ug/L		10/09/24 13:46	10/14/24 09:49	1
4-Chloro-3-methylphenol	<0.840		10.0	0.840	ug/L		10/09/24 13:46	10/14/24 09:49	1
4-Chloroaniline	<0.620		10.0	0.620	ug/L		10/09/24 13:46	10/14/24 09:49	1
4-Chlorophenyl phenyl ether	<0.690		10.0	0.690	ug/L		10/09/24 13:46	10/14/24 09:49	1
Methylphenol, 3 & 4	<0.700		10.0	0.700	ug/L		10/09/24 13:46	10/14/24 09:49	1

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

Lab Sample ID: MB 310-435704/1-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435704

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<1.30		10.0	1.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
4-Nitrophenol	<7.60		10.0	7.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
5-Nitro-o-toluidine	<2.80		10.0	2.80	ug/L		10/09/24 13:46	10/14/24 09:49	1
7,12-Dimethylbenz(a)anthracene	<1.90		10.0	1.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
Acenaphthene	<0.640		10.0	0.640	ug/L		10/09/24 13:46	10/14/24 09:49	1
Acenaphthylene	<0.720		10.0	0.720	ug/L		10/09/24 13:46	10/14/24 09:49	1
Acetophenone	<0.690		10.0	0.690	ug/L		10/09/24 13:46	10/14/24 09:49	1
Anthracene	<0.870		10.0	0.870	ug/L		10/09/24 13:46	10/14/24 09:49	1
Benzo[a]anthracene	0.9717	J	10.0	0.850	ug/L		10/09/24 13:46	10/14/24 09:49	1
Benzo[a]pyrene	<8.10		10.0	8.10	ug/L		10/09/24 13:46	10/14/24 09:49	1
Benzo[b]fluoranthene	<4.90		10.0	4.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
Benzo[g,h,i]perylene	<6.30		10.0	6.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
Benzo[k]fluoranthene	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
Benzyl alcohol	<1.30		10.0	1.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
Bis(2-chloroethoxy)methane	<0.760		10.0	0.760	ug/L		10/09/24 13:46	10/14/24 09:49	1
Bis(2-chloroethyl)ether	<0.820		10.0	0.820	ug/L		10/09/24 13:46	10/14/24 09:49	1
bis (2-chloroisopropyl) ether	<0.540		10.0	0.540	ug/L		10/09/24 13:46	10/14/24 09:49	1
Bis(2-ethylhexyl) phthalate	<5.50		10.0	5.50	ug/L		10/09/24 13:46	10/14/24 09:49	1
Butyl benzyl phthalate	<5.40		10.0	5.40	ug/L		10/09/24 13:46	10/14/24 09:49	1
Chlorobenzilate	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
Chrysene	<0.870		10.0	0.870	ug/L		10/09/24 13:46	10/14/24 09:49	1
Diallate	<4.00		10.0	4.00	ug/L		10/09/24 13:46	10/14/24 09:49	1
Dibenzo(a,h)anthracene	<3.90		10.0	3.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
Dibenzofuran	<0.740		10.0	0.740	ug/L		10/09/24 13:46	10/14/24 09:49	1
Diethyl phthalate	<1.70		10.0	1.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
Dimethoate	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
Dimethyl phthalate	<1.00		10.0	1.00	ug/L		10/09/24 13:46	10/14/24 09:49	1
Di-n-butyl phthalate	<5.60		10.0	5.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
Di-n-octyl phthalate	<7.00		20.0	7.00	ug/L		10/09/24 13:46	10/14/24 09:49	1
Dinoseb	<2.40		10.0	2.40	ug/L		10/09/24 13:46	10/14/24 09:49	1
Diphenylamine	<6.00		10.0	6.00	ug/L		10/09/24 13:46	10/14/24 09:49	1
Disulfoton	<2.40		10.0	2.40	ug/L		10/09/24 13:46	10/14/24 09:49	1
Ethyl methanesulfonate	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
Ethyl Parathion	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
Famphur	<3.80		10.0	3.80	ug/L		10/09/24 13:46	10/14/24 09:49	1
Fluoranthene	<1.70		10.0	1.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
Fluorene	<0.790		10.0	0.790	ug/L		10/09/24 13:46	10/14/24 09:49	1
Hexachlorobenzene	<0.700		10.0	0.700	ug/L		10/09/24 13:46	10/14/24 09:49	1
Hexachlorobutadiene	<0.860		10.0	0.860	ug/L		10/09/24 13:46	10/14/24 09:49	1
Hexachlorocyclopentadiene	<5.10		10.0	5.10	ug/L		10/09/24 13:46	10/14/24 09:49	1
Hexachloroethane	<0.970		10.0	0.970	ug/L		10/09/24 13:46	10/14/24 09:49	1
Hexachloropropene	<2.60		10.0	2.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
Indeno[1,2,3-cd]pyrene	<4.20		10.0	4.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
Isodrin	<4.70		10.0	4.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
Isophorone	<0.930		10.0	0.930	ug/L		10/09/24 13:46	10/14/24 09:49	1
Isosafrole	<2.30		10.0	2.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
Kepone	<1.00		10.0	1.00	ug/L		10/09/24 13:46	10/14/24 09:49	1
Methapyrilene	<0.760		10.0	0.760	ug/L		10/09/24 13:46	10/14/24 09:49	1
Methyl methanesulfonate	<3.30		10.0	3.30	ug/L		10/09/24 13:46	10/14/24 09:49	1

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

Lab Sample ID: MB 310-435704/1-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435704

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl parathion	<2.30		10.0	2.30	ug/L		10/09/24 13:46	10/14/24 09:49	1
Nitrobenzene	<0.800		10.0	0.800	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosodiethylamine	<3.40		10.0	3.40	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosodimethylamine	<0.720		10.0	0.720	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosodi-n-butylamine	<3.90		10.0	3.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosodi-n-propylamine	<0.920		10.0	0.920	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosodiphenylamine	<0.750		10.0	0.750	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosomethylethylamine	<4.90		10.0	4.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosopiperidine	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
N-Nitrosopyrrolidine	<3.60		10.0	3.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
o,o',o''-Triethylphosphorothioate	<3.20		10.0	3.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
o-Toluidine	<2.90		10.0	2.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
p-Dimethylamino azobenzene	<2.20		10.0	2.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
Pentachlorobenzene	<2.80		10.0	2.80	ug/L		10/09/24 13:46	10/14/24 09:49	1
Pentachloronitrobenzene	<5.80		10.0	5.80	ug/L		10/09/24 13:46	10/14/24 09:49	1
Pentachlorophenol	<9.60		10.0	9.60	ug/L		10/09/24 13:46	10/14/24 09:49	1
Phenacetin	<1.90		10.0	1.90	ug/L		10/09/24 13:46	10/14/24 09:49	1
Phenanthrene	<0.790		10.0	0.790	ug/L		10/09/24 13:46	10/14/24 09:49	1
Phenol	<1.10		10.0	1.10	ug/L		10/09/24 13:46	10/14/24 09:49	1
Phorate	<3.20		10.0	3.20	ug/L		10/09/24 13:46	10/14/24 09:49	1
Pronamide	<2.70		10.0	2.70	ug/L		10/09/24 13:46	10/14/24 09:49	1
Pyrene	<0.790		10.0	0.790	ug/L		10/09/24 13:46	10/14/24 09:49	1
Safrole	<2.80		10.0	2.80	ug/L		10/09/24 13:46	10/14/24 09:49	1
Thionazin	<3.50		10.0	3.50	ug/L		10/09/24 13:46	10/14/24 09:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*66*		*25 - 110*	*10/09/24 13:46*	*10/14/24 09:49*	*1*
Phenol-d5 (Surr)	*55*		*21 - 110*	*10/09/24 13:46*	*10/14/24 09:49*	*1*
Nitrobenzene-d5 (Surr)	*85*		*45 - 129*	*10/09/24 13:46*	*10/14/24 09:49*	*1*
2-Fluorobiphenyl (Surr)	*84*		*39 - 118*	*10/09/24 13:46*	*10/14/24 09:49*	*1*
2,4,6-Tribromophenol (Surr)	*98*		*27 - 136*	*10/09/24 13:46*	*10/14/24 09:49*	*1*
Terphenyl-d14 (Surr)	*108*		*12 - 144*	*10/09/24 13:46*	*10/14/24 09:49*	*1*

Lab Sample ID: LCS 310-435704/2-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435704

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4,5-Tetrachlorobenzene	100	60.60		ug/L		61	36 - 110
1,3-Dinitrobenzene	100	63.41		ug/L		63	45 - 138
2,3,4,6-Tetrachlorophenol	100	21.64	*-	ug/L		22	33 - 134
2,4,5-Trichlorophenol	100	53.98		ug/L		54	35 - 133
2,4,6-Trichlorophenol	100	40.49		ug/L		40	28 - 139
2,4-Dichlorophenol	100	70.74		ug/L		71	41 - 124
2,4-Dimethylphenol	100	58.90		ug/L		59	31 - 142
2,4-Dinitrophenol	200	<13.0	*-	ug/L		4	10 - 138
2,4-Dinitrotoluene	100	68.63		ug/L		69	47 - 137
2,6-Dichlorophenol	100	52.04		ug/L		52	30 - 130

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

Lab Sample ID: LCS 310-435704/2-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435704

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,6-Dinitrotoluene	100	66.71		ug/L		67	51 - 130
2-Chloronaphthalene	100	49.15		ug/L		49	37 - 110
2-Chlorophenol	100	61.93		ug/L		62	44 - 117
2-Methylnaphthalene	100	52.28		ug/L		52	33 - 110
2-Methylphenol	100	62.74		ug/L		63	47 - 118
2-Nitroaniline	100	56.66		ug/L		57	50 - 135
2-Nitrophenol	100	71.54		ug/L		72	41 - 129
3-Nitroaniline	100	70.32		ug/L		70	42 - 139
4,6-Dinitro-2-methylphenol	200	22.42	*-	ug/L		11	22 - 143
4-Bromophenyl phenyl ether	100	72.40		ug/L		72	45 - 119
4-Chloro-3-methylphenol	100	72.93		ug/L		73	49 - 130
4-Chloroaniline	100	61.66		ug/L		62	21 - 139
4-Chlorophenyl phenyl ether	100	63.48		ug/L		63	44 - 116
Methylphenol, 3 & 4	100	60.88		ug/L		61	46 - 117
4-Nitroaniline	100	52.83		ug/L		53	31 - 145
4-Nitrophenol	200	41.49		ug/L		21	18 - 110
Acenaphthene	100	63.02		ug/L		63	43 - 110
Acenaphthylene	100	59.14		ug/L		59	40 - 110
Acetophenone	100	60.76		ug/L		61	48 - 119
Anthracene	100	73.48		ug/L		73	51 - 120
Benzo[a]anthracene	100	68.07		ug/L		68	51 - 123
Benzo[a]pyrene	100	67.40		ug/L		67	48 - 125
Benzo[b]fluoranthene	100	66.12		ug/L		66	49 - 129
Benzo[g,h,i]perylene	100	60.84		ug/L		61	43 - 139
Benzo[k]fluoranthene	100	72.04		ug/L		72	47 - 130
Benzyl alcohol	100	57.04		ug/L		57	39 - 128
Bis(2-chloroethoxy)methane	100	54.35		ug/L		54	48 - 121
Bis(2-chloroethyl)ether	100	49.89		ug/L		50	43 - 123
bis (2-chloroisopropyl) ether	100	56.56		ug/L		57	34 - 123
Bis(2-ethylhexyl) phthalate	100	68.60		ug/L		69	43 - 143
Butyl benzyl phthalate	100	61.92		ug/L		62	46 - 135
Chrysene	100	70.52		ug/L		71	51 - 125
Dibenzo(a,h)anthracene	100	61.94		ug/L		62	38 - 149
Dibenzofuran	100	63.22		ug/L		63	45 - 112
Diethyl phthalate	100	62.42		ug/L		62	43 - 135
Dimethyl phthalate	100	62.66		ug/L		63	43 - 129
Di-n-butyl phthalate	100	68.27		ug/L		68	50 - 133
Di-n-octyl phthalate	100	58.16		ug/L		58	34 - 150
Diphenylamine	85.0	52.74		ug/L		62	48 - 122
Fluoranthene	100	72.60		ug/L		73	47 - 128
Fluorene	100	67.98		ug/L		68	45 - 119
Hexachlorobenzene	100	72.95		ug/L		73	48 - 119
Hexachlorobutadiene	100	56.90		ug/L		57	32 - 110
Hexachlorocyclopentadiene	100	38.22		ug/L		38	10 - 110
Hexachloroethane	100	40.26		ug/L		40	31 - 110
Indeno[1,2,3-cd]pyrene	100	60.34		ug/L		60	37 - 150
Isophorone	100	61.97		ug/L		62	50 - 125
Nitrobenzene	100	49.75		ug/L		50	47 - 116
N-Nitrosodimethylamine	100	49.15		ug/L		49	37 - 110

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

Lab Sample ID: LCS 310-435704/2-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435704

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
N-Nitrosodi-n-propylamine			100	57.65		ug/L		58	45 - 130		
N-Nitrosodiphenylamine			100	60.01		ug/L		60	49 - 121		
Pentachlorophenol			200	13.75	*-	ug/L		7	26 - 133		
Phenanthrene			100	73.56		ug/L		74	51 - 117		
Phenol			100	38.08		ug/L		38	29 - 110		
Pyrene			100	70.05		ug/L		70	48 - 127		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*50*		*25 - 110*
Phenol-d5 (Surr)	*48*		*21 - 110*
Nitrobenzene-d5 (Surr)	*73*		*45 - 129*
2-Fluorobiphenyl (Surr)	*77*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*65*		*27 - 136*
Terphenyl-d14 (Surr)	*91*		*12 - 144*

Lab Sample ID: LCSD 310-435704/3-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435704

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene			100	76.19		ug/L		76	36 - 110	23	35
1,3-Dinitrobenzene			100	79.66		ug/L		80	45 - 138	23	35
2,3,4,6-Tetrachlorophenol			100	85.67	*1	ug/L		86	33 - 134	119	35
2,4,5-Trichlorophenol			100	93.35	*1	ug/L		93	35 - 133	53	35
2,4,6-Trichlorophenol			100	87.90	*1	ug/L		88	28 - 139	74	35
2,4-Dichlorophenol			100	98.71		ug/L		99	41 - 124	33	35
2,4-Dimethylphenol			100	78.13		ug/L		78	31 - 142	28	35
2,4-Dinitrophenol			200	153.7	*1	ug/L		77	10 - 138	181	35
2,4-Dinitrotoluene			100	89.42		ug/L		89	47 - 137	26	35
2,6-Dichlorophenol			100	85.99	*1	ug/L		86	30 - 130	49	35
2,6-Dinitrotoluene			100	91.59		ug/L		92	51 - 130	31	35
2-Chloronaphthalene			100	60.53		ug/L		61	37 - 110	21	35
2-Chlorophenol			100	81.55		ug/L		82	44 - 117	27	35
2-Methylnaphthalene			100	63.48		ug/L		63	33 - 110	19	35
2-Methylphenol			100	76.54		ug/L		77	47 - 118	20	35
2-Nitroaniline			100	76.78		ug/L		77	50 - 135	30	35
2-Nitrophenol			100	89.17		ug/L		89	41 - 129	22	35
3-Nitroaniline			100	88.68		ug/L		89	42 - 139	23	35
4,6-Dinitro-2-methylphenol			200	173.9	*1	ug/L		87	22 - 143	154	35
4-Bromophenyl phenyl ether			100	89.01		ug/L		89	45 - 119	21	35
4-Chloro-3-methylphenol			100	90.24		ug/L		90	49 - 130	21	35
4-Chloroaniline			100	81.93		ug/L		82	21 - 139	28	35
4-Chlorophenyl phenyl ether			100	77.42		ug/L		77	44 - 116	20	35
Methylphenol, 3 & 4			100	77.43		ug/L		77	46 - 117	24	35
4-Nitroaniline			100	66.33		ug/L		66	31 - 145	23	35
4-Nitrophenol			200	100.2	*1	ug/L		50	18 - 110	83	35
Acenaphthene			100	77.14		ug/L		77	43 - 110	20	35
Acenaphthylene			100	73.87		ug/L		74	40 - 110	22	35

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

Lab Sample ID: LCSD 310-435704/3-A
Matrix: Water
Analysis Batch: 436080

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435704

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetophenone			100	77.13		ug/L		77	48 - 119	24	35
Anthracene			100	93.12		ug/L		93	51 - 120	24	35
Benzo[a]anthracene			100	85.26		ug/L		85	51 - 123	22	35
Benzo[a]pyrene			100	85.47		ug/L		85	48 - 125	24	35
Benzo[b]fluoranthene			100	85.56		ug/L		86	49 - 129	26	35
Benzo[g,h,i]perylene			100	73.63		ug/L		74	43 - 139	19	35
Benzo[k]fluoranthene			100	90.22		ug/L		90	47 - 130	22	35
Benzyl alcohol			100	70.79		ug/L		71	39 - 128	22	35
Bis(2-chloroethoxy)methane			100	71.20		ug/L		71	48 - 121	27	35
Bis(2-chloroethyl)ether			100	63.12		ug/L		63	43 - 123	23	35
bis (2-chloroisopropyl) ether			100	70.24		ug/L		70	34 - 123	22	35
Bis(2-ethylhexyl) phthalate			100	84.72		ug/L		85	43 - 143	21	35
Butyl benzyl phthalate			100	78.91		ug/L		79	46 - 135	24	35
Chrysene			100	87.77		ug/L		88	51 - 125	22	35
Dibenzo(a,h)anthracene			100	76.19		ug/L		76	38 - 149	21	35
Dibenzofuran			100	76.95		ug/L		77	45 - 112	20	35
Diethyl phthalate			100	78.28		ug/L		78	43 - 135	23	35
Dimethyl phthalate			100	81.71		ug/L		82	43 - 129	26	35
Di-n-butyl phthalate			100	83.79		ug/L		84	50 - 133	20	35
Di-n-octyl phthalate			100	72.85		ug/L		73	34 - 150	22	35
Diphenylamine			85.0	66.44		ug/L		78	48 - 122	23	35
Fluoranthene			100	87.12		ug/L		87	47 - 128	18	35
Fluorene			100	81.36		ug/L		81	45 - 119	18	35
Hexachlorobenzene			100	89.08		ug/L		89	48 - 119	20	35
Hexachlorobutadiene			100	72.77		ug/L		73	32 - 110	24	35
Hexachlorocyclopentadiene			100	50.41		ug/L		50	10 - 110	28	35
Hexachloroethane			100	49.66		ug/L		50	31 - 110	21	35
Indeno[1,2,3-cd]pyrene			100	74.34		ug/L		74	37 - 150	21	35
Isophorone			100	79.31		ug/L		79	50 - 125	25	35
Nitrobenzene			100	62.42		ug/L		62	47 - 116	23	35
N-Nitrosodimethylamine			100	62.84		ug/L		63	37 - 110	24	35
N-Nitrosodi-n-propylamine			100	73.35		ug/L		73	45 - 130	24	35
N-Nitrosodiphenylamine			100	77.90		ug/L		78	49 - 121	26	35
Pentachlorophenol			200	178.0	*1	ug/L		89	26 - 133	171	35
Phenanthrene			100	92.50		ug/L		92	51 - 117	23	35
Phenol			100	44.36		ug/L		44	29 - 110	15	35
Pyrene			100	90.33		ug/L		90	48 - 127	25	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*57*		*25 - 110*
Phenol-d5 (Surr)	*45*		*21 - 110*
Nitrobenzene-d5 (Surr)	*73*		*45 - 129*
2-Fluorobiphenyl (Surr)	*74*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*93*		*27 - 136*
Terphenyl-d14 (Surr)	*95*		*12 - 144*

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

Lab Sample ID: MB 310-436077/4
Matrix: Water
Analysis Batch: 436077

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 08:18	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 08:18	1

Lab Sample ID: LCS 310-436077/5
Matrix: Water
Analysis Batch: 436077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetonitrile	113000	133000		ug/L		117	67 - 132
Isobutanol	104000	112500		ug/L		108	80 - 121

Lab Sample ID: 310-292200-3 MS
Matrix: Water
Analysis Batch: 436077

Client Sample ID: OW-224B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Acetonitrile	<2600		113000	115200		ug/L		102	60 - 138
Isobutanol	<2400		104000	104500		ug/L		100	72 - 131

Lab Sample ID: 310-292200-3 MSD
Matrix: Water
Analysis Batch: 436077

Client Sample ID: OW-224B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetonitrile	<2600		113000	133200		ug/L		118	60 - 138	14	30
Isobutanol	<2400		104000	111400		ug/L		107	72 - 131	6	30

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: LB 310-435869/1-D
Matrix: Water
Analysis Batch: 436243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436103

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0240		0.0962	0.0240	ug/L		10/14/24 09:17	10/15/24 15:59	1
4,4'-DDE	<0.0288		0.0962	0.0288	ug/L		10/14/24 09:17	10/15/24 15:59	1
4,4'-DDT	<0.0192		0.0962	0.0192	ug/L		10/14/24 09:17	10/15/24 15:59	1
Aldrin	<0.0212		0.0962	0.0212	ug/L		10/14/24 09:17	10/15/24 15:59	1
alpha-BHC	<0.00962		0.0962	0.00962	ug/L		10/14/24 09:17	10/15/24 15:59	1
beta-BHC	<0.0404		0.0962	0.0404	ug/L		10/14/24 09:17	10/15/24 15:59	1
Chlordane (technical)	<0.375		1.92	0.375	ug/L		10/14/24 09:17	10/15/24 15:59	1
delta-BHC	<0.0308		0.0962	0.0308	ug/L		10/14/24 09:17	10/15/24 15:59	1
Dieldrin	<0.0202		0.0962	0.0202	ug/L		10/14/24 09:17	10/15/24 15:59	1
Endosulfan I	<0.0269		0.0962	0.0269	ug/L		10/14/24 09:17	10/15/24 15:59	1
Endosulfan II	<0.0250		0.0962	0.0250	ug/L		10/14/24 09:17	10/15/24 15:59	1
Endosulfan sulfate	<0.0173		0.0962	0.0173	ug/L		10/14/24 09:17	10/15/24 15:59	1
Endrin	<0.0269		0.0962	0.0269	ug/L		10/14/24 09:17	10/15/24 15:59	1
Endrin aldehyde	<0.0260		0.0962	0.0260	ug/L		10/14/24 09:17	10/15/24 15:59	1
gamma-BHC (Lindane)	<0.00962		0.0962	0.00962	ug/L		10/14/24 09:17	10/15/24 15:59	1
Heptachlor	<0.0221		0.0962	0.0221	ug/L		10/14/24 09:17	10/15/24 15:59	1

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

Lab Sample ID: LB 310-435869/1-D
Matrix: Water
Analysis Batch: 436243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436103

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide	<0.0308		0.0962	0.0308	ug/L		10/14/24 09:17	10/15/24 15:59	1
Methoxychlor	<0.0308		0.0962	0.0308	ug/L		10/14/24 09:17	10/15/24 15:59	1
Toxaphene	<0.962		1.92	0.962	ug/L		10/14/24 09:17	10/15/24 15:59	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*10 - 136*	*10/14/24 09:17*	*10/15/24 15:59*	*1*
Tetrachloro-m-xylene (Surr)	*75*		*10 - 130*	*10/14/24 09:17*	*10/15/24 15:59*	*1*

Lab Sample ID: MB 310-436103/1-A
Matrix: Water
Analysis Batch: 436114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436103

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0244		0.0978	0.0244	ug/L		10/14/24 09:17	10/14/24 20:49	1
4,4'-DDE	<0.0293		0.0978	0.0293	ug/L		10/14/24 09:17	10/14/24 20:49	1
4,4'-DDT	<0.0196		0.0978	0.0196	ug/L		10/14/24 09:17	10/14/24 20:49	1
Aldrin	<0.0215		0.0978	0.0215	ug/L		10/14/24 09:17	10/14/24 20:49	1
alpha-BHC	<0.00978		0.0978	0.00978	ug/L		10/14/24 09:17	10/14/24 20:49	1
beta-BHC	<0.0411		0.0978	0.0411	ug/L		10/14/24 09:17	10/14/24 20:49	1
Chlordane (technical)	<0.381		1.96	0.381	ug/L		10/14/24 09:17	10/14/24 20:49	1
delta-BHC	<0.0313		0.0978	0.0313	ug/L		10/14/24 09:17	10/14/24 20:49	1
Dieldrin	<0.0205		0.0978	0.0205	ug/L		10/14/24 09:17	10/14/24 20:49	1
Endosulfan I	<0.0274		0.0978	0.0274	ug/L		10/14/24 09:17	10/14/24 20:49	1
Endosulfan II	<0.0254		0.0978	0.0254	ug/L		10/14/24 09:17	10/14/24 20:49	1
Endosulfan sulfate	<0.0176		0.0978	0.0176	ug/L		10/14/24 09:17	10/14/24 20:49	1
Endrin	<0.0274		0.0978	0.0274	ug/L		10/14/24 09:17	10/14/24 20:49	1
Endrin aldehyde	<0.0264		0.0978	0.0264	ug/L		10/14/24 09:17	10/14/24 20:49	1
gamma-BHC (Lindane)	<0.00978		0.0978	0.00978	ug/L		10/14/24 09:17	10/14/24 20:49	1
Heptachlor	<0.0225		0.0978	0.0225	ug/L		10/14/24 09:17	10/14/24 20:49	1
Heptachlor epoxide	<0.0313		0.0978	0.0313	ug/L		10/14/24 09:17	10/14/24 20:49	1
Methoxychlor	<0.0313		0.0978	0.0313	ug/L		10/14/24 09:17	10/14/24 20:49	1
Toxaphene	<0.978		1.96	0.978	ug/L		10/14/24 09:17	10/14/24 20:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*122*		*10 - 136*	*10/14/24 09:17*	*10/14/24 20:49*	*1*
Tetrachloro-m-xylene (Surr)	*79*		*10 - 130*	*10/14/24 09:17*	*10/14/24 20:49*	*1*

Lab Sample ID: LCS 310-436103/21-A
Matrix: Water
Analysis Batch: 436114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436103

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	2.79	2.946		ug/L		105	36 - 149
4,4'-DDE	2.79	2.726		ug/L		98	34 - 130
4,4'-DDT	2.79	2.608		ug/L		93	23 - 150
Aldrin	2.79	1.874		ug/L		67	13 - 120
alpha-BHC	2.79	2.807		ug/L		101	36 - 127
beta-BHC	2.79	2.663		ug/L		95	37 - 136

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

Lab Sample ID: LCS 310-436103/21-A
Matrix: Water
Analysis Batch: 436114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436103

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
delta-BHC	2.79	2.604		ug/L		93	33 - 134
Dieldrin	2.79	2.951		ug/L		106	39 - 130
Endosulfan I	2.79	1.578		ug/L		56	10 - 120
Endosulfan II	2.79	1.843		ug/L		66	14 - 120
Endosulfan sulfate	2.79	3.428		ug/L		123	36 - 147
Endrin	2.79	2.852		ug/L		102	39 - 140
Endrin aldehyde	2.79	2.859		ug/L		102	32 - 137
gamma-BHC (Lindane)	2.79	2.757		ug/L		99	36 - 132
Heptachlor	2.79	2.058		ug/L		74	27 - 120
Heptachlor epoxide	2.79	2.969		ug/L		106	38 - 133
Methoxychlor	2.79	3.002		ug/L		107	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*105*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*71*		*10 - 130*

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

Lab Sample ID: MB 310-436103/1-A
Matrix: Water
Analysis Batch: 436116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436103

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.802		1.96	0.802	ug/L		10/14/24 09:17	10/14/24 20:49	1
PCB-1221	<0.802		1.96	0.802	ug/L		10/14/24 09:17	10/14/24 20:49	1
PCB-1232	<0.802		1.96	0.802	ug/L		10/14/24 09:17	10/14/24 20:49	1
PCB-1242	<0.802		1.96	0.802	ug/L		10/14/24 09:17	10/14/24 20:49	1
PCB-1248	<0.675		1.96	0.675	ug/L		10/14/24 09:17	10/14/24 20:49	1
PCB-1254	<0.675		1.96	0.675	ug/L		10/14/24 09:17	10/14/24 20:49	1
PCB-1260	<0.675		1.96	0.675	ug/L		10/14/24 09:17	10/14/24 20:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*122*		*10 - 136*	*10/14/24 09:17*	*10/14/24 20:49*	*1*
Tetrachloro-m-xylene (Surr)	*79*		*10 - 130*	*10/14/24 09:17*	*10/14/24 20:49*	*1*

Lab Sample ID: LCS 310-436103/22-A
Matrix: Water
Analysis Batch: 436111

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436103

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	28.0	22.95		ug/L		82	30 - 133
PCB-1260	28.0	27.15		ug/L		97	31 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*96*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*50*		*10 - 130*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-561937/1-A
Matrix: Water
Analysis Batch: 561966

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561937

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.250		0.600	0.250	ug/L		10/10/24 19:38	10/11/24 12:08	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		10/10/24 19:38	10/11/24 12:08	1
2,4,5-T	<0.0650		0.150	0.0650	ug/L		10/10/24 19:38	10/11/24 12:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*67*		*34 - 142*	*10/10/24 19:38*	*10/11/24 12:08*	*1*
DCAA	*58*		*34 - 142*	*10/10/24 19:38*	*10/11/24 12:08*	*1*

Lab Sample ID: LCS 410-561937/2-A
Matrix: Water
Analysis Batch: 561966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561937

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D			2.50	2.727		ug/L		109	53 - 159		
Silvex (2,4,5-TP)			0.250	0.3139		ug/L		126	62 - 170		
2,4,5-T			0.250	0.3023		ug/L		121	57 - 171		

Surrogate			*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA			*85*		*34 - 142*
DCAA			*84*		*34 - 142*

Lab Sample ID: LCSD 410-561937/3-A
Matrix: Water
Analysis Batch: 561966

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 561937

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D			2.50	2.658		ug/L		106	53 - 159	3	30
Silvex (2,4,5-TP)			0.250	0.3031		ug/L		121	62 - 170	3	30
2,4,5-T			0.250	0.2945		ug/L		118	57 - 171	3	30

Surrogate			*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA			*82*		*34 - 142*
DCAA			*87*		*34 - 142*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-435735/1-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/10/24 09:30	10/11/24 18:16	1
Arsenic	<0.530		2.00	0.530	ug/L		10/10/24 09:30	10/11/24 18:16	1
Barium	<0.660		2.00	0.660	ug/L		10/10/24 09:30	10/11/24 18:16	1
Cadmium	<0.100		0.200	0.100	ug/L		10/10/24 09:30	10/11/24 18:16	1
Chromium	<1.20		5.00	1.20	ug/L		10/10/24 09:30	10/11/24 18:16	1
Cobalt	<0.170		0.500	0.170	ug/L		10/10/24 09:30	10/11/24 18:16	1
Copper	<1.80		5.00	1.80	ug/L		10/10/24 09:30	10/11/24 18:16	1

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

Lab Sample ID: MB 310-435735/1-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.260		0.500	0.260	ug/L		10/10/24 09:30	10/11/24 18:16	1
Nickel	<2.10		5.00	2.10	ug/L		10/10/24 09:30	10/11/24 18:16	1
Selenium	<1.40		5.00	1.40	ug/L		10/10/24 09:30	10/11/24 18:16	1
Silver	<0.500		1.00	0.500	ug/L		10/10/24 09:30	10/11/24 18:16	1
Vanadium	<1.10		5.00	1.10	ug/L		10/10/24 09:30	10/11/24 18:16	1
Zinc	<9.70		20.0	9.70	ug/L		10/10/24 09:30	10/11/24 18:16	1
Tin	<2.30		5.00	2.30	ug/L		10/10/24 09:30	10/11/24 18:16	1

Lab Sample ID: MB 310-435735/1-A
Matrix: Water
Analysis Batch: 436228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	<0.330		1.00	0.330	ug/L		10/10/24 09:30	10/14/24 14:39	1

Lab Sample ID: MB 310-435735/1-A
Matrix: Water
Analysis Batch: 436697

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.570		1.00	0.570	ug/L		10/10/24 09:30	10/17/24 12:41	1

Lab Sample ID: LCS 310-435735/2-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	223.4		ug/L		112	80 - 120
Arsenic	200	212.6		ug/L		106	80 - 120
Barium	100	101.8		ug/L		102	80 - 120
Cadmium	100	101.0		ug/L		101	80 - 120
Chromium	100	104.9		ug/L		105	80 - 120
Cobalt	100	113.2		ug/L		113	80 - 120
Copper	200	221.7		ug/L		111	80 - 120
Lead	200	211.9		ug/L		106	80 - 120
Nickel	200	206.0		ug/L		103	80 - 120
Selenium	400	402.0		ug/L		101	80 - 120
Silver	100	105.6		ug/L		106	80 - 120
Vanadium	100	100.5		ug/L		100	80 - 120
Zinc	200	187.6		ug/L		94	80 - 120
Tin	200	217.9		ug/L		109	80 - 120

Lab Sample ID: LCS 310-435735/2-A
Matrix: Water
Analysis Batch: 436228

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	100	91.66		ug/L		92	80 - 120

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

Lab Sample ID: LCS 310-435735/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436697
Prep Batch: 435735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	100	81.93		ug/L		82	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-436302/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436469
Prep Batch: 436302

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/15/24 15:55	10/16/24 09:32	1

Lab Sample ID: LCS 310-436302/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436469
Prep Batch: 436302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.767		ug/L		106	80 - 120

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 310-435806/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 435882
Prep Batch: 435806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<3.50		10.0	3.50	ug/L		10/10/24 10:18	10/10/24 17:31	1

Lab Sample ID: LCS 310-435806/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 435882
Prep Batch: 435806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	200	193.3		ug/L		97	90 - 110

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-630273/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 630341
Prep Batch: 630273

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		10/10/24 12:42	10/10/24 15:58	1

Lab Sample ID: LCS 240-630273/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 630341
Prep Batch: 630273

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	8.00	8.000		mg/L		100	70 - 120

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-435596/1
Matrix: Water
Analysis Batch: 435596

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	<3.70		5.00	3.70	mg/L			10/08/24 19:39	1

Lab Sample ID: LCS 310-435596/2
Matrix: Water
Analysis Batch: 435596

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	90.00		mg/L		90	81 - 116

GC/MS VOA

Analysis Batch: 435986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	8260D	
310-292200-2	OW-222B	Total/NA	Water	8260D	
310-292200-3	OW-224B	Total/NA	Water	8260D	
310-292200-4	Trip Blank	Total/NA	Water	8260D	
MB 310-435986/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435986/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435986/7	Lab Control Sample	Total/NA	Water	8260D	
310-292200-1 MS	OW-221B	Total/NA	Water	8260D	
310-292200-1 MSD	OW-221B	Total/NA	Water	8260D	

Analysis Batch: 436121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8260D	
MB 310-436121/5	Method Blank	Total/NA	Water	8260D	
LCS 310-436121/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-436121/7	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 435704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	3510C	
MB 310-435704/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-435704/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-435704/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 436080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8270E	435704
MB 310-435704/1-A	Method Blank	Total/NA	Water	8270E	435704
LCS 310-435704/2-A	Lab Control Sample	Total/NA	Water	8270E	435704
LCSD 310-435704/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	435704

GC Semi VOA

Leach Batch: 435869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 310-435869/1-D	Method Blank	Total/NA	Water	1311	

Analysis Batch: 436077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8015C	
MB 310-436077/4	Method Blank	Total/NA	Water	8015C	
LCS 310-436077/5	Lab Control Sample	Total/NA	Water	8015C	
310-292200-3 MS	OW-224B	Total/NA	Water	8015C	
310-292200-3 MSD	OW-224B	Total/NA	Water	8015C	

Prep Batch: 436103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	3511	
LB 310-435869/1-D	Method Blank	Total/NA	Water	3511	435869
MB 310-436103/1-A	Method Blank	Total/NA	Water	3511	

GC Semi VOA (Continued)

Prep Batch: 436103 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-436103/21-A	Lab Control Sample	Total/NA	Water	3511	
LCS 310-436103/22-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 436111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-436103/22-A	Lab Control Sample	Total/NA	Water	8082A	436103

Analysis Batch: 436114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-436103/1-A	Method Blank	Total/NA	Water	8081B	436103
LCS 310-436103/21-A	Lab Control Sample	Total/NA	Water	8081B	436103

Analysis Batch: 436116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-436103/1-A	Method Blank	Total/NA	Water	8082A	436103

Analysis Batch: 436243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8081B	436103
LB 310-435869/1-D	Method Blank	Total/NA	Water	8081B	436103

Analysis Batch: 436245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8082A	436103

Prep Batch: 561937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8151A	
MB 410-561937/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-561937/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 410-561937/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 561966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	8151A	561937
MB 410-561937/1-A	Method Blank	Total/NA	Water	8151A	561937
LCS 410-561937/2-A	Lab Control Sample	Total/NA	Water	8151A	561937
LCSD 410-561937/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	561937

Metals

Prep Batch: 435735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	3005A	
310-292200-2	OW-222B	Total/NA	Water	3005A	
310-292200-3	OW-224B	Total/NA	Water	3005A	
MB 310-435735/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-435735/2-A	Lab Control Sample	Total/NA	Water	3005A	

Metals

Analysis Batch: 436085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	6020B	435735
310-292200-2	OW-222B	Total/NA	Water	6020B	435735
310-292200-3	OW-224B	Total/NA	Water	6020B	435735
MB 310-435735/1-A	Method Blank	Total/NA	Water	6020B	435735
LCS 310-435735/2-A	Lab Control Sample	Total/NA	Water	6020B	435735

Analysis Batch: 436228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	6020B	435735
310-292200-2	OW-222B	Total/NA	Water	6020B	435735
310-292200-3	OW-224B	Total/NA	Water	6020B	435735
MB 310-435735/1-A	Method Blank	Total/NA	Water	6020B	435735
LCS 310-435735/2-A	Lab Control Sample	Total/NA	Water	6020B	435735

Prep Batch: 436302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	7470A	
MB 310-436302/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-436302/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 436469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	7470A	436302
MB 310-436302/1-A	Method Blank	Total/NA	Water	7470A	436302
LCS 310-436302/2-A	Lab Control Sample	Total/NA	Water	7470A	436302

Analysis Batch: 436697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	6020B	435735
MB 310-435735/1-A	Method Blank	Total/NA	Water	6020B	435735
LCS 310-435735/2-A	Lab Control Sample	Total/NA	Water	6020B	435735

Analysis Batch: 436888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	6020B	435735
310-292200-2	OW-222B	Total/NA	Water	6020B	435735
310-292200-3	OW-224B	Total/NA	Water	6020B	435735

General Chemistry

Analysis Batch: 435596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	I-3765-85	
310-292200-2	OW-222B	Total/NA	Water	I-3765-85	
310-292200-3	OW-224B	Total/NA	Water	I-3765-85	
MB 310-435596/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-435596/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 435806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	9012B	

General Chemistry (Continued)

Prep Batch: 435806 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-435806/1-A	Method Blank	Total/NA	Water	9012B	
LCS 310-435806/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 435882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	9012B	435806
MB 310-435806/1-A	Method Blank	Total/NA	Water	9012B	435806
LCS 310-435806/2-A	Lab Control Sample	Total/NA	Water	9012B	435806

Prep Batch: 630273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	9030B	
MB 240-630273/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-630273/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 630341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-3	OW-224B	Total/NA	Water	9034	630273
MB 240-630273/1-A	Method Blank	Total/NA	Water	9034	630273
LCS 240-630273/2-A	Lab Control Sample	Total/NA	Water	9034	630273

Field Service / Mobile Lab

Analysis Batch: 435786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292200-1	OW-221B	Total/NA	Water	Field Sampling	
310-292200-2	OW-222B	Total/NA	Water	Field Sampling	
310-292200-3	OW-224B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-221B
Lab Sample ID: 310-292200-1
Date Collected: 10/07/24 09:30
Matrix: Water
Date Received: 10/08/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435986	WSE8	EET CF	10/12/24 04:02
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436228	A6US	EET CF	10/14/24 16:02
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 19:23
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436888	NFT2	EET CF	10/18/24 13:45
Total/NA	Analysis	I-3765-85		1	435596	MDU9	EET CF	10/08/24 19:39
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/07/24 09:30

Client Sample ID: OW-222B
Lab Sample ID: 310-292200-2
Date Collected: 10/07/24 10:20
Matrix: Water
Date Received: 10/08/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435986	WSE8	EET CF	10/12/24 04:25
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436228	A6US	EET CF	10/14/24 16:06
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 19:25
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436888	NFT2	EET CF	10/18/24 13:48
Total/NA	Analysis	I-3765-85		1	435596	MDU9	EET CF	10/08/24 19:39
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/07/24 10:20

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435986	WSE8	EET CF	10/12/24 05:33
Total/NA	Analysis	8260D		1	436121	WSE8	EET CF	10/14/24 13:19
Total/NA	Prep	3510C			435704	AYK7	EET CF	10/09/24 13:46
Total/NA	Analysis	8270E		1	436080	L0FS	EET CF	10/14/24 12:25
Total/NA	Analysis	8015C		1	436077	V7YZ	EET CF	10/14/24 09:34
Total/NA	Prep	3511			436103	D2YP	EET CF	10/14/24 09:17
Total/NA	Analysis	8081B		1	436243	BW2O	EET CF	10/15/24 15:36
Total/NA	Prep	3511			436103	D2YP	EET CF	10/14/24 09:17
Total/NA	Analysis	8082A		1	436245	BW2O	EET CF	10/15/24 15:36
Total/NA	Prep	8151A			561937	UKL2	ELLE	10/10/24 19:38
Total/NA	Analysis	8151A		5	561966	UAMZ	ELLE	10/11/24 14:58
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		4	436228	A6US	EET CF	10/14/24 16:25

Lab Chronicle

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-224B
Lab Sample ID: 310-292200-3
Date Collected: 10/07/24 13:00
Matrix: Water
Date Received: 10/08/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 19:36
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436697	NFT2	EET CF	10/17/24 13:43
Total/NA	Prep	3005A			435735	F5MW	EET CF	10/10/24 09:30
Total/NA	Analysis	6020B		1	436888	NFT2	EET CF	10/18/24 13:50
Total/NA	Prep	7470A			436302	QTZ5	EET CF	10/15/24 15:55
Total/NA	Analysis	7470A		1	436469	QTZ5	EET CF	10/16/24 10:28
Total/NA	Prep	9012B			435806	ENB7	EET CF	10/10/24 10:18
Total/NA	Analysis	9012B		1	435882	ZJX4	EET CF	10/10/24 17:44
Total/NA	Prep	9030B			630273	PQD2	EET CLE	10/10/24 12:42
Total/NA	Analysis	9034		1	630341	PQD2	EET CLE	10/10/24 15:58
Total/NA	Analysis	I-3765-85		1	435596	MDU9	EET CF	10/08/24 19:39
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/07/24 13:00

Client Sample ID: Trip Blank
Lab Sample ID: 310-292200-4
Date Collected: 10/07/24 06:00
Matrix: Water
Date Received: 10/08/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435986	WSE8	EET CF	10/12/24 01:02

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-26

Method Summary

Client: AECOM
Job ID: 310-292200-1
Project/Site: Black Hawk County Landfill (IDNR)

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	ELLE
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 CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF
3511	Microextraction of Organic Compounds	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	EET CF
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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310-292200 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo STATE IA | Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 10/8/24 TIME 0915 | Received By: TD

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: R | Correction Factor (°C): 0.3

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.4 | Corrected Temp (°C): 2.4

• **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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:** / **Date:** 10-8-24 / 1 of 1 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:** / TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS	Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day	**For Lab Use Only:** Walk-in Client: / Lab Sampling
(xxx) xxx-xxxx FAX		
Project Name Black Hawk Co IDNR		Job / SDG No
Site Black Hawk County Landfill		
P O #		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B			G	GW		N		X		X							X		
OW-221B	10-7-24	0930	G	GW	5	N		X											Turbidity - 11.65 NTU
OW-222B	10-7-24	1020	G	GW	5	N		X											Turbidity - 5.59 NTU
OW-223B			G	GW		N		X											
OW-223B-FD			G	GW		N		X											
OW-224B	10-7-24	1300	G	GW	18	N			X										Turbidity - 22.29 NTU
OW-225B			G	GW		N			X										
OW-226B			G	GW		N			X										
OW-227B			G	GW		N			X										
MW-319B			G	GW		N		X											
MW-320B			G	GW		N		X											
Equipment Blank-1			G	GW		N		X											
Trip Blank	10-7-24	0600	G	W	3	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd _____ Corr'd _____ | Therm ID No. _____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-8-24	Received by:	Company:	Date/Time: 10-8-24 0915
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

2.1.2.2

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77131.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292200-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 10/21/2024			
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

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:						
OW-224B (310-292200-3)	10/7/24	13:00 Central	G	Water			X	1	

Analysis Requested

Preservation Codes:

Other:

G89

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
	10/8/24 1450		MELISSA LOAR	10.9.24 9:00	
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:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :** _____
Barberton Facility

Client Eur Cedar Falls Site Name _____ Cooler unpacked by: MALISSA LOAR

Cooler Received on 10-9-24 Opened on 10-9-24

FedEx. 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other _____

Receipt After-hours. Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # 2 Foam Box Client Cooler Box Other _____

Packing material used. Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # ~~R33~~ 17 (CF 0.1 °C) Observed Cooler Temp. 2.1 °C Corrected Cooler Temp. 2.2 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3 Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5 Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7 Did all bottles arrive in good condition (Unbroken)?	Yes	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	Yes	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	Yes	No
11 Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes	No
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes	No
17 Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____
_____
_____
_____

19 SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container
Sample(s) _____ were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory
Time preserved. _____ Preservative(s) added/Lot number(s). _____

VOA Sample Preservation - Date/Time VOAs Frozen. _____

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77107.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292200-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 10/21/2024	Analysis Requested		Preservation Codes:
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			Other:
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

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)	8151A/8151A_AP Default List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-224B (310-292200-3)	10/7/24	13:00 Central	G	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		10/24 1340				
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/9/24 1005	Company EUN

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2 - 4.0 C: 4.0

HAA

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292200-1

Login Number: 292200

List Number: 1

Creator: Hirsch, Preston

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292200-1

Login Number: 292200
List Number: 2
Creator: Loar, Malissa

List Source: Eurofins Cleveland
List Creation: 10/09/24 12:03 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time (excluding tests with immediate HTs)		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292200-1

Login Number: 292200
List Number: 3
Creator: Arroyo, Haley

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 10/09/24 02:39 PM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	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: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 11/6/2024 10:25:11 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-292343-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

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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11/6/2024 10:25:11 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job Narrative
310-292343-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/9/2024 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice.

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(s): Trip Blank (310-292343-5).

Method 8260D: The continuing calibration verification (CCV) associated with batch 310-435986 recovered above the upper control limit for Carbon disulfide(23.5%D). The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated sample is impacted: (CCV 310-435986/3).

Method 8260D: The initial calibration verification (ICV) result for batch 310-435986 was above the upper control limit. The affected analyte is: Iodomethane. Sample results were non-detects, and have been reported as qualified data.

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 310-436520 recovered above the upper control limit for Pronamide (24.8%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 310-436520 recovered above the upper control limit for Diallate Peak 2 (-24.6%D) and Kepone(58.2%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-436520/2).

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.

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

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

Metals
Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: OW-225B (310-292343-3). The sample(s) was preserved to the appropriate pH in the laboratory.

Job ID: 310-292343-1 (Continued) Eurofins Cedar Falls

Method 6020B: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: OW-225B (310-292343-3). The sample(s) was 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292343-1	OW-223B	Water	10/08/24 14:00	10/09/24 09:30
310-292343-2	OW-223B-FD	Ground Water	10/08/24 14:00	10/09/24 09:30
310-292343-3	OW-225B	Water	10/08/24 11:00	10/09/24 09:30
310-292343-4	Equipment Blank-1	Water	10/08/24 14:30	10/09/24 09:30
310-292343-5	Trip Blank	Water	10/08/24 00:00	10/09/24 09:30

Detection Summary

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-223B — Lab Sample ID: 310-292343-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	88.0		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	3.76	J B	5.00	1.20	ug/L	1		6020B	Total/NA
Copper	2.54	J	5.00	1.80	ug/L	1		6020B	Total/NA
Thallium	1.42		1.00	0.570	ug/L	1		6020B	Total/NA
Field Turbidity	0.99				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-223B-FD — Lab Sample ID: 310-292343-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	88.1		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	4.46	J B	5.00	1.20	ug/L	1		6020B	Total/NA
Copper	2.62	J	5.00	1.80	ug/L	1		6020B	Total/NA
Thallium	0.828	J	1.00	0.570	ug/L	1		6020B	Total/NA

Client Sample ID: OW-225B — Lab Sample ID: 310-292343-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	0.738	J	1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	5.10	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	0.983		0.500	0.220	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.842	J	1.00	0.210	ug/L	1		8260D	Total/NA
Silvex (2,4,5-TP)	0.341		0.0518	0.0228	ug/L	1		8151A	Total/NA
Arsenic	6.29		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1380		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.502		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	10.4	B	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	30.0		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	3.48	J	5.00	1.80	ug/L	1		6020B	Total/NA
Lead	1.55		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	124		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	2.36	J	5.00	1.10	ug/L	1		6020B	Total/NA
Cyanide, Total	4.91	J	10.0	3.50	ug/L	1		9012B	Total/NA
Total Suspended Solids	18.2		3.00	2.22	mg/L	1		I-3765-85	Total/NA
Field Turbidity	19.72				NTU	1		Field Sampling	Total/NA

Client Sample ID: Equipment Blank-1 — Lab Sample ID: 310-292343-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.57	J	10.0	3.10	ug/L	1		8260D	Total/NA
Toluene	0.513	J	1.00	0.430	ug/L	1		8260D	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-292343-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-223B
Lab Sample ID: 310-292343-1
Date Collected: 10/08/24 14:00
Matrix: Water
Date Received: 10/09/24 09:30

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	<0.380		1.00	0.380	ug/L			10/11/24 21:48	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 21:48	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 21:48	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 21:48	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 21:48	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 21:48	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 21:48	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 21:48	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 21:48	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 21:48	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 21:48	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 21:48	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 21:48	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 21:48	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 21:48	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 21:48	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 21:48	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 21:48	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 21:48	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 21:48	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 21:48	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 21:48	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 21:48	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 21:48	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 21:48	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 21:48	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 21:48	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 21:48	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 21:48	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 21:48	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 21:48	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 21:48	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 21:48	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 21:48	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 21:48	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 21:48	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 21:48	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 21:48	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 21:48	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 21:48	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 21:48	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 21:48	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 21:48	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 21:48	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 21:48	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 21:48	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 21:48	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 21:48	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 21:48	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-223B
Lab Sample ID: 310-292343-1

Date Collected: 10/08/24 14:00
Matrix: Water

Date Received: 10/09/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*10/11/24 21:48*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/11/24 21:48*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/11/24 21:48*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/11/24 09:30	10/11/24 23:29	1
Arsenic	<0.530		2.00	0.530	ug/L		10/11/24 09:30	10/11/24 23:29	1
Barium	**88.0**		2.00	0.660	ug/L		10/11/24 09:30	10/11/24 23:29	1
Beryllium	<0.330		1.00	0.330	ug/L		10/11/24 09:30	10/14/24 19:25	1
Cadmium	<0.100		0.200	0.100	ug/L		10/11/24 09:30	10/11/24 23:29	1
Chromium	**3.76**	**J B**	5.00	1.20	ug/L		10/11/24 09:30	10/11/24 23:29	1
Cobalt	<0.170		0.500	0.170	ug/L		10/11/24 09:30	10/11/24 23:29	1
Copper	**2.54**	**J**	5.00	1.80	ug/L		10/11/24 09:30	10/11/24 23:29	1
Lead	<0.260		0.500	0.260	ug/L		10/11/24 09:30	10/11/24 23:29	1
Nickel	<2.10		5.00	2.10	ug/L		10/11/24 09:30	10/11/24 23:29	1
Selenium	<1.40		5.00	1.40	ug/L		10/11/24 09:30	10/11/24 23:29	1
Silver	<0.500		1.00	0.500	ug/L		10/11/24 09:30	10/11/24 23:29	1
Thallium	**1.42**		1.00	0.570	ug/L		10/11/24 09:30	10/22/24 14:58	1
Vanadium	<1.10		5.00	1.10	ug/L		10/11/24 09:30	10/11/24 23:29	1
Zinc	<9.70		20.0	9.70	ug/L		11/01/24 09:30	11/05/24 15:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			10/11/24 08:52	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.99**				NTU			10/08/24 14:00	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-223B-FD
Lab Sample ID: 310-292343-2
Date Collected: 10/08/24 14:00
Matrix: Ground Water
Date Received: 10/09/24 09:30

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	<0.380		1.00	0.380	ug/L			10/11/24 22:11	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 22:11	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 22:11	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 22:11	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 22:11	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 22:11	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 22:11	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 22:11	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 22:11	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 22:11	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 22:11	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 22:11	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 22:11	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 22:11	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 22:11	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 22:11	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 22:11	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 22:11	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 22:11	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 22:11	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 22:11	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 22:11	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 22:11	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 22:11	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 22:11	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 22:11	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 22:11	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 22:11	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 22:11	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 22:11	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 22:11	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 22:11	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 22:11	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 22:11	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 22:11	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 22:11	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 22:11	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 22:11	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 22:11	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 22:11	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 22:11	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 22:11	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 22:11	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 22:11	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 22:11	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 22:11	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 22:11	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 22:11	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 22:11	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-223B-FD
Lab Sample ID: 310-292343-2

Date Collected: 10/08/24 14:00
Matrix: Ground Water

Date Received: 10/09/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*73 - 130*		*10/11/24 22:11*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/11/24 22:11*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/11/24 22:11*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/11/24 09:30	10/11/24 23:31	1
Arsenic	<0.530		2.00	0.530	ug/L		10/11/24 09:30	10/11/24 23:31	1
Barium	**88.1**		2.00	0.660	ug/L		10/11/24 09:30	10/11/24 23:31	1
Beryllium	<0.330		1.00	0.330	ug/L		10/11/24 09:30	10/14/24 19:29	1
Cadmium	<0.100		0.200	0.100	ug/L		10/11/24 09:30	10/11/24 23:31	1
Chromium	**4.46**	**J B**	5.00	1.20	ug/L		10/11/24 09:30	10/11/24 23:31	1
Cobalt	<0.170		0.500	0.170	ug/L		10/11/24 09:30	10/11/24 23:31	1
Copper	**2.62**	**J**	5.00	1.80	ug/L		10/11/24 09:30	10/11/24 23:31	1
Lead	<0.260		0.500	0.260	ug/L		10/11/24 09:30	10/11/24 23:31	1
Nickel	<2.10		5.00	2.10	ug/L		10/11/24 09:30	10/11/24 23:31	1
Selenium	<1.40		5.00	1.40	ug/L		10/11/24 09:30	10/11/24 23:31	1
Silver	<0.500		1.00	0.500	ug/L		10/11/24 09:30	10/11/24 23:31	1
Thallium	**0.828**	**J**	1.00	0.570	ug/L		10/11/24 09:30	10/22/24 15:00	1
Vanadium	<1.10		5.00	1.10	ug/L		10/11/24 09:30	10/11/24 23:31	1
Zinc	<9.70		20.0	9.70	ug/L		11/01/24 09:30	11/05/24 15:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			10/11/24 08:52	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

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	<0.380		1.00	0.380	ug/L			10/11/24 22:34	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 22:34	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 22:34	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 22:34	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 22:34	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 22:34	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/11/24 22:34	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 22:34	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/11/24 22:34	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 22:34	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 22:34	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 22:34	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 22:34	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 22:34	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/11/24 22:34	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/11/24 22:34	1
1,4-Dichlorobenzene	**0.738**	**J**	1.00	0.230	ug/L			10/11/24 22:34	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/11/24 22:34	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 22:34	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 22:34	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 22:34	1
Acetone	**5.10**	**J**	10.0	3.10	ug/L			10/11/24 22:34	1
Acrolein	<3.60		10.0	3.60	ug/L			10/11/24 22:34	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 22:34	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/11/24 22:34	1
Benzene	**0.983**		0.500	0.220	ug/L			10/11/24 22:34	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 22:34	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 22:34	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 22:34	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 22:34	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 22:34	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 22:34	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 22:34	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 22:34	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 22:34	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 22:34	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 22:34	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/11/24 22:34	1
cis-1,2-Dichloroethene	**0.842**	**J**	1.00	0.210	ug/L			10/11/24 22:34	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 22:34	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 22:34	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/11/24 22:34	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/11/24 22:34	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 22:34	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 22:34	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 22:34	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/11/24 22:34	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/11/24 22:34	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 22:34	1

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/11/24 22:34	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 22:34	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/11/24 22:34	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 22:34	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 22:34	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 22:34	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 22:34	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 22:34	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 22:34	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 22:34	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 22:34	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 22:34	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 22:34	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 22:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/11/24 22:34*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/11/24 22:34*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/11/24 22:34*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 15:45	1
1,3,5-Trinitrobenzene	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 15:45	1
1,3-Dinitrobenzene	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 15:45	1
1,4-Naphthoquinone	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 15:45	1
1,4-phenylenediamine	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 15:45	1
1-Naphthylamine	<2.60		10.4	2.60	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,3,4,6-Tetrachlorophenol	<5.52		10.4	5.52	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,4,5-Trichlorophenol	<5.52		10.4	5.52	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,4,6-Trichlorophenol	<5.21		10.4	5.21	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,4-Dichlorophenol	<0.885		10.4	0.885	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,4-Dimethylphenol	<0.604		10.4	0.604	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,4-Dinitrophenol	<13.5		20.8	13.5	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,4-Dinitrotoluene	<6.67		10.4	6.67	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,6-Dichlorophenol	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 15:45	1
2,6-Dinitrotoluene	<0.542		10.4	0.542	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Acetylaminofluorene	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Chloronaphthalene	<0.667		10.4	0.667	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Chlorophenol	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Methylnaphthalene	<0.615		10.4	0.615	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Methylphenol	<0.677		10.4	0.677	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Naphthylamine	<2.19		10.4	2.19	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Nitroaniline	<6.15		10.4	6.15	ug/L		10/11/24 06:28	10/17/24 15:45	1
2-Nitrophenol	<7.08		10.4	7.08	ug/L		10/11/24 06:28	10/17/24 15:45	1
3,3'-Dichlorobenzidine	<1.46		10.4	1.46	ug/L		10/11/24 06:28	10/17/24 15:45	1
3,3'-Dimethylbenzidine	<1.56		10.4	1.56	ug/L		10/11/24 06:28	10/17/24 15:45	1
3-Methylcholanthrene	<0.333		10.4	0.333	ug/L		10/11/24 06:28	10/17/24 15:45	1
3-Nitroaniline	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 15:45	1
4,6-Dinitro-2-methylphenol	<7.19		10.4	7.19	ug/L		10/11/24 06:28	10/17/24 15:45	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Aminobiphenyl	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 15:45	1
4-Bromophenyl phenyl ether	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 15:45	1
4-Chloro-3-methylphenol	<0.875		10.4	0.875	ug/L		10/11/24 06:28	10/17/24 15:45	1
4-Chloroaniline	<0.646		10.4	0.646	ug/L		10/11/24 06:28	10/17/24 15:45	1
4-Chlorophenyl phenyl ether	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 15:45	1
Methylphenol, 3 & 4	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 15:45	1
4-Nitroaniline	<1.35		10.4	1.35	ug/L		10/11/24 06:28	10/17/24 15:45	1
4-Nitrophenol	<7.92		10.4	7.92	ug/L		10/11/24 06:28	10/17/24 15:45	1
5-Nitro-o-toluidine	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 15:45	1
7,12-Dimethylbenz(a)anthracene	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 15:45	1
Acenaphthene	<0.667		10.4	0.667	ug/L		10/11/24 06:28	10/17/24 15:45	1
Acenaphthylene	<0.750		10.4	0.750	ug/L		10/11/24 06:28	10/17/24 15:45	1
Acetophenone	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 15:45	1
Anthracene	<0.906		10.4	0.906	ug/L		10/11/24 06:28	10/17/24 15:45	1
Benzo[a]anthracene	<0.885		10.4	0.885	ug/L		10/11/24 06:28	10/17/24 15:45	1
Benzo[a]pyrene	<8.44		10.4	8.44	ug/L		10/11/24 06:28	10/17/24 15:45	1
Benzo[b]fluoranthene	<5.10		10.4	5.10	ug/L		10/11/24 06:28	10/17/24 15:45	1
Benzo[g,h,i]perylene	<6.56		10.4	6.56	ug/L		10/11/24 06:28	10/17/24 15:45	1
Benzo[k]fluoranthene	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 15:45	1
Benzyl alcohol	<1.35		10.4	1.35	ug/L		10/11/24 06:28	10/17/24 15:45	1
Bis(2-chloroethoxy)methane	<0.792		10.4	0.792	ug/L		10/11/24 06:28	10/17/24 15:45	1
Bis(2-chloroethyl)ether	<0.854		10.4	0.854	ug/L		10/11/24 06:28	10/17/24 15:45	1
bis (2-chloroisopropyl) ether	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 15:45	1
Bis(2-ethylhexyl) phthalate	<5.73		10.4	5.73	ug/L		10/11/24 06:28	10/17/24 15:45	1
Butyl benzyl phthalate	<5.63		10.4	5.63	ug/L		10/11/24 06:28	10/17/24 15:45	1
Chlorobenzilate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 15:45	1
Chrysene	<0.906		10.4	0.906	ug/L		10/11/24 06:28	10/17/24 15:45	1
Diallate	<4.17		10.4	4.17	ug/L		10/11/24 06:28	10/17/24 15:45	1
Dibenzo(a,h)anthracene	<4.06		10.4	4.06	ug/L		10/11/24 06:28	10/17/24 15:45	1
Dibenzofuran	<0.771		10.4	0.771	ug/L		10/11/24 06:28	10/17/24 15:45	1
Diethyl phthalate	<1.77		10.4	1.77	ug/L		10/11/24 06:28	10/17/24 15:45	1
Dimethoate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 15:45	1
Dimethyl phthalate	<1.04		10.4	1.04	ug/L		10/11/24 06:28	10/17/24 15:45	1
Di-n-butyl phthalate	<5.83		10.4	5.83	ug/L		10/11/24 06:28	10/17/24 15:45	1
Di-n-octyl phthalate	<7.29		20.8	7.29	ug/L		10/11/24 06:28	10/17/24 15:45	1
Dinoseb	<2.50		10.4	2.50	ug/L		10/11/24 06:28	10/17/24 15:45	1
Diphenylamine	<6.25		10.4	6.25	ug/L		10/11/24 06:28	10/17/24 15:45	1
Disulfoton	<2.50		10.4	2.50	ug/L		10/11/24 06:28	10/17/24 15:45	1
Ethyl methanesulfonate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 15:45	1
Ethyl Parathion	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 15:45	1
Famphur	<3.96		10.4	3.96	ug/L		10/11/24 06:28	10/17/24 15:45	1
Fluoranthene	<1.77		10.4	1.77	ug/L		10/11/24 06:28	10/17/24 15:45	1
Fluorene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 15:45	1
Hexachlorobenzene	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 15:45	1
Hexachlorobutadiene	<0.896		10.4	0.896	ug/L		10/11/24 06:28	10/17/24 15:45	1
Hexachlorocyclopentadiene	<5.31		10.4	5.31	ug/L		10/11/24 06:28	10/17/24 15:45	1
Hexachloroethane	<1.01		10.4	1.01	ug/L		10/11/24 06:28	10/17/24 15:45	1
Hexachloropropene	<2.71		10.4	2.71	ug/L		10/11/24 06:28	10/17/24 15:45	1
Indeno[1,2,3-cd]pyrene	<4.38		10.4	4.38	ug/L		10/11/24 06:28	10/17/24 15:45	1

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isodrin	<4.90		10.4	4.90	ug/L		10/11/24 06:28	10/17/24 15:45	1
Isophorone	<0.969		10.4	0.969	ug/L		10/11/24 06:28	10/17/24 15:45	1
Isosafrole	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 15:45	1
Kepone	<1.04		10.4	1.04	ug/L		10/11/24 06:28	10/17/24 15:45	1
Methapyrilene	<0.792		10.4	0.792	ug/L		10/11/24 06:28	10/17/24 15:45	1
Methyl methanesulfonate	<3.44		10.4	3.44	ug/L		10/11/24 06:28	10/17/24 15:45	1
Methyl parathion	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 15:45	1
Nitrobenzene	<0.833		10.4	0.833	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosodiethylamine	<3.54		10.4	3.54	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosodimethylamine	<0.750		10.4	0.750	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosodi-n-butylamine	<4.06		10.4	4.06	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosodi-n-propylamine	<0.958		10.4	0.958	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosodiphenylamine	<0.781		10.4	0.781	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosomethylethylamine	<5.10		10.4	5.10	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosopiperidine	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 15:45	1
N-Nitrosopyrrolidine	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 15:45	1
o,o',o''-Triethylphosphorothioate	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 15:45	1
o-Toluidine	<3.02		10.4	3.02	ug/L		10/11/24 06:28	10/17/24 15:45	1
p-Dimethylamino azobenzene	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 15:45	1
Pentachlorobenzene	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 15:45	1
Pentachloronitrobenzene	<6.04		10.4	6.04	ug/L		10/11/24 06:28	10/17/24 15:45	1
Pentachlorophenol	<10.0		10.4	10.0	ug/L		10/11/24 06:28	10/17/24 15:45	1
Phenacetin	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 15:45	1
Phenanthrene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 15:45	1
Phenol	<1.15		10.4	1.15	ug/L		10/11/24 06:28	10/17/24 15:45	1
Phorate	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 15:45	1
Pronamide	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 15:45	1
Pyrene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 15:45	1
Safrole	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 15:45	1
Thionazin	<3.65		10.4	3.65	ug/L		10/11/24 06:28	10/17/24 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*60*		*25 - 110*	*10/11/24 06:28*	*10/17/24 15:45*	*1*
Phenol-d5 (Surr)	*51*		*21 - 110*	*10/11/24 06:28*	*10/17/24 15:45*	*1*
Nitrobenzene-d5 (Surr)	*83*		*45 - 129*	*10/11/24 06:28*	*10/17/24 15:45*	*1*
2-Fluorobiphenyl (Surr)	*86*		*39 - 118*	*10/11/24 06:28*	*10/17/24 15:45*	*1*
2,4,6-Tribromophenol (Surr)	*92*		*27 - 136*	*10/11/24 06:28*	*10/17/24 15:45*	*1*
Terphenyl-d14 (Surr)	*93*		*12 - 144*	*10/11/24 06:28*	*10/17/24 15:45*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 09:52	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 09:52	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0242		0.0970	0.0242	ug/L		10/15/24 15:30	10/16/24 19:05	1
4,4'-DDE	<0.0291		0.0970	0.0291	ug/L		10/15/24 15:30	10/16/24 19:05	1
4,4'-DDT	<0.0194		0.0970	0.0194	ug/L		10/15/24 15:30	10/16/24 19:05	1
Aldrin	<0.0213		0.0970	0.0213	ug/L		10/15/24 15:30	10/16/24 19:05	1

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	<0.00970		0.0970	0.00970	ug/L		10/15/24 15:30	10/16/24 19:05	1
beta-BHC	<0.0407		0.0970	0.0407	ug/L		10/15/24 15:30	10/16/24 19:05	1
Chlordane (technical)	<0.378		1.94	0.378	ug/L		10/15/24 15:30	10/16/24 19:05	1
delta-BHC	<0.0310		0.0970	0.0310	ug/L		10/15/24 15:30	10/16/24 19:05	1
Dieldrin	<0.0204		0.0970	0.0204	ug/L		10/15/24 15:30	10/16/24 19:05	1
Endosulfan I	<0.0271		0.0970	0.0271	ug/L		10/15/24 15:30	10/16/24 19:05	1
Endosulfan II	<0.0252		0.0970	0.0252	ug/L		10/15/24 15:30	10/16/24 19:05	1
Endosulfan sulfate	<0.0175		0.0970	0.0175	ug/L		10/15/24 15:30	10/16/24 19:05	1
Endrin	<0.0271		0.0970	0.0271	ug/L		10/15/24 15:30	10/16/24 19:05	1
Endrin aldehyde	<0.0262		0.0970	0.0262	ug/L		10/15/24 15:30	10/16/24 19:05	1
gamma-BHC (Lindane)	<0.00970		0.0970	0.00970	ug/L		10/15/24 15:30	10/16/24 19:05	1
Heptachlor	<0.0223		0.0970	0.0223	ug/L		10/15/24 15:30	10/16/24 19:05	1
Heptachlor epoxide	<0.0310		0.0970	0.0310	ug/L		10/15/24 15:30	10/16/24 19:05	1
Methoxychlor	<0.0310		0.0970	0.0310	ug/L		10/15/24 15:30	10/16/24 19:05	1
Toxaphene	<0.970		1.94	0.970	ug/L		10/15/24 15:30	10/16/24 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*10 - 136*	*10/15/24 15:30*	*10/16/24 19:05*	*1*
Tetrachloro-m-xylene (Surr)	*90*		*10 - 130*	*10/15/24 15:30*	*10/16/24 19:05*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.795		1.94	0.795	ug/L		10/15/24 15:30	10/16/24 19:05	1
PCB-1221	<0.795		1.94	0.795	ug/L		10/15/24 15:30	10/16/24 19:05	1
PCB-1232	<0.795		1.94	0.795	ug/L		10/15/24 15:30	10/16/24 19:05	1
PCB-1242	<0.795		1.94	0.795	ug/L		10/15/24 15:30	10/16/24 19:05	1
PCB-1248	<0.669		1.94	0.669	ug/L		10/15/24 15:30	10/16/24 19:05	1
PCB-1254	<0.669		1.94	0.669	ug/L		10/15/24 15:30	10/16/24 19:05	1
PCB-1260	<0.669		1.94	0.669	ug/L		10/15/24 15:30	10/16/24 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*10 - 136*	*10/15/24 15:30*	*10/16/24 19:05*	*1*
Tetrachloro-m-xylene (Surr)	*90*		*10 - 130*	*10/15/24 15:30*	*10/16/24 19:05*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.621	p	0.621	0.621	ug/L		10/15/24 09:09	10/16/24 10:44	1
Silvex (2,4,5-TP)	**0.341**		0.0518	0.0228	ug/L		10/15/24 09:09	10/16/24 10:44	1
2,4,5-T	<0.0673		0.155	0.0673	ug/L		10/15/24 09:09	10/16/24 10:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*105*	*p*	*34 - 142*	*10/15/24 09:09*	*10/16/24 10:44*	*1*
DCAA	*280*	*S1+*	*34 - 142*	*10/15/24 09:09*	*10/16/24 10:44*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/11/24 09:30	10/11/24 23:33	1
Arsenic	**6.29**		2.00	0.530	ug/L		10/11/24 09:30	10/11/24 23:33	1
Barium	**1380**		2.00	0.660	ug/L		10/11/24 09:30	10/11/24 23:33	1
Beryllium	<0.330		1.00	0.330	ug/L		10/11/24 09:30	10/14/24 19:33	1
Cadmium	**0.502**		0.200	0.100	ug/L		10/11/24 09:30	10/11/24 23:33	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**10.4**	**B**	5.00	1.20	ug/L		10/11/24 09:30	10/11/24 23:33	1
Cobalt	**30.0**		0.500	0.170	ug/L		10/11/24 09:30	10/11/24 23:33	1
Copper	**3.48**	**J**	5.00	1.80	ug/L		10/11/24 09:30	10/11/24 23:33	1
Lead	**1.55**		0.500	0.260	ug/L		10/11/24 09:30	10/11/24 23:33	1
Nickel	**124**		5.00	2.10	ug/L		10/11/24 09:30	10/11/24 23:33	1
Selenium	<1.40		5.00	1.40	ug/L		10/11/24 09:30	10/11/24 23:33	1
Silver	<0.500		1.00	0.500	ug/L		10/11/24 09:30	10/11/24 23:33	1
Thallium	<0.570	^+	1.00	0.570	ug/L		10/11/24 09:30	10/17/24 15:58	1
Vanadium	**2.36**	**J**	5.00	1.10	ug/L		10/11/24 09:30	10/11/24 23:33	1
Zinc	<9.70		20.0	9.70	ug/L		11/01/24 09:30	11/05/24 15:11	1
Tin	<2.30		5.00	2.30	ug/L		10/11/24 09:30	10/11/24 23:33	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/15/24 15:55	10/16/24 16:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	**4.91**	**J**	10.0	3.50	ug/L		10/10/24 10:18	10/10/24 17:45	1
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		10/15/24 10:08	10/15/24 13:11	1
Total Suspended Solids (USGS I-3765-85)	**18.2**		3.00	2.22	mg/L			10/11/24 08:52	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**19.72**				NTU			10/08/24 11:00	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Equipment Blank-1
Lab Sample ID: 310-292343-4
Date Collected: 10/08/24 14:30
Matrix: Water
Date Received: 10/09/24 09:30

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	<0.380		1.00	0.380	ug/L			10/12/24 01:24	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/12/24 01:24	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/12/24 01:24	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/12/24 01:24	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/12/24 01:24	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/12/24 01:24	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/12/24 01:24	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/12/24 01:24	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/12/24 01:24	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/12/24 01:24	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/12/24 01:24	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/12/24 01:24	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/12/24 01:24	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/12/24 01:24	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/12/24 01:24	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/12/24 01:24	1
Acetone	**7.57**	**J**	10.0	3.10	ug/L			10/12/24 01:24	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/12/24 01:24	1
Benzene	<0.220		0.500	0.220	ug/L			10/12/24 01:24	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/12/24 01:24	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/12/24 01:24	1
Bromoform	<0.780		5.00	0.780	ug/L			10/12/24 01:24	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/12/24 01:24	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/12/24 01:24	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/12/24 01:24	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/12/24 01:24	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/12/24 01:24	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/12/24 01:24	1
Chloroform	<1.30		3.00	1.30	ug/L			10/12/24 01:24	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/12/24 01:24	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/12/24 01:24	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/12/24 01:24	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/12/24 01:24	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/12/24 01:24	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/12/24 01:24	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/12/24 01:24	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/12/24 01:24	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/12/24 01:24	1
Styrene	<0.370		1.00	0.370	ug/L			10/12/24 01:24	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/12/24 01:24	1
Toluene	**0.513**	**J**	1.00	0.430	ug/L			10/12/24 01:24	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/12/24 01:24	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/12/24 01:24	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/12/24 01:24	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/12/24 01:24	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/12/24 01:24	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/12/24 01:24	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/12/24 01:24	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/12/24 01:24	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Equipment Blank-1
Lab Sample ID: 310-292343-4

Date Collected: 10/08/24 14:30
Matrix: Water
Date Received: 10/09/24 09:30

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/12/24 01:24*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/12/24 01:24*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*10/12/24 01:24*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/11/24 09:30	10/16/24 13:06	1
Arsenic	<0.530		2.00	0.530	ug/L		10/11/24 09:30	10/11/24 23:35	1
Barium	<0.660		2.00	0.660	ug/L		10/11/24 09:30	10/16/24 13:06	1
Beryllium	<0.330		1.00	0.330	ug/L		10/11/24 09:30	10/14/24 19:37	1
Cadmium	<0.100		0.200	0.100	ug/L		10/11/24 09:30	10/14/24 19:37	1
Chromium	<1.20		5.00	1.20	ug/L		11/01/24 09:30	11/04/24 19:26	1
Cobalt	<0.170		0.500	0.170	ug/L		10/11/24 09:30	10/11/24 23:35	1
Copper	<1.80		5.00	1.80	ug/L		10/11/24 09:30	10/11/24 23:35	1
Lead	<0.260		0.500	0.260	ug/L		10/11/24 09:30	10/14/24 19:37	1
Nickel	<2.10		5.00	2.10	ug/L		10/11/24 09:30	10/11/24 23:35	1
Selenium	<1.40		5.00	1.40	ug/L		10/11/24 09:30	10/11/24 23:35	1
Silver	<0.500		1.00	0.500	ug/L		10/11/24 09:30	10/11/24 23:35	1
Thallium	<0.570		1.00	0.570	ug/L		10/11/24 09:30	10/22/24 15:14	1
Vanadium	<1.10		5.00	1.10	ug/L		10/11/24 09:30	10/11/24 23:35	1
Zinc	<9.70		20.0	9.70	ug/L		11/01/24 09:30	11/05/24 15:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	<1.39		1.88	1.39	mg/L			10/11/24 08:52	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292343-5
Date Collected: 10/08/24 00:00
Matrix: Water
Date Received: 10/09/24 09:30

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	<0.380		1.00	0.380	ug/L			10/12/24 01:47	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/12/24 01:47	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/12/24 01:47	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/12/24 01:47	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/12/24 01:47	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/12/24 01:47	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/12/24 01:47	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/12/24 01:47	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/12/24 01:47	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/12/24 01:47	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/12/24 01:47	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/12/24 01:47	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/12/24 01:47	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/12/24 01:47	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/12/24 01:47	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/12/24 01:47	1
Acetone	<3.10		10.0	3.10	ug/L			10/12/24 01:47	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/12/24 01:47	1
Benzene	<0.220		0.500	0.220	ug/L			10/12/24 01:47	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/12/24 01:47	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/12/24 01:47	1
Bromoform	<0.780		5.00	0.780	ug/L			10/12/24 01:47	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/12/24 01:47	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/12/24 01:47	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/12/24 01:47	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/12/24 01:47	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/12/24 01:47	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/12/24 01:47	1
Chloroform	<1.30		3.00	1.30	ug/L			10/12/24 01:47	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/12/24 01:47	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/12/24 01:47	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/12/24 01:47	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/12/24 01:47	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/12/24 01:47	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/12/24 01:47	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/12/24 01:47	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/12/24 01:47	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/12/24 01:47	1
Styrene	<0.370		1.00	0.370	ug/L			10/12/24 01:47	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/12/24 01:47	1
Toluene	<0.430		1.00	0.430	ug/L			10/12/24 01:47	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/12/24 01:47	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/12/24 01:47	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/12/24 01:47	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/12/24 01:47	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/12/24 01:47	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/12/24 01:47	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/12/24 01:47	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/12/24 01:47	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292343-5
Date Collected: 10/08/24 00:00
Matrix: Water
Date Received: 10/09/24 09:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	99		73 - 130		10/12/24 01:47	1
Toluene-d8 (Surr)	99		80 - 120		10/12/24 01:47	1
4-Bromofluorobenzene (Surr)	100		80 - 120		10/12/24 01:47	1

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

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 Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
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.

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: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-292343-2	OW-223B-FD	99	100	100

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	(73-130)	(80-120)	(80-120)
310-292343-1	OW-223B	99	100	101
310-292343-3	OW-225B	100	99	100
310-292343-4	Equipment Blank-1	101	98	103
310-292343-5	Trip Blank	99	99	100
LCS 310-435986/6	Lab Control Sample	95	101	100
LCS 310-435986/7	Lab Control Sample	103	98	101
LCS 310-435992/7	Lab Control Sample	101	100	99
LCS 310-435992/8	Lab Control Sample	100	99	99
MB 310-435986/5	Method Blank	102	98	104
MB 310-435992/6	Method Blank	100	99	100

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	PHL	NBZ	FBP	TBP	TPHL
Lab Sample ID	Client Sample ID	(25-110)	(21-110)	(45-129)	(39-118)	(27-136)	(12-144)
310-292343-3	OW-225B	60	51	83	86	92	93
LCS 310-435895/2-A	Lab Control Sample	55	46	72	74	90	98
LCSD 310-435895/3-A	Lab Control Sample Dup	48	42	59	58	74	94
MB 310-435895/1-A	Method Blank	49	42	64	61	66	94

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14 (Surr)

Surrogate Summary

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

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)								
310-292343-3	OW-225B	95	90								
LCS 310-436331/14-A	Lab Control Sample	115	103								
MB 310-436331/1-A	Method Blank	25	102								

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)								
310-292343-3	OW-225B	95	90								
LCS 310-436331/13-A	Lab Control Sample	86	90								
MB 310-436331/1-A	Method Blank	25	102								

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DCPAA1	DCPAA2								
Lab Sample ID	Client Sample ID	(34-142)	(34-142)								
310-292343-3	OW-225B	105 p	280 S1+								
LCS 410-563253/2-A	Lab Control Sample	90	93								
LCSD 410-563253/3-A	Lab Control Sample Dup	93	96								
MB 410-563253/1-A	Method Blank	78	67								

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-435986/5
Matrix: Water
Analysis Batch: 435986

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	<0.380		1.00	0.380	ug/L			10/11/24 22:46	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 22:46	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 22:46	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 22:46	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 22:46	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 22:46	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 22:46	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 22:46	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 22:46	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 22:46	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 22:46	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 22:46	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 22:46	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 22:46	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 22:46	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 22:46	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 22:46	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 22:46	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 22:46	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 22:46	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 22:46	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 22:46	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 22:46	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 22:46	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 22:46	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 22:46	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 22:46	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 22:46	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 22:46	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 22:46	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 22:46	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 22:46	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 22:46	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 22:46	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 22:46	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 22:46	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 22:46	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 22:46	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 22:46	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 22:46	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 22:46	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 22:46	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 22:46	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 22:46	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 22:46	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 22:46	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 22:46	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 22:46	1

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

Lab Sample ID: MB 310-435986/5
Matrix: Water
Analysis Batch: 435986

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 22:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*10/11/24 22:46*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/11/24 22:46*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*10/11/24 22:46*	*1*

Lab Sample ID: LCS 310-435986/6
Matrix: Water
Analysis Batch: 435986

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	20.08		ug/L		100	71 - 120
1,1,1-Trichloroethane	20.0	23.34		ug/L		117	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.64		ug/L		103	68 - 124
1,1,2-Trichloroethane	20.0	21.28		ug/L		106	73 - 123
1,1-Dichloroethane	20.0	24.26		ug/L		121	70 - 127
1,1-Dichloroethene	20.0	25.88		ug/L		129	63 - 132
1,2,3-Trichloropropane	20.0	20.06		ug/L		100	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	21.75		ug/L		109	50 - 150
1,2-Dibromoethane (EDB)	20.0	19.61		ug/L		98	75 - 125
1,2-Dichlorobenzene	20.0	21.07		ug/L		105	74 - 120
1,2-Dichloroethane	20.0	20.88		ug/L		104	71 - 125
1,2-Dichloropropane	20.0	23.28		ug/L		116	73 - 124
1,4-Dichlorobenzene	20.0	20.36		ug/L		102	72 - 120
2-Butanone (MEK)	40.0	38.75		ug/L		97	50 - 150
2-Hexanone	40.0	40.00		ug/L		100	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	38.72		ug/L		97	60 - 139
Acetone	40.0	42.76		ug/L		107	50 - 150
Acrylonitrile	200	224.2		ug/L		112	50 - 150
Benzene	20.0	23.26		ug/L		116	72 - 124
Bromochloromethane	20.0	21.57		ug/L		108	73 - 130
Bromodichloromethane	20.0	20.05		ug/L		100	74 - 122
Bromoform	20.0	18.86		ug/L		94	61 - 122
Carbon disulfide	20.0	25.99		ug/L		130	59 - 135
Carbon tetrachloride	20.0	23.31		ug/L		117	67 - 132
Chlorobenzene	20.0	20.98		ug/L		105	76 - 120
Chlorodibromomethane	20.0	19.83		ug/L		99	71 - 121
Chloroform	20.0	21.41		ug/L		107	72 - 125
cis-1,2-Dichloroethene	20.0	21.65		ug/L		108	74 - 123
cis-1,3-Dichloropropene	20.0	21.71		ug/L		109	71 - 125
Dibromomethane	20.0	20.85		ug/L		104	74 - 125
Ethylbenzene	20.0	21.95		ug/L		110	74 - 122
Iodomethane	20.0	23.88		ug/L		119	10 - 150
Methylene Chloride	20.0	24.66		ug/L		123	50 - 150
Styrene	20.0	21.25		ug/L		106	74 - 121
Tetrachloroethene	20.0	21.18		ug/L		106	71 - 130
Toluene	20.0	21.16		ug/L		106	74 - 123

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

Lab Sample ID: LCS 310-435986/6
Matrix: Water
Analysis Batch: 435986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	22.44		ug/L		112	70 - 126
trans-1,3-Dichloropropene	20.0	19.94		ug/L		100	69 - 123
trans-1,4-Dichloro-2-butene	20.0	19.34		ug/L		97	50 - 150
Trichloroethene	20.0	22.19		ug/L		111	72 - 126
Vinyl acetate	40.0	43.81		ug/L		110	50 - 150
Xylenes, Total	40.0	42.18		ug/L		105	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*95*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-435986/7
Matrix: Water
Analysis Batch: 435986

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	20.37		ug/L		102	23 - 150
Chloroethane	20.0	20.04		ug/L		100	54 - 136
Chloromethane	20.0	19.99		ug/L		100	38 - 150
Trichlorofluoromethane	20.0	18.98		ug/L		95	54 - 149
Vinyl chloride	20.0	19.78		ug/L		99	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*73 - 130*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Lab Sample ID: MB 310-435992/6
Matrix: Water
Analysis Batch: 435992

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	<0.380		1.00	0.380	ug/L			10/11/24 19:55	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/11/24 19:55	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/11/24 19:55	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/11/24 19:55	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/11/24 19:55	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/11/24 19:55	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/11/24 19:55	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/11/24 19:55	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/11/24 19:55	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/11/24 19:55	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/11/24 19:55	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/11/24 19:55	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/11/24 19:55	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/11/24 19:55	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/11/24 19:55	1

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

Lab Sample ID: MB 310-435992/6
Matrix: Water
Analysis Batch: 435992

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/11/24 19:55	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/11/24 19:55	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/11/24 19:55	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/11/24 19:55	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/11/24 19:55	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/11/24 19:55	1
Acetone	<3.10		10.0	3.10	ug/L			10/11/24 19:55	1
Acrolein	<3.60		10.0	3.60	ug/L			10/11/24 19:55	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/11/24 19:55	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/11/24 19:55	1
Benzene	<0.220		0.500	0.220	ug/L			10/11/24 19:55	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/11/24 19:55	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/11/24 19:55	1
Bromoform	<0.780		5.00	0.780	ug/L			10/11/24 19:55	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/11/24 19:55	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/11/24 19:55	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/11/24 19:55	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/11/24 19:55	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/11/24 19:55	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/11/24 19:55	1
Chloroform	<1.30		3.00	1.30	ug/L			10/11/24 19:55	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/11/24 19:55	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/11/24 19:55	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/11/24 19:55	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/11/24 19:55	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/11/24 19:55	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/11/24 19:55	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/11/24 19:55	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/11/24 19:55	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/11/24 19:55	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/11/24 19:55	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/11/24 19:55	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/11/24 19:55	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/11/24 19:55	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/11/24 19:55	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/11/24 19:55	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/11/24 19:55	1
Styrene	<0.370		1.00	0.370	ug/L			10/11/24 19:55	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/11/24 19:55	1
Toluene	<0.430		1.00	0.430	ug/L			10/11/24 19:55	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/11/24 19:55	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/11/24 19:55	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/11/24 19:55	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/11/24 19:55	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/11/24 19:55	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/11/24 19:55	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/11/24 19:55	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/11/24 19:55	1

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

Lab Sample ID: MB 310-435992/6
Matrix: Water
Analysis Batch: 435992

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/11/24 19:55*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/11/24 19:55*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/11/24 19:55*	*1*

Lab Sample ID: LCS 310-435992/7
Matrix: Water
Analysis Batch: 435992

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	20.54		ug/L		103	71 - 120
1,1,1-Trichloroethane	20.0	21.42		ug/L		107	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.67		ug/L		103	68 - 124
1,1,2-Trichloroethane	20.0	20.64		ug/L		103	73 - 123
1,1-Dichloroethane	20.0	20.73		ug/L		104	70 - 127
1,1-Dichloroethene	20.0	21.15		ug/L		106	63 - 132
1,1-Dichloropropene	20.0	21.25		ug/L		106	69 - 132
1,2,3-Trichloropropane	20.0	20.03		ug/L		100	65 - 127
1,2,4-Trichlorobenzene	20.0	20.73		ug/L		104	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	19.84		ug/L		99	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.75		ug/L		104	75 - 125
1,2-Dichlorobenzene	20.0	20.76		ug/L		104	74 - 120
1,2-Dichloroethane	20.0	20.51		ug/L		103	71 - 125
1,2-Dichloropropane	20.0	20.26		ug/L		101	73 - 124
1,3-Dichlorobenzene	20.0	20.84		ug/L		104	72 - 120
1,3-Dichloropropane	20.0	20.51		ug/L		103	72 - 125
1,4-Dichlorobenzene	20.0	20.49		ug/L		102	72 - 120
2,2-Dichloropropane	20.0	21.61		ug/L		108	50 - 150
2-Butanone (MEK)	40.0	37.39		ug/L		93	50 - 150
2-Hexanone	40.0	39.78		ug/L		99	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	40.43		ug/L		101	60 - 139
Acetone	40.0	37.01		ug/L		93	50 - 150
Acrolein	95.5	92.92		ug/L		97	49 - 150
Acrylonitrile	200	199.9		ug/L		100	50 - 150
Allyl chloride	20.0	20.85		ug/L		104	49 - 150
Benzene	20.0	20.72		ug/L		104	72 - 124
Bromochloromethane	20.0	21.02		ug/L		105	73 - 130
Bromodichloromethane	20.0	20.41		ug/L		102	74 - 122
Bromoform	20.0	20.06		ug/L		100	61 - 122
Carbon disulfide	20.0	20.62		ug/L		103	59 - 135
Carbon tetrachloride	20.0	21.28		ug/L		106	67 - 132
Chlorobenzene	20.0	20.71		ug/L		104	76 - 120
Chlorodibromomethane	20.0	20.49		ug/L		102	71 - 121
Chloroform	20.0	20.07		ug/L		100	72 - 125
Chloroprene	20.0	21.06		ug/L		105	69 - 133
cis-1,2-Dichloroethene	20.0	20.74		ug/L		104	74 - 123
cis-1,3-Dichloropropene	20.0	20.94		ug/L		105	71 - 125
Dibromomethane	20.0	20.48		ug/L		102	74 - 125
Ethyl methacrylate	20.0	21.05		ug/L		105	70 - 129

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

Lab Sample ID: LCS 310-435992/7
Matrix: Water
Analysis Batch: 435992

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	20.0	21.32		ug/L		107	74 - 122
Iodomethane	20.0	15.91		ug/L		80	10 - 150
Methacrylonitrile	200	202.6		ug/L		101	69 - 129
Methyl methacrylate	40.0	41.91		ug/L		105	68 - 131
Methylene Chloride	20.0	20.43		ug/L		102	50 - 150
Naphthalene	20.0	21.03		ug/L		105	50 - 150
Propionitrile	200	199.6		ug/L		100	63 - 135
Styrene	20.0	21.45		ug/L		107	74 - 121
Tetrachloroethene	20.0	21.59		ug/L		108	71 - 130
Toluene	20.0	20.83		ug/L		104	74 - 123
trans-1,2-Dichloroethene	20.0	21.04		ug/L		105	70 - 126
trans-1,3-Dichloropropene	20.0	20.69		ug/L		103	69 - 123
trans-1,4-Dichloro-2-butene	20.0	19.05		ug/L		95	50 - 150
Trichloroethene	20.0	20.85		ug/L		104	72 - 126
Vinyl acetate	40.0	41.54		ug/L		104	50 - 150
Xylenes, Total	40.0	42.58		ug/L		106	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-435992/8
Matrix: Water
Analysis Batch: 435992

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	15.65		ug/L		78	23 - 150
Chloroethane	20.0	17.93		ug/L		90	54 - 136
Chloromethane	20.0	17.70		ug/L		88	38 - 150
Dichlorodifluoromethane	20.0	19.22		ug/L		96	39 - 150
Trichlorofluoromethane	20.0	19.59		ug/L		98	54 - 149
Vinyl chloride	20.0	18.49		ug/L		92	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.540		10.0	0.540	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,3,5-Trinitrobenzene	<2.30		10.0	2.30	ug/L		10/11/24 06:28	10/17/24 14:28	1

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dinitrobenzene	<3.20		10.0	3.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,4-Naphthoquinone	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,4-phenylenediamine	<1.90		10.0	1.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
1-Naphthylamine	<2.50		10.0	2.50	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,3,4,6-Tetrachlorophenol	<5.30		10.0	5.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4,5-Trichlorophenol	<5.30		10.0	5.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4,6-Trichlorophenol	<5.00		10.0	5.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dichlorophenol	<0.850		10.0	0.850	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dimethylphenol	<0.580		10.0	0.580	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dinitrophenol	<13.0		20.0	13.0	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dinitrotoluene	<6.40		10.0	6.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,6-Dichlorophenol	<0.690		10.0	0.690	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,6-Dinitrotoluene	<0.520		10.0	0.520	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Acetylaminofluorene	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Chloronaphthalene	<0.640		10.0	0.640	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Chlorophenol	<0.540		10.0	0.540	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Methylnaphthalene	<0.590		10.0	0.590	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Methylphenol	<0.650		10.0	0.650	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Naphthylamine	<2.10		10.0	2.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Nitroaniline	<5.90		10.0	5.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Nitrophenol	<6.80		10.0	6.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
3,3'-Dichlorobenzidine	<1.40		10.0	1.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
3,3'-Dimethylbenzidine	<1.50		10.0	1.50	ug/L		10/11/24 06:28	10/17/24 14:28	1
3-Methylcholanthrene	<0.320		10.0	0.320	ug/L		10/11/24 06:28	10/17/24 14:28	1
3-Nitroaniline	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
4,6-Dinitro-2-methylphenol	<6.90		10.0	6.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Aminobiphenyl	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Bromophenyl phenyl ether	<0.700		10.0	0.700	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Chloro-3-methylphenol	<0.840		10.0	0.840	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Chloroaniline	<0.620		10.0	0.620	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Chlorophenyl phenyl ether	<0.690		10.0	0.690	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methylphenol, 3 & 4	<0.700		10.0	0.700	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Nitroaniline	<1.30		10.0	1.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Nitrophenol	<7.60		10.0	7.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
5-Nitro-o-toluidine	<2.80		10.0	2.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
7,12-Dimethylbenz(a)anthracene	<1.90		10.0	1.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Acenaphthene	<0.640		10.0	0.640	ug/L		10/11/24 06:28	10/17/24 14:28	1
Acenaphthylene	<0.720		10.0	0.720	ug/L		10/11/24 06:28	10/17/24 14:28	1
Acetophenone	<0.690		10.0	0.690	ug/L		10/11/24 06:28	10/17/24 14:28	1
Anthracene	<0.870		10.0	0.870	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[a]anthracene	<0.850		10.0	0.850	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[a]pyrene	<8.10		10.0	8.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[b]fluoranthene	<4.90		10.0	4.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[g,h,i]perylene	<6.30		10.0	6.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[k]fluoranthene	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzyl alcohol	<1.30		10.0	1.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Bis(2-chloroethoxy)methane	<0.760		10.0	0.760	ug/L		10/11/24 06:28	10/17/24 14:28	1
Bis(2-chloroethyl)ether	<0.820		10.0	0.820	ug/L		10/11/24 06:28	10/17/24 14:28	1
bis (2-chloroisopropyl) ether	<0.540		10.0	0.540	ug/L		10/11/24 06:28	10/17/24 14:28	1

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	<5.50		10.0	5.50	ug/L		10/11/24 06:28	10/17/24 14:28	1
Butyl benzyl phthalate	<5.40		10.0	5.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
Chlorobenzilate	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Chrysene	<0.870		10.0	0.870	ug/L		10/11/24 06:28	10/17/24 14:28	1
Diallate	<4.00		10.0	4.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dibenzo(a,h)anthracene	<3.90		10.0	3.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dibenzofuran	<0.740		10.0	0.740	ug/L		10/11/24 06:28	10/17/24 14:28	1
Diethyl phthalate	<1.70		10.0	1.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dimethoate	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dimethyl phthalate	<1.00		10.0	1.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Di-n-butyl phthalate	<5.60		10.0	5.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Di-n-octyl phthalate	<7.00		20.0	7.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dinoseb	<2.40		10.0	2.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
Diphenylamine	<6.00		10.0	6.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Disulfoton	<2.40		10.0	2.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
Ethyl methanesulfonate	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Ethyl Parathion	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Famphur	<3.80		10.0	3.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Fluoranthene	<1.70		10.0	1.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Fluorene	<0.790		10.0	0.790	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachlorobenzene	<0.700		10.0	0.700	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachlorobutadiene	<0.860		10.0	0.860	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachlorocyclopentadiene	<5.10		10.0	5.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachloroethane	<0.970		10.0	0.970	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachloropropene	<2.60		10.0	2.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Indeno[1,2,3-cd]pyrene	<4.20		10.0	4.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Isodrin	<4.70		10.0	4.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Isophorone	<0.930		10.0	0.930	ug/L		10/11/24 06:28	10/17/24 14:28	1
Isosafrole	<2.30		10.0	2.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Kepone	<1.00		10.0	1.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methapyrilene	<0.760		10.0	0.760	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methyl methanesulfonate	<3.30		10.0	3.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methyl parathion	<2.30		10.0	2.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Nitrobenzene	<0.800		10.0	0.800	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodiethylamine	<3.40		10.0	3.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodimethylamine	<0.720		10.0	0.720	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodi-n-butylamine	<3.90		10.0	3.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodi-n-propylamine	<0.920		10.0	0.920	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodiphenylamine	<0.750		10.0	0.750	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosomethylethylamine	<4.90		10.0	4.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosopiperidine	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosopyrrolidine	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
o,o',o''-Triethylphosphorothioate	<3.20		10.0	3.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
o-Toluidine	<2.90		10.0	2.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
p-Dimethylamino azobenzene	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pentachlorobenzene	<2.80		10.0	2.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pentachloronitrobenzene	<5.80		10.0	5.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pentachlorophenol	<9.60		10.0	9.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phenacetin	<1.90		10.0	1.90	ug/L		10/11/24 06:28	10/17/24 14:28	1

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	<0.790		10.0	0.790	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phenol	<1.10		10.0	1.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phorate	<3.20		10.0	3.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pronamide	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pyrene	<0.790		10.0	0.790	ug/L		10/11/24 06:28	10/17/24 14:28	1
Safrole	<2.80		10.0	2.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Thionazin	<3.50		10.0	3.50	ug/L		10/11/24 06:28	10/17/24 14:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*49*		*25 - 110*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
Phenol-d5 (Surr)	*42*		*21 - 110*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
Nitrobenzene-d5 (Surr)	*64*		*45 - 129*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
2-Fluorobiphenyl (Surr)	*61*		*39 - 118*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
2,4,6-Tribromophenol (Surr)	*66*		*27 - 136*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
Terphenyl-d14 (Surr)	*94*		*12 - 144*	*10/11/24 06:28*	*10/17/24 14:28*	*1*

Lab Sample ID: LCS 310-435895/2-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435895

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4,5-Tetrachlorobenzene	100	57.60		ug/L		58	36 - 110
1,3-Dinitrobenzene	100	73.92		ug/L		74	45 - 138
2,3,4,6-Tetrachlorophenol	100	79.66		ug/L		80	33 - 134
2,4,5-Trichlorophenol	100	82.64		ug/L		83	35 - 133
2,4,6-Trichlorophenol	100	77.13		ug/L		77	28 - 139
2,4-Dichlorophenol	100	91.79		ug/L		92	41 - 124
2,4-Dimethylphenol	100	72.62		ug/L		73	31 - 142
2,4-Dinitrophenol	200	125.6		ug/L		63	10 - 138
2,4-Dinitrotoluene	100	88.61		ug/L		89	47 - 137
2,6-Dichlorophenol	100	80.95		ug/L		81	30 - 130
2,6-Dinitrotoluene	100	86.49		ug/L		86	51 - 130
2-Chloronaphthalene	100	51.77		ug/L		52	37 - 110
2-Chlorophenol	100	81.09		ug/L		81	44 - 117
2-Methylnaphthalene	100	55.87		ug/L		56	33 - 110
2-Methylphenol	100	75.20		ug/L		75	47 - 118
2-Nitroaniline	100	71.57		ug/L		72	50 - 135
2-Nitrophenol	100	85.09		ug/L		85	41 - 129
3-Nitroaniline	100	83.28		ug/L		83	42 - 139
4,6-Dinitro-2-methylphenol	200	173.6		ug/L		87	22 - 143
4-Bromophenyl phenyl ether	100	87.86		ug/L		88	45 - 119
4-Chloro-3-methylphenol	100	90.89		ug/L		91	49 - 130
4-Chloroaniline	100	73.52		ug/L		74	21 - 139
4-Chlorophenyl phenyl ether	100	76.45		ug/L		76	44 - 116
Methylphenol, 3 & 4	100	73.12		ug/L		73	46 - 117
4-Nitroaniline	100	72.33		ug/L		72	31 - 145
4-Nitrophenol	200	125.2		ug/L		63	18 - 110
Acenaphthene	100	71.89		ug/L		72	43 - 110

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

Lab Sample ID: LCS 310-435895/2-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435895

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthylene	100	67.49		ug/L		67	40 - 110
Acetophenone	100	77.81		ug/L		78	48 - 119
Anthracene	100	90.85		ug/L		91	51 - 120
Benzo[a]anthracene	100	85.42		ug/L		85	51 - 123
Benzo[a]pyrene	100	83.08		ug/L		83	48 - 125
Benzo[b]fluoranthene	100	82.83		ug/L		83	49 - 129
Benzo[g,h,i]perylene	100	52.85		ug/L		53	43 - 139
Benzo[k]fluoranthene	100	87.27		ug/L		87	47 - 130
Benzyl alcohol	100	68.73		ug/L		69	39 - 128
Bis(2-chloroethoxy)methane	100	69.64		ug/L		70	48 - 121
Bis(2-chloroethyl)ether	100	65.25		ug/L		65	43 - 123
bis (2-chloroisopropyl) ether	100	73.14		ug/L		73	34 - 123
Bis(2-ethylhexyl) phthalate	100	92.10		ug/L		92	43 - 143
Butyl benzyl phthalate	100	83.82		ug/L		84	46 - 135
Chrysene	100	86.87		ug/L		87	51 - 125
Dibenzo(a,h)anthracene	100	69.28		ug/L		69	38 - 149
Dibenzofuran	100	73.74		ug/L		74	45 - 112
Diethyl phthalate	100	87.71		ug/L		88	43 - 135
Dimethyl phthalate	100	81.14		ug/L		81	43 - 129
Di-n-butyl phthalate	100	88.67		ug/L		89	50 - 133
Di-n-octyl phthalate	100	75.58		ug/L		76	34 - 150
Diphenylamine	85.0	66.64		ug/L		78	48 - 122
Fluoranthene	100	88.22		ug/L		88	47 - 128
Fluorene	100	79.26		ug/L		79	45 - 119
Hexachlorobenzene	100	86.39		ug/L		86	48 - 119
Hexachlorobutadiene	100	48.61		ug/L		49	32 - 110
Hexachlorocyclopentadiene	100	36.36		ug/L		36	10 - 110
Hexachloroethane	100	41.08		ug/L		41	31 - 110
Indeno[1,2,3-cd]pyrene	100	70.98		ug/L		71	37 - 150
Isophorone	100	78.75		ug/L		79	50 - 125
Nitrobenzene	100	65.30		ug/L		65	47 - 116
N-Nitrosodimethylamine	100	63.96		ug/L		64	37 - 110
N-Nitrosodi-n-propylamine	100	77.76		ug/L		78	45 - 130
N-Nitrosodiphenylamine	100	79.36		ug/L		79	49 - 121
Pentachlorophenol	200	155.3		ug/L		78	26 - 133
Phenanthrene	100	89.83		ug/L		90	51 - 117
Phenol	100	46.69		ug/L		47	29 - 110
Pyrene	100	92.59		ug/L		93	48 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*55*		*25 - 110*
Phenol-d5 (Surr)	*46*		*21 - 110*
Nitrobenzene-d5 (Surr)	*72*		*45 - 129*
2-Fluorobiphenyl (Surr)	*74*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*90*		*27 - 136*
Terphenyl-d14 (Surr)	*98*		*12 - 144*

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

Lab Sample ID: LCSD 310-435895/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436520
Prep Batch: 435895

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene			100	58.38		ug/L		58	36 - 110	1	35
1,3-Dinitrobenzene			100	59.17		ug/L		59	45 - 138	22	35
2,3,4,6-Tetrachlorophenol			100	64.62		ug/L		65	33 - 134	21	35
2,4,5-Trichlorophenol			100	68.24		ug/L		68	35 - 133	19	35
2,4,6-Trichlorophenol			100	61.90		ug/L		62	28 - 139	22	35
2,4-Dichlorophenol			100	72.49		ug/L		72	41 - 124	23	35
2,4-Dimethylphenol			100	54.71		ug/L		55	31 - 142	28	35
2,4-Dinitrophenol			200	102.7		ug/L		51	10 - 138	20	35
2,4-Dinitrotoluene			100	68.13		ug/L		68	47 - 137	26	35
2,6-Dichlorophenol			100	62.32		ug/L		62	30 - 130	26	35
2,6-Dinitrotoluene			100	66.48		ug/L		66	51 - 130	26	35
2-Chloronaphthalene			100	48.34		ug/L		48	37 - 110	7	35
2-Chlorophenol			100	63.05		ug/L		63	44 - 117	25	35
2-Methylnaphthalene			100	50.19		ug/L		50	33 - 110	11	35
2-Methylphenol			100	59.79		ug/L		60	47 - 118	23	35
2-Nitroaniline			100	58.05		ug/L		58	50 - 135	21	35
2-Nitrophenol			100	65.14		ug/L		65	41 - 129	27	35
3-Nitroaniline			100	72.65		ug/L		73	42 - 139	14	35
4,6-Dinitro-2-methylphenol			200	136.3		ug/L		68	22 - 143	24	35
4-Bromophenyl phenyl ether			100	68.07		ug/L		68	45 - 119	25	35
4-Chloro-3-methylphenol			100	72.23		ug/L		72	49 - 130	23	35
4-Chloroaniline			100	63.03		ug/L		63	21 - 139	15	35
4-Chlorophenyl phenyl ether			100	63.82		ug/L		64	44 - 116	18	35
Methylphenol, 3 & 4			100	61.48		ug/L		61	46 - 117	17	35
4-Nitroaniline			100	56.22		ug/L		56	31 - 145	25	35
4-Nitrophenol			200	107.4		ug/L		54	18 - 110	15	35
Acenaphthene			100	61.04		ug/L		61	43 - 110	16	35
Acenaphthylene			100	58.47		ug/L		58	40 - 110	14	35
Acetophenone			100	58.04		ug/L		58	48 - 119	29	35
Anthracene			100	69.82		ug/L		70	51 - 120	26	35
Benzo[a]anthracene			100	71.83		ug/L		72	51 - 123	17	35
Benzo[a]pyrene			100	71.33		ug/L		71	48 - 125	15	35
Benzo[b]fluoranthene			100	69.33		ug/L		69	49 - 129	18	35
Benzo[g,h,i]perylene			100	62.29		ug/L		62	43 - 139	16	35
Benzo[k]fluoranthene			100	80.91		ug/L		81	47 - 130	8	35
Benzyl alcohol			100	60.71		ug/L		61	39 - 128	12	35
Bis(2-chloroethoxy)methane			100	50.74		ug/L		51	48 - 121	31	35
Bis(2-chloroethyl)ether			100	48.92		ug/L		49	43 - 123	29	35
bis (2-chloroisopropyl) ether			100	54.61		ug/L		55	34 - 123	29	35
Bis(2-ethylhexyl) phthalate			100	77.82		ug/L		78	43 - 143	17	35
Butyl benzyl phthalate			100	68.59		ug/L		69	46 - 135	20	35
Chrysene			100	73.39		ug/L		73	51 - 125	17	35
Dibenzo(a,h)anthracene			100	58.72		ug/L		59	38 - 149	17	35
Dibenzofuran			100	60.40		ug/L		60	45 - 112	20	35
Diethyl phthalate			100	65.20		ug/L		65	43 - 135	29	35
Dimethyl phthalate			100	63.42		ug/L		63	43 - 129	25	35
Di-n-butyl phthalate			100	70.54		ug/L		71	50 - 133	23	35
Di-n-octyl phthalate			100	64.63		ug/L		65	34 - 150	16	35

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

Lab Sample ID: LCSD 310-435895/3-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435895

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diphenylamine			85.0	51.53		ug/L		61	48 - 122	26	35
Fluoranthene			100	71.51		ug/L		72	47 - 128	21	35
Fluorene			100	63.27		ug/L		63	45 - 119	22	35
Hexachlorobenzene			100	74.20		ug/L		74	48 - 119	15	35
Hexachlorobutadiene			100	59.00		ug/L		59	32 - 110	19	35
Hexachlorocyclopentadiene			100	38.71		ug/L		39	10 - 110	6	35
Hexachloroethane			100	43.72		ug/L		44	31 - 110	6	35
Indeno[1,2,3-cd]pyrene			100	57.43		ug/L		57	37 - 150	21	35
Isophorone			100	60.39		ug/L		60	50 - 125	26	35
Nitrobenzene			100	49.08		ug/L		49	47 - 116	28	35
N-Nitrosodimethylamine			100	55.27		ug/L		55	37 - 110	15	35
N-Nitrosodi-n-propylamine			100	55.86		ug/L		56	45 - 130	33	35
N-Nitrosodiphenylamine			100	59.51		ug/L		60	49 - 121	29	35
Pentachlorophenol			200	117.9		ug/L		59	26 - 133	27	35
Phenanthrene			100	70.67		ug/L		71	51 - 117	24	35
Phenol			100	37.78		ug/L		38	29 - 110	21	35
Pyrene			100	76.31		ug/L		76	48 - 127	19	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*48*		*25 - 110*
Phenol-d5 (Surr)	*42*		*21 - 110*
Nitrobenzene-d5 (Surr)	*59*		*45 - 129*
2-Fluorobiphenyl (Surr)	*58*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*74*		*27 - 136*
Terphenyl-d14 (Surr)	*94*		*12 - 144*

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

Lab Sample ID: MB 310-436077/4
Matrix: Water
Analysis Batch: 436077

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 08:18	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 08:18	1

Lab Sample ID: LCS 310-436077/5
Matrix: Water
Analysis Batch: 436077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Acetonitrile			113000	133000		ug/L		117	67 - 132		
Isobutanol			104000	112500		ug/L		108	80 - 121		

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-436331/1-A
Matrix: Water
Analysis Batch: 436404

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436331

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0230		0.0919	0.0230	ug/L		10/15/24 14:06	10/16/24 12:41	1
4,4'-DDE	<0.0276		0.0919	0.0276	ug/L		10/15/24 14:06	10/16/24 12:41	1
4,4'-DDT	<0.0184		0.0919	0.0184	ug/L		10/15/24 14:06	10/16/24 12:41	1
Aldrin	<0.0202		0.0919	0.0202	ug/L		10/15/24 14:06	10/16/24 12:41	1
alpha-BHC	<0.00919		0.0919	0.00919	ug/L		10/15/24 14:06	10/16/24 12:41	1
beta-BHC	<0.0386		0.0919	0.0386	ug/L		10/15/24 14:06	10/16/24 12:41	1
Chlordane (technical)	<0.358		1.84	0.358	ug/L		10/15/24 14:06	10/16/24 12:41	1
delta-BHC	<0.0294		0.0919	0.0294	ug/L		10/15/24 14:06	10/16/24 12:41	1
Dieldrin	<0.0193		0.0919	0.0193	ug/L		10/15/24 14:06	10/16/24 12:41	1
Endosulfan I	<0.0257		0.0919	0.0257	ug/L		10/15/24 14:06	10/16/24 12:41	1
Endosulfan II	<0.0239		0.0919	0.0239	ug/L		10/15/24 14:06	10/16/24 12:41	1
Endosulfan sulfate	<0.0165		0.0919	0.0165	ug/L		10/15/24 14:06	10/16/24 12:41	1
Endrin	<0.0257		0.0919	0.0257	ug/L		10/15/24 14:06	10/16/24 12:41	1
Endrin aldehyde	<0.0248		0.0919	0.0248	ug/L		10/15/24 14:06	10/16/24 12:41	1
gamma-BHC (Lindane)	<0.00919		0.0919	0.00919	ug/L		10/15/24 14:06	10/16/24 12:41	1
Heptachlor	<0.0211		0.0919	0.0211	ug/L		10/15/24 14:06	10/16/24 12:41	1
Heptachlor epoxide	<0.0294		0.0919	0.0294	ug/L		10/15/24 14:06	10/16/24 12:41	1
Methoxychlor	<0.0294		0.0919	0.0294	ug/L		10/15/24 14:06	10/16/24 12:41	1
Toxaphene	<0.919		1.84	0.919	ug/L		10/15/24 14:06	10/16/24 12:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*25*		*10 - 136*	*10/15/24 14:06*	*10/16/24 12:41*	*1*
Tetrachloro-m-xylene (Surr)	*102*		*10 - 130*	*10/15/24 14:06*	*10/16/24 12:41*	*1*

Lab Sample ID: LCS 310-436331/14-A
Matrix: Water
Analysis Batch: 436404

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436331

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	2.60	2.884		ug/L		111	36 - 149
4,4'-DDE	2.60	2.498		ug/L		96	34 - 130
4,4'-DDT	2.60	2.646		ug/L		102	23 - 150
Aldrin	2.60	2.560		ug/L		98	13 - 120
alpha-BHC	2.60	2.938		ug/L		113	36 - 127
beta-BHC	2.60	2.718		ug/L		104	37 - 136
delta-BHC	2.60	2.483		ug/L		95	33 - 134
Dieldrin	2.60	2.999		ug/L		115	39 - 130
Endosulfan I	2.60	1.625		ug/L		62	10 - 120
Endosulfan II	2.60	1.869		ug/L		72	14 - 120
Endosulfan sulfate	2.60	3.688		ug/L		142	36 - 147
Endrin	2.60	2.995		ug/L		115	39 - 140
Endrin aldehyde	2.60	2.718		ug/L		104	32 - 137
gamma-BHC (Lindane)	2.60	2.862		ug/L		110	36 - 132
Heptachlor	2.60	2.686		ug/L		103	27 - 120
Heptachlor epoxide	2.60	3.092		ug/L		119	38 - 133
Methoxychlor	2.60	3.159		ug/L		121	10 - 150

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

Lab Sample ID: LCS 310-436331/14-A
Matrix: Water
Analysis Batch: 436404

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436331

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	115		10 - 136
Tetrachloro-m-xylene (Surr)	103		10 - 130

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

Lab Sample ID: MB 310-436331/1-A
Matrix: Water
Analysis Batch: 436406

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436331

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.753		1.84	0.753	ug/L		10/15/24 14:06	10/16/24 12:41	1
PCB-1221	<0.753		1.84	0.753	ug/L		10/15/24 14:06	10/16/24 12:41	1
PCB-1232	<0.753		1.84	0.753	ug/L		10/15/24 14:06	10/16/24 12:41	1
PCB-1242	<0.753		1.84	0.753	ug/L		10/15/24 14:06	10/16/24 12:41	1
PCB-1248	<0.634		1.84	0.634	ug/L		10/15/24 14:06	10/16/24 12:41	1
PCB-1254	<0.634		1.84	0.634	ug/L		10/15/24 14:06	10/16/24 12:41	1
PCB-1260	<0.634		1.84	0.634	ug/L		10/15/24 14:06	10/16/24 12:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	25		10 - 136	10/15/24 14:06	10/16/24 12:41	1
Tetrachloro-m-xylene (Surr)	102		10 - 130	10/15/24 14:06	10/16/24 12:41	1

Lab Sample ID: LCS 310-436331/13-A
Matrix: Water
Analysis Batch: 436406

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436331

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	26.6	22.99		ug/L		86	30 - 133
PCB-1260	26.6	23.31		ug/L		88	31 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	86		10 - 136
Tetrachloro-m-xylene (Surr)	90		10 - 130

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-563253/1-A
Matrix: Water
Analysis Batch: 563637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563253

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.250		0.600	0.250	ug/L		10/15/24 09:09	10/16/24 05:06	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		10/15/24 09:09	10/16/24 05:06	1
2,4,5-T	<0.0650		0.150	0.0650	ug/L		10/15/24 09:09	10/16/24 05:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	78		34 - 142	10/15/24 09:09	10/16/24 05:06	1
DCAA	67		34 - 142	10/15/24 09:09	10/16/24 05:06	1

Method: 8151A - Herbicides (GC)

Lab Sample ID: LCS 410-563253/2-A
Matrix: Water
Analysis Batch: 563637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563253

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D			2.50	2.602		ug/L		104	53 - 159		
Silvex (2,4,5-TP)			0.250	0.2984		ug/L		119	62 - 170		
2,4,5-T			0.250	0.2851		ug/L		114	57 - 171		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*90*		*34 - 142*
DCAA	*93*		*34 - 142*

Lab Sample ID: LCSD 410-563253/3-A
Matrix: Water
Analysis Batch: 563637

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563253

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D			2.50	2.685		ug/L		107	53 - 159	3	30
Silvex (2,4,5-TP)			0.250	0.3093		ug/L		124	62 - 170	4	30
2,4,5-T			0.250	0.2902		ug/L		116	57 - 171	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA	*93*		*34 - 142*
DCAA	*96*		*34 - 142*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-435876/1-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/11/24 09:30	10/11/24 22:24	1
Arsenic	<0.530		2.00	0.530	ug/L		10/11/24 09:30	10/11/24 22:24	1
Barium	<0.660		2.00	0.660	ug/L		10/11/24 09:30	10/11/24 22:24	1
Cadmium	<0.100		0.200	0.100	ug/L		10/11/24 09:30	10/11/24 22:24	1
Chromium	3.926	J	5.00	1.20	ug/L		10/11/24 09:30	10/11/24 22:24	1
Cobalt	<0.170		0.500	0.170	ug/L		10/11/24 09:30	10/11/24 22:24	1
Copper	<1.80		5.00	1.80	ug/L		10/11/24 09:30	10/11/24 22:24	1
Lead	<0.260		0.500	0.260	ug/L		10/11/24 09:30	10/11/24 22:24	1
Nickel	<2.10		5.00	2.10	ug/L		10/11/24 09:30	10/11/24 22:24	1
Selenium	<1.40		5.00	1.40	ug/L		10/11/24 09:30	10/11/24 22:24	1
Silver	<0.500		1.00	0.500	ug/L		10/11/24 09:30	10/11/24 22:24	1
Vanadium	<1.10		5.00	1.10	ug/L		10/11/24 09:30	10/11/24 22:24	1
Tin	<2.30		5.00	2.30	ug/L		10/11/24 09:30	10/11/24 22:24	1

Lab Sample ID: MB 310-435876/1-A
Matrix: Water
Analysis Batch: 436228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	<0.330		1.00	0.330	ug/L		10/11/24 09:30	10/14/24 18:36	1

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

Lab Sample ID: MB 310-435876/1-A
Matrix: Water
Analysis Batch: 436228

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	<1.80		5.00	1.80	ug/L		10/11/24 09:30	10/14/24 18:36	1
Lead	<0.260		0.500	0.260	ug/L		10/11/24 09:30	10/14/24 18:36	1
Selenium	<1.40		5.00	1.40	ug/L		10/11/24 09:30	10/14/24 18:36	1
Zinc	60.39		20.0	9.70	ug/L		10/11/24 09:30	10/14/24 18:36	1

Lab Sample ID: MB 310-435876/1-A
Matrix: Water
Analysis Batch: 437173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.570		1.00	0.570	ug/L		10/11/24 09:30	10/22/24 14:43	1

Lab Sample ID: LCS 310-435876/2-A
Matrix: Water
Analysis Batch: 436085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435876

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	217.8		ug/L		109	80 - 120
Arsenic	200	207.8		ug/L		104	80 - 120
Barium	100	99.48		ug/L		99	80 - 120
Cadmium	100	94.71		ug/L		95	80 - 120
Chromium	100	103.1	B	ug/L		103	80 - 120
Cobalt	100	117.2		ug/L		117	80 - 120
Copper	200	226.2		ug/L		113	80 - 120
Lead	200	207.8		ug/L		104	80 - 120
Nickel	200	203.1		ug/L		102	80 - 120
Selenium	400	392.3		ug/L		98	80 - 120
Silver	100	107.7		ug/L		108	80 - 120
Vanadium	100	99.95		ug/L		100	80 - 120
Tin	200	212.7		ug/L		106	80 - 120

Lab Sample ID: LCS 310-435876/2-A
Matrix: Water
Analysis Batch: 436228

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435876

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	186.8		ug/L		93	80 - 120
Barium	100	90.92		ug/L		91	80 - 120
Beryllium	100	84.77		ug/L		85	80 - 120
Cadmium	100	88.96		ug/L		89	80 - 120
Chromium	100	97.49		ug/L		97	80 - 120
Cobalt	100	95.23		ug/L		95	80 - 120
Copper	200	196.9		ug/L		98	80 - 120
Lead	200	198.3		ug/L		99	80 - 120
Selenium	400	347.2		ug/L		87	80 - 120
Silver	100	107.1		ug/L		107	80 - 120
Vanadium	100	91.28		ug/L		91	80 - 120

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

Lab Sample ID: LCS 310-435876/2-A
Matrix: Water
Analysis Batch: 437173

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435876

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	100	81.38		ug/L		81	80 - 120

Lab Sample ID: MB 310-438272/1-A
Matrix: Water
Analysis Batch: 438660

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		11/01/24 09:30	11/04/24 18:39	1
Arsenic	<0.530		2.00	0.530	ug/L		11/01/24 09:30	11/04/24 18:39	1
Barium	<0.660		2.00	0.660	ug/L		11/01/24 09:30	11/04/24 18:39	1
Beryllium	<0.330		1.00	0.330	ug/L		11/01/24 09:30	11/04/24 18:39	1
Cadmium	<0.100		0.200	0.100	ug/L		11/01/24 09:30	11/04/24 18:39	1
Chromium	<1.20		5.00	1.20	ug/L		11/01/24 09:30	11/04/24 18:39	1
Cobalt	<0.170		0.500	0.170	ug/L		11/01/24 09:30	11/04/24 18:39	1
Copper	<1.80		5.00	1.80	ug/L		11/01/24 09:30	11/04/24 18:39	1
Lead	<0.260		0.500	0.260	ug/L		11/01/24 09:30	11/04/24 18:39	1
Nickel	<2.10		5.00	2.10	ug/L		11/01/24 09:30	11/04/24 18:39	1
Selenium	<1.40		5.00	1.40	ug/L		11/01/24 09:30	11/04/24 18:39	1
Silver	<0.500		1.00	0.500	ug/L		11/01/24 09:30	11/04/24 18:39	1
Thallium	<0.570		1.00	0.570	ug/L		11/01/24 09:30	11/04/24 18:39	1
Vanadium	<1.10		5.00	1.10	ug/L		11/01/24 09:30	11/04/24 18:39	1
Zinc	<9.70		20.0	9.70	ug/L		11/01/24 09:30	11/04/24 18:39	1
Tin	<2.30		5.00	2.30	ug/L		11/01/24 09:30	11/04/24 18:39	1

Lab Sample ID: MB 310-438272/1-A
Matrix: Water
Analysis Batch: 438774

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<9.70		20.0	9.70	ug/L		11/01/24 09:30	11/05/24 14:20	1

Lab Sample ID: LCS 310-438272/2-A
Matrix: Water
Analysis Batch: 438660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	211.3		ug/L		106	80 - 120
Arsenic	200	207.8		ug/L		104	80 - 120
Barium	100	102.5		ug/L		102	80 - 120
Beryllium	100	99.93		ug/L		100	80 - 120
Cadmium	100	99.22		ug/L		99	80 - 120
Chromium	100	106.0		ug/L		106	80 - 120
Cobalt	100	109.0		ug/L		109	80 - 120
Copper	200	206.0		ug/L		103	80 - 120
Lead	200	206.7		ug/L		103	80 - 120
Nickel	200	203.6		ug/L		102	80 - 120
Selenium	400	398.3		ug/L		100	80 - 120
Silver	100	112.6		ug/L		113	80 - 120
Thallium	100	86.23		ug/L		86	80 - 120

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

Lab Sample ID: LCS 310-438272/2-A
Matrix: Water
Analysis Batch: 438660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vanadium	100	104.2		ug/L		104	80 - 120
Tin	200	213.9		ug/L		107	80 - 120

Lab Sample ID: LCS 310-438272/2-A
Matrix: Water
Analysis Batch: 438774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	200	189.1		ug/L		95	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-436310/1-A
Matrix: Water
Analysis Batch: 436502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/15/24 15:55	10/16/24 16:01	1

Lab Sample ID: LCS 310-436310/2-A
Matrix: Water
Analysis Batch: 436502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.528		ug/L		92	80 - 120

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 310-435806/1-A
Matrix: Water
Analysis Batch: 435882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435806

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<3.50		10.0	3.50	ug/L		10/10/24 10:18	10/10/24 17:31	1

Lab Sample ID: LCS 310-435806/2-A
Matrix: Water
Analysis Batch: 435882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	200	193.3		ug/L		97	90 - 110

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-630854/1-A
Matrix: Water
Analysis Batch: 630897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 630854

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		10/15/24 10:08	10/15/24 13:11	1

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric) (Continued)

Lab Sample ID: LCS 240-630854/2-A
Matrix: Water
Analysis Batch: 630897

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 630854

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	8.00	6.667		mg/L		83	70 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-435918/1
Matrix: Water
Analysis Batch: 435918

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	<3.70		5.00	3.70	mg/L			10/11/24 08:52	1

Lab Sample ID: LCS 310-435918/2
Matrix: Water
Analysis Batch: 435918

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	108.0		mg/L		108	81 - 116

QC Association Summary

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 435986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-4	Equipment Blank-1	Total/NA	Water	8260D	
310-292343-5	Trip Blank	Total/NA	Water	8260D	
MB 310-435986/5	Method Blank	Total/NA	Water	8260D	
LCS 310-435986/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435986/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 435992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	8260D	
310-292343-2	OW-223B-FD	Total/NA	Ground Water	8260D	
310-292343-3	OW-225B	Total/NA	Water	8260D	
MB 310-435992/6	Method Blank	Total/NA	Water	8260D	
LCS 310-435992/7	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-435992/8	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 435895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	3510C	
MB 310-435895/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-435895/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-435895/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 436520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	8270E	435895
MB 310-435895/1-A	Method Blank	Total/NA	Water	8270E	435895
LCS 310-435895/2-A	Lab Control Sample	Total/NA	Water	8270E	435895
LCSD 310-435895/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	435895

GC Semi VOA

Analysis Batch: 436077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	8015C	
MB 310-436077/4	Method Blank	Total/NA	Water	8015C	
LCS 310-436077/5	Lab Control Sample	Total/NA	Water	8015C	

Prep Batch: 436331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	3511	
MB 310-436331/1-A	Method Blank	Total/NA	Water	3511	
LCS 310-436331/13-A	Lab Control Sample	Total/NA	Water	3511	
LCS 310-436331/14-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 436404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	8081B	436331
MB 310-436331/1-A	Method Blank	Total/NA	Water	8081B	436331
LCS 310-436331/14-A	Lab Control Sample	Total/NA	Water	8081B	436331

GC Semi VOA

Analysis Batch: 436406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	8082A	436331
MB 310-436331/1-A	Method Blank	Total/NA	Water	8082A	436331
LCS 310-436331/13-A	Lab Control Sample	Total/NA	Water	8082A	436331

Prep Batch: 563253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	8151A	
MB 410-563253/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-563253/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 410-563253/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 563637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	8151A	563253
MB 410-563253/1-A	Method Blank	Total/NA	Water	8151A	563253
LCS 410-563253/2-A	Lab Control Sample	Total/NA	Water	8151A	563253
LCSD 410-563253/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	563253

Metals

Prep Batch: 435876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	3005A	
310-292343-2	OW-223B-FD	Total/NA	Ground Water	3005A	
310-292343-3	OW-225B	Total/NA	Water	3005A	
310-292343-4	Equipment Blank-1	Total/NA	Water	3005A	
MB 310-435876/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-435876/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 436085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	6020B	435876
310-292343-2	OW-223B-FD	Total/NA	Ground Water	6020B	435876
310-292343-3	OW-225B	Total/NA	Water	6020B	435876
310-292343-4	Equipment Blank-1	Total/NA	Water	6020B	435876
MB 310-435876/1-A	Method Blank	Total/NA	Water	6020B	435876
LCS 310-435876/2-A	Lab Control Sample	Total/NA	Water	6020B	435876

Analysis Batch: 436228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	6020B	435876
310-292343-2	OW-223B-FD	Total/NA	Ground Water	6020B	435876
310-292343-3	OW-225B	Total/NA	Water	6020B	435876
310-292343-4	Equipment Blank-1	Total/NA	Water	6020B	435876
MB 310-435876/1-A	Method Blank	Total/NA	Water	6020B	435876
LCS 310-435876/2-A	Lab Control Sample	Total/NA	Water	6020B	435876

Prep Batch: 436310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	7470A	
MB 310-436310/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 436310 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-436310/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 436502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	7470A	436310
MB 310-436310/1-A	Method Blank	Total/NA	Water	7470A	436310
LCS 310-436310/2-A	Lab Control Sample	Total/NA	Water	7470A	436310

Analysis Batch: 436544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-4	Equipment Blank-1	Total/NA	Water	6020B	435876

Analysis Batch: 436697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	6020B	435876

Analysis Batch: 437173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	6020B	435876
310-292343-2	OW-223B-FD	Total/NA	Ground Water	6020B	435876
310-292343-4	Equipment Blank-1	Total/NA	Water	6020B	435876
MB 310-435876/1-A	Method Blank	Total/NA	Water	6020B	435876
LCS 310-435876/2-A	Lab Control Sample	Total/NA	Water	6020B	435876

Prep Batch: 438272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	3005A	
310-292343-2	OW-223B-FD	Total/NA	Ground Water	3005A	
310-292343-3	OW-225B	Total/NA	Water	3005A	
310-292343-4	Equipment Blank-1	Total/NA	Water	3005A	
MB 310-438272/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-438272/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 438660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-4	Equipment Blank-1	Total/NA	Water	6020B	438272
MB 310-438272/1-A	Method Blank	Total/NA	Water	6020B	438272
LCS 310-438272/2-A	Lab Control Sample	Total/NA	Water	6020B	438272

Analysis Batch: 438774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	6020B	438272
310-292343-2	OW-223B-FD	Total/NA	Ground Water	6020B	438272
310-292343-3	OW-225B	Total/NA	Water	6020B	438272
310-292343-4	Equipment Blank-1	Total/NA	Water	6020B	438272
MB 310-438272/1-A	Method Blank	Total/NA	Water	6020B	438272
LCS 310-438272/2-A	Lab Control Sample	Total/NA	Water	6020B	438272

General Chemistry

Prep Batch: 435806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	9012B	
MB 310-435806/1-A	Method Blank	Total/NA	Water	9012B	
LCS 310-435806/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 435882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	9012B	435806
MB 310-435806/1-A	Method Blank	Total/NA	Water	9012B	435806
LCS 310-435806/2-A	Lab Control Sample	Total/NA	Water	9012B	435806

Analysis Batch: 435918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	I-3765-85	
310-292343-2	OW-223B-FD	Total/NA	Ground Water	I-3765-85	
310-292343-3	OW-225B	Total/NA	Water	I-3765-85	
310-292343-4	Equipment Blank-1	Total/NA	Water	I-3765-85	
MB 310-435918/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-435918/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 630854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	9030B	
MB 240-630854/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-630854/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 630897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-3	OW-225B	Total/NA	Water	9034	630854
MB 240-630854/1-A	Method Blank	Total/NA	Water	9034	630854
LCS 240-630854/2-A	Lab Control Sample	Total/NA	Water	9034	630854

Field Service / Mobile Lab

Analysis Batch: 435786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292343-1	OW-223B	Total/NA	Water	Field Sampling	
310-292343-3	OW-225B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-223B
Lab Sample ID: 310-292343-1
Date Collected: 10/08/24 14:00
Matrix: Water
Date Received: 10/09/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435992	FE5V	EET CF	10/11/24 21:48
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436228	A6US	EET CF	10/14/24 19:25
Total/NA	Prep	3005A			438272	F5MW	EET CF	11/01/24 09:30
Total/NA	Analysis	6020B		1	438774	A6US	EET CF	11/05/24 15:04
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 23:29
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	437173	A6US	EET CF	10/22/24 14:58
Total/NA	Analysis	I-3765-85		1	435918	HE7K	EET CF	10/11/24 08:52
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/08/24 14:00

Client Sample ID: OW-223B-FD
Lab Sample ID: 310-292343-2
Date Collected: 10/08/24 14:00
Matrix: Ground Water
Date Received: 10/09/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435992	FE5V	EET CF	10/11/24 22:11
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436228	A6US	EET CF	10/14/24 19:29
Total/NA	Prep	3005A			438272	F5MW	EET CF	11/01/24 09:30
Total/NA	Analysis	6020B		1	438774	A6US	EET CF	11/05/24 15:07
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 23:31
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	437173	A6US	EET CF	10/22/24 15:00
Total/NA	Analysis	I-3765-85		1	435918	HE7K	EET CF	10/11/24 08:52

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435992	FE5V	EET CF	10/11/24 22:34
Total/NA	Prep	3510C			435895	AYK7	EET CF	10/11/24 06:28
Total/NA	Analysis	8270E		1	436520	L0FS	EET CF	10/17/24 15:45
Total/NA	Analysis	8015C		1	436077	V7YZ	EET CF	10/14/24 09:52
Total/NA	Prep	3511			436331	AYK7	EET CF	10/15/24 15:30
Total/NA	Analysis	8081B		1	436404	BW2O	EET CF	10/16/24 19:05
Total/NA	Prep	3511			436331	AYK7	EET CF	10/15/24 15:30
Total/NA	Analysis	8082A		1	436406	BW2O	EET CF	10/16/24 19:05
Total/NA	Prep	8151A			563253	K2IL	ELLE	10/15/24 09:09
Total/NA	Analysis	8151A		1	563637	UAMZ	ELLE	10/16/24 10:44

Lab Chronicle

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-225B
Lab Sample ID: 310-292343-3
Date Collected: 10/08/24 11:00
Matrix: Water
Date Received: 10/09/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436228	A6US	EET CF	10/14/24 19:33
Total/NA	Prep	3005A			438272	F5MW	EET CF	11/01/24 09:30
Total/NA	Analysis	6020B		1	438774	A6US	EET CF	11/05/24 15:11
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 23:33
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436697	NFT2	EET CF	10/17/24 15:58
Total/NA	Prep	7470A			436310	QTZ5	EET CF	10/15/24 15:55
Total/NA	Analysis	7470A		1	436502	QTZ5	EET CF	10/16/24 16:20
Total/NA	Prep	9012B			435806	ENB7	EET CF	10/10/24 10:18
Total/NA	Analysis	9012B		1	435882	ZJX4	EET CF	10/10/24 17:45
Total/NA	Prep	9030B			630854	C5SV	EET CLE	10/15/24 10:08
Total/NA	Analysis	9034		1	630897	C5SV	EET CLE	10/15/24 13:11
Total/NA	Analysis	I-3765-85		1	435918	HE7K	EET CF	10/11/24 08:52
Total/NA	Analysis	Field Sampling		1	435786	BJ0R	EET CF	10/08/24 11:00

Client Sample ID: Equipment Blank-1
Lab Sample ID: 310-292343-4
Date Collected: 10/08/24 14:30
Matrix: Water
Date Received: 10/09/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435986	WSE8	EET CF	10/12/24 01:24
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436228	A6US	EET CF	10/14/24 19:37
Total/NA	Prep	3005A			438272	F5MW	EET CF	11/01/24 09:30
Total/NA	Analysis	6020B		1	438774	A6US	EET CF	11/05/24 15:15
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436085	A6US	EET CF	10/11/24 23:35
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	436544	A6US	EET CF	10/16/24 13:06
Total/NA	Prep	3005A			435876	F5MW	EET CF	10/11/24 09:30
Total/NA	Analysis	6020B		1	437173	A6US	EET CF	10/22/24 15:14
Total/NA	Prep	3005A			438272	F5MW	EET CF	11/01/24 09:30
Total/NA	Analysis	6020B		1	438660	NFT2	EET CF	11/04/24 19:26
Total/NA	Analysis	I-3765-85		1	435918	HE7K	EET CF	10/11/24 08:52

Client Sample ID: Trip Blank
Lab Sample ID: 310-292343-5
Date Collected: 10/08/24 00:00
Matrix: Water
Date Received: 10/09/24 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	435986	WSE8	EET CF	10/12/24 01:47

Lab Chronicle

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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	m,p-Xylene
8260D		Ground Water	o-Xylene
8260D		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-28-25
Connecticut	State	PH-0806	12-31-26
Georgia	State	4062	02-27-25
Illinois	NELAP	200004	08-31-25
Iowa	State	421	06-01-25
Kentucky (UST)	State	112225	02-27-25
Kentucky (WW)	State	KY98016	12-30-24
Minnesota	NELAP	039-999-348	12-31-24
New Hampshire	NELAP	225024	09-30-25
New Jersey	NELAP	OH001	07-03-25
New York	NELAP	10975	04-02-25
Ohio VAP	State	ORELAP 4062	02-27-25
Oregon	NELAP	4062	02-27-25
Pennsylvania	NELAP	68-00340	08-31-25
Texas	NELAP	T104704517-22-19	08-31-25
USDA	US Federal Programs	P330-18-00281	01-05-27
Virginia	NELAP	460175	09-14-25
West Virginia DEP	State	210	12-31-24

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-26

Method Summary

Client: AECOM
Job ID: 310-292343-1
Project/Site: Black Hawk County Landfill (IDNR)

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	ELLE
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 CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF
3511	Microextraction of Organic Compounds	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	EET CF
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

eurofins | Environment Testing America

310-292343 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECom

City/State: CITY Vetter/100 STATE IA | Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 10 9 24 TIME 0930 | Received By: JO

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: [illegible] | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 9.6 | Corrected Temp (°C): 9.6

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	1 LT NT	1 LT NT
Uncorrected Temp (°C):	10.1	9.2
Corrected Temp (°C):	10.1	9.2

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

Cooler Was Filled w/ Ice.

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277.2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 10-9-24	COC No
AECOM	Email Christopher Oelkers@aecom com	Lab Contact:	Carrier:	1 of 1 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B			G	GW		N		X		X							X		
OW-221B			G	GW		N		X											
OW-222B			G	GW		N		X											
OW-223B	10-8-24	1400	G	GW	5	N		X											Turbidity – 0.99 NTU
OW-223B-FD	10-8-24	1400	G	GW	5	N		X											
OW-224B			G	GW		N			X										
OW-225B	10-8-24	1100	G	GW	18	N			X										Turbidity – 19.72 NTU
OW-226B			G	GW		N			X										
OW-227B			G	GW		N			X										
MW-319B			G	GW		N		X											
MW-320B			G	GW		N		X											
Equipment Blank-1	10-8-24	1430	G	GW	5	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd._____ Corr'd._____ Therm ID No ._____			
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-9-24	Received by:	Company:	Date/Time: 10/9/24 0930
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

11/6/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77187.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292343-1
Address: 180 S. Van Buren Avenue,	Due Date Requested: 10/22/2024			
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Co. (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

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:						
OW-225B (310-292343-3)	10/8/24	11:00 Central	G	Water			X	1	

Preservation Codes: -

Other:

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
	10/9/24 1505			10/10/24 930	Euro
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:

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility

Client Imerys IA Site Name

Cooler unpacked by: TF

Cooler Received on 10/10/24 Opened on 10/10/24

FedEx: 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EE Foam Box Client Cooler Box Other

Packing material used. Bubble Wrap Foam Plastic Bag (None) Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp. 1.3 °C Corrected Cooler Temp. 1.4 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	Yes	(No)
-Were the seals on the outside of the cooler(s) signed & dated?	Yes No	(NA)
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	Yes No	(NA)
3 Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7 Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10 Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11 Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	(Yes)	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes	No
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes No NA	
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	No
17 Was a LL Hg or Me Hg trip blank present?	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container
Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory
Time preserved. Preservative(s) added/Lot number(s)

VOA Sample Preservation - Date/Time VOAs Frozen.

Part # 159469-434 MTW EXP 09/25

ORIGIN ID ALOA (319) 277-2401
SAMPLE RECEIVING
EUROPINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

SHIP DATE 09OCT24
ACTWGT 19.95 LB
CAD 0870970/CAFE3855

BILL SENDER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF S310-99193

589C2/B264/FE2D

FedEx Express

E

J243024079401

THU - 10 OCT 10:30A
PRIORITY OVERNIGHT

TRK# 0201 4085 8612 8316

XS CAKA

44203
OH-US CLE

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77185.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292343-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 10/22/2024	Analysis Requested		Preservation Codes: -
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Co. (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	B151A/8151A_AP Default List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-225B (310-292343-3)	10/8/24	11:00 Central	G	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
	10/9/24 1445				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Debra A. Byrn	Date/Time: 10-10-24 09:50	Company ECLC

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R: 2.0° C: 1.8

HH

Ver: 05/06/2024

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292343-1

Login Number: 292343

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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.	False	Cooler temperature outside required temperature criteria.
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: AECOM

Job Number: 310-292343-1

Login Number: 292343
List Number: 2
Creator: Arroyo, Haley

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 10/10/24 11:37 AM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	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: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 10/23/2024 10:44:36 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-292482-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

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: 310-292482-1 — Eurofins Cedar Falls

Job Narrative
310-292482-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/11/2024 10:30 AM. 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 0.8°C and 2.6°C.

GC/MS VOA
Method 8260D: The following samples were collected in a properly preserved vial; however, 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: OW-226B (310-292482-1) and OW-227B (310-292482-2).

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: Surrogate recovery for the following sample was outside of acceptance limits: OW-227B (310-292482-2). There was insufficient holding time to perform a re-extraction; therefore, the data have been reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 310-436520 recovered above the upper control limit for Pronamide (24.8%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 310-436520 recovered above the upper control limit for Diallate Peak 2 (-24.6%D) and Kepone(58.2%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 310-436520/2).

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
Method 8151A: The following samples were diluted due to the nature of the sample matrix: OW-226B (310-292482-1) and OW-227B (310-292482-2). 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.

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

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

Metals
Method 6020B: 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: OW-226B (310-292482-1) and OW-227B (310-292482-2). The sample(s) was preserved to the appropriate pH in the laboratory.

Job ID: 310-292482-1 (Continued) Eurofins Cedar Falls

Method 7470A: 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: OW-226B (310-292482-1) and OW-227B (310-292482-2). The sample(s) was 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 additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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

Sample Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292482-1	OW-226B	Water	10/09/24 11:00	10/11/24 10:30
310-292482-2	OW-227B	Water	10/09/24 14:00	10/11/24 10:30
310-292482-3	Trip Blank	Water	10/09/24 06:00	10/11/24 10:30

Detection Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B — Lab Sample ID: 310-292482-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.942	J	1.00	0.220	ug/L	1		8260D	Total/NA
Acetone	9.02	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.59		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.492	J	1.00	0.400	ug/L	1		8260D	Total/NA
Dichlorodifluoromethane	1.70	J	3.00	0.250	ug/L	1		8260D	Total/NA
Ethylbenzene	0.439	J	1.00	0.310	ug/L	1		8260D	Total/NA
Naphthalene	9.24		5.00	3.00	ug/L	1		8260D	Total/NA
Arsenic	10.0		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1830		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.230		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	11.2		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	25.0		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	5.35		5.00	1.80	ug/L	1		6020B	Total/NA
Lead	2.47		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	94.7		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	0.955	J	1.00	0.570	ug/L	1		6020B	Total/NA
Vanadium	4.09	J	5.00	1.10	ug/L	1		6020B	Total/NA
Cyanide, Total	3.99	J	10.0	3.50	ug/L	1		9012B	Total/NA
Total Suspended Solids	56.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	37.92				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-227B — Lab Sample ID: 310-292482-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.505	J	1.00	0.220	ug/L	1		8260D	Total/NA
Acetone	9.25	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	2.92		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	0.805	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.242	J	1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	16.2		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	2080		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.165	J	0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	7.49		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	22.1		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.582		0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	87.0		5.00	2.10	ug/L	1		6020B	Total/NA
Thallium	0.867	J	1.00	0.570	ug/L	1		6020B	Total/NA
Vanadium	2.38	J	5.00	1.10	ug/L	1		6020B	Total/NA
Cyanide, Total	4.98	J	10.0	3.50	ug/L	1		9012B	Total/NA
Total Suspended Solids	46.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	6.55				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-292482-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1
Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

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	<0.380		1.00	0.380	ug/L			10/15/24 13:06	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/15/24 13:06	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/15/24 13:06	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/15/24 13:06	1
1,1-Dichloroethane	**0.942**	**J**	1.00	0.220	ug/L			10/15/24 13:06	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/15/24 13:06	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/15/24 13:06	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/15/24 13:06	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/15/24 13:06	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/15/24 13:06	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/15/24 13:06	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/15/24 13:06	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/15/24 13:06	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/15/24 13:06	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/15/24 13:06	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/15/24 13:06	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/15/24 13:06	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/15/24 13:06	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/15/24 13:06	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/15/24 13:06	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/15/24 13:06	1
Acetone	**9.02**	**J**	10.0	3.10	ug/L			10/15/24 13:06	1
Acrolein	<3.60		10.0	3.60	ug/L			10/15/24 13:06	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/15/24 13:06	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/15/24 13:06	1
Benzene	**2.59**		0.500	0.220	ug/L			10/15/24 13:06	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/15/24 13:06	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/15/24 13:06	1
Bromoform	<0.780		5.00	0.780	ug/L			10/15/24 13:06	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/15/24 13:06	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/15/24 13:06	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/15/24 13:06	1
Chlorobenzene	**0.492**	**J**	1.00	0.400	ug/L			10/15/24 13:06	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/15/24 13:06	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/15/24 13:06	1
Chloroform	<1.30		3.00	1.30	ug/L			10/15/24 13:06	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/15/24 13:06	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/15/24 13:06	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/15/24 13:06	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/15/24 13:06	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/15/24 13:06	1
Dichlorodifluoromethane	**1.70**	**J**	3.00	0.250	ug/L			10/15/24 13:06	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/15/24 13:06	1
Ethylbenzene	**0.439**	**J**	1.00	0.310	ug/L			10/15/24 13:06	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/15/24 13:06	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/15/24 13:06	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/15/24 13:06	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/15/24 13:06	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/15/24 13:06	1

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1
Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	9.24		5.00	3.00	ug/L			10/15/24 13:06	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/15/24 13:06	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/15/24 13:06	1
Styrene	<0.370		1.00	0.370	ug/L			10/15/24 13:06	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/15/24 13:06	1
Toluene	<0.430		1.00	0.430	ug/L			10/15/24 13:06	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/15/24 13:06	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/15/24 13:06	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/15/24 13:06	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/15/24 13:06	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/15/24 13:06	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/15/24 13:06	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/15/24 13:06	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/15/24 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/15/24 13:06*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/15/24 13:06*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/15/24 13:06*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 19:40	1
1,3,5-Trinitrobenzene	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 19:40	1
1,3-Dinitrobenzene	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 19:40	1
1,4-Naphthoquinone	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:40	1
1,4-phenylenediamine	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 19:40	1
1-Naphthylamine	<2.60		10.4	2.60	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,3,4,6-Tetrachlorophenol	<5.52		10.4	5.52	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,4,5-Trichlorophenol	<5.52		10.4	5.52	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,4,6-Trichlorophenol	<5.21		10.4	5.21	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,4-Dichlorophenol	<0.885		10.4	0.885	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,4-Dimethylphenol	<0.604		10.4	0.604	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,4-Dinitrophenol	<13.5		20.8	13.5	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,4-Dinitrotoluene	<6.67		10.4	6.67	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,6-Dichlorophenol	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 19:40	1
2,6-Dinitrotoluene	<0.542		10.4	0.542	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Acetylaminofluorene	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Chloronaphthalene	<0.667		10.4	0.667	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Chlorophenol	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Methylnaphthalene	<0.615		10.4	0.615	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Methylphenol	<0.677		10.4	0.677	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Naphthylamine	<2.19		10.4	2.19	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Nitroaniline	<6.15		10.4	6.15	ug/L		10/11/24 06:28	10/17/24 19:40	1
2-Nitrophenol	<7.08		10.4	7.08	ug/L		10/11/24 06:28	10/17/24 19:40	1
3,3'-Dichlorobenzidine	<1.46		10.4	1.46	ug/L		10/11/24 06:28	10/17/24 19:40	1
3,3'-Dimethylbenzidine	<1.56		10.4	1.56	ug/L		10/11/24 06:28	10/17/24 19:40	1
3-Methylcholanthrene	<0.333		10.4	0.333	ug/L		10/11/24 06:28	10/17/24 19:40	1
3-Nitroaniline	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:40	1
4,6-Dinitro-2-methylphenol	<7.19		10.4	7.19	ug/L		10/11/24 06:28	10/17/24 19:40	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1
Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Aminobiphenyl	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:40	1
4-Bromophenyl phenyl ether	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 19:40	1
4-Chloro-3-methylphenol	<0.875		10.4	0.875	ug/L		10/11/24 06:28	10/17/24 19:40	1
4-Chloroaniline	<0.646		10.4	0.646	ug/L		10/11/24 06:28	10/17/24 19:40	1
4-Chlorophenyl phenyl ether	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 19:40	1
Methylphenol, 3 & 4	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 19:40	1
4-Nitroaniline	<1.35		10.4	1.35	ug/L		10/11/24 06:28	10/17/24 19:40	1
4-Nitrophenol	<7.92		10.4	7.92	ug/L		10/11/24 06:28	10/17/24 19:40	1
5-Nitro-o-toluidine	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 19:40	1
7,12-Dimethylbenz(a)anthracene	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 19:40	1
Acenaphthene	<0.667		10.4	0.667	ug/L		10/11/24 06:28	10/17/24 19:40	1
Acenaphthylene	<0.750		10.4	0.750	ug/L		10/11/24 06:28	10/17/24 19:40	1
Acetophenone	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 19:40	1
Anthracene	<0.906		10.4	0.906	ug/L		10/11/24 06:28	10/17/24 19:40	1
Benzo[a]anthracene	<0.885		10.4	0.885	ug/L		10/11/24 06:28	10/17/24 19:40	1
Benzo[a]pyrene	<8.44		10.4	8.44	ug/L		10/11/24 06:28	10/17/24 19:40	1
Benzo[b]fluoranthene	<5.10		10.4	5.10	ug/L		10/11/24 06:28	10/17/24 19:40	1
Benzo[g,h,i]perylene	<6.56		10.4	6.56	ug/L		10/11/24 06:28	10/17/24 19:40	1
Benzo[k]fluoranthene	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:40	1
Benzyl alcohol	<1.35		10.4	1.35	ug/L		10/11/24 06:28	10/17/24 19:40	1
Bis(2-chloroethoxy)methane	<0.792		10.4	0.792	ug/L		10/11/24 06:28	10/17/24 19:40	1
Bis(2-chloroethyl)ether	<0.854		10.4	0.854	ug/L		10/11/24 06:28	10/17/24 19:40	1
bis (2-chloroisopropyl) ether	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 19:40	1
Bis(2-ethylhexyl) phthalate	<5.73		10.4	5.73	ug/L		10/11/24 06:28	10/17/24 19:40	1
Butyl benzyl phthalate	<5.63		10.4	5.63	ug/L		10/11/24 06:28	10/17/24 19:40	1
Chlorobenzilate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:40	1
Chrysene	<0.906		10.4	0.906	ug/L		10/11/24 06:28	10/17/24 19:40	1
Diallate	<4.17		10.4	4.17	ug/L		10/11/24 06:28	10/17/24 19:40	1
Dibenzo(a,h)anthracene	<4.06		10.4	4.06	ug/L		10/11/24 06:28	10/17/24 19:40	1
Dibenzofuran	<0.771		10.4	0.771	ug/L		10/11/24 06:28	10/17/24 19:40	1
Diethyl phthalate	<1.77		10.4	1.77	ug/L		10/11/24 06:28	10/17/24 19:40	1
Dimethoate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:40	1
Dimethyl phthalate	<1.04		10.4	1.04	ug/L		10/11/24 06:28	10/17/24 19:40	1
Di-n-butyl phthalate	<5.83		10.4	5.83	ug/L		10/11/24 06:28	10/17/24 19:40	1
Di-n-octyl phthalate	<7.29		20.8	7.29	ug/L		10/11/24 06:28	10/17/24 19:40	1
Dinoseb	<2.50		10.4	2.50	ug/L		10/11/24 06:28	10/17/24 19:40	1
Diphenylamine	<6.25		10.4	6.25	ug/L		10/11/24 06:28	10/17/24 19:40	1
Disulfoton	<2.50		10.4	2.50	ug/L		10/11/24 06:28	10/17/24 19:40	1
Ethyl methanesulfonate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:40	1
Ethyl Parathion	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:40	1
Famphur	<3.96		10.4	3.96	ug/L		10/11/24 06:28	10/17/24 19:40	1
Fluoranthene	<1.77		10.4	1.77	ug/L		10/11/24 06:28	10/17/24 19:40	1
Fluorene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 19:40	1
Hexachlorobenzene	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 19:40	1
Hexachlorobutadiene	<0.896		10.4	0.896	ug/L		10/11/24 06:28	10/17/24 19:40	1
Hexachlorocyclopentadiene	<5.31		10.4	5.31	ug/L		10/11/24 06:28	10/17/24 19:40	1
Hexachloroethane	<1.01		10.4	1.01	ug/L		10/11/24 06:28	10/17/24 19:40	1
Hexachloropropene	<2.71		10.4	2.71	ug/L		10/11/24 06:28	10/17/24 19:40	1
Indeno[1,2,3-cd]pyrene	<4.38		10.4	4.38	ug/L		10/11/24 06:28	10/17/24 19:40	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1
Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isodrin	<4.90		10.4	4.90	ug/L		10/11/24 06:28	10/17/24 19:40	1
Isophorone	<0.969		10.4	0.969	ug/L		10/11/24 06:28	10/17/24 19:40	1
Isosafrole	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 19:40	1
Kepone	<1.04		10.4	1.04	ug/L		10/11/24 06:28	10/17/24 19:40	1
Methapyrilene	<0.792		10.4	0.792	ug/L		10/11/24 06:28	10/17/24 19:40	1
Methyl methanesulfonate	<3.44		10.4	3.44	ug/L		10/11/24 06:28	10/17/24 19:40	1
Methyl parathion	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 19:40	1
Nitrobenzene	<0.833		10.4	0.833	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosodiethylamine	<3.54		10.4	3.54	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosodimethylamine	<0.750		10.4	0.750	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosodi-n-butylamine	<4.06		10.4	4.06	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosodi-n-propylamine	<0.958		10.4	0.958	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosodiphenylamine	<0.781		10.4	0.781	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosomethylethylamine	<5.10		10.4	5.10	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosopiperidine	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:40	1
N-Nitrosopyrrolidine	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:40	1
o,o',o''-Triethylphosphorothioate	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 19:40	1
o-Toluidine	<3.02		10.4	3.02	ug/L		10/11/24 06:28	10/17/24 19:40	1
p-Dimethylamino azobenzene	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:40	1
Pentachlorobenzene	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 19:40	1
Pentachloronitrobenzene	<6.04		10.4	6.04	ug/L		10/11/24 06:28	10/17/24 19:40	1
Pentachlorophenol	<10.0		10.4	10.0	ug/L		10/11/24 06:28	10/17/24 19:40	1
Phenacetin	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 19:40	1
Phenanthrene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 19:40	1
Phenol	<1.15		10.4	1.15	ug/L		10/11/24 06:28	10/17/24 19:40	1
Phorate	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 19:40	1
Pronamide	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:40	1
Pyrene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 19:40	1
Safrole	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 19:40	1
Thionazin	<3.65		10.4	3.65	ug/L		10/11/24 06:28	10/17/24 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*66*		*25 - 110*	*10/11/24 06:28*	*10/17/24 19:40*	*1*
Phenol-d5 (Surr)	*57*		*21 - 110*	*10/11/24 06:28*	*10/17/24 19:40*	*1*
Nitrobenzene-d5 (Surr)	*91*		*45 - 129*	*10/11/24 06:28*	*10/17/24 19:40*	*1*
2-Fluorobiphenyl (Surr)	*99*		*39 - 118*	*10/11/24 06:28*	*10/17/24 19:40*	*1*
2,4,6-Tribromophenol (Surr)	*101*		*27 - 136*	*10/11/24 06:28*	*10/17/24 19:40*	*1*
Terphenyl-d14 (Surr)	*89*		*12 - 144*	*10/11/24 06:28*	*10/17/24 19:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 20:34	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 20:34	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0225		0.0900	0.0225	ug/L		10/11/24 10:56	10/14/24 19:52	1
4,4'-DDE	<0.0270		0.0900	0.0270	ug/L		10/11/24 10:56	10/14/24 19:52	1
4,4'-DDT	<0.0180		0.0900	0.0180	ug/L		10/11/24 10:56	10/14/24 19:52	1
Aldrin	<0.0198		0.0900	0.0198	ug/L		10/11/24 10:56	10/14/24 19:52	1

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1
Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	<0.00900		0.0900	0.00900	ug/L		10/11/24 10:56	10/14/24 19:52	1
beta-BHC	<0.0378		0.0900	0.0378	ug/L		10/11/24 10:56	10/14/24 19:52	1
Chlordane (technical)	<0.351		1.80	0.351	ug/L		10/11/24 10:56	10/14/24 19:52	1
delta-BHC	<0.0288		0.0900	0.0288	ug/L		10/11/24 10:56	10/14/24 19:52	1
Dieldrin	<0.0189		0.0900	0.0189	ug/L		10/11/24 10:56	10/14/24 19:52	1
Endosulfan I	<0.0252		0.0900	0.0252	ug/L		10/11/24 10:56	10/14/24 19:52	1
Endosulfan II	<0.0234		0.0900	0.0234	ug/L		10/11/24 10:56	10/14/24 19:52	1
Endosulfan sulfate	<0.0162		0.0900	0.0162	ug/L		10/11/24 10:56	10/14/24 19:52	1
Endrin	<0.0252		0.0900	0.0252	ug/L		10/11/24 10:56	10/14/24 19:52	1
Endrin aldehyde	<0.0243		0.0900	0.0243	ug/L		10/11/24 10:56	10/14/24 19:52	1
gamma-BHC (Lindane)	<0.00900		0.0900	0.00900	ug/L		10/11/24 10:56	10/14/24 19:52	1
Heptachlor	<0.0207		0.0900	0.0207	ug/L		10/11/24 10:56	10/14/24 19:52	1
Heptachlor epoxide	<0.0288		0.0900	0.0288	ug/L		10/11/24 10:56	10/14/24 19:52	1
Methoxychlor	<0.0288		0.0900	0.0288	ug/L		10/11/24 10:56	10/14/24 19:52	1
Toxaphene	<0.900		1.80	0.900	ug/L		10/11/24 10:56	10/14/24 19:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*37*		*10 - 136*	*10/11/24 10:56*	*10/14/24 19:52*	*1*
Tetrachloro-m-xylene (Surr)	*89*		*10 - 130*	*10/11/24 10:56*	*10/14/24 19:52*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.738		1.80	0.738	ug/L		10/11/24 10:56	10/14/24 19:52	1
PCB-1221	<0.738		1.80	0.738	ug/L		10/11/24 10:56	10/14/24 19:52	1
PCB-1232	<0.738		1.80	0.738	ug/L		10/11/24 10:56	10/14/24 19:52	1
PCB-1242	<0.738		1.80	0.738	ug/L		10/11/24 10:56	10/14/24 19:52	1
PCB-1248	<0.621		1.80	0.621	ug/L		10/11/24 10:56	10/14/24 19:52	1
PCB-1254	<0.621		1.80	0.621	ug/L		10/11/24 10:56	10/14/24 19:52	1
PCB-1260	<0.621		1.80	0.621	ug/L		10/11/24 10:56	10/14/24 19:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*37*		*10 - 136*	*10/11/24 10:56*	*10/14/24 19:52*	*1*
Tetrachloro-m-xylene (Surr)	*89*		*10 - 130*	*10/11/24 10:56*	*10/14/24 19:52*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<1.31		3.14	1.31	ug/L		10/16/24 07:51	10/17/24 19:57	5
Silvex (2,4,5-TP)	<0.115		0.262	0.115	ug/L		10/16/24 07:51	10/17/24 19:57	5
2,4,5-T	<0.340		0.785	0.340	ug/L		10/16/24 07:51	10/17/24 19:57	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*91*	*p*	*34 - 142*	*10/16/24 07:51*	*10/17/24 19:57*	*5*
DCAA	*198*	*S1+*	*34 - 142*	*10/16/24 07:51*	*10/17/24 19:57*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/14/24 10:00	10/15/24 18:06	1
Arsenic	**10.0**		2.00	0.530	ug/L		10/14/24 10:00	10/15/24 18:06	1
Barium	**1830**		2.00	0.660	ug/L		10/14/24 10:00	10/15/24 18:06	1
Beryllium	<0.330		1.00	0.330	ug/L		10/14/24 10:00	10/15/24 18:06	1
Cadmium	**0.230**		0.200	0.100	ug/L		10/14/24 10:00	10/15/24 18:06	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1
Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	11.2		5.00	1.20	ug/L		10/14/24 10:00	10/15/24 18:06	1
Cobalt	25.0		0.500	0.170	ug/L		10/14/24 10:00	10/15/24 18:06	1
Copper	5.35		5.00	1.80	ug/L		10/14/24 10:00	10/15/24 18:06	1
Lead	2.47		0.500	0.260	ug/L		10/14/24 10:00	10/15/24 18:06	1
Nickel	94.7		5.00	2.10	ug/L		10/14/24 10:00	10/15/24 18:06	1
Selenium	<1.40		5.00	1.40	ug/L		10/14/24 10:00	10/15/24 18:06	1
Silver	<0.500		1.00	0.500	ug/L		10/14/24 10:00	10/15/24 18:06	1
Thallium	0.955	J	1.00	0.570	ug/L		10/14/24 10:00	10/22/24 14:26	1
Vanadium	4.09	J	5.00	1.10	ug/L		10/14/24 10:00	10/15/24 18:06	1
Zinc	<9.70		20.0	9.70	ug/L		10/14/24 10:00	10/15/24 18:06	1
Tin	<2.30		5.00	2.30	ug/L		10/14/24 10:00	10/15/24 18:06	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/17/24 15:15	10/18/24 15:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	3.99	J	10.0	3.50	ug/L		10/16/24 08:55	10/16/24 17:27	1
Total Suspended Solids (USGS I-3765-85)	56.0		15.0	11.1	mg/L			10/11/24 14:06	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	37.92				NTU			10/09/24 11:00	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2
Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

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	<0.380		1.00	0.380	ug/L			10/15/24 13:29	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/15/24 13:29	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/15/24 13:29	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/15/24 13:29	1
1,1-Dichloroethane	**0.505**	**J**	1.00	0.220	ug/L			10/15/24 13:29	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/15/24 13:29	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/15/24 13:29	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/15/24 13:29	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/15/24 13:29	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/15/24 13:29	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/15/24 13:29	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/15/24 13:29	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/15/24 13:29	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/15/24 13:29	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/15/24 13:29	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/15/24 13:29	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/15/24 13:29	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/15/24 13:29	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/15/24 13:29	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/15/24 13:29	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/15/24 13:29	1
Acetone	**9.25**	**J**	10.0	3.10	ug/L			10/15/24 13:29	1
Acrolein	<3.60		10.0	3.60	ug/L			10/15/24 13:29	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/15/24 13:29	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/15/24 13:29	1
Benzene	**2.92**		0.500	0.220	ug/L			10/15/24 13:29	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/15/24 13:29	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/15/24 13:29	1
Bromoform	<0.780		5.00	0.780	ug/L			10/15/24 13:29	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/15/24 13:29	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/15/24 13:29	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/15/24 13:29	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/15/24 13:29	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/15/24 13:29	1
Chloroethane	**0.805**	**J**	4.00	0.790	ug/L			10/15/24 13:29	1
Chloroform	<1.30		3.00	1.30	ug/L			10/15/24 13:29	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/15/24 13:29	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/15/24 13:29	1
cis-1,2-Dichloroethene	**0.242**	**J**	1.00	0.210	ug/L			10/15/24 13:29	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/15/24 13:29	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/15/24 13:29	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/15/24 13:29	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/15/24 13:29	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/15/24 13:29	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/15/24 13:29	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/15/24 13:29	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/15/24 13:29	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/15/24 13:29	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/15/24 13:29	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2
Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/15/24 13:29	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/15/24 13:29	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/15/24 13:29	1
Styrene	<0.370		1.00	0.370	ug/L			10/15/24 13:29	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/15/24 13:29	1
Toluene	<0.430		1.00	0.430	ug/L			10/15/24 13:29	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/15/24 13:29	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/15/24 13:29	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/15/24 13:29	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/15/24 13:29	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/15/24 13:29	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/15/24 13:29	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/15/24 13:29	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/15/24 13:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/15/24 13:29*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/15/24 13:29*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/15/24 13:29*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 19:14	1
1,3,5-Trinitrobenzene	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 19:14	1
1,3-Dinitrobenzene	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 19:14	1
1,4-Naphthoquinone	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:14	1
1,4-phenylenediamine	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 19:14	1
1-Naphthylamine	<2.60		10.4	2.60	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,3,4,6-Tetrachlorophenol	<5.52		10.4	5.52	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,4,5-Trichlorophenol	<5.52		10.4	5.52	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,4,6-Trichlorophenol	<5.21		10.4	5.21	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,4-Dichlorophenol	<0.885		10.4	0.885	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,4-Dimethylphenol	<0.604		10.4	0.604	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,4-Dinitrophenol	<13.5		20.8	13.5	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,4-Dinitrotoluene	<6.67		10.4	6.67	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,6-Dichlorophenol	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 19:14	1
2,6-Dinitrotoluene	<0.542		10.4	0.542	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Acetylaminofluorene	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Chloronaphthalene	<0.667		10.4	0.667	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Chlorophenol	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Methylnaphthalene	<0.615		10.4	0.615	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Methylphenol	<0.677		10.4	0.677	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Naphthylamine	<2.19		10.4	2.19	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Nitroaniline	<6.15		10.4	6.15	ug/L		10/11/24 06:28	10/17/24 19:14	1
2-Nitrophenol	<7.08		10.4	7.08	ug/L		10/11/24 06:28	10/17/24 19:14	1
3,3'-Dichlorobenzidine	<1.46		10.4	1.46	ug/L		10/11/24 06:28	10/17/24 19:14	1
3,3'-Dimethylbenzidine	<1.56		10.4	1.56	ug/L		10/11/24 06:28	10/17/24 19:14	1
3-Methylcholanthrene	<0.333		10.4	0.333	ug/L		10/11/24 06:28	10/17/24 19:14	1
3-Nitroaniline	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:14	1
4,6-Dinitro-2-methylphenol	<7.19		10.4	7.19	ug/L		10/11/24 06:28	10/17/24 19:14	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2
Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Aminobiphenyl	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:14	1
4-Bromophenyl phenyl ether	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 19:14	1
4-Chloro-3-methylphenol	<0.875		10.4	0.875	ug/L		10/11/24 06:28	10/17/24 19:14	1
4-Chloroaniline	<0.646		10.4	0.646	ug/L		10/11/24 06:28	10/17/24 19:14	1
4-Chlorophenyl phenyl ether	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 19:14	1
Methylphenol, 3 & 4	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 19:14	1
4-Nitroaniline	<1.35		10.4	1.35	ug/L		10/11/24 06:28	10/17/24 19:14	1
4-Nitrophenol	<7.92		10.4	7.92	ug/L		10/11/24 06:28	10/17/24 19:14	1
5-Nitro-o-toluidine	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 19:14	1
7,12-Dimethylbenz(a)anthracene	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 19:14	1
Acenaphthene	<0.667		10.4	0.667	ug/L		10/11/24 06:28	10/17/24 19:14	1
Acenaphthylene	<0.750		10.4	0.750	ug/L		10/11/24 06:28	10/17/24 19:14	1
Acetophenone	<0.719		10.4	0.719	ug/L		10/11/24 06:28	10/17/24 19:14	1
Anthracene	<0.906		10.4	0.906	ug/L		10/11/24 06:28	10/17/24 19:14	1
Benzo[a]anthracene	<0.885		10.4	0.885	ug/L		10/11/24 06:28	10/17/24 19:14	1
Benzo[a]pyrene	<8.44		10.4	8.44	ug/L		10/11/24 06:28	10/17/24 19:14	1
Benzo[b]fluoranthene	<5.10		10.4	5.10	ug/L		10/11/24 06:28	10/17/24 19:14	1
Benzo[g,h,i]perylene	<6.56		10.4	6.56	ug/L		10/11/24 06:28	10/17/24 19:14	1
Benzo[k]fluoranthene	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:14	1
Benzyl alcohol	<1.35		10.4	1.35	ug/L		10/11/24 06:28	10/17/24 19:14	1
Bis(2-chloroethoxy)methane	<0.792		10.4	0.792	ug/L		10/11/24 06:28	10/17/24 19:14	1
Bis(2-chloroethyl)ether	<0.854		10.4	0.854	ug/L		10/11/24 06:28	10/17/24 19:14	1
bis (2-chloroisopropyl) ether	<0.563		10.4	0.563	ug/L		10/11/24 06:28	10/17/24 19:14	1
Bis(2-ethylhexyl) phthalate	<5.73		10.4	5.73	ug/L		10/11/24 06:28	10/17/24 19:14	1
Butyl benzyl phthalate	<5.63		10.4	5.63	ug/L		10/11/24 06:28	10/17/24 19:14	1
Chlorobenzilate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:14	1
Chrysene	<0.906		10.4	0.906	ug/L		10/11/24 06:28	10/17/24 19:14	1
Diallate	<4.17		10.4	4.17	ug/L		10/11/24 06:28	10/17/24 19:14	1
Dibenzo(a,h)anthracene	<4.06		10.4	4.06	ug/L		10/11/24 06:28	10/17/24 19:14	1
Dibenzofuran	<0.771		10.4	0.771	ug/L		10/11/24 06:28	10/17/24 19:14	1
Diethyl phthalate	<1.77		10.4	1.77	ug/L		10/11/24 06:28	10/17/24 19:14	1
Dimethoate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:14	1
Dimethyl phthalate	<1.04		10.4	1.04	ug/L		10/11/24 06:28	10/17/24 19:14	1
Di-n-butyl phthalate	<5.83		10.4	5.83	ug/L		10/11/24 06:28	10/17/24 19:14	1
Di-n-octyl phthalate	<7.29		20.8	7.29	ug/L		10/11/24 06:28	10/17/24 19:14	1
Dinoseb	<2.50		10.4	2.50	ug/L		10/11/24 06:28	10/17/24 19:14	1
Diphenylamine	<6.25		10.4	6.25	ug/L		10/11/24 06:28	10/17/24 19:14	1
Disulfoton	<2.50		10.4	2.50	ug/L		10/11/24 06:28	10/17/24 19:14	1
Ethyl methanesulfonate	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:14	1
Ethyl Parathion	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:14	1
Famphur	<3.96		10.4	3.96	ug/L		10/11/24 06:28	10/17/24 19:14	1
Fluoranthene	<1.77		10.4	1.77	ug/L		10/11/24 06:28	10/17/24 19:14	1
Fluorene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 19:14	1
Hexachlorobenzene	<0.729		10.4	0.729	ug/L		10/11/24 06:28	10/17/24 19:14	1
Hexachlorobutadiene	<0.896		10.4	0.896	ug/L		10/11/24 06:28	10/17/24 19:14	1
Hexachlorocyclopentadiene	<5.31		10.4	5.31	ug/L		10/11/24 06:28	10/17/24 19:14	1
Hexachloroethane	<1.01		10.4	1.01	ug/L		10/11/24 06:28	10/17/24 19:14	1
Hexachloropropene	<2.71		10.4	2.71	ug/L		10/11/24 06:28	10/17/24 19:14	1
Indeno[1,2,3-cd]pyrene	<4.38		10.4	4.38	ug/L		10/11/24 06:28	10/17/24 19:14	1

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2
Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isodrin	<4.90		10.4	4.90	ug/L		10/11/24 06:28	10/17/24 19:14	1
Isophorone	<0.969		10.4	0.969	ug/L		10/11/24 06:28	10/17/24 19:14	1
Isosafrole	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 19:14	1
Kepone	<1.04		10.4	1.04	ug/L		10/11/24 06:28	10/17/24 19:14	1
Methapyrilene	<0.792		10.4	0.792	ug/L		10/11/24 06:28	10/17/24 19:14	1
Methyl methanesulfonate	<3.44		10.4	3.44	ug/L		10/11/24 06:28	10/17/24 19:14	1
Methyl parathion	<2.40		10.4	2.40	ug/L		10/11/24 06:28	10/17/24 19:14	1
Nitrobenzene	<0.833		10.4	0.833	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosodiethylamine	<3.54		10.4	3.54	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosodimethylamine	<0.750		10.4	0.750	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosodi-n-butylamine	<4.06		10.4	4.06	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosodi-n-propylamine	<0.958		10.4	0.958	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosodiphenylamine	<0.781		10.4	0.781	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosomethylethylamine	<5.10		10.4	5.10	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosopiperidine	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:14	1
N-Nitrosopyrrolidine	<3.75		10.4	3.75	ug/L		10/11/24 06:28	10/17/24 19:14	1
o,o',o''-Triethylphosphorothioate	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 19:14	1
o-Toluidine	<3.02		10.4	3.02	ug/L		10/11/24 06:28	10/17/24 19:14	1
p-Dimethylamino azobenzene	<2.29		10.4	2.29	ug/L		10/11/24 06:28	10/17/24 19:14	1
Pentachlorobenzene	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 19:14	1
Pentachloronitrobenzene	<6.04		10.4	6.04	ug/L		10/11/24 06:28	10/17/24 19:14	1
Pentachlorophenol	<10.0		10.4	10.0	ug/L		10/11/24 06:28	10/17/24 19:14	1
Phenacetin	<1.98		10.4	1.98	ug/L		10/11/24 06:28	10/17/24 19:14	1
Phenanthrene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 19:14	1
Phenol	<1.15		10.4	1.15	ug/L		10/11/24 06:28	10/17/24 19:14	1
Phorate	<3.33		10.4	3.33	ug/L		10/11/24 06:28	10/17/24 19:14	1
Pronamide	<2.81		10.4	2.81	ug/L		10/11/24 06:28	10/17/24 19:14	1
Pyrene	<0.823		10.4	0.823	ug/L		10/11/24 06:28	10/17/24 19:14	1
Safrole	<2.92		10.4	2.92	ug/L		10/11/24 06:28	10/17/24 19:14	1
Thionazin	<3.65		10.4	3.65	ug/L		10/11/24 06:28	10/17/24 19:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*23*	*S1-*	*25 - 110*	*10/11/24 06:28*	*10/17/24 19:14*	*1*
Phenol-d5 (Surr)	*21*		*21 - 110*	*10/11/24 06:28*	*10/17/24 19:14*	*1*
Nitrobenzene-d5 (Surr)	*32*	*S1-*	*45 - 129*	*10/11/24 06:28*	*10/17/24 19:14*	*1*
2-Fluorobiphenyl (Surr)	*32*	*S1-*	*39 - 118*	*10/11/24 06:28*	*10/17/24 19:14*	*1*
2,4,6-Tribromophenol (Surr)	*34*		*27 - 136*	*10/11/24 06:28*	*10/17/24 19:14*	*1*
Terphenyl-d14 (Surr)	*35*		*12 - 144*	*10/11/24 06:28*	*10/17/24 19:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 20:54	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 20:54	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0220		0.0879	0.0220	ug/L		10/11/24 10:56	10/14/24 19:05	1
4,4'-DDE	<0.0264		0.0879	0.0264	ug/L		10/11/24 10:56	10/14/24 19:05	1
4,4'-DDT	<0.0176		0.0879	0.0176	ug/L		10/11/24 10:56	10/14/24 19:05	1
Aldrin	<0.0193		0.0879	0.0193	ug/L		10/11/24 10:56	10/14/24 19:05	1

Client Sample ID: OW-227B
Date Collected: 10/09/24 14:00
Date Received: 10/11/24 10:30

Lab Sample ID: 310-292482-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	<0.00879		0.0879	0.00879	ug/L		10/11/24 10:56	10/14/24 19:05	1
beta-BHC	<0.0369		0.0879	0.0369	ug/L		10/11/24 10:56	10/14/24 19:05	1
Chlordane (technical)	<0.343		1.76	0.343	ug/L		10/11/24 10:56	10/14/24 19:05	1
delta-BHC	<0.0281		0.0879	0.0281	ug/L		10/11/24 10:56	10/14/24 19:05	1
Dieldrin	<0.0185		0.0879	0.0185	ug/L		10/11/24 10:56	10/14/24 19:05	1
Endosulfan I	<0.0246		0.0879	0.0246	ug/L		10/11/24 10:56	10/14/24 19:05	1
Endosulfan II	<0.0229		0.0879	0.0229	ug/L		10/11/24 10:56	10/14/24 19:05	1
Endosulfan sulfate	<0.0158		0.0879	0.0158	ug/L		10/11/24 10:56	10/14/24 19:05	1
Endrin	<0.0246		0.0879	0.0246	ug/L		10/11/24 10:56	10/14/24 19:05	1
Endrin aldehyde	<0.0237		0.0879	0.0237	ug/L		10/11/24 10:56	10/14/24 19:05	1
gamma-BHC (Lindane)	<0.00879		0.0879	0.00879	ug/L		10/11/24 10:56	10/14/24 19:05	1
Heptachlor	<0.0202		0.0879	0.0202	ug/L		10/11/24 10:56	10/14/24 19:05	1
Heptachlor epoxide	<0.0281		0.0879	0.0281	ug/L		10/11/24 10:56	10/14/24 19:05	1
Methoxychlor	<0.0281		0.0879	0.0281	ug/L		10/11/24 10:56	10/14/24 19:05	1
Toxaphene	<0.879		1.76	0.879	ug/L		10/11/24 10:56	10/14/24 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*42*		*10 - 136*	*10/11/24 10:56*	*10/14/24 19:05*	*1*
Tetrachloro-m-xylene (Surr)	*109*		*10 - 130*	*10/11/24 10:56*	*10/14/24 19:05*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.721		1.76	0.721	ug/L		10/11/24 10:56	10/14/24 19:05	1
PCB-1221	<0.721		1.76	0.721	ug/L		10/11/24 10:56	10/14/24 19:05	1
PCB-1232	<0.721		1.76	0.721	ug/L		10/11/24 10:56	10/14/24 19:05	1
PCB-1242	<0.721		1.76	0.721	ug/L		10/11/24 10:56	10/14/24 19:05	1
PCB-1248	<0.607		1.76	0.607	ug/L		10/11/24 10:56	10/14/24 19:05	1
PCB-1254	<0.607		1.76	0.607	ug/L		10/11/24 10:56	10/14/24 19:05	1
PCB-1260	<0.607		1.76	0.607	ug/L		10/11/24 10:56	10/14/24 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*42*		*10 - 136*	*10/11/24 10:56*	*10/14/24 19:05*	*1*
Tetrachloro-m-xylene (Surr)	*109*		*10 - 130*	*10/11/24 10:56*	*10/14/24 19:05*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<2.74		6.58	2.74	ug/L		10/16/24 07:51	10/17/24 20:33	10
Silvex (2,4,5-TP)	<0.241		0.549	0.241	ug/L		10/16/24 07:51	10/17/24 20:33	10
2,4,5-T	<0.713		1.65	0.713	ug/L		10/16/24 07:51	10/17/24 20:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*78*	*p*	*34 - 142*	*10/16/24 07:51*	*10/17/24 20:33*	*10*
DCAA	*215*	*S1+*	*34 - 142*	*10/16/24 07:51*	*10/17/24 20:33*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/14/24 10:00	10/15/24 18:17	1
Arsenic	**16.2**		2.00	0.530	ug/L		10/14/24 10:00	10/15/24 18:17	1
Barium	**2080**		2.00	0.660	ug/L		10/14/24 10:00	10/15/24 18:17	1
Beryllium	<0.330		1.00	0.330	ug/L		10/14/24 10:00	10/21/24 16:07	1
Cadmium	**0.165**	**J**	0.200	0.100	ug/L		10/14/24 10:00	10/15/24 18:17	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2
Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**7.49**		5.00	1.20	ug/L		10/14/24 10:00	10/15/24 18:17	1
Cobalt	**22.1**		0.500	0.170	ug/L		10/14/24 10:00	10/15/24 18:17	1
Copper	<1.80		5.00	1.80	ug/L		10/14/24 10:00	10/15/24 18:17	1
Lead	**0.582**		0.500	0.260	ug/L		10/14/24 10:00	10/15/24 18:17	1
Nickel	**87.0**		5.00	2.10	ug/L		10/14/24 10:00	10/15/24 18:17	1
Selenium	<1.40		5.00	1.40	ug/L		10/14/24 10:00	10/15/24 18:17	1
Silver	<0.500		1.00	0.500	ug/L		10/14/24 10:00	10/15/24 18:17	1
Thallium	**0.867**	**J**	1.00	0.570	ug/L		10/14/24 10:00	10/22/24 14:37	1
Vanadium	**2.38**	**J**	5.00	1.10	ug/L		10/14/24 10:00	10/15/24 18:17	1
Zinc	<9.70		20.0	9.70	ug/L		10/14/24 10:00	10/15/24 18:17	1
Tin	<2.30		5.00	2.30	ug/L		10/14/24 10:00	10/15/24 18:17	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/17/24 15:15	10/18/24 15:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (SW846 9012B)	**4.98**	**J**	10.0	3.50	ug/L		10/16/24 08:55	10/16/24 17:31	1
Total Suspended Solids (USGS I-3765-85)	**46.0**		15.0	11.1	mg/L			10/11/24 14:06	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**6.55**				NTU			10/09/24 14:00	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292482-3
Date Collected: 10/09/24 06:00
Matrix: Water
Date Received: 10/11/24 10:30

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	<0.380		1.00	0.380	ug/L			10/15/24 00:13	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/15/24 00:13	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/15/24 00:13	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/15/24 00:13	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/15/24 00:13	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/15/24 00:13	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/15/24 00:13	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/15/24 00:13	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/15/24 00:13	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/15/24 00:13	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/15/24 00:13	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/15/24 00:13	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/15/24 00:13	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/15/24 00:13	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/15/24 00:13	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/15/24 00:13	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/15/24 00:13	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/15/24 00:13	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/15/24 00:13	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/15/24 00:13	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/15/24 00:13	1
Acetone	<3.10		10.0	3.10	ug/L			10/15/24 00:13	1
Acrolein	<3.60		10.0	3.60	ug/L			10/15/24 00:13	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/15/24 00:13	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/15/24 00:13	1
Benzene	<0.220		0.500	0.220	ug/L			10/15/24 00:13	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/15/24 00:13	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/15/24 00:13	1
Bromoform	<0.780		5.00	0.780	ug/L			10/15/24 00:13	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/15/24 00:13	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/15/24 00:13	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/15/24 00:13	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/15/24 00:13	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/15/24 00:13	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/15/24 00:13	1
Chloroform	<1.30		3.00	1.30	ug/L			10/15/24 00:13	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/15/24 00:13	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/15/24 00:13	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/15/24 00:13	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/15/24 00:13	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/15/24 00:13	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/15/24 00:13	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/15/24 00:13	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/15/24 00:13	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/15/24 00:13	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/15/24 00:13	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/15/24 00:13	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/15/24 00:13	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/15/24 00:13	1

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292482-3
Date Collected: 10/09/24 06:00
Matrix: Water
Date Received: 10/11/24 10:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/15/24 00:13	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/15/24 00:13	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/15/24 00:13	1
Styrene	<0.370		1.00	0.370	ug/L			10/15/24 00:13	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/15/24 00:13	1
Toluene	<0.430		1.00	0.430	ug/L			10/15/24 00:13	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/15/24 00:13	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/15/24 00:13	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/15/24 00:13	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/15/24 00:13	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/15/24 00:13	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/15/24 00:13	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/15/24 00:13	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/15/24 00:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*10/15/24 00:13*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/15/24 00:13*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/15/24 00:13*	*1*

Definitions/Glossary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

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
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1+	Surrogate recovery exceeds control limits, high biased.

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: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-292482-1	OW-226B	100	99	99
310-292482-2	OW-227B	100	99	98
310-292482-3	Trip Blank	102	98	100
LCS 310-436141/6	Lab Control Sample	100	99	100
LCS 310-436141/7	Lab Control Sample	103	98	100
LCS 310-436144/6	Lab Control Sample	101	100	99
LCS 310-436144/7	Lab Control Sample	100	99	99
MB 310-436141/5	Method Blank	103	99	101
MB 310-436144/5	Method Blank	102	98	100

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	PHL	NBZ	FBP	TBP	TPHL
Lab Sample ID	Client Sample ID	(25-110)	(21-110)	(45-129)	(39-118)	(27-136)	(12-144)
310-292482-1	OW-226B	66	57	91	99	101	89
310-292482-2	OW-227B	23 S1-	21	32 S1-	32 S1-	34	35
LCS 310-435895/2-A	Lab Control Sample	55	46	72	74	90	98
LCSD 310-435895/3-A	Lab Control Sample Dup	48	42	59	58	74	94
MB 310-435895/1-A	Method Blank	49	42	64	61	66	94

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14 (Surr)

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)
310-292482-1	OW-226B	37	89
310-292482-2	OW-227B	42	109
310-292482-2 MS	OW-227B	44	78
310-292482-2 MSD	OW-227B	20	45
LCS 310-435953/16-A	Lab Control Sample	16	50
MB 310-435953/1-A	Method Blank	64	124

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Surrogate Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

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)								
310-292482-1	OW-226B	37	89								
310-292482-1 MS	OW-226B	47	72								
310-292482-1 MSD	OW-226B	28	47								
310-292482-2	OW-227B	42	109								
MB 310-435953/1-A	Method Blank	64	124								

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										
LCSD 310-435953/17-A	Lab Control Sample Dup										

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		DCPAA1	DCPAA2								
Lab Sample ID	Client Sample ID	(34-142)	(34-142)								
310-292482-1	OW-226B	91 p	198 S1+								
310-292482-2	OW-227B	78 p	215 S1+								
LCS 410-563718/2-A	Lab Control Sample	74									
MB 410-563718/1-A	Method Blank	77									

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-436141/5
Matrix: Water
Analysis Batch: 436141

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	<0.380		1.00	0.380	ug/L			10/14/24 23:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/14/24 23:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/14/24 23:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/14/24 23:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/14/24 23:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/14/24 23:04	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/14/24 23:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/14/24 23:04	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/14/24 23:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/14/24 23:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/14/24 23:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/14/24 23:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/14/24 23:04	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/14/24 23:04	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/14/24 23:04	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/14/24 23:04	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/14/24 23:04	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/14/24 23:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/14/24 23:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/14/24 23:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/14/24 23:04	1
Acetone	<3.10		10.0	3.10	ug/L			10/14/24 23:04	1
Acrolein	<3.60		10.0	3.60	ug/L			10/14/24 23:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/14/24 23:04	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/14/24 23:04	1
Benzene	<0.220		0.500	0.220	ug/L			10/14/24 23:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/14/24 23:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/14/24 23:04	1
Bromoform	<0.780		5.00	0.780	ug/L			10/14/24 23:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/14/24 23:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/14/24 23:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/14/24 23:04	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/14/24 23:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/14/24 23:04	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/14/24 23:04	1
Chloroform	<1.30		3.00	1.30	ug/L			10/14/24 23:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/14/24 23:04	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/14/24 23:04	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/14/24 23:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/14/24 23:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/14/24 23:04	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/14/24 23:04	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/14/24 23:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/14/24 23:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/14/24 23:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/14/24 23:04	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/14/24 23:04	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/14/24 23:04	1

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

Lab Sample ID: MB 310-436141/5
Matrix: Water
Analysis Batch: 436141

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/14/24 23:04	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/14/24 23:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/14/24 23:04	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/14/24 23:04	1
Styrene	<0.370		1.00	0.370	ug/L			10/14/24 23:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/14/24 23:04	1
Toluene	<0.430		1.00	0.430	ug/L			10/14/24 23:04	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/14/24 23:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/14/24 23:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/14/24 23:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/14/24 23:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/14/24 23:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/14/24 23:04	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/14/24 23:04	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/14/24 23:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*73 - 130*		*10/14/24 23:04*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/14/24 23:04*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/14/24 23:04*	*1*

Lab Sample ID: LCS 310-436141/6
Matrix: Water
Analysis Batch: 436141

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	19.29		ug/L		96	71 - 120
1,1,1-Trichloroethane	20.0	19.22		ug/L		96	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.33		ug/L		97	68 - 124
1,1,2-Trichloroethane	20.0	19.24		ug/L		96	73 - 123
1,1-Dichloroethane	20.0	18.69		ug/L		93	70 - 127
1,1-Dichloroethene	20.0	18.65		ug/L		93	63 - 132
1,1-Dichloropropene	20.0	19.15		ug/L		96	69 - 132
1,2,3-Trichloropropane	20.0	19.29		ug/L		96	65 - 127
1,2,4-Trichlorobenzene	20.0	20.03		ug/L		100	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	18.33		ug/L		92	50 - 150
1,2-Dibromoethane (EDB)	20.0	19.45		ug/L		97	75 - 125
1,2-Dichlorobenzene	20.0	19.75		ug/L		99	74 - 120
1,2-Dichloroethane	20.0	18.79		ug/L		94	71 - 125
1,2-Dichloropropane	20.0	18.62		ug/L		93	73 - 124
1,3-Dichlorobenzene	20.0	19.66		ug/L		98	72 - 120
1,3-Dichloropropane	20.0	19.33		ug/L		97	72 - 125
1,4-Dichlorobenzene	20.0	19.47		ug/L		97	72 - 120
2,2-Dichloropropane	20.0	18.57		ug/L		93	50 - 150
2-Butanone (MEK)	40.0	34.88		ug/L		87	50 - 150
2-Hexanone	40.0	37.11		ug/L		93	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	37.49		ug/L		94	60 - 139
Acetone	40.0	31.86		ug/L		80	50 - 150

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

Lab Sample ID: LCS 310-436141/6
Matrix: Water
Analysis Batch: 436141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acrolein	95.5	82.42		ug/L		86	49 - 150
Acrylonitrile	200	180.8		ug/L		90	50 - 150
Allyl chloride	20.0	18.12		ug/L		91	49 - 150
Benzene	20.0	18.71		ug/L		94	72 - 124
Bromochloromethane	20.0	19.36		ug/L		97	73 - 130
Bromodichloromethane	20.0	19.05		ug/L		95	74 - 122
Bromoform	20.0	18.55		ug/L		93	61 - 122
Carbon disulfide	20.0	18.10		ug/L		91	59 - 135
Carbon tetrachloride	20.0	19.23		ug/L		96	67 - 132
Chlorobenzene	20.0	19.36		ug/L		97	76 - 120
Chlorodibromomethane	20.0	18.89		ug/L		94	71 - 121
Chloroform	20.0	18.31		ug/L		92	72 - 125
Chloroprene	20.0	18.71		ug/L		94	69 - 133
cis-1,2-Dichloroethene	20.0	18.88		ug/L		94	74 - 123
cis-1,3-Dichloropropene	20.0	18.95		ug/L		95	71 - 125
Dibromomethane	20.0	19.11		ug/L		96	74 - 125
Ethyl methacrylate	20.0	19.07		ug/L		95	70 - 129
Ethylbenzene	20.0	19.62		ug/L		98	74 - 122
Iodomethane	20.0	12.95		ug/L		65	10 - 150
Methacrylonitrile	200	186.3		ug/L		93	69 - 129
Methyl methacrylate	40.0	38.49		ug/L		96	68 - 131
Methylene Chloride	20.0	18.66		ug/L		93	50 - 150
Naphthalene	20.0	20.24		ug/L		101	50 - 150
Propionitrile	200	183.3		ug/L		92	63 - 135
Styrene	20.0	20.31		ug/L		102	74 - 121
Tetrachloroethene	20.0	19.79		ug/L		99	71 - 130
Toluene	20.0	18.98		ug/L		95	74 - 123
trans-1,2-Dichloroethene	20.0	18.73		ug/L		94	70 - 126
trans-1,3-Dichloropropene	20.0	18.88		ug/L		94	69 - 123
trans-1,4-Dichloro-2-butene	20.0	16.32		ug/L		82	50 - 150
Trichloroethene	20.0	19.25		ug/L		96	72 - 126
Vinyl acetate	40.0	36.79		ug/L		92	50 - 150
Xylenes, Total	40.0	39.49		ug/L		99	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: LCS 310-436141/7
Matrix: Water
Analysis Batch: 436141

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	15.00		ug/L		75	23 - 150
Chloroethane	20.0	17.91		ug/L		90	54 - 136
Chloromethane	20.0	17.79		ug/L		89	38 - 150
Dichlorodifluoromethane	20.0	21.10		ug/L		106	39 - 150

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

Lab Sample ID: LCS 310-436141/7
Matrix: Water
Analysis Batch: 436141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Trichlorofluoromethane			20.0	20.49		ug/L		102	54 - 149		
Vinyl chloride			20.0	18.63		ug/L		93	56 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*73 - 130*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 310-436144/5
Matrix: Water
Analysis Batch: 436144

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	<0.380		1.00	0.380	ug/L			10/15/24 10:04	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/15/24 10:04	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/15/24 10:04	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/15/24 10:04	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/15/24 10:04	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/15/24 10:04	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/15/24 10:04	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/15/24 10:04	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/15/24 10:04	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/15/24 10:04	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/15/24 10:04	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/15/24 10:04	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/15/24 10:04	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/15/24 10:04	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/15/24 10:04	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/15/24 10:04	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/15/24 10:04	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/15/24 10:04	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/15/24 10:04	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/15/24 10:04	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/15/24 10:04	1
Acetone	<3.10		10.0	3.10	ug/L			10/15/24 10:04	1
Acrolein	<3.60		10.0	3.60	ug/L			10/15/24 10:04	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/15/24 10:04	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/15/24 10:04	1
Benzene	<0.220		0.500	0.220	ug/L			10/15/24 10:04	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/15/24 10:04	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/15/24 10:04	1
Bromoform	<0.780		5.00	0.780	ug/L			10/15/24 10:04	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/15/24 10:04	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/15/24 10:04	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/15/24 10:04	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/15/24 10:04	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/15/24 10:04	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/15/24 10:04	1

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

Lab Sample ID: MB 310-436144/5
Matrix: Water
Analysis Batch: 436144

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	<1.30		3.00	1.30	ug/L			10/15/24 10:04	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/15/24 10:04	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/15/24 10:04	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/15/24 10:04	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/15/24 10:04	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/15/24 10:04	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/15/24 10:04	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/15/24 10:04	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/15/24 10:04	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/15/24 10:04	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/15/24 10:04	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/15/24 10:04	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/15/24 10:04	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/15/24 10:04	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/15/24 10:04	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/15/24 10:04	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/15/24 10:04	1
Styrene	<0.370		1.00	0.370	ug/L			10/15/24 10:04	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/15/24 10:04	1
Toluene	<0.430		1.00	0.430	ug/L			10/15/24 10:04	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/15/24 10:04	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/15/24 10:04	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/15/24 10:04	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/15/24 10:04	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/15/24 10:04	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/15/24 10:04	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/15/24 10:04	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/15/24 10:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*73 - 130*		*10/15/24 10:04*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/15/24 10:04*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/15/24 10:04*	*1*

Lab Sample ID: LCS 310-436144/6
Matrix: Water
Analysis Batch: 436144

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	19.92		ug/L		100	71 - 120
1,1,1-Trichloroethane	20.0	20.31		ug/L		102	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.23		ug/L		96	68 - 124
1,1,2-Trichloroethane	20.0	19.78		ug/L		99	73 - 123
1,1-Dichloroethane	20.0	19.26		ug/L		96	70 - 127
1,1-Dichloroethene	20.0	19.54		ug/L		98	63 - 132
1,1-Dichloropropene	20.0	20.19		ug/L		101	69 - 132
1,2,3-Trichloropropane	20.0	19.50		ug/L		98	65 - 127
1,2,4-Trichlorobenzene	20.0	20.23		ug/L		101	68 - 124

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

Lab Sample ID: LCS 310-436144/6
Matrix: Water
Analysis Batch: 436144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dibromo-3-Chloropropane	20.0	18.78		ug/L		94	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.16		ug/L		101	75 - 125
1,2-Dichlorobenzene	20.0	20.12		ug/L		101	74 - 120
1,2-Dichloroethane	20.0	19.25		ug/L		96	71 - 125
1,2-Dichloropropane	20.0	18.99		ug/L		95	73 - 124
1,3-Dichlorobenzene	20.0	20.13		ug/L		101	72 - 120
1,3-Dichloropropane	20.0	19.55		ug/L		98	72 - 125
1,4-Dichlorobenzene	20.0	19.89		ug/L		99	72 - 120
2,2-Dichloropropane	20.0	16.70		ug/L		83	50 - 150
2-Butanone (MEK)	40.0	35.15		ug/L		88	50 - 150
2-Hexanone	40.0	37.32		ug/L		93	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	37.61		ug/L		94	60 - 139
Acetone	40.0	34.94		ug/L		87	50 - 150
Acrolein	95.5	78.06		ug/L		82	49 - 150
Acrylonitrile	200	183.9		ug/L		92	50 - 150
Allyl chloride	20.0	18.56		ug/L		93	49 - 150
Benzene	20.0	19.56		ug/L		98	72 - 124
Bromochloromethane	20.0	20.30		ug/L		101	73 - 130
Bromodichloromethane	20.0	19.63		ug/L		98	74 - 122
Bromoform	20.0	19.26		ug/L		96	61 - 122
Carbon disulfide	20.0	18.96		ug/L		95	59 - 135
Carbon tetrachloride	20.0	20.12		ug/L		101	67 - 132
Chlorobenzene	20.0	20.07		ug/L		100	76 - 120
Chlorodibromomethane	20.0	19.72		ug/L		99	71 - 121
Chloroform	20.0	18.73		ug/L		94	72 - 125
Chloroprene	20.0	19.63		ug/L		98	69 - 133
cis-1,2-Dichloroethene	20.0	19.62		ug/L		98	74 - 123
cis-1,3-Dichloropropene	20.0	18.90		ug/L		95	71 - 125
Dibromomethane	20.0	19.52		ug/L		98	74 - 125
Ethyl methacrylate	20.0	19.32		ug/L		97	70 - 129
Ethylbenzene	20.0	20.63		ug/L		103	74 - 122
Iodomethane	20.0	13.13		ug/L		66	10 - 150
Methacrylonitrile	200	190.0		ug/L		95	69 - 129
Methyl methacrylate	40.0	39.15		ug/L		98	68 - 131
Methylene Chloride	20.0	19.10		ug/L		96	50 - 150
Naphthalene	20.0	20.18		ug/L		101	50 - 150
Propionitrile	200	186.7		ug/L		93	63 - 135
Styrene	20.0	21.00		ug/L		105	74 - 121
Tetrachloroethene	20.0	20.80		ug/L		104	71 - 130
Toluene	20.0	19.76		ug/L		99	74 - 123
trans-1,2-Dichloroethene	20.0	19.57		ug/L		98	70 - 126
trans-1,3-Dichloropropene	20.0	18.56		ug/L		93	69 - 123
trans-1,4-Dichloro-2-butene	20.0	16.59		ug/L		83	50 - 150
Trichloroethene	20.0	20.28		ug/L		101	72 - 126
Vinyl acetate	40.0	34.59		ug/L		86	50 - 150
Xylenes, Total	40.0	41.10		ug/L		103	73 - 123

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

Lab Sample ID: LCS 310-436144/6
Matrix: Water
Analysis Batch: 436144

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-436144/7
Matrix: Water
Analysis Batch: 436144

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	15.62		ug/L		78	23 - 150
Chloroethane	20.0	19.59		ug/L		98	54 - 136
Chloromethane	20.0	18.83		ug/L		94	38 - 150
Dichlorodifluoromethane	20.0	22.57		ug/L		113	39 - 150
Trichlorofluoromethane	20.0	21.36		ug/L		107	54 - 149
Vinyl chloride	20.0	20.02		ug/L		100	56 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	*100*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	<0.540		10.0	0.540	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,3,5-Trinitrobenzene	<2.30		10.0	2.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,3-Dinitrobenzene	<3.20		10.0	3.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,4-Naphthoquinone	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
1,4-phenylenediamine	<1.90		10.0	1.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
1-Naphthylamine	<2.50		10.0	2.50	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,3,4,6-Tetrachlorophenol	<5.30		10.0	5.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4,5-Trichlorophenol	<5.30		10.0	5.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4,6-Trichlorophenol	<5.00		10.0	5.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dichlorophenol	<0.850		10.0	0.850	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dimethylphenol	<0.580		10.0	0.580	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dinitrophenol	<13.0		20.0	13.0	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,4-Dinitrotoluene	<6.40		10.0	6.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,6-Dichlorophenol	<0.690		10.0	0.690	ug/L		10/11/24 06:28	10/17/24 14:28	1
2,6-Dinitrotoluene	<0.520		10.0	0.520	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Acetylaminofluorene	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Chloronaphthalene	<0.640		10.0	0.640	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Chlorophenol	<0.540		10.0	0.540	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Methylnaphthalene	<0.590		10.0	0.590	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Methylphenol	<0.650		10.0	0.650	ug/L		10/11/24 06:28	10/17/24 14:28	1

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Naphthylamine	<2.10		10.0	2.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Nitroaniline	<5.90		10.0	5.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
2-Nitrophenol	<6.80		10.0	6.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
3,3'-Dichlorobenzidine	<1.40		10.0	1.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
3,3'-Dimethylbenzidine	<1.50		10.0	1.50	ug/L		10/11/24 06:28	10/17/24 14:28	1
3-Methylcholanthrene	<0.320		10.0	0.320	ug/L		10/11/24 06:28	10/17/24 14:28	1
3-Nitroaniline	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
4,6-Dinitro-2-methylphenol	<6.90		10.0	6.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Aminobiphenyl	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Bromophenyl phenyl ether	<0.700		10.0	0.700	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Chloro-3-methylphenol	<0.840		10.0	0.840	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Chloroaniline	<0.620		10.0	0.620	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Chlorophenyl phenyl ether	<0.690		10.0	0.690	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methylphenol, 3 & 4	<0.700		10.0	0.700	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Nitroaniline	<1.30		10.0	1.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
4-Nitrophenol	<7.60		10.0	7.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
5-Nitro-o-toluidine	<2.80		10.0	2.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
7,12-Dimethylbenz(a)anthracene	<1.90		10.0	1.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Acenaphthene	<0.640		10.0	0.640	ug/L		10/11/24 06:28	10/17/24 14:28	1
Acenaphthylene	<0.720		10.0	0.720	ug/L		10/11/24 06:28	10/17/24 14:28	1
Acetophenone	<0.690		10.0	0.690	ug/L		10/11/24 06:28	10/17/24 14:28	1
Anthracene	<0.870		10.0	0.870	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[a]anthracene	<0.850		10.0	0.850	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[a]pyrene	<8.10		10.0	8.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[b]fluoranthene	<4.90		10.0	4.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[g,h,i]perylene	<6.30		10.0	6.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzo[k]fluoranthene	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Benzyl alcohol	<1.30		10.0	1.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Bis(2-chloroethoxy)methane	<0.760		10.0	0.760	ug/L		10/11/24 06:28	10/17/24 14:28	1
Bis(2-chloroethyl)ether	<0.820		10.0	0.820	ug/L		10/11/24 06:28	10/17/24 14:28	1
bis (2-chloroisopropyl) ether	<0.540		10.0	0.540	ug/L		10/11/24 06:28	10/17/24 14:28	1
Bis(2-ethylhexyl) phthalate	<5.50		10.0	5.50	ug/L		10/11/24 06:28	10/17/24 14:28	1
Butyl benzyl phthalate	<5.40		10.0	5.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
Chlorobenzilate	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Chrysene	<0.870		10.0	0.870	ug/L		10/11/24 06:28	10/17/24 14:28	1
Diallate	<4.00		10.0	4.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dibenzo(a,h)anthracene	<3.90		10.0	3.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dibenzofuran	<0.740		10.0	0.740	ug/L		10/11/24 06:28	10/17/24 14:28	1
Diethyl phthalate	<1.70		10.0	1.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dimethoate	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dimethyl phthalate	<1.00		10.0	1.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Di-n-butyl phthalate	<5.60		10.0	5.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Di-n-octyl phthalate	<7.00		20.0	7.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Dinoseb	<2.40		10.0	2.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
Diphenylamine	<6.00		10.0	6.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Disulfoton	<2.40		10.0	2.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
Ethyl methanesulfonate	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Ethyl Parathion	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Famphur	<3.80		10.0	3.80	ug/L		10/11/24 06:28	10/17/24 14:28	1

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

Lab Sample ID: MB 310-435895/1-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435895

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<1.70		10.0	1.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Fluorene	<0.790		10.0	0.790	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachlorobenzene	<0.700		10.0	0.700	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachlorobutadiene	<0.860		10.0	0.860	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachlorocyclopentadiene	<5.10		10.0	5.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachloroethane	<0.970		10.0	0.970	ug/L		10/11/24 06:28	10/17/24 14:28	1
Hexachloropropene	<2.60		10.0	2.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Indeno[1,2,3-cd]pyrene	<4.20		10.0	4.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Isodrin	<4.70		10.0	4.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Isophorone	<0.930		10.0	0.930	ug/L		10/11/24 06:28	10/17/24 14:28	1
Isosafrole	<2.30		10.0	2.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Kepone	<1.00		10.0	1.00	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methapyrilene	<0.760		10.0	0.760	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methyl methanesulfonate	<3.30		10.0	3.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Methyl parathion	<2.30		10.0	2.30	ug/L		10/11/24 06:28	10/17/24 14:28	1
Nitrobenzene	<0.800		10.0	0.800	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodiethylamine	<3.40		10.0	3.40	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodimethylamine	<0.720		10.0	0.720	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodi-n-butylamine	<3.90		10.0	3.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodi-n-propylamine	<0.920		10.0	0.920	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosodiphenylamine	<0.750		10.0	0.750	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosomethylethylamine	<4.90		10.0	4.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosopiperidine	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
N-Nitrosopyrrolidine	<3.60		10.0	3.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
o,o',o''-Triethylphosphorothioate	<3.20		10.0	3.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
o-Toluidine	<2.90		10.0	2.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
p-Dimethylamino azobenzene	<2.20		10.0	2.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pentachlorobenzene	<2.80		10.0	2.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pentachloronitrobenzene	<5.80		10.0	5.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pentachlorophenol	<9.60		10.0	9.60	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phenacetin	<1.90		10.0	1.90	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phenanthrene	<0.790		10.0	0.790	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phenol	<1.10		10.0	1.10	ug/L		10/11/24 06:28	10/17/24 14:28	1
Phorate	<3.20		10.0	3.20	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pronamide	<2.70		10.0	2.70	ug/L		10/11/24 06:28	10/17/24 14:28	1
Pyrene	<0.790		10.0	0.790	ug/L		10/11/24 06:28	10/17/24 14:28	1
Safrole	<2.80		10.0	2.80	ug/L		10/11/24 06:28	10/17/24 14:28	1
Thionazin	<3.50		10.0	3.50	ug/L		10/11/24 06:28	10/17/24 14:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*49*		*25 - 110*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
Phenol-d5 (Surr)	*42*		*21 - 110*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
Nitrobenzene-d5 (Surr)	*64*		*45 - 129*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
2-Fluorobiphenyl (Surr)	*61*		*39 - 118*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
2,4,6-Tribromophenol (Surr)	*66*		*27 - 136*	*10/11/24 06:28*	*10/17/24 14:28*	*1*
Terphenyl-d14 (Surr)	*94*		*12 - 144*	*10/11/24 06:28*	*10/17/24 14:28*	*1*

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

Lab Sample ID: LCS 310-435895/2-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435895

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4,5-Tetrachlorobenzene	100	57.60		ug/L		58	36 - 110
1,3-Dinitrobenzene	100	73.92		ug/L		74	45 - 138
2,3,4,6-Tetrachlorophenol	100	79.66		ug/L		80	33 - 134
2,4,5-Trichlorophenol	100	82.64		ug/L		83	35 - 133
2,4,6-Trichlorophenol	100	77.13		ug/L		77	28 - 139
2,4-Dichlorophenol	100	91.79		ug/L		92	41 - 124
2,4-Dimethylphenol	100	72.62		ug/L		73	31 - 142
2,4-Dinitrophenol	200	125.6		ug/L		63	10 - 138
2,4-Dinitrotoluene	100	88.61		ug/L		89	47 - 137
2,6-Dichlorophenol	100	80.95		ug/L		81	30 - 130
2,6-Dinitrotoluene	100	86.49		ug/L		86	51 - 130
2-Chloronaphthalene	100	51.77		ug/L		52	37 - 110
2-Chlorophenol	100	81.09		ug/L		81	44 - 117
2-Methylnaphthalene	100	55.87		ug/L		56	33 - 110
2-Methylphenol	100	75.20		ug/L		75	47 - 118
2-Nitroaniline	100	71.57		ug/L		72	50 - 135
2-Nitrophenol	100	85.09		ug/L		85	41 - 129
3-Nitroaniline	100	83.28		ug/L		83	42 - 139
4,6-Dinitro-2-methylphenol	200	173.6		ug/L		87	22 - 143
4-Bromophenyl phenyl ether	100	87.86		ug/L		88	45 - 119
4-Chloro-3-methylphenol	100	90.89		ug/L		91	49 - 130
4-Chloroaniline	100	73.52		ug/L		74	21 - 139
4-Chlorophenyl phenyl ether	100	76.45		ug/L		76	44 - 116
Methylphenol, 3 & 4	100	73.12		ug/L		73	46 - 117
4-Nitroaniline	100	72.33		ug/L		72	31 - 145
4-Nitrophenol	200	125.2		ug/L		63	18 - 110
Acenaphthene	100	71.89		ug/L		72	43 - 110
Acenaphthylene	100	67.49		ug/L		67	40 - 110
Acetophenone	100	77.81		ug/L		78	48 - 119
Anthracene	100	90.85		ug/L		91	51 - 120
Benzo[a]anthracene	100	85.42		ug/L		85	51 - 123
Benzo[a]pyrene	100	83.08		ug/L		83	48 - 125
Benzo[b]fluoranthene	100	82.83		ug/L		83	49 - 129
Benzo[g,h,i]perylene	100	52.85		ug/L		53	43 - 139
Benzo[k]fluoranthene	100	87.27		ug/L		87	47 - 130
Benzyl alcohol	100	68.73		ug/L		69	39 - 128
Bis(2-chloroethoxy)methane	100	69.64		ug/L		70	48 - 121
Bis(2-chloroethyl)ether	100	65.25		ug/L		65	43 - 123
bis (2-chloroisopropyl) ether	100	73.14		ug/L		73	34 - 123
Bis(2-ethylhexyl) phthalate	100	92.10		ug/L		92	43 - 143
Butyl benzyl phthalate	100	83.82		ug/L		84	46 - 135
Chrysene	100	86.87		ug/L		87	51 - 125
Dibenzo(a,h)anthracene	100	69.28		ug/L		69	38 - 149
Dibenzofuran	100	73.74		ug/L		74	45 - 112
Diethyl phthalate	100	87.71		ug/L		88	43 - 135
Dimethyl phthalate	100	81.14		ug/L		81	43 - 129
Di-n-butyl phthalate	100	88.67		ug/L		89	50 - 133
Di-n-octyl phthalate	100	75.58		ug/L		76	34 - 150

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

Lab Sample ID: LCS 310-435895/2-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435895

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diphenylamine			85.0	66.64		ug/L		78	48 - 122		
Fluoranthene			100	88.22		ug/L		88	47 - 128		
Fluorene			100	79.26		ug/L		79	45 - 119		
Hexachlorobenzene			100	86.39		ug/L		86	48 - 119		
Hexachlorobutadiene			100	48.61		ug/L		49	32 - 110		
Hexachlorocyclopentadiene			100	36.36		ug/L		36	10 - 110		
Hexachloroethane			100	41.08		ug/L		41	31 - 110		
Indeno[1,2,3-cd]pyrene			100	70.98		ug/L		71	37 - 150		
Isophorone			100	78.75		ug/L		79	50 - 125		
Nitrobenzene			100	65.30		ug/L		65	47 - 116		
N-Nitrosodimethylamine			100	63.96		ug/L		64	37 - 110		
N-Nitrosodi-n-propylamine			100	77.76		ug/L		78	45 - 130		
N-Nitrosodiphenylamine			100	79.36		ug/L		79	49 - 121		
Pentachlorophenol			200	155.3		ug/L		78	26 - 133		
Phenanthrene			100	89.83		ug/L		90	51 - 117		
Phenol			100	46.69		ug/L		47	29 - 110		
Pyrene			100	92.59		ug/L		93	48 - 127		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*55*		*25 - 110*
Phenol-d5 (Surr)	*46*		*21 - 110*
Nitrobenzene-d5 (Surr)	*72*		*45 - 129*
2-Fluorobiphenyl (Surr)	*74*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*90*		*27 - 136*
Terphenyl-d14 (Surr)	*98*		*12 - 144*

Lab Sample ID: LCSD 310-435895/3-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435895

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene			100	58.38		ug/L		58	36 - 110	1	35
1,3-Dinitrobenzene			100	59.17		ug/L		59	45 - 138	22	35
2,3,4,6-Tetrachlorophenol			100	64.62		ug/L		65	33 - 134	21	35
2,4,5-Trichlorophenol			100	68.24		ug/L		68	35 - 133	19	35
2,4,6-Trichlorophenol			100	61.90		ug/L		62	28 - 139	22	35
2,4-Dichlorophenol			100	72.49		ug/L		72	41 - 124	23	35
2,4-Dimethylphenol			100	54.71		ug/L		55	31 - 142	28	35
2,4-Dinitrophenol			200	102.7		ug/L		51	10 - 138	20	35
2,4-Dinitrotoluene			100	68.13		ug/L		68	47 - 137	26	35
2,6-Dichlorophenol			100	62.32		ug/L		62	30 - 130	26	35
2,6-Dinitrotoluene			100	66.48		ug/L		66	51 - 130	26	35
2-Chloronaphthalene			100	48.34		ug/L		48	37 - 110	7	35
2-Chlorophenol			100	63.05		ug/L		63	44 - 117	25	35
2-Methylnaphthalene			100	50.19		ug/L		50	33 - 110	11	35
2-Methylphenol			100	59.79		ug/L		60	47 - 118	23	35
2-Nitroaniline			100	58.05		ug/L		58	50 - 135	21	35
2-Nitrophenol			100	65.14		ug/L		65	41 - 129	27	35

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

Lab Sample ID: LCSD 310-435895/3-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435895

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
3-Nitroaniline	100	72.65		ug/L		73	42 - 139	14	35
4,6-Dinitro-2-methylphenol	200	136.3		ug/L		68	22 - 143	24	35
4-Bromophenyl phenyl ether	100	68.07		ug/L		68	45 - 119	25	35
4-Chloro-3-methylphenol	100	72.23		ug/L		72	49 - 130	23	35
4-Chloroaniline	100	63.03		ug/L		63	21 - 139	15	35
4-Chlorophenyl phenyl ether	100	63.82		ug/L		64	44 - 116	18	35
Methylphenol, 3 & 4	100	61.48		ug/L		61	46 - 117	17	35
4-Nitroaniline	100	56.22		ug/L		56	31 - 145	25	35
4-Nitrophenol	200	107.4		ug/L		54	18 - 110	15	35
Acenaphthene	100	61.04		ug/L		61	43 - 110	16	35
Acenaphthylene	100	58.47		ug/L		58	40 - 110	14	35
Acetophenone	100	58.04		ug/L		58	48 - 119	29	35
Anthracene	100	69.82		ug/L		70	51 - 120	26	35
Benzo[a]anthracene	100	71.83		ug/L		72	51 - 123	17	35
Benzo[a]pyrene	100	71.33		ug/L		71	48 - 125	15	35
Benzo[b]fluoranthene	100	69.33		ug/L		69	49 - 129	18	35
Benzo[g,h,i]perylene	100	62.29		ug/L		62	43 - 139	16	35
Benzo[k]fluoranthene	100	80.91		ug/L		81	47 - 130	8	35
Benzyl alcohol	100	60.71		ug/L		61	39 - 128	12	35
Bis(2-chloroethoxy)methane	100	50.74		ug/L		51	48 - 121	31	35
Bis(2-chloroethyl)ether	100	48.92		ug/L		49	43 - 123	29	35
bis (2-chloroisopropyl) ether	100	54.61		ug/L		55	34 - 123	29	35
Bis(2-ethylhexyl) phthalate	100	77.82		ug/L		78	43 - 143	17	35
Butyl benzyl phthalate	100	68.59		ug/L		69	46 - 135	20	35
Chrysene	100	73.39		ug/L		73	51 - 125	17	35
Dibenzo(a,h)anthracene	100	58.72		ug/L		59	38 - 149	17	35
Dibenzofuran	100	60.40		ug/L		60	45 - 112	20	35
Diethyl phthalate	100	65.20		ug/L		65	43 - 135	29	35
Dimethyl phthalate	100	63.42		ug/L		63	43 - 129	25	35
Di-n-butyl phthalate	100	70.54		ug/L		71	50 - 133	23	35
Di-n-octyl phthalate	100	64.63		ug/L		65	34 - 150	16	35
Diphenylamine	85.0	51.53		ug/L		61	48 - 122	26	35
Fluoranthene	100	71.51		ug/L		72	47 - 128	21	35
Fluorene	100	63.27		ug/L		63	45 - 119	22	35
Hexachlorobenzene	100	74.20		ug/L		74	48 - 119	15	35
Hexachlorobutadiene	100	59.00		ug/L		59	32 - 110	19	35
Hexachlorocyclopentadiene	100	38.71		ug/L		39	10 - 110	6	35
Hexachloroethane	100	43.72		ug/L		44	31 - 110	6	35
Indeno[1,2,3-cd]pyrene	100	57.43		ug/L		57	37 - 150	21	35
Isophorone	100	60.39		ug/L		60	50 - 125	26	35
Nitrobenzene	100	49.08		ug/L		49	47 - 116	28	35
N-Nitrosodimethylamine	100	55.27		ug/L		55	37 - 110	15	35
N-Nitrosodi-n-propylamine	100	55.86		ug/L		56	45 - 130	33	35
N-Nitrosodiphenylamine	100	59.51		ug/L		60	49 - 121	29	35
Pentachlorophenol	200	117.9		ug/L		59	26 - 133	27	35
Phenanthrene	100	70.67		ug/L		71	51 - 117	24	35
Phenol	100	37.78		ug/L		38	29 - 110	21	35
Pyrene	100	76.31		ug/L		76	48 - 127	19	35

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

Lab Sample ID: LCSD 310-435895/3-A
Matrix: Water
Analysis Batch: 436520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435895

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*48*		*25 - 110*
Phenol-d5 (Surr)	*42*		*21 - 110*
Nitrobenzene-d5 (Surr)	*59*		*45 - 129*
2-Fluorobiphenyl (Surr)	*58*		*39 - 118*
2,4,6-Tribromophenol (Surr)	*74*		*27 - 136*
Terphenyl-d14 (Surr)	*94*		*12 - 144*

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

Lab Sample ID: MB 310-436077/28
Matrix: Water
Analysis Batch: 436077

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetonitrile	<2600		10000	2600	ug/L			10/14/24 16:13	1
Isobutanol	<2400		10000	2400	ug/L			10/14/24 16:13	1

Lab Sample ID: LCS 310-436077/29
Matrix: Water
Analysis Batch: 436077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acetonitrile	113000	120900		ug/L		107	67 - 132
Isobutanol	104000	114500		ug/L		110	80 - 121

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 310-435953/1-A
Matrix: Water
Analysis Batch: 436114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	<0.0233		0.0931	0.0233	ug/L		10/11/24 10:56	10/14/24 14:01	1
4,4'-DDE	<0.0279		0.0931	0.0279	ug/L		10/11/24 10:56	10/14/24 14:01	1
4,4'-DDT	<0.0186		0.0931	0.0186	ug/L		10/11/24 10:56	10/14/24 14:01	1
Aldrin	<0.0205		0.0931	0.0205	ug/L		10/11/24 10:56	10/14/24 14:01	1
alpha-BHC	<0.00931		0.0931	0.00931	ug/L		10/11/24 10:56	10/14/24 14:01	1
beta-BHC	<0.0391		0.0931	0.0391	ug/L		10/11/24 10:56	10/14/24 14:01	1
Chlordane (technical)	<0.363		1.86	0.363	ug/L		10/11/24 10:56	10/14/24 14:01	1
delta-BHC	<0.0298		0.0931	0.0298	ug/L		10/11/24 10:56	10/14/24 14:01	1
Dieldrin	<0.0195		0.0931	0.0195	ug/L		10/11/24 10:56	10/14/24 14:01	1
Endosulfan I	<0.0261		0.0931	0.0261	ug/L		10/11/24 10:56	10/14/24 14:01	1
Endosulfan II	<0.0242		0.0931	0.0242	ug/L		10/11/24 10:56	10/14/24 14:01	1
Endosulfan sulfate	<0.0168		0.0931	0.0168	ug/L		10/11/24 10:56	10/14/24 14:01	1
Endrin	<0.0261		0.0931	0.0261	ug/L		10/11/24 10:56	10/14/24 14:01	1
Endrin aldehyde	<0.0251		0.0931	0.0251	ug/L		10/11/24 10:56	10/14/24 14:01	1
gamma-BHC (Lindane)	<0.00931		0.0931	0.00931	ug/L		10/11/24 10:56	10/14/24 14:01	1
Heptachlor	<0.0214		0.0931	0.0214	ug/L		10/11/24 10:56	10/14/24 14:01	1
Heptachlor epoxide	<0.0298		0.0931	0.0298	ug/L		10/11/24 10:56	10/14/24 14:01	1

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

Lab Sample ID: MB 310-435953/1-A
Matrix: Water
Analysis Batch: 436114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methoxychlor	<0.0298		0.0931	0.0298	ug/L		10/11/24 10:56	10/14/24 14:01	1
Toxaphene	<0.931		1.86	0.931	ug/L		10/11/24 10:56	10/14/24 14:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*64*		*10 - 136*	*10/11/24 10:56*	*10/14/24 14:01*	*1*
Tetrachloro-m-xylene (Surr)	*124*		*10 - 130*	*10/11/24 10:56*	*10/14/24 14:01*	*1*

Lab Sample ID: LCS 310-435953/16-A
Matrix: Water
Analysis Batch: 436114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435953

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	2.56	1.666		ug/L		65	36 - 149
4,4'-DDE	2.56	1.298		ug/L		51	34 - 130
4,4'-DDT	2.56	1.405		ug/L		55	23 - 150
Aldrin	2.56	1.187		ug/L		46	13 - 120
alpha-BHC	2.56	2.225		ug/L		87	36 - 127
beta-BHC	2.56	2.147		ug/L		84	37 - 136
delta-BHC	2.56	2.228		ug/L		87	33 - 134
Dieldrin	2.56	2.025		ug/L		79	39 - 130
Endosulfan I	2.56	1.956		ug/L		76	10 - 120
Endosulfan II	2.56	2.148		ug/L		84	14 - 120
Endosulfan sulfate	2.56	2.488		ug/L		97	36 - 147
Endrin	2.56	2.244		ug/L		88	39 - 140
Endrin aldehyde	2.56	1.780		ug/L		69	32 - 137
gamma-BHC (Lindane)	2.56	2.302		ug/L		90	36 - 132
Heptachlor	2.56	1.329		ug/L		52	27 - 120
Heptachlor epoxide	2.56	2.140		ug/L		83	38 - 133
Methoxychlor	2.56	2.128		ug/L		83	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*16*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*50*		*10 - 130*

Lab Sample ID: 310-292482-2 MS
Matrix: Water
Analysis Batch: 436114

Client Sample ID: OW-227B
Prep Type: Total/NA
Prep Batch: 435953

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	<0.0220		2.64	2.353		ug/L		89	36 - 149
4,4'-DDE	<0.0264		2.64	2.253		ug/L		85	34 - 130
4,4'-DDT	<0.0176		2.64	2.441		ug/L		93	23 - 150
Aldrin	<0.0193		2.64	1.930		ug/L		73	13 - 120
alpha-BHC	<0.00879		2.64	2.398		ug/L		91	36 - 127
beta-BHC	<0.0369		2.64	2.289		ug/L		87	37 - 136
delta-BHC	<0.0281		2.64	2.376		ug/L		90	33 - 134
Dieldrin	<0.0185		2.64	2.492		ug/L		94	39 - 130
Endosulfan I	<0.0246		2.64	2.356		ug/L		89	10 - 120

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

Lab Sample ID: 310-292482-2 MS
Matrix: Water
Analysis Batch: 436114

Client Sample ID: OW-227B
Prep Type: Total/NA
Prep Batch: 435953

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Endosulfan II	<0.0229		2.64	2.405		ug/L		91	14 - 120
Endosulfan sulfate	<0.0158		2.64	2.721		ug/L		103	36 - 147
Endrin	<0.0246		2.64	2.714		ug/L		103	39 - 140
Endrin aldehyde	<0.0237		2.64	2.293		ug/L		87	32 - 137
gamma-BHC (Lindane)	<0.00879		2.64	2.453		ug/L		93	36 - 132
Heptachlor	<0.0202		2.64	1.944		ug/L		74	27 - 120
Heptachlor epoxide	<0.0281		2.64	2.522		ug/L		96	38 - 133
Methoxychlor	<0.0281		2.64	2.611		ug/L		99	10 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*44*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*78*		*10 - 130*

Lab Sample ID: 310-292482-2 MSD
Matrix: Water
Analysis Batch: 436114

Client Sample ID: OW-227B
Prep Type: Total/NA
Prep Batch: 435953

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD	<0.0220		2.60	2.518		ug/L		97	36 - 149	7	35
4,4'-DDE	<0.0264		2.60	2.321		ug/L		89	34 - 130	3	35
4,4'-DDT	<0.0176		2.60	2.410		ug/L		93	23 - 150	1	35
Aldrin	<0.0193		2.60	1.899		ug/L		73	13 - 120	2	35
alpha-BHC	<0.00879		2.60	2.832		ug/L		109	36 - 127	17	35
beta-BHC	<0.0369		2.60	2.676		ug/L		103	37 - 136	16	35
delta-BHC	<0.0281		2.60	2.782		ug/L		107	33 - 134	16	35
Dieldrin	<0.0185		2.60	2.721		ug/L		104	39 - 130	9	35
Endosulfan I	<0.0246		2.60	2.610		ug/L		100	10 - 120	10	35
Endosulfan II	<0.0229		2.60	2.799		ug/L		107	14 - 120	15	35
Endosulfan sulfate	<0.0158		2.60	3.154		ug/L		121	36 - 147	15	35
Endrin	<0.0246		2.60	2.992		ug/L		115	39 - 140	10	35
Endrin aldehyde	<0.0237		2.60	2.655		ug/L		102	32 - 137	15	35
gamma-BHC (Lindane)	<0.00879		2.60	2.888		ug/L		111	36 - 132	16	35
Heptachlor	<0.0202		2.60	1.971		ug/L		76	27 - 120	1	35
Heptachlor epoxide	<0.0281		2.60	2.815		ug/L		108	38 - 133	11	35
Methoxychlor	<0.0281		2.60	2.870		ug/L		110	10 - 150	9	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*20*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*45*		*10 - 130*

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

Lab Sample ID: MB 310-435953/1-A
Matrix: Water
Analysis Batch: 436116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.763		1.86	0.763	ug/L		10/11/24 10:56	10/14/24 14:01	1

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

Lab Sample ID: MB 310-435953/1-A
Matrix: Water
Analysis Batch: 436116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	<0.763		1.86	0.763	ug/L		10/11/24 10:56	10/14/24 14:01	1
PCB-1232	<0.763		1.86	0.763	ug/L		10/11/24 10:56	10/14/24 14:01	1
PCB-1242	<0.763		1.86	0.763	ug/L		10/11/24 10:56	10/14/24 14:01	1
PCB-1248	<0.642		1.86	0.642	ug/L		10/11/24 10:56	10/14/24 14:01	1
PCB-1254	<0.642		1.86	0.642	ug/L		10/11/24 10:56	10/14/24 14:01	1
PCB-1260	<0.642		1.86	0.642	ug/L		10/11/24 10:56	10/14/24 14:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*64*		*10 - 136*	*10/11/24 10:56*	*10/14/24 14:01*	*1*
Tetrachloro-m-xylene (Surr)	*124*		*10 - 130*	*10/11/24 10:56*	*10/14/24 14:01*	*1*

Lab Sample ID: LCSD 310-435953/17-A
Matrix: Water
Analysis Batch: 436111

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435953

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			26.5	24.31		ug/L					
PCB-1260			26.5	19.54		ug/L					

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)			
Tetrachloro-m-xylene (Surr)			

Lab Sample ID: 310-292482-1 MS
Matrix: Water
Analysis Batch: 436111

Client Sample ID: OW-226B
Prep Type: Total/NA
Prep Batch: 435953

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016	<0.738		25.8	18.11		ug/L					
PCB-1260	<0.621		25.8	16.47		ug/L					

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*47*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*72*		*10 - 130*

Lab Sample ID: 310-292482-1 MSD
Matrix: Water
Analysis Batch: 436111

Client Sample ID: OW-226B
Prep Type: Total/NA
Prep Batch: 435953

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016	<0.738		25.4	15.43		ug/L				16	35
PCB-1260	<0.621		25.4	12.54		ug/L				27	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*28*		*10 - 136*
Tetrachloro-m-xylene (Surr)	*47*		*10 - 130*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-563718/1-A
Matrix: Water
Analysis Batch: 564218

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563718

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.250		0.600	0.250	ug/L		10/16/24 07:51	10/17/24 14:00	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		10/16/24 07:51	10/17/24 14:00	1
2,4,5-T	<0.0650		0.150	0.0650	ug/L		10/16/24 07:51	10/17/24 14:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*77*		*34 - 142*	*10/16/24 07:51*	*10/17/24 14:00*	*1*

Lab Sample ID: LCS 410-563718/2-A
Matrix: Water
Analysis Batch: 564218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563718

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-D	2.50	2.242		ug/L		90	53 - 159
Silvex (2,4,5-TP)	0.250	0.2546		ug/L		102	62 - 170
2,4,5-T	0.250	0.2590		ug/L		104	57 - 171

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*74*		*34 - 142*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-436015/1-A
Matrix: Water
Analysis Batch: 436382

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436015

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/14/24 10:00	10/15/24 17:01	1
Arsenic	<0.530		2.00	0.530	ug/L		10/14/24 10:00	10/15/24 17:01	1
Barium	<0.660		2.00	0.660	ug/L		10/14/24 10:00	10/15/24 17:01	1
Beryllium	<0.330		1.00	0.330	ug/L		10/14/24 10:00	10/15/24 17:01	1
Cadmium	<0.100		0.200	0.100	ug/L		10/14/24 10:00	10/15/24 17:01	1
Chromium	<1.20		5.00	1.20	ug/L		10/14/24 10:00	10/15/24 17:01	1
Cobalt	<0.170		0.500	0.170	ug/L		10/14/24 10:00	10/15/24 17:01	1
Copper	<1.80		5.00	1.80	ug/L		10/14/24 10:00	10/15/24 17:01	1
Lead	<0.260		0.500	0.260	ug/L		10/14/24 10:00	10/15/24 17:01	1
Nickel	<2.10		5.00	2.10	ug/L		10/14/24 10:00	10/15/24 17:01	1
Selenium	<1.40		5.00	1.40	ug/L		10/14/24 10:00	10/15/24 17:01	1
Silver	<0.500		1.00	0.500	ug/L		10/14/24 10:00	10/15/24 17:01	1
Vanadium	<1.10		5.00	1.10	ug/L		10/14/24 10:00	10/15/24 17:01	1
Zinc	<9.70		20.0	9.70	ug/L		10/14/24 10:00	10/15/24 17:01	1
Tin	<2.30		5.00	2.30	ug/L		10/14/24 10:00	10/15/24 17:01	1

Lab Sample ID: MB 310-436015/1-A
Matrix: Water
Analysis Batch: 437043

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436015

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.570		1.00	0.570	ug/L		10/14/24 10:00	10/21/24 15:25	1

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

Lab Sample ID: LCS 310-436015/2-A
Matrix: Water
Analysis Batch: 436382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436015

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	232.2		ug/L		116	80 - 120
Arsenic	200	223.1		ug/L		112	80 - 120
Barium	100	107.6		ug/L		108	80 - 120
Beryllium	100	98.79		ug/L		99	80 - 120
Cadmium	100	106.5		ug/L		107	80 - 120
Chromium	100	108.8		ug/L		109	80 - 120
Cobalt	100	101.3		ug/L		101	80 - 120
Copper	200	210.2		ug/L		105	80 - 120
Lead	200	212.3		ug/L		106	80 - 120
Nickel	200	201.6		ug/L		101	80 - 120
Selenium	400	419.8		ug/L		105	80 - 120
Silver	100	112.7		ug/L		113	80 - 120
Vanadium	100	106.5		ug/L		106	80 - 120
Zinc	200	197.4		ug/L		99	80 - 120
Tin	200	208.1		ug/L		104	80 - 120

Lab Sample ID: LCS 310-436015/2-A
Matrix: Water
Analysis Batch: 437043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436015

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	100	88.79		ug/L		89	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-436573/1-A
Matrix: Water
Analysis Batch: 436829

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436573

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.110		0.200	0.110	ug/L		10/17/24 15:15	10/18/24 15:32	1

Lab Sample ID: LCS 310-436573/2-A
Matrix: Water
Analysis Batch: 436829

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.67	1.363		ug/L		82	80 - 120

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 310-436395/1-A
Matrix: Water
Analysis Batch: 436505

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436395

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<3.50		10.0	3.50	ug/L		10/16/24 08:55	10/16/24 17:26	1

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: LCS 310-436395/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436505
Prep Batch: 436395

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Cyanide, Total			200	202.4		ug/L		101	90 - 110		

Lab Sample ID: 310-292482-1 MS
Client Sample ID: OW-226B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436505
Prep Batch: 436395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Cyanide, Total	3.99	J	200	213.0		ug/L		105	60 - 130		

Lab Sample ID: 310-292482-1 MSD
Client Sample ID: OW-226B
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436505
Prep Batch: 436395

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	3.99	J	200	212.5		ug/L		104	60 - 130	0	35

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-436008/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			10/11/24 14:06	1

Lab Sample ID: LCS 310-436008/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436008

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids			100	101.0		mg/L		101	81 - 116		

QC Association Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 436141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-3	Trip Blank	Total/NA	Water	8260D	
MB 310-436141/5	Method Blank	Total/NA	Water	8260D	
LCS 310-436141/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-436141/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 436144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8260D	
310-292482-2	OW-227B	Total/NA	Water	8260D	
MB 310-436144/5	Method Blank	Total/NA	Water	8260D	
LCS 310-436144/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-436144/7	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 435895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	3510C	
310-292482-2	OW-227B	Total/NA	Water	3510C	
MB 310-435895/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-435895/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-435895/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 436520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8270E	435895
310-292482-2	OW-227B	Total/NA	Water	8270E	435895
MB 310-435895/1-A	Method Blank	Total/NA	Water	8270E	435895
LCS 310-435895/2-A	Lab Control Sample	Total/NA	Water	8270E	435895
LCSD 310-435895/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	435895

GC Semi VOA

Prep Batch: 435953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	3511	
310-292482-2	OW-227B	Total/NA	Water	3511	
MB 310-435953/1-A	Method Blank	Total/NA	Water	3511	
LCS 310-435953/16-A	Lab Control Sample	Total/NA	Water	3511	
LCSD 310-435953/17-A	Lab Control Sample Dup	Total/NA	Water	3511	
310-292482-1 MS	OW-226B	Total/NA	Water	3511	
310-292482-1 MSD	OW-226B	Total/NA	Water	3511	
310-292482-2 MS	OW-227B	Total/NA	Water	3511	
310-292482-2 MSD	OW-227B	Total/NA	Water	3511	

Analysis Batch: 436077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8015C	
310-292482-2	OW-227B	Total/NA	Water	8015C	
MB 310-436077/28	Method Blank	Total/NA	Water	8015C	
LCS 310-436077/29	Lab Control Sample	Total/NA	Water	8015C	

GC Semi VOA

Analysis Batch: 436111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 310-435953/17-A	Lab Control Sample Dup	Total/NA	Water	8082A	435953
310-292482-1 MS	OW-226B	Total/NA	Water	8082A	435953
310-292482-1 MSD	OW-226B	Total/NA	Water	8082A	435953

Analysis Batch: 436114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8081B	435953
310-292482-2	OW-227B	Total/NA	Water	8081B	435953
MB 310-435953/1-A	Method Blank	Total/NA	Water	8081B	435953
LCS 310-435953/16-A	Lab Control Sample	Total/NA	Water	8081B	435953
310-292482-2 MS	OW-227B	Total/NA	Water	8081B	435953
310-292482-2 MSD	OW-227B	Total/NA	Water	8081B	435953

Analysis Batch: 436116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8082A	435953
310-292482-2	OW-227B	Total/NA	Water	8082A	435953
MB 310-435953/1-A	Method Blank	Total/NA	Water	8082A	435953

Prep Batch: 563718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8151A	
310-292482-2	OW-227B	Total/NA	Water	8151A	
MB 410-563718/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-563718/2-A	Lab Control Sample	Total/NA	Water	8151A	

Analysis Batch: 564218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	8151A	563718
310-292482-2	OW-227B	Total/NA	Water	8151A	563718
MB 410-563718/1-A	Method Blank	Total/NA	Water	8151A	563718
LCS 410-563718/2-A	Lab Control Sample	Total/NA	Water	8151A	563718

Metals

Prep Batch: 436015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	3005A	
310-292482-2	OW-227B	Total/NA	Water	3005A	
MB 310-436015/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-436015/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 436382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	6020B	436015
310-292482-2	OW-227B	Total/NA	Water	6020B	436015
MB 310-436015/1-A	Method Blank	Total/NA	Water	6020B	436015
LCS 310-436015/2-A	Lab Control Sample	Total/NA	Water	6020B	436015

Metals

Prep Batch: 436573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	7470A	
310-292482-2	OW-227B	Total/NA	Water	7470A	
MB 310-436573/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-436573/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 436829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	7470A	436573
310-292482-2	OW-227B	Total/NA	Water	7470A	436573
MB 310-436573/1-A	Method Blank	Total/NA	Water	7470A	436573
LCS 310-436573/2-A	Lab Control Sample	Total/NA	Water	7470A	436573

Analysis Batch: 437043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-2	OW-227B	Total/NA	Water	6020B	436015
MB 310-436015/1-A	Method Blank	Total/NA	Water	6020B	436015
LCS 310-436015/2-A	Lab Control Sample	Total/NA	Water	6020B	436015

Analysis Batch: 437173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	6020B	436015
310-292482-2	OW-227B	Total/NA	Water	6020B	436015

General Chemistry

Analysis Batch: 436008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	I-3765-85	
310-292482-2	OW-227B	Total/NA	Water	I-3765-85	
MB 310-436008/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-436008/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 436395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	9012B	
310-292482-2	OW-227B	Total/NA	Water	9012B	
MB 310-436395/1-A	Method Blank	Total/NA	Water	9012B	
LCS 310-436395/2-A	Lab Control Sample	Total/NA	Water	9012B	
310-292482-1 MS	OW-226B	Total/NA	Water	9012B	
310-292482-1 MSD	OW-226B	Total/NA	Water	9012B	

Analysis Batch: 436505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	9012B	436395
310-292482-2	OW-227B	Total/NA	Water	9012B	436395
MB 310-436395/1-A	Method Blank	Total/NA	Water	9012B	436395
LCS 310-436395/2-A	Lab Control Sample	Total/NA	Water	9012B	436395
310-292482-1 MS	OW-226B	Total/NA	Water	9012B	436395
310-292482-1 MSD	OW-226B	Total/NA	Water	9012B	436395

QC Association Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Field Service / Mobile Lab

Analysis Batch: 436163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292482-1	OW-226B	Total/NA	Water	Field Sampling	
310-292482-2	OW-227B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-292482-1

Date Collected: 10/09/24 11:00
Matrix: Water
Date Received: 10/11/24 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436144	FE5V	EET CF	10/15/24 13:06
Total/NA	Prep	3510C			435895	AYK7	EET CF	10/11/24 06:28
Total/NA	Analysis	8270E		1	436520	L0FS	EET CF	10/17/24 19:40
Total/NA	Analysis	8015C		1	436077	V7YZ	EET CF	10/14/24 20:34
Total/NA	Prep	3511			435953	AYK7	EET CF	10/11/24 10:56
Total/NA	Analysis	8081B		1	436114	BW2O	EET CF	10/14/24 19:52
Total/NA	Prep	3511			435953	AYK7	EET CF	10/11/24 10:56
Total/NA	Analysis	8082A		1	436116	BW2O	EET CF	10/14/24 19:52
Total/NA	Prep	8151A			563718	XU9L	ELLE	10/16/24 07:51
Total/NA	Analysis	8151A		5	564218	UAMZ	ELLE	10/17/24 19:57
Total/NA	Prep	3005A			436015	F5MW	EET CF	10/14/24 10:00
Total/NA	Analysis	6020B		1	436382	NFT2	EET CF	10/15/24 18:06
Total/NA	Prep	3005A			436015	F5MW	EET CF	10/14/24 10:00
Total/NA	Analysis	6020B		1	437173	A6US	EET CF	10/22/24 14:26
Total/NA	Prep	7470A			436573	QTZ5	EET CF	10/17/24 15:15
Total/NA	Analysis	7470A		1	436829	QTZ5	EET CF	10/18/24 15:36
Total/NA	Prep	9012B			436395	HE7K	EET CF	10/16/24 08:55
Total/NA	Analysis	9012B		1	436505	ZJX4	EET CF	10/16/24 17:27
Total/NA	Analysis	I-3765-85		1	436008	HE7K	EET CF	10/11/24 14:06
Total/NA	Analysis	Field Sampling		1	436163	BJ0R	EET CF	10/09/24 11:00

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2

Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436144	FE5V	EET CF	10/15/24 13:29
Total/NA	Prep	3510C			435895	AYK7	EET CF	10/11/24 06:28
Total/NA	Analysis	8270E		1	436520	L0FS	EET CF	10/17/24 19:14
Total/NA	Analysis	8015C		1	436077	V7YZ	EET CF	10/14/24 20:54
Total/NA	Prep	3511			435953	AYK7	EET CF	10/11/24 10:56
Total/NA	Analysis	8081B		1	436114	BW2O	EET CF	10/14/24 19:05
Total/NA	Prep	3511			435953	AYK7	EET CF	10/11/24 10:56
Total/NA	Analysis	8082A		1	436116	BW2O	EET CF	10/14/24 19:05
Total/NA	Prep	8151A			563718	XU9L	ELLE	10/16/24 07:51
Total/NA	Analysis	8151A		10	564218	UAMZ	ELLE	10/17/24 20:33
Total/NA	Prep	3005A			436015	F5MW	EET CF	10/14/24 10:00
Total/NA	Analysis	6020B		1	436382	NFT2	EET CF	10/15/24 18:17
Total/NA	Prep	3005A			436015	F5MW	EET CF	10/14/24 10:00
Total/NA	Analysis	6020B		1	437043	NFT2	EET CF	10/21/24 16:07
Total/NA	Prep	3005A			436015	F5MW	EET CF	10/14/24 10:00
Total/NA	Analysis	6020B		1	437173	A6US	EET CF	10/22/24 14:37
Total/NA	Prep	7470A			436573	QTZ5	EET CF	10/17/24 15:15
Total/NA	Analysis	7470A		1	436829	QTZ5	EET CF	10/18/24 15:38

Lab Chronicle

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-292482-2

Date Collected: 10/09/24 14:00
Matrix: Water
Date Received: 10/11/24 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	9012B			436395	HE7K	EET CF	10/16/24 08:55
Total/NA	Analysis	9012B		1	436505	ZJX4	EET CF	10/16/24 17:31
Total/NA	Analysis	I-3765-85		1	436008	HE7K	EET CF	10/11/24 14:06
Total/NA	Analysis	Field Sampling		1	436163	BJ0R	EET CF	10/09/24 14:00

Client Sample ID: Trip Blank
Lab Sample ID: 310-292482-3

Date Collected: 10/09/24 06:00
Matrix: Water
Date Received: 10/11/24 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436141	FE5V	EET CF	10/15/24 00:13

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-26

Method Summary

Client: AECOM
Job ID: 310-292482-1
Project/Site: Black Hawk County Landfill (IDNR)

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	ELLE
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
9012B	Cyanide, Total andor Amenable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF
3511	Microextraction of Organic Compounds	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	EET CF

Protocol References:

EPA = US Environmental Protection Agency

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

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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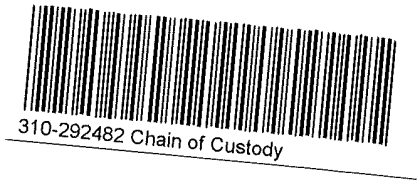
310-292482 Chain of Custody



Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo | STATE IA | Project: BHC IDNA

Receipt Information

Date/Time Received: DATE 10/10/24 | TIME 1030 | Received By: TD

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? ↓

2 2 TB ~~Set and~~ set of trip blanks in rack 1st

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: 2 | Correction Factor (°C): 0 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.6 | Corrected Temp (°C) 2.6

• **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

Document CED-P-SAM-FRM45521
Revision 26
Date: 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo | STATE IA | Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 10/10/24 | TIME 1030 | Received By: TD

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~~ TD *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? TD ~~☑ Yes~~ ☑ No *If yes:* Which VOA samples are in cooler? ↓

226B ~~1st set of trip blanks in each~~ TD

No Trip blanks in cooler!

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: 2 | Correction Factor (°C): 0.0

• **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

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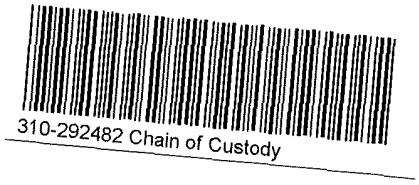
310-292482 Chain of Custody



Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AFCOM

City/State: CITY Waterloo | STATE IA | Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 10/10/24 | TIME 1030 | Received By: TD

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? ↓

2 2 TB ~~Set and~~ set of Trip blanks in rack 1st

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: 2 | Correction Factor (°C): 0 0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.6 | Corrected Temp (°C): 2.6

• **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

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Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo | STATE IA | Project: BHC IDNR

Receipt Information

Date/Time Received: DATE 10/10/24 | TIME 1030 | Received By: TD

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~~ TD *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? TD ~~☑ Yes~~ ☑ No *If yes:* Which VOA samples are in cooler? ↓

226B - ~~1st set of trip blanks in rack~~ TD

No Trip blanks in cooler 1

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE

Thermometer ID: 2 | Correction Factor (°C): 0.0

• **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): 0.8

• **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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:** / **Date:** 10-10-24 / _____ of _____ COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:** / TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS	Sampler
(319) 232-6531 Phone	TAT if different from Below _____	**For Lab Use Only:**
(xxx) xxx-xxxx FAX	☑ 2 weeks	Walk-in Client:
Project Name Black Hawk Co IDNR	☐ 1 week	Lab Sampling
Site Black Hawk County Landfill	☐ 2 days	Job / SDG No
P O #	☐ 1 day	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B			G	GW		N		X		X							X		
OW-221B			G	GW		N		X											
OW-222B			G	GW		N		X											
OW-223B			G	GW		N		X											
OW-223B-FD			G	GW		N		X											
OW-224B			G	GW		N			X										
OW-225B			G	GW		N			X										
OW-226B	10-9-24	1100	G	GW	18	N			X										Turbidity - 37.92 NTU
OW-227B	10-9-24	1400	G	GW	18	N			X										Turbidity - 6.55 NTU
MW-319B			G	GW		N		X											
MW-320B			G	GW		N		X											
Equipment Blank-1			G	GW		N		X											
Trip Blank X 2	10-9-24	0600	G	W	6	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp. (°C) Obs'd._____ Corr'd._____ Therm ID No._____

Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-10-24	Received by:	Company:	Date/Time: 10/10/24 1030
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

10/23/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77237.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292482-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 10/24/2024			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

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)	8151A/8151A_AP Default List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-226B (310-292482-1)	10/9/24	11:00 Central	G	Water			X	2	
OW-227B (310-292482-2)	10/9/24	14:00 Central	G	Water			X	2	

Analysis Requested

Preservation Codes:
-

Other:

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
	10/10/24 1605				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Debra A. Byrn	Date/Time: 10-11-24 09:50	Company ELLET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R: 2.8 C: 2.6

Ver: 05/06/2024

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292482-1

Login Number: 292482

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	

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292482-1

Login Number: 292482
List Number: 2
Creator: Arroyo, Haley

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 10/11/24 12:01 PM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 10/31/2024 11:26:10 AM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-292919-1

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 Narrative
310-292919-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/16/2024 11:25 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 time was 2.1°C.

GC/MS VOA
Method 8260D: The method blank for analytical batch 310-436774 contained benzene above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

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

Herbicides
Method 8151A: The following sample was diluted due to the nature of the sample matrix: OW-401B (310-292919-4). 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.

Pesticides
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 310-437173 is outside the acceptance criteria for the following analyte(s): Cadmium.

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.

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

Sample Summary

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292919-1	MW-319B	Water	10/15/24 10:15	10/16/24 11:25
310-292919-2	MW-320B	Water	10/15/24 10:45	10/16/24 11:25
310-292919-3	Trip Blank	Water	10/15/24 06:00	10/16/24 11:25
310-292919-4	OW-401B	Water	10/15/24 14:00	10/16/24 11:25
310-292919-5	Duplicate #3	Water	10/15/24 00:00	10/16/24 11:25

Detection Summary

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B — Lab Sample ID: 310-292919-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.11	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	211		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	15.2		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.296	J	0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.278	J	0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	38.4		5.00	2.10	ug/L	1		6020B	Total/NA
Selenium	2.61	J	5.00	1.40	ug/L	1		6020B	Total/NA
Vanadium	1.27	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	1.50	J	1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	1.94				NTU	1		Field Sampling	Total/NA

Client Sample ID: MW-320B — Lab Sample ID: 310-292919-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.570	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	244		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	27.7		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	0.630		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	1.98	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	19.7		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	1.38	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	3.38		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	10.84				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-292919-3

No Detections.

Client Sample ID: OW-401B — Lab Sample ID: 310-292919-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	8.80	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	3.46		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.450	J	1.00	0.400	ug/L	1		8260D	Total/NA
Arsenic	8.77		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	1760		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	2.24	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.87		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.312	J	0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	38.3		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	3.15	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	77.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	8.38				NTU	1		Field Sampling	Total/NA

Client Sample ID: Duplicate #3 — Lab Sample ID: 310-292919-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dichlorobenzene	1.09		1.00	0.230	ug/L	1		8260D	Total/NA
Acetone	9.16	J	10.0	3.10	ug/L	1		8260D	Total/NA
Benzene	3.39		0.500	0.220	ug/L	1		8260D	Total/NA
Chlorobenzene	0.447	J	1.00	0.400	ug/L	1		8260D	Total/NA
Chloroethane	0.905	J	4.00	0.790	ug/L	1		8260D	Total/NA
Arsenic	8.88		2.00	0.530	ug/L	1		6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: Duplicate #3 (Continued)

Lab Sample ID: 310-292919-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	1700		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	2.10	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.88		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.335	J	0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	39.3		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	2.89	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	61.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B
Lab Sample ID: 310-292919-1
Date Collected: 10/15/24 10:15
Matrix: Water
Date Received: 10/16/24 11:25

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	<0.380		1.00	0.380	ug/L			10/20/24 07:49	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/20/24 07:49	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/20/24 07:49	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/20/24 07:49	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/20/24 07:49	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/20/24 07:49	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/20/24 07:49	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/20/24 07:49	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/20/24 07:49	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/20/24 07:49	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/20/24 07:49	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/20/24 07:49	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/20/24 07:49	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/20/24 07:49	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/20/24 07:49	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/20/24 07:49	1
Acetone	<3.10		10.0	3.10	ug/L			10/20/24 07:49	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/20/24 07:49	1
Benzene	<0.220		0.500	0.220	ug/L			10/20/24 07:49	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/20/24 07:49	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/20/24 07:49	1
Bromoform	<0.780		5.00	0.780	ug/L			10/20/24 07:49	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/20/24 07:49	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/20/24 07:49	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/20/24 07:49	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/20/24 07:49	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/20/24 07:49	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/20/24 07:49	1
Chloroform	<1.30		3.00	1.30	ug/L			10/20/24 07:49	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/20/24 07:49	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/20/24 07:49	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/20/24 07:49	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/20/24 07:49	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/26/24 03:21	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/20/24 07:49	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/26/24 03:21	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/20/24 07:49	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/26/24 03:21	1
Styrene	<0.370		1.00	0.370	ug/L			10/20/24 07:49	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/20/24 07:49	1
Toluene	<0.430		1.00	0.430	ug/L			10/20/24 07:49	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/20/24 07:49	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/20/24 07:49	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/20/24 07:49	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/20/24 07:49	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/20/24 07:49	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/20/24 07:49	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/20/24 07:49	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/26/24 03:21	1

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B
Lab Sample ID: 310-292919-1
Date Collected: 10/15/24 10:15
Matrix: Water
Date Received: 10/16/24 11:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/20/24 07:49*	*1*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/26/24 03:21*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/20/24 07:49*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/26/24 03:21*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/20/24 07:49*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/26/24 03:21*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/18/24 09:30	10/21/24 13:13	1
Arsenic	**1.11**	**J**	2.00	0.530	ug/L		10/18/24 09:30	10/21/24 13:13	1
Barium	**211**		2.00	0.660	ug/L		10/18/24 09:30	10/21/24 13:13	1
Beryllium	<0.330		1.00	0.330	ug/L		10/18/24 09:30	10/29/24 18:45	1
Cadmium	<0.100	^3+	0.200	0.100	ug/L		10/18/24 09:30	10/22/24 20:26	1
Chromium	**15.2**		5.00	1.20	ug/L		10/18/24 09:30	10/21/24 13:13	1
Cobalt	**0.296**	**J**	0.500	0.170	ug/L		10/18/24 09:30	10/21/24 13:13	1
Copper	<1.80		5.00	1.80	ug/L		10/18/24 09:30	10/21/24 13:13	1
Lead	**0.278**	**J**	0.500	0.260	ug/L		10/18/24 09:30	10/21/24 13:13	1
Nickel	**38.4**		5.00	2.10	ug/L		10/18/24 09:30	10/29/24 18:45	1
Selenium	**2.61**	**J**	5.00	1.40	ug/L		10/18/24 09:30	10/21/24 13:13	1
Silver	<0.500		1.00	0.500	ug/L		10/18/24 09:30	10/21/24 13:13	1
Thallium	<0.570		1.00	0.570	ug/L		10/18/24 09:30	10/30/24 16:00	1
Vanadium	**1.27**	**J**	5.00	1.10	ug/L		10/18/24 09:30	10/21/24 13:13	1
Zinc	<9.70		20.0	9.70	ug/L		10/18/24 09:30	10/21/24 13:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**1.50**	**J**	1.88	1.39	mg/L			10/18/24 07:11	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**1.94**				NTU			10/15/24 10:15	1

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320B
Lab Sample ID: 310-292919-2
Date Collected: 10/15/24 10:45
Matrix: Water
Date Received: 10/16/24 11:25

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	<0.380		1.00	0.380	ug/L			10/20/24 08:12	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/20/24 08:12	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/20/24 08:12	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/20/24 08:12	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/20/24 08:12	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/20/24 08:12	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/20/24 08:12	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/20/24 08:12	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/20/24 08:12	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/20/24 08:12	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/20/24 08:12	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/20/24 08:12	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/20/24 08:12	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/20/24 08:12	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/20/24 08:12	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/20/24 08:12	1
Acetone	<3.10		10.0	3.10	ug/L			10/20/24 08:12	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/20/24 08:12	1
Benzene	<0.220		0.500	0.220	ug/L			10/20/24 08:12	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/20/24 08:12	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/20/24 08:12	1
Bromoform	<0.780		5.00	0.780	ug/L			10/20/24 08:12	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/20/24 08:12	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/20/24 08:12	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/20/24 08:12	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/20/24 08:12	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/20/24 08:12	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/20/24 08:12	1
Chloroform	<1.30		3.00	1.30	ug/L			10/20/24 08:12	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/20/24 08:12	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/20/24 08:12	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/20/24 08:12	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/20/24 08:12	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/20/24 08:12	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/20/24 08:12	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/26/24 03:43	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/20/24 08:12	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/26/24 03:43	1
Styrene	<0.370		1.00	0.370	ug/L			10/20/24 08:12	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/20/24 08:12	1
Toluene	<0.430		1.00	0.430	ug/L			10/20/24 08:12	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/20/24 08:12	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/20/24 08:12	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/20/24 08:12	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/20/24 08:12	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/20/24 08:12	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/20/24 08:12	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/20/24 08:12	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/26/24 03:43	1

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-320B
Lab Sample ID: 310-292919-2
Date Collected: 10/15/24 10:45
Matrix: Water
Date Received: 10/16/24 11:25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/20/24 08:12*	*1*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/26/24 03:43*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/20/24 08:12*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/26/24 03:43*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/20/24 08:12*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*10/26/24 03:43*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/18/24 09:30	10/21/24 13:17	1
Arsenic	**0.570**	**J**	2.00	0.530	ug/L		10/18/24 09:30	10/21/24 13:17	1
Barium	**244**		2.00	0.660	ug/L		10/18/24 09:30	10/21/24 13:17	1
Beryllium	<0.330		1.00	0.330	ug/L		10/18/24 09:30	10/29/24 18:49	1
Cadmium	<0.100		0.200	0.100	ug/L		10/18/24 09:30	10/21/24 13:17	1
Chromium	**27.7**		5.00	1.20	ug/L		10/18/24 09:30	10/21/24 13:17	1
Cobalt	**0.630**		0.500	0.170	ug/L		10/18/24 09:30	10/21/24 13:17	1
Copper	**1.98**	**J**	5.00	1.80	ug/L		10/18/24 09:30	10/21/24 13:17	1
Lead	<0.260		0.500	0.260	ug/L		10/18/24 09:30	10/21/24 13:17	1
Nickel	**19.7**		5.00	2.10	ug/L		10/18/24 09:30	10/29/24 18:49	1
Selenium	<1.40		5.00	1.40	ug/L		10/18/24 09:30	10/21/24 13:17	1
Silver	<0.500		1.00	0.500	ug/L		10/18/24 09:30	10/21/24 13:17	1
Thallium	<0.570		1.00	0.570	ug/L		10/18/24 09:30	10/30/24 16:03	1
Vanadium	**1.38**	**J**	5.00	1.10	ug/L		10/18/24 09:30	10/21/24 13:17	1
Zinc	<9.70		20.0	9.70	ug/L		10/18/24 09:30	10/21/24 13:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**3.38**		1.88	1.39	mg/L			10/17/24 11:55	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**10.84**				NTU			10/15/24 10:45	1

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292919-3
Date Collected: 10/15/24 06:00
Matrix: Water
Date Received: 10/16/24 11:25

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	<0.380		1.00	0.380	ug/L			10/20/24 03:38	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/20/24 03:38	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/20/24 03:38	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/20/24 03:38	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/20/24 03:38	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/20/24 03:38	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/20/24 03:38	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/20/24 03:38	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/20/24 03:38	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/20/24 03:38	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/20/24 03:38	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/20/24 03:38	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/20/24 03:38	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/20/24 03:38	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/20/24 03:38	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/20/24 03:38	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/20/24 03:38	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/20/24 03:38	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/20/24 03:38	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/20/24 03:38	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/20/24 03:38	1
Acetone	<3.10		10.0	3.10	ug/L			10/20/24 03:38	1
Acrolein	<3.60		10.0	3.60	ug/L			10/20/24 03:38	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/20/24 03:38	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/20/24 03:38	1
Benzene	<0.220		0.500	0.220	ug/L			10/20/24 03:38	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/20/24 03:38	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/20/24 03:38	1
Bromoform	<0.780		5.00	0.780	ug/L			10/20/24 03:38	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/20/24 03:38	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/20/24 03:38	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/20/24 03:38	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/20/24 03:38	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/20/24 03:38	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/20/24 03:38	1
Chloroform	<1.30		3.00	1.30	ug/L			10/20/24 03:38	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/20/24 03:38	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/20/24 03:38	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/20/24 03:38	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/20/24 03:38	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/20/24 03:38	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/20/24 03:38	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/20/24 03:38	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/20/24 03:38	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/20/24 03:38	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/20/24 03:38	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/20/24 03:38	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/20/24 03:38	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/20/24 03:38	1

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blank
Lab Sample ID: 310-292919-3
Date Collected: 10/15/24 06:00
Matrix: Water
Date Received: 10/16/24 11:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<3.00		5.00	3.00	ug/L			10/20/24 03:38	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/20/24 03:38	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/20/24 03:38	1
Styrene	<0.370		1.00	0.370	ug/L			10/20/24 03:38	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/20/24 03:38	1
Toluene	<0.430		1.00	0.430	ug/L			10/20/24 03:38	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/20/24 03:38	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/20/24 03:38	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/20/24 03:38	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/20/24 03:38	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/20/24 03:38	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/20/24 03:38	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/20/24 03:38	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/20/24 03:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/20/24 03:38*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/20/24 03:38*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/20/24 03:38*	*1*

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-401B
Lab Sample ID: 310-292919-4
Date Collected: 10/15/24 14:00
Matrix: Water
Date Received: 10/16/24 11:25

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	<0.380		1.00	0.380	ug/L			10/20/24 08:35	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/20/24 08:35	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/20/24 08:35	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/20/24 08:35	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/20/24 08:35	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/20/24 08:35	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/20/24 08:35	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/20/24 08:35	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/20/24 08:35	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/20/24 08:35	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/20/24 08:35	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/20/24 08:35	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/20/24 08:35	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/20/24 08:35	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/20/24 08:35	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/20/24 08:35	1
Acetone	**8.80**	**J**	10.0	3.10	ug/L			10/26/24 04:06	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/20/24 08:35	1
Benzene	**3.46**		0.500	0.220	ug/L			10/26/24 04:06	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/20/24 08:35	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/20/24 08:35	1
Bromoform	<0.780		5.00	0.780	ug/L			10/20/24 08:35	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/20/24 08:35	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/20/24 08:35	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/20/24 08:35	1
Chlorobenzene	**0.450**	**J**	1.00	0.400	ug/L			10/26/24 04:06	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/20/24 08:35	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/26/24 04:06	1
Chloroform	<1.30		3.00	1.30	ug/L			10/20/24 08:35	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/20/24 08:35	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/20/24 08:35	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/20/24 08:35	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/20/24 08:35	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/20/24 08:35	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/20/24 08:35	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/26/24 04:06	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/20/24 08:35	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/20/24 08:35	1
Styrene	<0.370		1.00	0.370	ug/L			10/20/24 08:35	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/20/24 08:35	1
Toluene	<0.430		1.00	0.430	ug/L			10/20/24 08:35	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/20/24 08:35	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/20/24 08:35	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/20/24 08:35	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/20/24 08:35	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/20/24 08:35	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/20/24 08:35	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/20/24 08:35	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/26/24 04:06	1

Client Sample ID: OW-401B
Lab Sample ID: 310-292919-4

Date Collected: 10/15/24 14:00
Matrix: Water

Date Received: 10/16/24 11:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*73 - 130*		*10/20/24 08:35*	*1*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/26/24 04:06*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/20/24 08:35*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/26/24 04:06*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/20/24 08:35*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/26/24 04:06*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
beta-BHC	<0.0407		0.0970	0.0407	ug/L		10/18/24 10:02	10/21/24 11:41	1
delta-BHC	<0.0310		0.0970	0.0310	ug/L		10/18/24 10:02	10/21/24 11:41	1
Endosulfan sulfate	<0.0175		0.0970	0.0175	ug/L		10/18/24 10:02	10/21/24 11:41	1
Endrin aldehyde	<0.0262		0.0970	0.0262	ug/L		10/18/24 10:02	10/21/24 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*80*		*10 - 136*	*10/18/24 10:02*	*10/21/24 11:41*	*1*
Tetrachloro-m-xylene (Surr)	*59*		*10 - 130*	*10/18/24 10:02*	*10/21/24 11:41*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<2.39		5.73	2.39	ug/L		10/20/24 20:03	10/22/24 14:08	10
Silvex (2,4,5-TP)	<0.210		0.478	0.210	ug/L		10/20/24 20:03	10/22/24 14:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*121*		*34 - 142*	*10/20/24 20:03*	*10/22/24 14:08*	*10*
DCAA	*126*		*34 - 142*	*10/20/24 20:03*	*10/22/24 14:08*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/18/24 09:30	10/21/24 13:21	1
Arsenic	**8.77**		2.00	0.530	ug/L		10/18/24 09:30	10/21/24 13:21	1
Barium	**1760**		2.00	0.660	ug/L		10/18/24 09:30	10/21/24 13:21	1
Beryllium	<0.330		1.00	0.330	ug/L		10/18/24 09:30	10/29/24 18:52	1
Cadmium	<0.100		0.200	0.100	ug/L		10/18/24 09:30	10/21/24 13:21	1
Chromium	**2.24**	**J**	5.00	1.20	ug/L		10/18/24 09:30	10/21/24 13:21	1
Cobalt	**2.87**		0.500	0.170	ug/L		10/18/24 09:30	10/21/24 13:21	1
Copper	<1.80		5.00	1.80	ug/L		10/18/24 09:30	10/21/24 13:21	1
Lead	**0.312**	**J**	0.500	0.260	ug/L		10/18/24 09:30	10/21/24 13:21	1
Nickel	**38.3**		5.00	2.10	ug/L		10/18/24 09:30	10/29/24 18:52	1
Selenium	<1.40		5.00	1.40	ug/L		10/18/24 09:30	10/21/24 13:21	1
Silver	<0.500		1.00	0.500	ug/L		10/18/24 09:30	10/21/24 13:21	1
Thallium	<0.570		1.00	0.570	ug/L		10/18/24 09:30	10/30/24 16:06	1
Vanadium	**3.15**	**J**	5.00	1.10	ug/L		10/18/24 09:30	10/21/24 13:21	1
Zinc	<9.70		20.0	9.70	ug/L		10/18/24 09:30	10/21/24 13:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		10/18/24 10:08	10/18/24 11:49	1
Total Suspended Solids (USGS I-3765-85)	**77.0**		15.0	11.1	mg/L			10/17/24 11:55	1

Client Sample Results

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-401B
Lab Sample ID: 310-292919-4
Date Collected: 10/15/24 14:00
Matrix: Water
Date Received: 10/16/24 11:25

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	8.38				NTU			10/15/24 14:00	1

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Duplicate #3
Lab Sample ID: 310-292919-5
Date Collected: 10/15/24 00:00
Matrix: Water
Date Received: 10/16/24 11:25

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	<0.380		1.00	0.380	ug/L			10/20/24 08:58	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/20/24 08:58	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/20/24 08:58	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/20/24 08:58	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/20/24 08:58	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/20/24 08:58	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/20/24 08:58	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/20/24 08:58	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/20/24 08:58	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/20/24 08:58	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/20/24 08:58	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/20/24 08:58	1
1,4-Dichlorobenzene	**1.09**		1.00	0.230	ug/L			10/20/24 08:58	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/20/24 08:58	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/20/24 08:58	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/20/24 08:58	1
Acetone	**9.16**	**J**	10.0	3.10	ug/L			10/26/24 04:29	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/20/24 08:58	1
Benzene	**3.39**		0.500	0.220	ug/L			10/26/24 04:29	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/20/24 08:58	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/20/24 08:58	1
Bromoform	<0.780		5.00	0.780	ug/L			10/20/24 08:58	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/20/24 08:58	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/20/24 08:58	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/20/24 08:58	1
Chlorobenzene	**0.447**	**J**	1.00	0.400	ug/L			10/26/24 04:29	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/20/24 08:58	1
Chloroethane	**0.905**	**J**	4.00	0.790	ug/L			10/26/24 04:29	1
Chloroform	<1.30		3.00	1.30	ug/L			10/20/24 08:58	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/20/24 08:58	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/20/24 08:58	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/20/24 08:58	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/20/24 08:58	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/20/24 08:58	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/20/24 08:58	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/26/24 04:29	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/20/24 08:58	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/26/24 04:29	1
Styrene	<0.370		1.00	0.370	ug/L			10/20/24 08:58	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/20/24 08:58	1
Toluene	<0.430		1.00	0.430	ug/L			10/20/24 08:58	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/20/24 08:58	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/20/24 08:58	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/20/24 08:58	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/20/24 08:58	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/20/24 08:58	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/20/24 08:58	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/20/24 08:58	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/26/24 04:29	1

Client Sample ID: Duplicate #3
Lab Sample ID: 310-292919-5
Date Collected: 10/15/24 00:00
Matrix: Water
Date Received: 10/16/24 11:25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/20/24 08:58*	*1*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/26/24 04:29*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/20/24 08:58*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/26/24 04:29*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/20/24 08:58*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/26/24 04:29*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/18/24 09:30	10/21/24 13:39	1
Arsenic	**8.88**		2.00	0.530	ug/L		10/18/24 09:30	10/21/24 13:39	1
Barium	**1700**		2.00	0.660	ug/L		10/18/24 09:30	10/21/24 13:39	1
Beryllium	<0.330		1.00	0.330	ug/L		10/18/24 09:30	10/29/24 18:56	1
Cadmium	<0.100		0.200	0.100	ug/L		10/18/24 09:30	10/21/24 13:39	1
Chromium	**2.10**	**J**	5.00	1.20	ug/L		10/18/24 09:30	10/21/24 13:39	1
Cobalt	**2.88**		0.500	0.170	ug/L		10/18/24 09:30	10/21/24 13:39	1
Copper	<1.80		5.00	1.80	ug/L		10/18/24 09:30	10/21/24 13:39	1
Lead	**0.335**	**J**	0.500	0.260	ug/L		10/18/24 09:30	10/21/24 13:39	1
Nickel	**39.3**		5.00	2.10	ug/L		10/18/24 09:30	10/29/24 18:56	1
Selenium	<1.40		5.00	1.40	ug/L		10/18/24 09:30	10/21/24 13:39	1
Silver	<0.500		1.00	0.500	ug/L		10/18/24 09:30	10/29/24 18:56	1
Thallium	<0.570		1.00	0.570	ug/L		10/18/24 09:30	10/30/24 16:09	1
Vanadium	**2.89**	**J**	5.00	1.10	ug/L		10/18/24 09:30	10/21/24 13:39	1
Zinc	<9.70		20.0	9.70	ug/L		10/18/24 09:30	10/21/24 13:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**61.0**		15.0	11.1	mg/L			10/18/24 07:11	1

Definitions/Glossary

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

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
^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
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: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

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	(73-130)	(80-120)	(80-120)
310-292919-1	MW-319B	100	99	101
310-292919-1	MW-319B	100	99	101
310-292919-2	MW-320B	100	98	100
310-292919-2	MW-320B	100	98	102
310-292919-3	Trip Blank	101	98	100
310-292919-4	OW-401B	101	99	100
310-292919-4	OW-401B	100	99	100
310-292919-5	Duplicate #3	100	99	99
310-292919-5	Duplicate #3	100	99	100
LCS 310-436774/6	Lab Control Sample	101	100	98
LCS 310-436774/7	Lab Control Sample	102	98	100
LCS 310-437419/6	Lab Control Sample	99	99	99
LCS 310-437419/7	Lab Control Sample	101	98	101
MB 310-436774/5	Method Blank	100	98	100
MB 310-437419/5	Method Blank	100	98	101

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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)
310-292919-4	OW-401B	80	59

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1	DCPAA2
Lab Sample ID	Client Sample ID	(34-142)	(34-142)
310-292919-4	OW-401B	121	126
LCS 410-565451/2-A	Lab Control Sample	96	92
LCSD 410-565451/3-A	Lab Control Sample Dup	93	90
MB 410-565451/1-A	Method Blank	86	81

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-436774/5
Matrix: Water
Analysis Batch: 436774

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	<0.380		1.00	0.380	ug/L			10/20/24 00:37	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/20/24 00:37	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/20/24 00:37	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/20/24 00:37	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/20/24 00:37	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/20/24 00:37	1
1,1-Dichloropropene	<0.430		1.00	0.430	ug/L			10/20/24 00:37	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/20/24 00:37	1
1,2,4-Trichlorobenzene	<0.750		5.00	0.750	ug/L			10/20/24 00:37	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/20/24 00:37	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/20/24 00:37	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/20/24 00:37	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/20/24 00:37	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/20/24 00:37	1
1,3-Dichlorobenzene	<0.300		1.00	0.300	ug/L			10/20/24 00:37	1
1,3-Dichloropropane	<0.400		1.00	0.400	ug/L			10/20/24 00:37	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/20/24 00:37	1
2,2-Dichloropropane	<0.690		4.00	0.690	ug/L			10/20/24 00:37	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/20/24 00:37	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/20/24 00:37	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/20/24 00:37	1
Acetone	<3.10		10.0	3.10	ug/L			10/20/24 00:37	1
Acrolein	<3.60		10.0	3.60	ug/L			10/20/24 00:37	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/20/24 00:37	1
Allyl chloride	<0.700		2.00	0.700	ug/L			10/20/24 00:37	1
Benzene	0.2275	J	0.500	0.220	ug/L			10/20/24 00:37	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/20/24 00:37	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/20/24 00:37	1
Bromoform	<0.780		5.00	0.780	ug/L			10/20/24 00:37	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/20/24 00:37	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/20/24 00:37	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/20/24 00:37	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/20/24 00:37	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/20/24 00:37	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/20/24 00:37	1
Chloroform	<1.30		3.00	1.30	ug/L			10/20/24 00:37	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/20/24 00:37	1
Chloroprene	<0.230		1.00	0.230	ug/L			10/20/24 00:37	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/20/24 00:37	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/20/24 00:37	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/20/24 00:37	1
Dichlorodifluoromethane	<0.250		3.00	0.250	ug/L			10/20/24 00:37	1
Ethyl methacrylate	<0.680		2.00	0.680	ug/L			10/20/24 00:37	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/20/24 00:37	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/20/24 00:37	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/20/24 00:37	1
Methacrylonitrile	<3.30		10.0	3.30	ug/L			10/20/24 00:37	1
Methyl methacrylate	<0.760		2.00	0.760	ug/L			10/20/24 00:37	1

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

Lab Sample ID: MB 310-436774/5
Matrix: Water
Analysis Batch: 436774

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/20/24 00:37	1
Naphthalene	<3.00		5.00	3.00	ug/L			10/20/24 00:37	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/20/24 00:37	1
Propionitrile	<3.40		10.0	3.40	ug/L			10/20/24 00:37	1
Styrene	<0.370		1.00	0.370	ug/L			10/20/24 00:37	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/20/24 00:37	1
Toluene	<0.430		1.00	0.430	ug/L			10/20/24 00:37	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/20/24 00:37	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/20/24 00:37	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/20/24 00:37	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/20/24 00:37	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/20/24 00:37	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/20/24 00:37	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/20/24 00:37	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/20/24 00:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/20/24 00:37*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/20/24 00:37*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/20/24 00:37*	*1*

Lab Sample ID: LCS 310-436774/6
Matrix: Water
Analysis Batch: 436774

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	19.54		ug/L		98	71 - 120
1,1,1-Trichloroethane	20.0	20.69		ug/L		103	73 - 129
1,1,2,2-Tetrachloroethane	20.0	19.00		ug/L		95	68 - 124
1,1,2-Trichloroethane	20.0	19.88		ug/L		99	73 - 123
1,1-Dichloroethane	20.0	20.16		ug/L		101	70 - 127
1,1-Dichloroethene	20.0	20.40		ug/L		102	63 - 132
1,1-Dichloropropene	20.0	20.89		ug/L		104	69 - 132
1,2,3-Trichloropropane	20.0	19.33		ug/L		97	65 - 127
1,2,4-Trichlorobenzene	20.0	20.45		ug/L		102	68 - 124
1,2-Dibromo-3-Chloropropane	20.0	18.08		ug/L		90	50 - 150
1,2-Dibromoethane (EDB)	20.0	20.31		ug/L		102	75 - 125
1,2-Dichlorobenzene	20.0	20.33		ug/L		102	74 - 120
1,2-Dichloroethane	20.0	20.11		ug/L		101	71 - 125
1,2-Dichloropropane	20.0	19.75		ug/L		99	73 - 124
1,3-Dichlorobenzene	20.0	20.30		ug/L		101	72 - 120
1,3-Dichloropropane	20.0	20.10		ug/L		101	72 - 125
1,4-Dichlorobenzene	20.0	20.01		ug/L		100	72 - 120
2,2-Dichloropropane	20.0	19.09		ug/L		95	50 - 150
2-Butanone (MEK)	40.0	35.86		ug/L		90	50 - 150
2-Hexanone	40.0	37.17		ug/L		93	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	37.34		ug/L		93	60 - 139
Acetone	40.0	36.50		ug/L		91	50 - 150

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

Lab Sample ID: LCS 310-436774/6
Matrix: Water
Analysis Batch: 436774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acrolein	95.5	82.60		ug/L		86	49 - 150
Acrylonitrile	200	190.1		ug/L		95	50 - 150
Allyl chloride	20.0	19.85		ug/L		99	49 - 150
Benzene	20.0	20.28		ug/L		101	72 - 124
Bromochloromethane	20.0	20.66		ug/L		103	73 - 130
Bromodichloromethane	20.0	19.46		ug/L		97	74 - 122
Bromoform	20.0	17.84		ug/L		89	61 - 122
Carbon disulfide	20.0	19.97		ug/L		100	59 - 135
Carbon tetrachloride	20.0	20.50		ug/L		103	67 - 132
Chlorobenzene	20.0	20.22		ug/L		101	76 - 120
Chlorodibromomethane	20.0	18.98		ug/L		95	71 - 121
Chloroform	20.0	19.31		ug/L		97	72 - 125
Chloroprene	20.0	20.13		ug/L		101	69 - 133
cis-1,2-Dichloroethene	20.0	20.24		ug/L		101	74 - 123
cis-1,3-Dichloropropene	20.0	19.62		ug/L		98	71 - 125
Dibromomethane	20.0	19.72		ug/L		99	74 - 125
Ethyl methacrylate	20.0	19.91		ug/L		100	70 - 129
Ethylbenzene	20.0	20.70		ug/L		103	74 - 122
Iodomethane	20.0	12.99		ug/L		65	10 - 150
Methacrylonitrile	200	193.8		ug/L		97	69 - 129
Methyl methacrylate	40.0	40.03		ug/L		100	68 - 131
Methylene Chloride	20.0	20.31		ug/L		102	50 - 150
Naphthalene	20.0	20.66		ug/L		103	50 - 150
Propionitrile	200	188.8		ug/L		94	63 - 135
Styrene	20.0	21.01		ug/L		105	74 - 121
Tetrachloroethene	20.0	21.11		ug/L		106	71 - 130
Toluene	20.0	20.19		ug/L		101	74 - 123
trans-1,2-Dichloroethene	20.0	20.46		ug/L		102	70 - 126
trans-1,3-Dichloropropene	20.0	19.28		ug/L		96	69 - 123
trans-1,4-Dichloro-2-butene	20.0	16.30		ug/L		81	50 - 150
Trichloroethene	20.0	20.82		ug/L		104	72 - 126
Vinyl acetate	40.0	36.81		ug/L		92	50 - 150
Xylenes, Total	40.0	41.76		ug/L		104	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Lab Sample ID: LCS 310-436774/7
Matrix: Water
Analysis Batch: 436774

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	14.11		ug/L		71	23 - 150
Chloroethane	20.0	18.41		ug/L		92	54 - 136
Chloromethane	20.0	15.86		ug/L		79	38 - 150
Dichlorodifluoromethane	20.0	14.75		ug/L		74	39 - 150

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

Lab Sample ID: LCS 310-436774/7
Matrix: Water
Analysis Batch: 436774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Trichlorofluoromethane			20.0	20.79		ug/L		104	54 - 149		
Vinyl chloride			20.0	17.63		ug/L		88	56 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*102*		*73 - 130*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 310-437419/5
Matrix: Water
Analysis Batch: 437419

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	<0.380		1.00	0.380	ug/L			10/25/24 23:10	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/25/24 23:10	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/25/24 23:10	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/25/24 23:10	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/25/24 23:10	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/25/24 23:10	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/25/24 23:10	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/25/24 23:10	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/25/24 23:10	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/25/24 23:10	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/25/24 23:10	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/25/24 23:10	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/25/24 23:10	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/25/24 23:10	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/25/24 23:10	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/25/24 23:10	1
Acetone	<3.10		10.0	3.10	ug/L			10/25/24 23:10	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/25/24 23:10	1
Benzene	<0.220		0.500	0.220	ug/L			10/25/24 23:10	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/25/24 23:10	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/25/24 23:10	1
Bromoform	<0.780		5.00	0.780	ug/L			10/25/24 23:10	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/25/24 23:10	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/25/24 23:10	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/25/24 23:10	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/25/24 23:10	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/25/24 23:10	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/25/24 23:10	1
Chloroform	<1.30		3.00	1.30	ug/L			10/25/24 23:10	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/25/24 23:10	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/25/24 23:10	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/25/24 23:10	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/25/24 23:10	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/25/24 23:10	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/25/24 23:10	1

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

Lab Sample ID: MB 310-437419/5
Matrix: Water
Analysis Batch: 437419

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/25/24 23:10	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/25/24 23:10	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/25/24 23:10	1
Styrene	<0.370		1.00	0.370	ug/L			10/25/24 23:10	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/25/24 23:10	1
Toluene	<0.430		1.00	0.430	ug/L			10/25/24 23:10	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/25/24 23:10	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/25/24 23:10	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/25/24 23:10	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/25/24 23:10	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/25/24 23:10	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/25/24 23:10	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/25/24 23:10	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/25/24 23:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/25/24 23:10*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/25/24 23:10*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*10/25/24 23:10*	*1*

Lab Sample ID: LCS 310-437419/6
Matrix: Water
Analysis Batch: 437419

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	21.20		ug/L		106	71 - 120
1,1,1-Trichloroethane	20.0	21.86		ug/L		109	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.32		ug/L		102	68 - 124
1,1,2-Trichloroethane	20.0	20.91		ug/L		105	73 - 123
1,1-Dichloroethane	20.0	22.00		ug/L		110	70 - 127
1,1-Dichloroethene	20.0	22.77		ug/L		114	63 - 132
1,2,3-Trichloropropane	20.0	20.45		ug/L		102	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	19.59		ug/L		98	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.10		ug/L		105	75 - 125
1,2-Dichlorobenzene	20.0	21.39		ug/L		107	74 - 120
1,2-Dichloroethane	20.0	19.54		ug/L		98	71 - 125
1,2-Dichloropropane	20.0	21.68		ug/L		108	73 - 124
1,4-Dichlorobenzene	20.0	21.08		ug/L		105	72 - 120
2-Butanone (MEK)	40.0	37.29		ug/L		93	50 - 150
2-Hexanone	40.0	37.70		ug/L		94	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	39.03		ug/L		98	60 - 139
Acetone	40.0	37.84		ug/L		95	50 - 150
Acrylonitrile	200	209.9		ug/L		105	50 - 150
Benzene	20.0	22.19		ug/L		111	72 - 124
Bromochloromethane	20.0	21.70		ug/L		109	73 - 130
Bromodichloromethane	20.0	21.34		ug/L		107	74 - 122
Bromoform	20.0	20.14		ug/L		101	61 - 122
Carbon disulfide	20.0	22.49		ug/L		112	59 - 135

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

Lab Sample ID: LCS 310-437419/6
Matrix: Water
Analysis Batch: 437419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Carbon tetrachloride	20.0	22.21		ug/L		111	67 - 132
Chlorobenzene	20.0	21.83		ug/L		109	76 - 120
Chlorodibromomethane	20.0	20.63		ug/L		103	71 - 121
Chloroform	20.0	24.18		ug/L		121	72 - 125
cis-1,2-Dichloroethene	20.0	21.86		ug/L		109	74 - 123
cis-1,3-Dichloropropene	20.0	19.39		ug/L		97	71 - 125
Dibromomethane	20.0	20.78		ug/L		104	74 - 125
Ethylbenzene	20.0	22.25		ug/L		111	74 - 122
Iodomethane	20.0	12.38		ug/L		62	10 - 150
Methylene Chloride	20.0	21.55		ug/L		108	50 - 150
Styrene	20.0	22.23		ug/L		111	74 - 121
Tetrachloroethene	20.0	22.25		ug/L		111	71 - 130
Toluene	20.0	21.58		ug/L		108	74 - 123
trans-1,2-Dichloroethene	20.0	22.14		ug/L		111	70 - 126
trans-1,3-Dichloropropene	20.0	18.85		ug/L		94	69 - 123
trans-1,4-Dichloro-2-butene	20.0	15.15		ug/L		76	50 - 150
Trichloroethene	20.0	22.68		ug/L		113	72 - 126
Vinyl acetate	40.0	35.89		ug/L		90	50 - 150
Xylenes, Total	40.0	44.23		ug/L		111	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*

Lab Sample ID: LCS 310-437419/7
Matrix: Water
Analysis Batch: 437419

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	16.43		ug/L		82	23 - 150
Chloroethane	20.0	19.33		ug/L		97	54 - 136
Chloromethane	20.0	20.24		ug/L		101	38 - 150
Trichlorofluoromethane	20.0	21.95		ug/L		110	54 - 149
Vinyl chloride	20.0	20.86		ug/L		104	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-565451/1-A
Matrix: Water
Analysis Batch: 566062

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565451

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.250		0.600	0.250	ug/L		10/20/24 20:03	10/22/24 11:19	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		10/20/24 20:03	10/22/24 11:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*86*		*34 - 142*	*10/20/24 20:03*	*10/22/24 11:19*	*1*
DCAA	*81*		*34 - 142*	*10/20/24 20:03*	*10/22/24 11:19*	*1*

Lab Sample ID: LCS 410-565451/2-A
Matrix: Water
Analysis Batch: 566062

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565451

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D			2.50	2.505		ug/L		100	53 - 159		
Silvex (2,4,5-TP)			0.250	0.2969		ug/L		119	62 - 170		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*96*		*34 - 142*
DCAA	*92*		*34 - 142*

Lab Sample ID: LCSD 410-565451/3-A
Matrix: Water
Analysis Batch: 566062

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 565451

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D			2.50	2.481		ug/L		99	53 - 159	1	30
Silvex (2,4,5-TP)			0.250	0.2847		ug/L		114	62 - 170	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA	*93*		*34 - 142*
DCAA	*90*		*34 - 142*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-436655/1-A
Matrix: Water
Analysis Batch: 437042

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/18/24 09:30	10/21/24 12:47	1
Arsenic	<0.530		2.00	0.530	ug/L		10/18/24 09:30	10/21/24 12:47	1
Barium	<0.660		2.00	0.660	ug/L		10/18/24 09:30	10/21/24 12:47	1
Cadmium	<0.100		0.200	0.100	ug/L		10/18/24 09:30	10/21/24 12:47	1
Chromium	<1.20		5.00	1.20	ug/L		10/18/24 09:30	10/21/24 12:47	1
Cobalt	<0.170		0.500	0.170	ug/L		10/18/24 09:30	10/21/24 12:47	1
Copper	<1.80		5.00	1.80	ug/L		10/18/24 09:30	10/21/24 12:47	1
Lead	<0.260		0.500	0.260	ug/L		10/18/24 09:30	10/21/24 12:47	1
Selenium	<1.40		5.00	1.40	ug/L		10/18/24 09:30	10/21/24 12:47	1
Silver	<0.500		1.00	0.500	ug/L		10/18/24 09:30	10/21/24 12:47	1

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

Lab Sample ID: MB 310-436655/1-A
Matrix: Water
Analysis Batch: 437042

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	<1.10		5.00	1.10	ug/L		10/18/24 09:30	10/21/24 12:47	1
Zinc	<9.70		20.0	9.70	ug/L		10/18/24 09:30	10/21/24 12:47	1

Lab Sample ID: MB 310-436655/1-A
Matrix: Water
Analysis Batch: 437173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.570		1.00	0.570	ug/L		10/18/24 09:30	10/22/24 20:12	1

Lab Sample ID: MB 310-436655/1-A
Matrix: Water
Analysis Batch: 437341

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	<0.330		1.00	0.330	ug/L		10/18/24 09:30	10/23/24 12:32	1
Silver	<0.500		1.00	0.500	ug/L		10/18/24 09:30	10/23/24 12:32	1

Lab Sample ID: MB 310-436655/1-A
Matrix: Water
Analysis Batch: 438021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	<2.10		5.00	2.10	ug/L		10/18/24 09:30	10/29/24 18:22	1

Lab Sample ID: LCS 310-436655/2-A
Matrix: Water
Analysis Batch: 437042

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	197.6		ug/L		99	80 - 120
Arsenic	200	203.8		ug/L		102	80 - 120
Barium	100	97.54		ug/L		98	80 - 120
Cadmium	100	95.01		ug/L		95	80 - 120
Chromium	100	95.61		ug/L		96	80 - 120
Cobalt	100	96.39		ug/L		96	80 - 120
Copper	200	190.8		ug/L		95	80 - 120
Lead	200	194.7		ug/L		97	80 - 120
Selenium	400	356.1		ug/L		89	80 - 120
Silver	100	102.6		ug/L		103	80 - 120
Vanadium	100	92.98		ug/L		93	80 - 120
Zinc	200	189.7		ug/L		95	80 - 120

Lab Sample ID: LCS 310-436655/2-A
Matrix: Water
Analysis Batch: 437173

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Thallium	100	83.66		ug/L		84	80 - 120

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

Lab Sample ID: LCS 310-436655/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 437341
Prep Batch: 436655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	100	94.12		ug/L		94	80 - 120

Lab Sample ID: LCS 310-436655/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 438021
Prep Batch: 436655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	200	192.2		ug/L		96	80 - 120

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-631459/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 631483
Prep Batch: 631459

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		10/18/24 10:08	10/18/24 11:49	1

Lab Sample ID: LCS 240-631459/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 631483
Prep Batch: 631459

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	6.80	5.333		mg/L		78	70 - 120

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-436606/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436606

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			10/17/24 11:55	1

Lab Sample ID: LCS 310-436606/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436606

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	108.0		mg/L		108	81 - 116

Lab Sample ID: MB 310-436687/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 436687

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<3.70		5.00	3.70	mg/L			10/18/24 07:11	1

Method: I-3765-85 - Residue, Non-filterable (TSS) (Continued)

Lab Sample ID: LCS 310-436687/2
Matrix: Water
Analysis Batch: 436687

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	101.0		mg/L		101	81 - 116		

Lab Sample ID: 310-292919-5 DU
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Duplicate #3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	61.0			59.00		mg/L				3	35

GC/MS VOA

Analysis Batch: 436774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	8260D	
310-292919-2	MW-320B	Total/NA	Water	8260D	
310-292919-3	Trip Blank	Total/NA	Water	8260D	
310-292919-4	OW-401B	Total/NA	Water	8260D	
310-292919-5	Duplicate #3	Total/NA	Water	8260D	
MB 310-436774/5	Method Blank	Total/NA	Water	8260D	
LCS 310-436774/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-436774/7	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 437419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	8260D	
310-292919-2	MW-320B	Total/NA	Water	8260D	
310-292919-4	OW-401B	Total/NA	Water	8260D	
310-292919-5	Duplicate #3	Total/NA	Water	8260D	
MB 310-437419/5	Method Blank	Total/NA	Water	8260D	
LCS 310-437419/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-437419/7	Lab Control Sample	Total/NA	Water	8260D	

GC Semi VOA

Prep Batch: 436739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-4	OW-401B	Total/NA	Water	3511	

Analysis Batch: 436901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-4	OW-401B	Total/NA	Water	8081B	436739

Prep Batch: 565451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-4	OW-401B	Total/NA	Water	8151A	
MB 410-565451/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-565451/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 410-565451/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 566062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-4	OW-401B	Total/NA	Water	8151A	565451
MB 410-565451/1-A	Method Blank	Total/NA	Water	8151A	565451
LCS 410-565451/2-A	Lab Control Sample	Total/NA	Water	8151A	565451
LCSD 410-565451/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	565451

Metals

Prep Batch: 436655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	3005A	
310-292919-2	MW-320B	Total/NA	Water	3005A	
310-292919-4	OW-401B	Total/NA	Water	3005A	
310-292919-5	Duplicate #3	Total/NA	Water	3005A	
MB 310-436655/1-A	Method Blank	Total/NA	Water	3005A	

Metals (Continued)

Prep Batch: 436655 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-436655/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 437042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	6020B	436655
310-292919-2	MW-320B	Total/NA	Water	6020B	436655
310-292919-4	OW-401B	Total/NA	Water	6020B	436655
310-292919-5	Duplicate #3	Total/NA	Water	6020B	436655
MB 310-436655/1-A	Method Blank	Total/NA	Water	6020B	436655
LCS 310-436655/2-A	Lab Control Sample	Total/NA	Water	6020B	436655

Analysis Batch: 437173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	6020B	436655
MB 310-436655/1-A	Method Blank	Total/NA	Water	6020B	436655
LCS 310-436655/2-A	Lab Control Sample	Total/NA	Water	6020B	436655

Analysis Batch: 437341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-436655/1-A	Method Blank	Total/NA	Water	6020B	436655
LCS 310-436655/2-A	Lab Control Sample	Total/NA	Water	6020B	436655

Analysis Batch: 438021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	6020B	436655
310-292919-2	MW-320B	Total/NA	Water	6020B	436655
310-292919-4	OW-401B	Total/NA	Water	6020B	436655
310-292919-5	Duplicate #3	Total/NA	Water	6020B	436655
MB 310-436655/1-A	Method Blank	Total/NA	Water	6020B	436655
LCS 310-436655/2-A	Lab Control Sample	Total/NA	Water	6020B	436655

Analysis Batch: 438161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	6020B	436655
310-292919-2	MW-320B	Total/NA	Water	6020B	436655
310-292919-4	OW-401B	Total/NA	Water	6020B	436655
310-292919-5	Duplicate #3	Total/NA	Water	6020B	436655

General Chemistry

Analysis Batch: 436606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-2	MW-320B	Total/NA	Water	I-3765-85	
310-292919-4	OW-401B	Total/NA	Water	I-3765-85	
MB 310-436606/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-436606/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 436687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	I-3765-85	
310-292919-5	Duplicate #3	Total/NA	Water	I-3765-85	

General Chemistry (Continued)

Analysis Batch: 436687 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-436687/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-436687/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-292919-5 DU	Duplicate #3	Total/NA	Water	I-3765-85	

Prep Batch: 631459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-4	OW-401B	Total/NA	Water	9030B	
MB 240-631459/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-631459/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 631483

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-4	OW-401B	Total/NA	Water	9034	631459
MB 240-631459/1-A	Method Blank	Total/NA	Water	9034	631459
LCS 240-631459/2-A	Lab Control Sample	Total/NA	Water	9034	631459

Field Service / Mobile Lab

Analysis Batch: 436597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-292919-1	MW-319B	Total/NA	Water	Field Sampling	
310-292919-2	MW-320B	Total/NA	Water	Field Sampling	
310-292919-4	OW-401B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: MW-319B
Lab Sample ID: 310-292919-1
Date Collected: 10/15/24 10:15
Matrix: Water
Date Received: 10/16/24 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436774	FE5V	EET CF	10/20/24 07:49
Total/NA	Analysis	8260D		1	437419	FE5V	EET CF	10/26/24 03:21
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	437042	A6US	EET CF	10/21/24 13:13
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438021	NFT2	EET CF	10/29/24 18:45
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	437173	A6US	EET CF	10/22/24 20:26
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438161	A6US	EET CF	10/30/24 16:00
Total/NA	Analysis	I-3765-85		1	436687	DGU1	EET CF	10/18/24 07:11
Total/NA	Analysis	Field Sampling		1	436597	BJ0R	EET CF	10/15/24 10:15

Client Sample ID: MW-320B
Lab Sample ID: 310-292919-2
Date Collected: 10/15/24 10:45
Matrix: Water
Date Received: 10/16/24 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436774	FE5V	EET CF	10/20/24 08:12
Total/NA	Analysis	8260D		1	437419	FE5V	EET CF	10/26/24 03:43
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	437042	A6US	EET CF	10/21/24 13:17
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438021	NFT2	EET CF	10/29/24 18:49
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438161	A6US	EET CF	10/30/24 16:03
Total/NA	Analysis	I-3765-85		1	436606	DGU1	EET CF	10/17/24 11:55
Total/NA	Analysis	Field Sampling		1	436597	BJ0R	EET CF	10/15/24 10:45

Client Sample ID: Trip Blank
Lab Sample ID: 310-292919-3
Date Collected: 10/15/24 06:00
Matrix: Water
Date Received: 10/16/24 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436774	FE5V	EET CF	10/20/24 03:38

Client Sample ID: OW-401B
Lab Sample ID: 310-292919-4
Date Collected: 10/15/24 14:00
Matrix: Water
Date Received: 10/16/24 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436774	FE5V	EET CF	10/20/24 08:35
Total/NA	Analysis	8260D		1	437419	FE5V	EET CF	10/26/24 04:06

Lab Chronicle

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-401B
Lab Sample ID: 310-292919-4
Date Collected: 10/15/24 14:00
Matrix: Water
Date Received: 10/16/24 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3511			436739	BW2O	EET CF	10/18/24 10:02
Total/NA	Analysis	8081B		1	436901	BW2O	EET CF	10/21/24 11:41
Total/NA	Prep	8151A			565451	UKL2	ELLE	10/20/24 20:03
Total/NA	Analysis	8151A		10	566062	UAMZ	ELLE	10/22/24 14:08
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	437042	A6US	EET CF	10/21/24 13:21
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438021	NFT2	EET CF	10/29/24 18:52
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438161	A6US	EET CF	10/30/24 16:06
Total/NA	Prep	9030B			631459	PQD2	EET CLE	10/18/24 10:08
Total/NA	Analysis	9034		1	631483	PQD2	EET CLE	10/18/24 11:49
Total/NA	Analysis	I-3765-85		1	436606	DGU1	EET CF	10/17/24 11:55
Total/NA	Analysis	Field Sampling		1	436597	BJ0R	EET CF	10/15/24 14:00

Client Sample ID: Duplicate #3
Lab Sample ID: 310-292919-5
Date Collected: 10/15/24 00:00
Matrix: Water
Date Received: 10/16/24 11:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	436774	FE5V	EET CF	10/20/24 08:58
Total/NA	Analysis	8260D		1	437419	FE5V	EET CF	10/26/24 04:29
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	437042	A6US	EET CF	10/21/24 13:39
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438021	NFT2	EET CF	10/29/24 18:56
Total/NA	Prep	3005A			436655	F5MW	EET CF	10/18/24 09:30
Total/NA	Analysis	6020B		1	438161	A6US	EET CF	10/30/24 16:09
Total/NA	Analysis	I-3765-85		1	436687	DGU1	EET CF	10/18/24 07:11

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	1,2,4-Trichlorobenzene
8260D		Water	Allyl chloride
8260D		Water	Ethyl methacrylate
8260D		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Cleveland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	421	06-01-25

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-26

Method Summary

Client: AECOM
Job ID: 310-292919-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
8151A	Herbicides (GC)	SW846	ELLE
6020B	Metals (ICP/MS)	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
3511	Microextraction of Organic Compounds	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

eurofins | Environment Testing America

310-292919 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 10/16/24 | TIME 1125 | Received By: PH

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? ↓

All

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: P | 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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No
AECOM	Email Christopher Oelkers@aecom.com	**Site Contact:** / **Date:** 10-16-24	1 of 2 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS		Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		**For Lab Use Only:** Walk-in Client / Lab Sampling
(xxx) xxx-xxxx FAX			
Project Name Black Hawk Co IDNR			Job / SDG No
Site Black Hawk County Landfill			
P O #			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B			G	GW		N		X		X							X		
OW-221B			G	GW		N		X											
OW-222B			G	GW		N		X											
OW-223B			G	GW		N		X											
OW-223B-FD			G	GW		N		X											
OW-224B			G	GW		N			X										
OW-225B			G	GW		N			X										
OW-226B			G	GW		N			X										
OW-227B			G	GW		N			X										
MW-319B	10-15-24	1015	G	GW	5	N		X											Turbidity - 1.94 NTU
MW-320B	10-15-24	1045	G	GW	5	N		X											Turbidity - 10.84 NTU
Equipment Blank-1			G	GW		N		X											
Trip Blank	10-15-24	0600	G	W	3	N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd. _____ Corr'd _____ Therm ID No. _____

Relinquished by: Ben Porter	Company: Aecom	Date/Time 10-16-24	Received by:	Company:	Date/Time 10/16/24 1125
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	Project Manager: Chris Oelkers	Site Contact:	Date: 10-16-24	COC No
AECOM	Email Christopher Oelkers@aecom.com	Lab Contact:	Carrier:	2 of 2 COCs
501 Sycamore Street, Suite 222	Tel/Fax:319-296-6878			TALS Project #
Waterloo, IA 50703	Analysis Turnaround Time			Sampler
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below			Walk-in Client.
Project Name Black Hawk Co IDNR	☑ 2 weeks			Lab Sampling
Site Black Hawk County Landfill	☐ 1 week			Job / SDG No
P O #	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	2,4,5-T	Bis(2-ethylhexyl)phthalate					Sample Specific Notes
OW-401B	10-15-24	1400	G	GW	10	N		X		X		X	X		X	X	X	X							Turbidity - 8.38 NTU
OW-402B			G	GW		N		X		X		X			X		X	X	X	X					
MW-409B			G	GW		N		X																	
MW-409B-FD			G	GW		N		X																	
OW-413B			G	GW		N		X																	
MW-501B			G	GW		N		X																	
MW-602B			G	GW		N		X																	
Duplicate #3	10-15-24	—	G	GW	5	N		X																	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temp (°C) Obs'd._____ Corr'd._____ Therm ID No._____			
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-16-24	Received by:	Company:	Date/Time: 10/16/24 1125
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

5.1/5.1

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77408.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292919-1
Address: 180 S. Van Buren Avenue, ,	Due Date Requested: 10/29/2024	Analysis Requested		Preservation Codes: -
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			Other:

G109

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:						
OW-401B (310-292919-4)	10/15/24	14:00 Central	G	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
	10/15/24 1745		JMOROSKO	10/17/24 1000	
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:

10/31/2024

Eurofins – Cleveland Sample Receipt Form/Narrative Login # :
Barberton Facility

Client Eurofins Cedar Falls Site Name

Cooler unpacked by: JMOROSKO

Cooler Received on 10/17/24 Opened on 10/17/24

FedEx: 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # FC Foam Box Client Cooler Box Other

Packing material used. (Bubble Wrap) Foam Plastic Bag None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 24 (CF +0.0 °C) Observed Cooler Temp. 5.5 °C Corrected Cooler Temp 5.1 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3 Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC? JMO 10/17	Yes	(No)
7 Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	(Y)	(Y) (Y)
10 Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11 Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	(Yes)	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# ~~HC447997~~
14 Were VOAs on the COC?	Yes	(No)
15 Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	(No) NA
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	(No)
17 Was a LL Hg or Me Hg trip blank present?	Yes	(No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

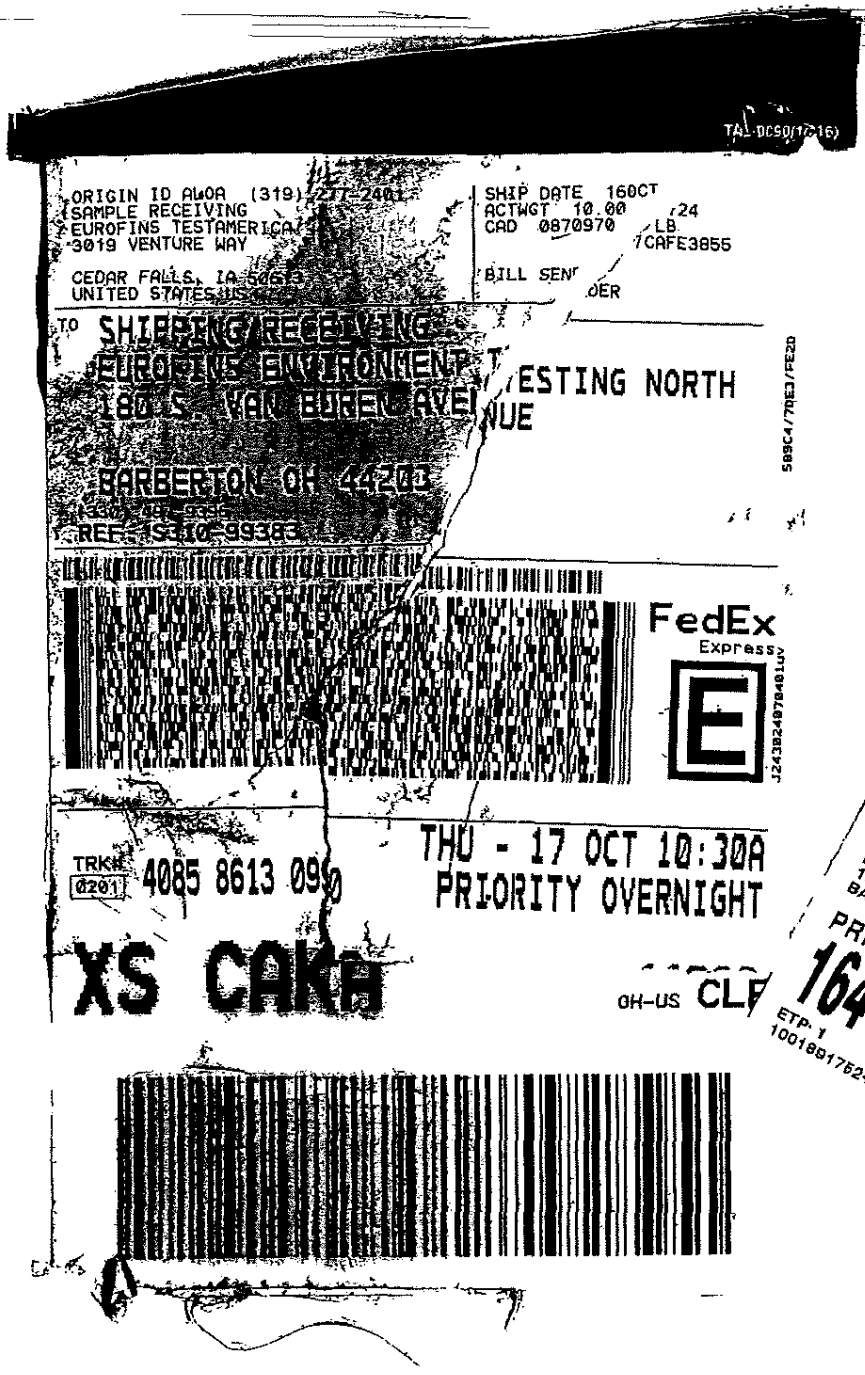
20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved. Preservative(s) added/Lot number(s)

VOA Sample Preservation - Date/Time VOAs Frozen.

TAL-DC90(1/16)



ORIGIN ID AWOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

SHIP DATE 16OCT
ACTWGT 10.00 /24
CAD 0870970 LB
7CAFE3855

BILL SEN DER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT T ESTING NORTH
180 S. VAN BUREN AVE NUE

BARBERTON OH 44203
(330) 497-9396
REF: S310-99383

589C4/70E3/FE2D

FedEx
Express

E

J243024078401UV

TRK# 0201 4085 8613 090

THU - 17 OCT 10:30A
PRIORITY OVERNIGHT

XS CAKA

OH-US CLE

4450 THU 10/17 08:53 327750
EUROFINS ENVIRONMENT TESTING NORTH
180 S VAN BUREN AVE
BARBERTON OH 44203-3543-80
PRIORITY OVERNIGHT
164-7022
ETP: 1
SP:PD:100:Y
1001891752410004420300408586130990

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77403.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-292919-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 10/29/2024			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			

Analysis Requested

Preservation Codes:

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)	8151A/8151A_AP 2,4-D and Silvex	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-401B (310-292919-4)	10/15/24	14:00 Central	G	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		10/16/24 1255				
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by: Debra A. Beyer	Date/Time: 10-17-24 10:30	Company: ELLET

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2: 1.6 C: 1.4

HM

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-292919-1

Login Number: 292919

List Number: 1

Creator: Hirsch, Preston

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: AECOM

Job Number: 310-292919-1

Login Number: 292919
List Number: 2
Creator: Arroyo, Haley

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 10/17/24 11:41 AM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	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: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 11/4/2024 2:55:42 PM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-293059-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

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
11/4/2024 2:55:42 PM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job ID: 310-293059-1 — Eurofins Cedar Falls

Job Narrative
310-293059-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/17/2024 1:05 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 0.6°C.

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

GC/MS 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.

Pesticides
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.

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

Sample Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-293059-1	OW-402B	Water	10/16/24 09:30	10/17/24 13:05
310-293059-2	OW-413B	Water	10/16/24 12:00	10/17/24 13:05
310-293059-3	Trip Blanks	Water	10/16/24 06:00	10/17/24 13:05

Detection Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B — Lab Sample ID: 310-293059-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.425	J	1.00	0.220	ug/L	1		8260D	Total/NA
1,2-Dichloropropane	0.296	J	1.00	0.270	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.591	J	1.00	0.230	ug/L	1		8260D	Total/NA
Benzene	0.947		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	0.809	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	10.4		1.00	0.210	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.605	J	1.00	0.270	ug/L	1		8260D	Total/NA
Vinyl chloride	1.55		1.00	0.180	ug/L	1		8260D	Total/NA
Bis(2-ethylhexyl) phthalate	6.98	J	10.4	5.73	ug/L	1		8270E	Total/NA
Silvex (2,4,5-TP)	0.889		0.559	0.246	ug/L	10		8151A	Total/NA
Arsenic	0.841	J	2.00	0.530	ug/L	1		6020B	Total/NA
Barium	988		2.00	0.660	ug/L	1		6020B	Total/NA
Cadmium	0.514		0.200	0.100	ug/L	1		6020B	Total/NA
Chromium	8.64		5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	7.99		0.500	0.170	ug/L	1		6020B	Total/NA
Copper	3.87	J	5.00	1.80	ug/L	1		6020B	Total/NA
Nickel	353		5.00	2.10	ug/L	1		6020B	Total/NA
Silver	0.645	J	1.00	0.500	ug/L	1		6020B	Total/NA
Total Suspended Solids	7.13		1.88	1.39	mg/L	1		I-3765-85	Total/NA
Field Turbidity	0.76				NTU	1		Field Sampling	Total/NA

Client Sample ID: OW-413B — Lab Sample ID: 310-293059-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.255	J	1.00	0.220	ug/L	1		8260D	Total/NA
Benzene	1.90		0.500	0.220	ug/L	1		8260D	Total/NA
Chloroethane	0.893	J	4.00	0.790	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	0.755	J	1.00	0.210	ug/L	1		8260D	Total/NA
Arsenic	6.37		2.00	0.530	ug/L	1		6020B	Total/NA
Barium	544		2.00	0.660	ug/L	1		6020B	Total/NA
Chromium	2.65	J	5.00	1.20	ug/L	1		6020B	Total/NA
Cobalt	2.82		0.500	0.170	ug/L	1		6020B	Total/NA
Lead	0.286	J	0.500	0.260	ug/L	1		6020B	Total/NA
Nickel	5.01		5.00	2.10	ug/L	1		6020B	Total/NA
Vanadium	3.51	J	5.00	1.10	ug/L	1		6020B	Total/NA
Total Suspended Solids	75.0		15.0	11.1	mg/L	1		I-3765-85	Total/NA
Field Turbidity	25.27				NTU	1		Field Sampling	Total/NA

Client Sample ID: Trip Blanks — Lab Sample ID: 310-293059-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B
Lab Sample ID: 310-293059-1
Date Collected: 10/16/24 09:30
Matrix: Water
Date Received: 10/17/24 13:05

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	<0.380		1.00	0.380	ug/L			10/23/24 11:19	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/23/24 11:19	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/23/24 11:19	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/23/24 11:19	1
1,1-Dichloroethane	**0.425**	**J**	1.00	0.220	ug/L			10/23/24 11:19	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/23/24 11:19	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/23/24 11:19	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/23/24 11:19	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/23/24 11:19	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/23/24 11:19	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/23/24 11:19	1
1,2-Dichloropropane	**0.296**	**J**	1.00	0.270	ug/L			10/23/24 11:19	1
1,4-Dichlorobenzene	**0.591**	**J**	1.00	0.230	ug/L			10/23/24 11:19	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/23/24 11:19	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/23/24 11:19	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/23/24 11:19	1
Acetone	<3.10		10.0	3.10	ug/L			10/23/24 11:19	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/23/24 11:19	1
Benzene	**0.947**		0.500	0.220	ug/L			10/23/24 11:19	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/23/24 11:19	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/23/24 11:19	1
Bromoform	<0.780		5.00	0.780	ug/L			10/23/24 11:19	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/23/24 11:19	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/23/24 11:19	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/23/24 11:19	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/23/24 11:19	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/23/24 11:19	1
Chloroethane	**0.809**	**J**	4.00	0.790	ug/L			10/23/24 11:19	1
Chloroform	<1.30		3.00	1.30	ug/L			10/23/24 11:19	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/23/24 11:19	1
cis-1,2-Dichloroethene	**10.4**		1.00	0.210	ug/L			10/23/24 11:19	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/23/24 11:19	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/23/24 11:19	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/23/24 11:19	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/23/24 11:19	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/23/24 11:19	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/23/24 11:19	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/23/24 11:19	1
Styrene	<0.370		1.00	0.370	ug/L			10/23/24 11:19	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/23/24 11:19	1
Toluene	<0.430		1.00	0.430	ug/L			10/23/24 11:19	1
trans-1,2-Dichloroethene	**0.605**	**J**	1.00	0.270	ug/L			10/23/24 11:19	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/23/24 11:19	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/23/24 11:19	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/23/24 11:19	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/23/24 11:19	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/23/24 11:19	1
Vinyl chloride	**1.55**		1.00	0.180	ug/L			10/23/24 11:19	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/23/24 11:19	1

Client Sample ID: OW-402B
Lab Sample ID: 310-293059-1

Date Collected: 10/16/24 09:30
Matrix: Water

Date Received: 10/17/24 13:05

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/23/24 11:19*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/23/24 11:19*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/23/24 11:19*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	**6.98**	**J**	10.4	5.73	ug/L		10/21/24 10:22	10/23/24 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*39 - 118*	*10/21/24 10:22*	*10/23/24 17:07*	*1*
Nitrobenzene-d5 (Surr)	*82*		*45 - 129*	*10/21/24 10:22*	*10/23/24 17:07*	*1*
Terphenyl-d14 (Surr)	*68*		*12 - 144*	*10/21/24 10:22*	*10/23/24 17:07*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
beta-BHC	<0.0386		0.0919	0.0386	ug/L		10/18/24 10:02	10/21/24 12:52	1
Endosulfan sulfate	<0.0165		0.0919	0.0165	ug/L		10/18/24 10:02	10/21/24 12:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*		*10 - 136*	*10/18/24 10:02*	*10/21/24 12:52*	*1*
Tetrachloro-m-xylene (Surr)	*92*		*10 - 130*	*10/18/24 10:02*	*10/21/24 12:52*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<2.79		6.71	2.79	ug/L		10/20/24 20:03	10/22/24 15:05	10
Silvex (2,4,5-TP)	**0.889**		0.559	0.246	ug/L		10/20/24 20:03	10/22/24 15:05	10
2,4,5-T	<0.727		1.68	0.727	ug/L		10/20/24 20:03	10/22/24 15:05	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*144*	*S1+*	*34 - 142*	*10/20/24 20:03*	*10/22/24 15:05*	*10*
DCAA	*110*		*34 - 142*	*10/20/24 20:03*	*10/22/24 15:05*	*10*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/22/24 09:30	10/31/24 20:20	1
Arsenic	**0.841**	**J**	2.00	0.530	ug/L		10/22/24 09:30	10/31/24 20:20	1
Barium	**988**		2.00	0.660	ug/L		10/22/24 09:30	10/31/24 20:20	1
Beryllium	<0.330		1.00	0.330	ug/L		10/22/24 09:30	11/01/24 14:20	1
Cadmium	**0.514**		0.200	0.100	ug/L		10/22/24 09:30	10/31/24 20:20	1
Chromium	**8.64**		5.00	1.20	ug/L		10/22/24 09:30	10/31/24 20:20	1
Cobalt	**7.99**		0.500	0.170	ug/L		10/22/24 09:30	10/31/24 20:20	1
Copper	**3.87**	**J**	5.00	1.80	ug/L		10/22/24 09:30	11/01/24 14:20	1
Lead	<0.260		0.500	0.260	ug/L		10/22/24 09:30	10/31/24 20:20	1
Nickel	**353**		5.00	2.10	ug/L		10/22/24 09:30	10/31/24 20:20	1
Selenium	<1.40		5.00	1.40	ug/L		10/22/24 09:30	10/31/24 20:20	1
Silver	**0.645**	**J**	1.00	0.500	ug/L		10/22/24 09:30	11/01/24 14:20	1
Thallium	<0.570		1.00	0.570	ug/L		10/22/24 09:30	10/31/24 20:20	1
Vanadium	<1.10		5.00	1.10	ug/L		10/22/24 09:30	10/31/24 20:20	1
Zinc	<9.70		20.0	9.70	ug/L		10/22/24 09:30	11/01/24 14:20	1

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B
Lab Sample ID: 310-293059-1
Date Collected: 10/16/24 09:30
Matrix: Water
Date Received: 10/17/24 13:05

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		10/21/24 09:24	10/21/24 13:06	1
Total Suspended Solids (USGS I-3765-85)	**7.13**		1.88	1.39	mg/L			10/18/24 14:05	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**0.76**				NTU			10/16/24 09:30	1

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-413B
Lab Sample ID: 310-293059-2
Date Collected: 10/16/24 12:00
Matrix: Water
Date Received: 10/17/24 13:05

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	<0.380		1.00	0.380	ug/L			10/23/24 11:41	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/23/24 11:41	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/23/24 11:41	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/23/24 11:41	1
1,1-Dichloroethane	**0.255**	**J**	1.00	0.220	ug/L			10/23/24 11:41	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/23/24 11:41	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/23/24 11:41	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/23/24 11:41	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/23/24 11:41	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/23/24 11:41	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/23/24 11:41	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/23/24 11:41	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/23/24 11:41	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/23/24 11:41	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/23/24 11:41	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/23/24 11:41	1
Acetone	<3.10		10.0	3.10	ug/L			10/23/24 11:41	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/23/24 11:41	1
Benzene	**1.90**		0.500	0.220	ug/L			10/23/24 11:41	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/23/24 11:41	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/23/24 11:41	1
Bromoform	<0.780		5.00	0.780	ug/L			10/23/24 11:41	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/23/24 11:41	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/23/24 11:41	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/23/24 11:41	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/23/24 11:41	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/23/24 11:41	1
Chloroethane	**0.893**	**J**	4.00	0.790	ug/L			10/23/24 11:41	1
Chloroform	<1.30		3.00	1.30	ug/L			10/23/24 11:41	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/23/24 11:41	1
cis-1,2-Dichloroethene	**0.755**	**J**	1.00	0.210	ug/L			10/23/24 11:41	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/23/24 11:41	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/23/24 11:41	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/23/24 11:41	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/23/24 11:41	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/23/24 11:41	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/23/24 11:41	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/23/24 11:41	1
Styrene	<0.370		1.00	0.370	ug/L			10/23/24 11:41	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/23/24 11:41	1
Toluene	<0.430		1.00	0.430	ug/L			10/23/24 11:41	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/23/24 11:41	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/23/24 11:41	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/23/24 11:41	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/23/24 11:41	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/23/24 11:41	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/23/24 11:41	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/23/24 11:41	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/23/24 11:41	1

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-413B
Lab Sample ID: 310-293059-2

Date Collected: 10/16/24 12:00
Matrix: Water

Date Received: 10/17/24 13:05

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/23/24 11:41*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/23/24 11:41*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/23/24 11:41*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/22/24 09:30	10/31/24 20:22	1
Arsenic	**6.37**		2.00	0.530	ug/L		10/22/24 09:30	10/31/24 20:22	1
Barium	**544**		2.00	0.660	ug/L		10/22/24 09:30	10/31/24 20:22	1
Beryllium	<0.330		1.00	0.330	ug/L		10/22/24 09:30	11/01/24 14:38	1
Cadmium	<0.100		0.200	0.100	ug/L		10/22/24 09:30	10/31/24 20:22	1
Chromium	**2.65**	**J**	5.00	1.20	ug/L		10/22/24 09:30	10/31/24 20:22	1
Cobalt	**2.82**		0.500	0.170	ug/L		10/22/24 09:30	10/31/24 20:22	1
Copper	<1.80		5.00	1.80	ug/L		10/22/24 09:30	11/01/24 14:38	1
Lead	**0.286**	**J**	0.500	0.260	ug/L		10/22/24 09:30	10/31/24 20:22	1
Nickel	**5.01**		5.00	2.10	ug/L		10/22/24 09:30	10/31/24 20:22	1
Selenium	<1.40		5.00	1.40	ug/L		10/22/24 09:30	10/31/24 20:22	1
Silver	<0.500		1.00	0.500	ug/L		10/22/24 09:30	11/01/24 14:38	1
Thallium	<0.570		1.00	0.570	ug/L		10/22/24 09:30	10/31/24 20:22	1
Vanadium	**3.51**	**J**	5.00	1.10	ug/L		10/22/24 09:30	10/31/24 20:22	1
Zinc	<9.70		20.0	9.70	ug/L		10/22/24 09:30	11/01/24 14:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	**75.0**		15.0	11.1	mg/L			10/18/24 14:05	1

Method: EPA Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Field Turbidity	**25.27**				NTU			10/16/24 12:00	1

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blanks
Lab Sample ID: 310-293059-3
Date Collected: 10/16/24 06:00
Matrix: Water
Date Received: 10/17/24 13:05

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	<0.380		1.00	0.380	ug/L			10/23/24 09:47	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/23/24 09:47	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/23/24 09:47	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/23/24 09:47	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/23/24 09:47	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/23/24 09:47	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/23/24 09:47	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/23/24 09:47	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/23/24 09:47	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/23/24 09:47	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/23/24 09:47	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/23/24 09:47	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/23/24 09:47	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/23/24 09:47	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/23/24 09:47	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/23/24 09:47	1
Acetone	<3.10		10.0	3.10	ug/L			10/23/24 09:47	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/23/24 09:47	1
Benzene	<0.220		0.500	0.220	ug/L			10/23/24 09:47	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/23/24 09:47	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/23/24 09:47	1
Bromoform	<0.780		5.00	0.780	ug/L			10/23/24 09:47	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/23/24 09:47	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/23/24 09:47	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/23/24 09:47	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/23/24 09:47	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/23/24 09:47	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/23/24 09:47	1
Chloroform	<1.30		3.00	1.30	ug/L			10/23/24 09:47	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/23/24 09:47	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/23/24 09:47	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/23/24 09:47	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/23/24 09:47	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/23/24 09:47	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/23/24 09:47	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/23/24 09:47	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/23/24 09:47	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/23/24 09:47	1
Styrene	<0.370		1.00	0.370	ug/L			10/23/24 09:47	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/23/24 09:47	1
Toluene	<0.430		1.00	0.430	ug/L			10/23/24 09:47	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/23/24 09:47	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/23/24 09:47	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/23/24 09:47	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/23/24 09:47	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/23/24 09:47	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/23/24 09:47	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/23/24 09:47	1
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/23/24 09:47	1

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: Trip Blanks
Lab Sample ID: 310-293059-3
Date Collected: 10/16/24 06:00
Matrix: Water
Date Received: 10/17/24 13:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	100		73 - 130		10/23/24 09:47	1
Toluene-d8 (Surr)	98		80 - 120		10/23/24 09:47	1
4-Bromofluorobenzene (Surr)	100		80 - 120		10/23/24 09:47	1

Definitions/Glossary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

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
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

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.

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: AECOM
Project/Site: Black Hawk County Landfill (IDNR)

Job ID: 310-293059-1

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	(73-130)	(80-120)	(80-120)
310-293059-1	OW-402B	100	99	99
310-293059-1 MS	OW-402B	97	101	100
310-293059-1 MSD	OW-402B	99	101	100
310-293059-2	OW-413B	100	98	100
310-293059-3	Trip Blanks	100	98	100
LCS 310-437072/6	Lab Control Sample	99	100	98
LCS 310-437072/7	Lab Control Sample	101	99	100
MB 310-437072/5	Method Blank	100	99	100

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHL
Lab Sample ID	Client Sample ID	(39-118)	(45-129)	(12-144)
310-293059-1	OW-402B	81	82	68
LCS 310-436918/2-A	Lab Control Sample	85	84	110
LCSD 310-436918/3-A	Lab Control Sample Dup	51	53	75
MB 310-436918/1-A	Method Blank	104	108	113

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPHL = Terphenyl-d14 (Surr)

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)
310-293059-1	OW-402B	79	92

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1	DCPAA2
Lab Sample ID	Client Sample ID	(34-142)	(34-142)
310-293059-1	OW-402B	144 S1+	110
LCS 410-565451/2-A	Lab Control Sample	96	92
LCSD 410-565451/3-A	Lab Control Sample Dup	93	90
MB 410-565451/1-A	Method Blank	86	81

Surrogate Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 310-437072/5
Matrix: Water
Analysis Batch: 437072

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	<0.380		1.00	0.380	ug/L			10/23/24 08:16	1
1,1,1-Trichloroethane	<0.190		1.00	0.190	ug/L			10/23/24 08:16	1
1,1,2,2-Tetrachloroethane	<0.470		1.00	0.470	ug/L			10/23/24 08:16	1
1,1,2-Trichloroethane	<0.450		1.00	0.450	ug/L			10/23/24 08:16	1
1,1-Dichloroethane	<0.220		1.00	0.220	ug/L			10/23/24 08:16	1
1,1-Dichloroethene	<0.560		2.00	0.560	ug/L			10/23/24 08:16	1
1,2,3-Trichloropropane	<0.590		1.00	0.590	ug/L			10/23/24 08:16	1
1,2-Dibromo-3-Chloropropane	<1.20		5.00	1.20	ug/L			10/23/24 08:16	1
1,2-Dibromoethane (EDB)	<0.340		1.00	0.340	ug/L			10/23/24 08:16	1
1,2-Dichlorobenzene	<0.370		1.00	0.370	ug/L			10/23/24 08:16	1
1,2-Dichloroethane	<0.390		1.00	0.390	ug/L			10/23/24 08:16	1
1,2-Dichloropropane	<0.270		1.00	0.270	ug/L			10/23/24 08:16	1
1,4-Dichlorobenzene	<0.230		1.00	0.230	ug/L			10/23/24 08:16	1
2-Butanone (MEK)	<2.10		10.0	2.10	ug/L			10/23/24 08:16	1
2-Hexanone	<2.00		10.0	2.00	ug/L			10/23/24 08:16	1
4-Methyl-2-pentanone (MIBK)	<2.10		10.0	2.10	ug/L			10/23/24 08:16	1
Acetone	<3.10		10.0	3.10	ug/L			10/23/24 08:16	1
Acrylonitrile	<2.20		5.00	2.20	ug/L			10/23/24 08:16	1
Benzene	<0.220		0.500	0.220	ug/L			10/23/24 08:16	1
Bromochloromethane	<0.540		5.00	0.540	ug/L			10/23/24 08:16	1
Bromodichloromethane	<0.390		1.00	0.390	ug/L			10/23/24 08:16	1
Bromoform	<0.780		5.00	0.780	ug/L			10/23/24 08:16	1
Bromomethane	<1.10		4.00	1.10	ug/L			10/23/24 08:16	1
Carbon disulfide	<0.450		1.00	0.450	ug/L			10/23/24 08:16	1
Carbon tetrachloride	<0.650		2.00	0.650	ug/L			10/23/24 08:16	1
Chlorobenzene	<0.400		1.00	0.400	ug/L			10/23/24 08:16	1
Chlorodibromomethane	<0.750		5.00	0.750	ug/L			10/23/24 08:16	1
Chloroethane	<0.790		4.00	0.790	ug/L			10/23/24 08:16	1
Chloroform	<1.30		3.00	1.30	ug/L			10/23/24 08:16	1
Chloromethane	<0.610		3.00	0.610	ug/L			10/23/24 08:16	1
cis-1,2-Dichloroethene	<0.210		1.00	0.210	ug/L			10/23/24 08:16	1
cis-1,3-Dichloropropene	<0.250		5.00	0.250	ug/L			10/23/24 08:16	1
Dibromomethane	<0.330		1.00	0.330	ug/L			10/23/24 08:16	1
Ethylbenzene	<0.310		1.00	0.310	ug/L			10/23/24 08:16	1
Iodomethane	<7.00		10.0	7.00	ug/L			10/23/24 08:16	1
m,p-Xylene	<0.380		2.00	0.380	ug/L			10/23/24 08:16	1
Methylene Chloride	<1.70		5.00	1.70	ug/L			10/23/24 08:16	1
o-Xylene	<0.400		1.00	0.400	ug/L			10/23/24 08:16	1
Styrene	<0.370		1.00	0.370	ug/L			10/23/24 08:16	1
Tetrachloroethene	<0.480		1.00	0.480	ug/L			10/23/24 08:16	1
Toluene	<0.430		1.00	0.430	ug/L			10/23/24 08:16	1
trans-1,2-Dichloroethene	<0.270		1.00	0.270	ug/L			10/23/24 08:16	1
trans-1,3-Dichloropropene	<0.560		5.00	0.560	ug/L			10/23/24 08:16	1
trans-1,4-Dichloro-2-butene	<1.10		10.0	1.10	ug/L			10/23/24 08:16	1
Trichloroethene	<0.430		1.00	0.430	ug/L			10/23/24 08:16	1
Trichlorofluoromethane	<0.380		4.00	0.380	ug/L			10/23/24 08:16	1
Vinyl acetate	<2.50		10.0	2.50	ug/L			10/23/24 08:16	1
Vinyl chloride	<0.180		1.00	0.180	ug/L			10/23/24 08:16	1

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

Lab Sample ID: MB 310-437072/5
Matrix: Water
Analysis Batch: 437072

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<0.400		3.00	0.400	ug/L			10/23/24 08:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*73 - 130*		*10/23/24 08:16*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*10/23/24 08:16*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/23/24 08:16*	*1*

Lab Sample ID: LCS 310-437072/6
Matrix: Water
Analysis Batch: 437072

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	21.03		ug/L		105	71 - 120
1,1,1-Trichloroethane	20.0	21.35		ug/L		107	73 - 129
1,1,2,2-Tetrachloroethane	20.0	20.97		ug/L		105	68 - 124
1,1,2-Trichloroethane	20.0	21.22		ug/L		106	73 - 123
1,1-Dichloroethane	20.0	21.71		ug/L		109	70 - 127
1,1-Dichloroethene	20.0	21.75		ug/L		109	63 - 132
1,2,3-Trichloropropane	20.0	20.71		ug/L		104	65 - 127
1,2-Dibromo-3-Chloropropane	20.0	19.16		ug/L		96	50 - 150
1,2-Dibromoethane (EDB)	20.0	21.30		ug/L		107	75 - 125
1,2-Dichlorobenzene	20.0	21.27		ug/L		106	74 - 120
1,2-Dichloroethane	20.0	20.24		ug/L		101	71 - 125
1,2-Dichloropropane	20.0	21.32		ug/L		107	73 - 124
1,4-Dichlorobenzene	20.0	21.14		ug/L		106	72 - 120
2-Butanone (MEK)	40.0	38.18		ug/L		95	50 - 150
2-Hexanone	40.0	39.49		ug/L		99	60 - 140
4-Methyl-2-pentanone (MIBK)	40.0	40.30		ug/L		101	60 - 139
Acetone	40.0	37.88		ug/L		95	50 - 150
Acrylonitrile	200	210.3		ug/L		105	50 - 150
Benzene	20.0	21.80		ug/L		109	72 - 124
Bromochloromethane	20.0	21.69		ug/L		108	73 - 130
Bromodichloromethane	20.0	20.69		ug/L		103	74 - 122
Bromoform	20.0	19.97		ug/L		100	61 - 122
Carbon disulfide	20.0	21.83		ug/L		109	59 - 135
Carbon tetrachloride	20.0	21.68		ug/L		108	67 - 132
Chlorobenzene	20.0	21.48		ug/L		107	76 - 120
Chlorodibromomethane	20.0	20.72		ug/L		104	71 - 121
Chloroform	20.0	20.40		ug/L		102	72 - 125
cis-1,2-Dichloroethene	20.0	21.48		ug/L		107	74 - 123
cis-1,3-Dichloropropene	20.0	20.42		ug/L		102	71 - 125
Dibromomethane	20.0	20.64		ug/L		103	74 - 125
Ethylbenzene	20.0	22.16		ug/L		111	74 - 122
Iodomethane	20.0	12.45		ug/L		62	10 - 150
Methylene Chloride	20.0	21.33		ug/L		107	50 - 150
Styrene	20.0	22.36		ug/L		112	74 - 121
Tetrachloroethene	20.0	22.01		ug/L		110	71 - 130
Toluene	20.0	21.61		ug/L		108	74 - 123

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

Lab Sample ID: LCS 310-437072/6
Matrix: Water
Analysis Batch: 437072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	20.0	21.54		ug/L		108	70 - 126
trans-1,3-Dichloropropene	20.0	19.78		ug/L		99	69 - 123
trans-1,4-Dichloro-2-butene	20.0	17.02		ug/L		85	50 - 150
Trichloroethene	20.0	21.80		ug/L		109	72 - 126
Vinyl acetate	40.0	39.01		ug/L		98	50 - 150
Xylenes, Total	40.0	43.73		ug/L		109	73 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Lab Sample ID: LCS 310-437072/7
Matrix: Water
Analysis Batch: 437072

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	15.84		ug/L		79	23 - 150
Chloroethane	20.0	19.68		ug/L		98	54 - 136
Chloromethane	20.0	21.36		ug/L		107	38 - 150
Trichlorofluoromethane	20.0	21.56		ug/L		108	54 - 149
Vinyl chloride	20.0	21.11		ug/L		106	56 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*73 - 130*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: 310-293059-1 MS
Matrix: Water
Analysis Batch: 437072

Client Sample ID: OW-402B
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	<0.380		20.0	17.56		ug/L		88	55 - 130
1,1,1-Trichloroethane	<0.190		20.0	17.58		ug/L		88	52 - 130
1,1,2,2-Tetrachloroethane	<0.470		20.0	18.78		ug/L		94	54 - 130
1,1,2-Trichloroethane	<0.450		20.0	18.66		ug/L		93	58 - 130
1,1-Dichloroethane	0.425	J	20.0	18.90		ug/L		92	49 - 130
1,1-Dichloroethene	<0.560		20.0	18.17		ug/L		91	37 - 132
1,2,3-Trichloropropane	<0.590		20.0	17.89		ug/L		89	49 - 130
1,2-Dibromo-3-Chloropropane	<1.20		20.0	16.77		ug/L		84	38 - 150
1,2-Dibromoethane (EDB)	<0.340		20.0	18.43		ug/L		92	60 - 130
1,2-Dichlorobenzene	<0.370		20.0	17.90		ug/L		90	59 - 130
1,2-Dichloroethane	<0.390		20.0	17.03		ug/L		85	51 - 130
1,2-Dichloropropane	0.296	J	20.0	18.88		ug/L		93	57 - 130
1,4-Dichlorobenzene	0.591	J	20.0	18.37		ug/L		89	57 - 130
2-Butanone (MEK)	<2.10		40.0	36.54		ug/L		91	38 - 150
2-Hexanone	<2.00		40.0	36.89		ug/L		92	46 - 140

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

Lab Sample ID: 310-293059-1 MS
Matrix: Water
Analysis Batch: 437072

Client Sample ID: OW-402B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	38.36		ug/L		96	47 - 139
Acetone	<3.10		40.0	38.02		ug/L		95	31 - 150
Acrylonitrile	<2.20		200	190.1		ug/L		95	40 - 150
Benzene	0.947		20.0	19.23		ug/L		91	46 - 130
Bromochloromethane	<0.540		20.0	18.17		ug/L		91	57 - 130
Bromodichloromethane	<0.390		20.0	17.26		ug/L		86	57 - 130
Bromoform	<0.780		20.0	15.95		ug/L		80	44 - 130
Carbon disulfide	<0.450		20.0	19.55		ug/L		98	38 - 135
Carbon tetrachloride	<0.650		20.0	17.34		ug/L		87	45 - 132
Chlorobenzene	<0.400		20.0	18.73		ug/L		94	59 - 130
Chlorodibromomethane	<0.750		20.0	16.65		ug/L		83	54 - 130
Chloroform	<1.30		20.0	17.03		ug/L		85	51 - 130
cis-1,2-Dichloroethene	10.4		20.0	26.82		ug/L		82	45 - 130
cis-1,3-Dichloropropene	<0.250		20.0	16.91		ug/L		85	53 - 130
Dibromomethane	<0.330		20.0	17.79		ug/L		89	59 - 130
Ethylbenzene	<0.310		20.0	19.17		ug/L		96	45 - 130
Iodomethane	<7.00		20.0	11.57		ug/L		58	10 - 150
Methylene Chloride	<1.70		20.0	18.34		ug/L		92	37 - 150
Styrene	<0.370		20.0	18.96		ug/L		95	47 - 130
Tetrachloroethene	<0.480		20.0	17.79		ug/L		89	47 - 130
Toluene	<0.430		20.0	18.30		ug/L		92	51 - 130
trans-1,2-Dichloroethene	0.605	J	20.0	18.47		ug/L		89	48 - 130
trans-1,3-Dichloropropene	<0.560		20.0	16.28		ug/L		81	50 - 130
trans-1,4-Dichloro-2-butene	<1.10		20.0	14.48		ug/L		72	26 - 150
Trichloroethene	<0.430		20.0	17.44		ug/L		87	51 - 130
Vinyl acetate	<2.50		40.0	35.71		ug/L		89	29 - 150
Xylenes, Total	<0.400		40.0	38.30		ug/L		96	43 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

Lab Sample ID: 310-293059-1 MSD
Matrix: Water
Analysis Batch: 437072

Client Sample ID: OW-402B
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	<0.380		20.0	17.70		ug/L		89	55 - 130	1	20
1,1,1-Trichloroethane	<0.190		20.0	17.65		ug/L		88	52 - 130	0	20
1,1,2,2-Tetrachloroethane	<0.470		20.0	18.80		ug/L		94	54 - 130	0	20
1,1,2-Trichloroethane	<0.450		20.0	18.61		ug/L		93	58 - 130	0	20
1,1-Dichloroethane	0.425	J	20.0	18.98		ug/L		93	49 - 130	0	20
1,1-Dichloroethene	<0.560		20.0	18.26		ug/L		91	37 - 132	0	26
1,2,3-Trichloropropane	<0.590		20.0	17.92		ug/L		90	49 - 130	0	26
1,2-Dibromo-3-Chloropropane	<1.20		20.0	17.11		ug/L		86	38 - 150	2	20
1,2-Dibromoethane (EDB)	<0.340		20.0	18.48		ug/L		92	60 - 130	0	20
1,2-Dichlorobenzene	<0.370		20.0	18.40		ug/L		92	59 - 130	3	20

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

Lab Sample ID: 310-293059-1 MSD
Matrix: Water
Analysis Batch: 437072

Client Sample ID: OW-402B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane	<0.390		20.0	17.13		ug/L		86	51 - 130	1	20
1,2-Dichloropropane	0.296	J	20.0	18.88		ug/L		93	57 - 130	0	20
1,4-Dichlorobenzene	0.591	J	20.0	18.64		ug/L		90	57 - 130	1	20
2-Butanone (MEK)	<2.10		40.0	36.21		ug/L		91	38 - 150	1	20
2-Hexanone	<2.00		40.0	36.86		ug/L		92	46 - 140	0	20
4-Methyl-2-pentanone (MIBK)	<2.10		40.0	38.33		ug/L		96	47 - 139	0	20
Acetone	<3.10		40.0	38.27		ug/L		96	31 - 150	1	29
Acrylonitrile	<2.20		200	191.6		ug/L		96	40 - 150	1	20
Benzene	0.947		20.0	19.09		ug/L		91	46 - 130	1	20
Bromochloromethane	<0.540		20.0	18.26		ug/L		91	57 - 130	0	20
Bromodichloromethane	<0.390		20.0	17.48		ug/L		87	57 - 130	1	20
Bromoform	<0.780		20.0	16.07		ug/L		80	44 - 130	1	20
Carbon disulfide	<0.450		20.0	18.69		ug/L		93	38 - 135	5	30
Carbon tetrachloride	<0.650		20.0	17.45		ug/L		87	45 - 132	1	20
Chlorobenzene	<0.400		20.0	18.86		ug/L		94	59 - 130	1	20
Chlorodibromomethane	<0.750		20.0	17.05		ug/L		85	54 - 130	2	20
Chloroform	<1.30		20.0	17.15		ug/L		86	51 - 130	1	20
cis-1,2-Dichloroethene	10.4		20.0	26.71		ug/L		82	45 - 130	0	20
cis-1,3-Dichloropropene	<0.250		20.0	17.06		ug/L		85	53 - 130	1	20
Dibromomethane	<0.330		20.0	17.86		ug/L		89	59 - 130	0	20
Ethylbenzene	<0.310		20.0	19.03		ug/L		95	45 - 130	1	20
Iodomethane	<7.00		20.0	12.20		ug/L		61	10 - 150	5	35
Methylene Chloride	<1.70		20.0	18.16		ug/L		91	37 - 150	1	24
Styrene	<0.370		20.0	19.12		ug/L		96	47 - 130	1	20
Tetrachloroethene	<0.480		20.0	18.11		ug/L		91	47 - 130	2	20
Toluene	<0.430		20.0	18.31		ug/L		92	51 - 130	0	20
trans-1,2-Dichloroethene	0.605	J	20.0	18.37		ug/L		89	48 - 130	1	22
trans-1,3-Dichloropropene	<0.560		20.0	16.51		ug/L		83	50 - 130	1	20
trans-1,4-Dichloro-2-butene	<1.10		20.0	13.01		ug/L		65	26 - 150	11	23
Trichloroethene	<0.430		20.0	17.37		ug/L		87	51 - 130	0	20
Vinyl acetate	<2.50		40.0	35.62		ug/L		89	29 - 150	0	23
Xylenes, Total	<0.400		40.0	37.65		ug/L		94	43 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*73 - 130*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*

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

Lab Sample ID: MB 310-436918/1-A
Matrix: Water
Analysis Batch: 437236

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	<5.50		10.0	5.50	ug/L		10/21/24 10:22	10/23/24 13:55	1

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

Lab Sample ID: MB 310-436918/1-A
Matrix: Water
Analysis Batch: 437236

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436918

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	104		39 - 118	10/21/24 10:22	10/23/24 13:55	1
Nitrobenzene-d5 (Surr)	108		45 - 129	10/21/24 10:22	10/23/24 13:55	1
Terphenyl-d14 (Surr)	113		12 - 144	10/21/24 10:22	10/23/24 13:55	1

Lab Sample ID: LCS 310-436918/2-A
Matrix: Water
Analysis Batch: 437236

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436918

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Bis(2-ethylhexyl) phthalate			100	98.30		ug/L		98	43 - 143		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	85		39 - 118
Nitrobenzene-d5 (Surr)	84		45 - 129
Terphenyl-d14 (Surr)	110		12 - 144

Lab Sample ID: LCSD 310-436918/3-A
Matrix: Water
Analysis Batch: 437236

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436918

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate			100	85.61		ug/L		86	43 - 143	14	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	51		39 - 118
Nitrobenzene-d5 (Surr)	53		45 - 129
Terphenyl-d14 (Surr)	75		12 - 144

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-565451/1-A
Matrix: Water
Analysis Batch: 566062

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565451

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.250		0.600	0.250	ug/L		10/20/24 20:03	10/22/24 11:19	1
Silvex (2,4,5-TP)	<0.0220		0.0500	0.0220	ug/L		10/20/24 20:03	10/22/24 11:19	1
2,4,5-T	<0.0650		0.150	0.0650	ug/L		10/20/24 20:03	10/22/24 11:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	86		34 - 142	10/20/24 20:03	10/22/24 11:19	1
DCAA	81		34 - 142	10/20/24 20:03	10/22/24 11:19	1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 410-565451/2-A
Matrix: Water
Analysis Batch: 566062

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565451

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4-D			2.50	2.505		ug/L		100	53 - 159		
Silvex (2,4,5-TP)			0.250	0.2969		ug/L		119	62 - 170		
2,4,5-T			0.250	0.2906		ug/L		116	57 - 171		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*96*		*34 - 142*
DCAA	*92*		*34 - 142*

Lab Sample ID: LCSD 410-565451/3-A
Matrix: Water
Analysis Batch: 566062

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 565451

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D			2.50	2.481		ug/L		99	53 - 159	1	30
Silvex (2,4,5-TP)			0.250	0.2847		ug/L		114	62 - 170	4	30
2,4,5-T			0.250	0.2837		ug/L		113	57 - 171	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA	*93*		*34 - 142*
DCAA	*90*		*34 - 142*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-437008/1-A
Matrix: Water
Analysis Batch: 438319

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.00		2.00	1.00	ug/L		10/22/24 09:30	10/31/24 19:53	1
Arsenic	<0.530		2.00	0.530	ug/L		10/22/24 09:30	10/31/24 19:53	1
Barium	<0.660		2.00	0.660	ug/L		10/22/24 09:30	10/31/24 19:53	1
Cadmium	<0.100		0.200	0.100	ug/L		10/22/24 09:30	10/31/24 19:53	1
Chromium	<1.20		5.00	1.20	ug/L		10/22/24 09:30	10/31/24 19:53	1
Cobalt	<0.170		0.500	0.170	ug/L		10/22/24 09:30	10/31/24 19:53	1
Lead	<0.260		0.500	0.260	ug/L		10/22/24 09:30	10/31/24 19:53	1
Nickel	<2.10		5.00	2.10	ug/L		10/22/24 09:30	10/31/24 19:53	1
Selenium	<1.40		5.00	1.40	ug/L		10/22/24 09:30	10/31/24 19:53	1
Thallium	<0.570		1.00	0.570	ug/L		10/22/24 09:30	10/31/24 19:53	1
Vanadium	<1.10		5.00	1.10	ug/L		10/22/24 09:30	10/31/24 19:53	1

Lab Sample ID: MB 310-437008/1-A
Matrix: Water
Analysis Batch: 438521

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	<0.330		1.00	0.330	ug/L		10/22/24 09:30	11/01/24 13:56	1
Copper	<1.80		5.00	1.80	ug/L		10/22/24 09:30	11/01/24 13:56	1
Silver	<0.500		1.00	0.500	ug/L		10/22/24 09:30	11/01/24 13:56	1

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

Lab Sample ID: MB 310-437008/1-A
Matrix: Water
Analysis Batch: 438521

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437008

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<9.70		20.0	9.70	ug/L		10/22/24 09:30	11/01/24 13:56	1

Lab Sample ID: LCS 310-437008/2-A
Matrix: Water
Analysis Batch: 438319

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437008

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	200	218.6		ug/L		109	80 - 120
Arsenic	200	200.7		ug/L		100	80 - 120
Barium	100	101.8		ug/L		102	80 - 120
Cadmium	100	96.92		ug/L		97	80 - 120
Chromium	100	100.6		ug/L		101	80 - 120
Cobalt	100	107.0		ug/L		107	80 - 120
Lead	200	212.2		ug/L		106	80 - 120
Nickel	200	192.8		ug/L		96	80 - 120
Selenium	400	379.1		ug/L		95	80 - 120
Thallium	100	80.42		ug/L		80	80 - 120
Vanadium	100	100.3		ug/L		100	80 - 120

Lab Sample ID: LCS 310-437008/2-A
Matrix: Water
Analysis Batch: 438521

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437008

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Beryllium	100	106.9		ug/L		107	80 - 120
Copper	200	202.7		ug/L		101	80 - 120
Silver	100	106.1		ug/L		106	80 - 120
Zinc	200	189.8		ug/L		95	80 - 120

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-631650/1-A
Matrix: Water
Analysis Batch: 631716

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 631650

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		10/21/24 09:24	10/21/24 13:06	1

Lab Sample ID: LCS 240-631650/2-A
Matrix: Water
Analysis Batch: 631716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 631650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	6.93	5.600		mg/L		81	70 - 120

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-436800/1
Matrix: Water
Analysis Batch: 436800

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	<3.70		5.00	3.70	mg/L			10/18/24 14:05	1

Lab Sample ID: LCS 310-436800/2
Matrix: Water
Analysis Batch: 436800

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	96.00		mg/L		96	81 - 116

Lab Sample ID: 310-293059-2 DU
Matrix: Water
Analysis Batch: 436800

Client Sample ID: OW-413B
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	75.0		82.00		mg/L		9	35

QC Association Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

GC/MS VOA

Analysis Batch: 437072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	8260D	
310-293059-2	OW-413B	Total/NA	Water	8260D	
310-293059-3	Trip Blanks	Total/NA	Water	8260D	
MB 310-437072/5	Method Blank	Total/NA	Water	8260D	
LCS 310-437072/6	Lab Control Sample	Total/NA	Water	8260D	
LCS 310-437072/7	Lab Control Sample	Total/NA	Water	8260D	
310-293059-1 MS	OW-402B	Total/NA	Water	8260D	
310-293059-1 MSD	OW-402B	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 436918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	3510C	
MB 310-436918/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-436918/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-436918/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 437236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	8270E	436918
MB 310-436918/1-A	Method Blank	Total/NA	Water	8270E	436918
LCS 310-436918/2-A	Lab Control Sample	Total/NA	Water	8270E	436918
LCSD 310-436918/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	436918

GC Semi VOA

Prep Batch: 436739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	3511	

Analysis Batch: 436901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	8081B	436739

Prep Batch: 565451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	8151A	
MB 410-565451/1-A	Method Blank	Total/NA	Water	8151A	
LCS 410-565451/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 410-565451/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 566062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	8151A	565451
MB 410-565451/1-A	Method Blank	Total/NA	Water	8151A	565451
LCS 410-565451/2-A	Lab Control Sample	Total/NA	Water	8151A	565451
LCSD 410-565451/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	565451

QC Association Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Metals

Prep Batch: 437008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	3005A	
310-293059-2	OW-413B	Total/NA	Water	3005A	
MB 310-437008/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-437008/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 438319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	6020B	437008
310-293059-2	OW-413B	Total/NA	Water	6020B	437008
MB 310-437008/1-A	Method Blank	Total/NA	Water	6020B	437008
LCS 310-437008/2-A	Lab Control Sample	Total/NA	Water	6020B	437008

Analysis Batch: 438521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	6020B	437008
310-293059-2	OW-413B	Total/NA	Water	6020B	437008
MB 310-437008/1-A	Method Blank	Total/NA	Water	6020B	437008
LCS 310-437008/2-A	Lab Control Sample	Total/NA	Water	6020B	437008

General Chemistry

Analysis Batch: 436800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	I-3765-85	
310-293059-2	OW-413B	Total/NA	Water	I-3765-85	
MB 310-436800/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-436800/2	Lab Control Sample	Total/NA	Water	I-3765-85	
310-293059-2 DU	OW-413B	Total/NA	Water	I-3765-85	

Prep Batch: 631650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	9030B	
MB 240-631650/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-631650/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 631716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	9034	631650
MB 240-631650/1-A	Method Blank	Total/NA	Water	9034	631650
LCS 240-631650/2-A	Lab Control Sample	Total/NA	Water	9034	631650

Field Service / Mobile Lab

Analysis Batch: 436982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-293059-1	OW-402B	Total/NA	Water	Field Sampling	
310-293059-2	OW-413B	Total/NA	Water	Field Sampling	

Lab Chronicle

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-402B
Lab Sample ID: 310-293059-1
Date Collected: 10/16/24 09:30
Matrix: Water
Date Received: 10/17/24 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	437072	FE5V	EET CF	10/23/24 11:19
Total/NA	Prep	3510C			436918	AYK7	EET CF	10/21/24 10:22
Total/NA	Analysis	8270E		1	437236	L0FS	EET CF	10/23/24 17:07
Total/NA	Prep	3511			436739	BW2O	EET CF	10/18/24 10:02
Total/NA	Analysis	8081B		1	436901	BW2O	EET CF	10/21/24 12:52
Total/NA	Prep	8151A			565451	UKL2	ELLE	10/20/24 20:03
Total/NA	Analysis	8151A		10	566062	UAMZ	ELLE	10/22/24 15:05
Total/NA	Prep	3005A			437008	F5MW	EET CF	10/22/24 09:30
Total/NA	Analysis	6020B		1	438521	NFT2	EET CF	11/01/24 14:20
Total/NA	Prep	3005A			437008	F5MW	EET CF	10/22/24 09:30
Total/NA	Analysis	6020B		1	438319	A6US	EET CF	10/31/24 20:20
Total/NA	Prep	9030B			631650	C5SV	EET CLE	10/21/24 09:24
Total/NA	Analysis	9034		1	631716	C5SV	EET CLE	10/21/24 13:06
Total/NA	Analysis	I-3765-85		1	436800	DGU1	EET CF	10/18/24 14:05
Total/NA	Analysis	Field Sampling		1	436982	BJ0R	EET CF	10/16/24 09:30

Client Sample ID: OW-413B
Lab Sample ID: 310-293059-2
Date Collected: 10/16/24 12:00
Matrix: Water
Date Received: 10/17/24 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	437072	FE5V	EET CF	10/23/24 11:41
Total/NA	Prep	3005A			437008	F5MW	EET CF	10/22/24 09:30
Total/NA	Analysis	6020B		1	438521	NFT2	EET CF	11/01/24 14:38
Total/NA	Prep	3005A			437008	F5MW	EET CF	10/22/24 09:30
Total/NA	Analysis	6020B		1	438319	A6US	EET CF	10/31/24 20:22
Total/NA	Analysis	I-3765-85		1	436800	DGU1	EET CF	10/18/24 14:05
Total/NA	Analysis	Field Sampling		1	436982	BJ0R	EET CF	10/16/24 12:00

Client Sample ID: Trip Blanks
Lab Sample ID: 310-293059-3
Date Collected: 10/16/24 06:00
Matrix: Water
Date Received: 10/17/24 13:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	437072	FE5V	EET CF	10/23/24 09:47

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

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	12-01-25

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		Water	m,p-Xylene
8260D		Water	o-Xylene
Field Sampling		Water	Field Turbidity

Laboratory: Eurofins Cleveland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	421	06-01-25

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	361	03-01-26

Method Summary

Client: AECOM
Job ID: 310-293059-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CF
8081B	Organochlorine Pesticides (GC)	SW846	EET CF
8151A	Herbicides (GC)	SW846	ELLE
6020B	Metals (ICP/MS)	SW846	EET CF
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
Field Sampling	Field Sampling	EPA	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CF
3511	Microextraction of Organic Compounds	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
8151A	Extraction (Herbicides)	SW846	ELLE
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

EPA = US Environmental Protection Agency

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 CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

eurofins | Environment Testing America

310-293059 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AECOM

City/State: CITY Waterloo | STATE IA | Project: BK HK. co. IDNR

Receipt Information

Date/Time Received: DATE 10/17/24 | TIME 1305 | Received By: JC

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: 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): 0.6 | Corrected Temp (°C): 0.6

• **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

Eurofins Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319 277.2401 fax 319 277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**		COC No
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:**	**Date:** 10-17-24	1 of 1 COCs
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:**	**Carrier:**	TALS Project #
Waterloo, IA 50703	**Analysis Turnaround Time** ☑ CALENDAR DAYS ☐ WORKING DAYS			Sampler
(319) 232-6531 Phone	TAT if different from Below ☑ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			**For Lab Use Only:** Walk-in Client: Lab Sampling
(xxx) xxx-xxxx FAX				
Project Name Black Hawk Co IDNR				Job / SDG No
Site Black Hawk County Landfill				
P O #				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	2,4,5-T	Bis(2-ethylhexyl)phthalate				Sample Specific Notes
OW-401B			G	GW		N		X		X		X	X		X	X	X	X						
OW-402B	10-16-24	0930	G	GW	12	N		X		X		X			X		X	X	X	X				Turbidity - 0.76 NTU
MW-409B			G	GW		N		X																
MW-409B-FD			G	GW		N		X																
OW-413B	10-16-24	1200	G	GW	5	N		X																Turbidity - 25.27 NTU
MW-501B			G	GW		N		X																
MW-602B			G	GW		N		X																
Trip Blank	10-16-24	0600	G	W	3	N		X																

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd._____ Corr'd._____		Therm ID No._____
Relinquished by: Ben Porter	Company: Aecom	Date/Time: 10-17-24	Received by:	Company:	Date/Time: 10/17/24/1305
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company:	Date/Time

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11/4/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77467 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State Iowa; State Program Iowa		Job #: 310-293059-1
Address: 180 S. Van Buren Avenue,	Due Date Requested: 10/30/2024	Analysis Requested		Preservation Codes:
City: Barberton	TAT Requested (days):			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 Black Hawk County (IDNR)	SSOW#:			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:						
OW-402B (310-293059-1)	10/16/24	09:30 Central	G	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:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/17/24 1530			10/18/24 930	Euro
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:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :**
Barberton Facility

Client InterVab IA Site Name

Cooler unpacked by: JF

Cooler Received on 10/18/24 Opened on 10/18/24

FedEx: 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used. Bubble Wrap Foam Plastic Bag None Other

COOLANT. Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp. 5.5 °C Corrected Cooler Temp. 5.6 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	Yes (No)	
-Were the seals on the outside of the cooler(s) signed & dated?	Yes No (NA)	**Tests that are not checked for pH by Receiving:**
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	**VOAs**
-Were tamper/custody seals intact and uncompromised?	Yes No (NA)	**Oil and Grease**
3 Shippers' packing slip attached to the cooler(s)?	(Yes) No	**TOC**
4. Did custody papers accompany the sample(s)?	(Yes) No	
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6 Was/were the person(s) who collected the samples clearly identified on the COC?	Yes (No)	
7 Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes) No	
9 For each sample, does the COC specify preservatives (Y(N), # of containers (Y/N), and sample type of grab/comp(Y)N)?		
10 Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
11 Sufficient quantity received to perform indicated analyses?	(Yes) No	
12 Are these work share samples and all listed on the COC?	(Yes) No	
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes No NA	pH Strip Lot# HC447997
14. Were VOAs on the COC?	Yes No	
15 Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No NA	
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes No	
17 Was a LL Hg or Me Hg trip blank present?	Yes No	

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container

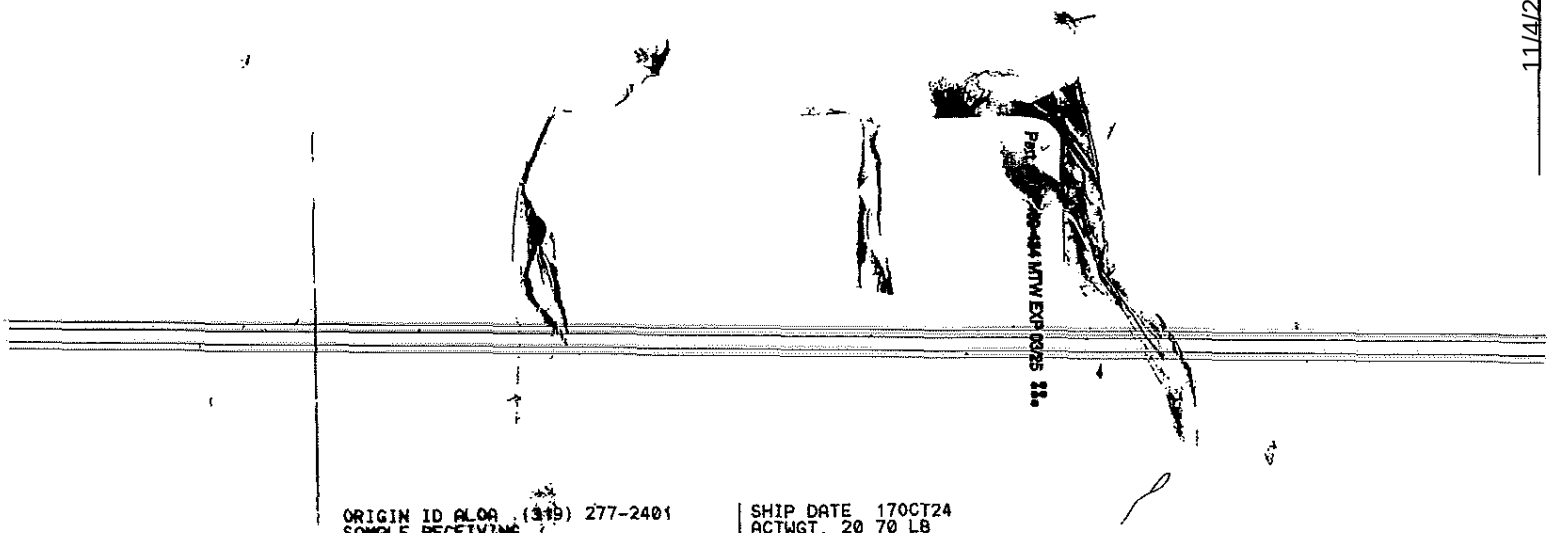
Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved. Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen.



ORIGIN ID ALOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 50613
UNITED STATES US

SHIP DATE 17OCT24
ACTWGT 20 70 LB
CAD 0870970/CAFE3855

BILL SENDER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF S310-99477

FedEx Express

FRI - 18 OCT 10:30A
PRIORITY OVERNIGHT

TRK# 0201 4085 8613 1529

XS CAKA

44203
OH-US CLE

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-77463.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-293059-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 10/30/2024			Preservation Codes: -
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone: 717-656-2300(Tel)	PO #:			
Email:	WO #:			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#:			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)	8151A/8151A_AP Default List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OW-402B (310-293059-1)	10/16/24	09:30 Central	G	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		10/17/24 1452				
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/18/24 10:00	Company ECCBT

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: R: 2.6 C: 2.2

Ver: 05/06/2024

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-293059-1

Login Number: 293059

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Homolar, Dana J

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: AECOM

Job Number: 310-293059-1

Login Number: 293059
List Number: 3
Creator: Santiago, Nathaniel

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC
List Creation: 10/18/24 03:45 PM

Question	Answer	Comment
The cooler's custody seal is 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 acceptable,where thermal pres is required(</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV:Container Temp acceptable,where thermal pres is required (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	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	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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1 2 3 4 5 6 7 8 9 10 11 12 13 14

ANALYTICAL REPORT

PREPARED FOR

Attn: Chris Oelkers
AECOM
501 Sycamore Street
Suite #222
Waterloo, Iowa 50703

Generated 11/7/2024 9:03:45 PM

JOB DESCRIPTION

Black Hawk County Landfill (IDNR)
Fall 2024

JOB NUMBER

310-294219-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

myEOL

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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11/7/2024 9:03:45 PM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016

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Job ID: 310-294219-1 — Eurofins Cedar Falls

Job Narrative
310-294219-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/1/2024 11:00 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 time was 5.5°C.

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

Sample Summary

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-294219-1	OW-226B	Water	11/01/24 10:00	11/01/24 11:00
310-294219-2	OW-227B	Water	11/01/24 10:30	11/01/24 11:00

Detection Summary

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-294219-1

No Detections.

Client Sample ID: OW-227B
Lab Sample ID: 310-294219-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-294219-1
Date Collected: 11/01/24 10:00
Matrix: Water
Date Received: 11/01/24 11:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		11/07/24 08:57	11/07/24 11:32	1

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-227B
Lab Sample ID: 310-294219-2
Date Collected: 11/01/24 10:30
Matrix: Water
Date Received: 11/01/24 11:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide (SW846 9034)	<1.41		3.00	1.41	mg/L		11/07/24 08:57	11/07/24 11:32	1

Definitions/Glossary

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

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

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-634309/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 634374
Prep Batch: 634309

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.41		3.00	1.41	mg/L		11/07/24 08:57	11/07/24 11:32	1

Lab Sample ID: LCS 240-634309/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 634374
Prep Batch: 634309

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfide			7.87	7.467		mg/L		95	70 - 120		

QC Association Summary

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

General Chemistry

Prep Batch: 634309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-294219-1	OW-226B	Total/NA	Water	9030B	
310-294219-2	OW-227B	Total/NA	Water	9030B	
MB 240-634309/1-A	Method Blank	Total/NA	Water	9030B	
LCS 240-634309/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 634374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-294219-1	OW-226B	Total/NA	Water	9034	634309
310-294219-2	OW-227B	Total/NA	Water	9034	634309
MB 240-634309/1-A	Method Blank	Total/NA	Water	9034	634309
LCS 240-634309/2-A	Lab Control Sample	Total/NA	Water	9034	634309

Lab Chronicle

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Client Sample ID: OW-226B
Lab Sample ID: 310-294219-1
Date Collected: 11/01/24 10:00
Matrix: Water
Date Received: 11/01/24 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	9030B			634309	C5SV	EET CLE	11/07/24 08:57
Total/NA	Analysis	9034		1	634374	C5SV	EET CLE	11/07/24 11:32

Client Sample ID: OW-227B
Lab Sample ID: 310-294219-2
Date Collected: 11/01/24 10:30
Matrix: Water
Date Received: 11/01/24 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	9030B			634309	C5SV	EET CLE	11/07/24 08:57
Total/NA	Analysis	9034		1	634374	C5SV	EET CLE	11/07/24 11:32

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Laboratory: Eurofins Cleveland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	421	06-01-25

Method Summary

Client: AECOM
Job ID: 310-294219-1
Project/Site: Black Hawk County Landfill (IDNR)

Method	Method Description	Protocol	Laboratory
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	EET CLE
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	EET CLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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310-294219 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Arcadis

City/State: CITY | STATE | Project:

Receipt Information

Date/Time Received: DATE 10-2-11-1-24 | TIME 1100 | Received By: CE

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: U | Correction Factor (°C):

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): | Corrected Temp (°C):

• **Sample Container Temperature**

	CONTAINER 1	CONTAINER 2
Container(s) used:	500 plastic	
Uncorrected Temp (°C):	5.5	
Corrected Temp (°C):	5.5	

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 Cedar Falls
3019 Venture Way

Cedar Falls, IA 50613
phone 319.277.2401 fax 319.277 2425

Chain of Custody Record

eurofins Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other IDNR

Eurofins Environment Testing America

Client Contact	**Project Manager: Chris Oelkers**	COC No 1 of 1 COCs
AECOM	Email Christopher Oelkers@aecom com	**Site Contact:** / **Date:** 11-1-24
501 Sycamore Street, Suite 222	**Tel/Fax:319-296-6878**	**Lab Contact:** / **Carrier:**
Waterloo, IA 50703	**Analysis Turnaround Time**	TALS Project #
(319) 232-6531 Phone	☑ CALENDAR DAYS ☐ WORKING DAYS	Sampler
(xxx) xxx-xxxx FAX	TAT if different from Below	**For Lab Use Only:**
Project Name Black Hawk Co IDNR	☑ 2 weeks	Walk-in Client:
Site Black Hawk County Landfill	☐ 1 week	Lab Sampling
P O #	☐ 2 days	Job / SDG No
	☐ 1 day	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Appendix I, TSS	Appendix II, TSS	2,4-D	4,4'-DDD	beta-BHC	delta BHC	Endosulfan I	Endosulfan sulfate	Endrin aldehyde	Silvex	Sulfide	Sample Specific Notes
OW-220B			G	GW		N		X		X							X		
OW-221B			G	GW		N		X											
OW-222B			G	GW		N		X											
OW-223B			G	GW		N		X											
OW-223B-FD			G	GW		N		X											
OW-224B			G	GW		N			X										
OW-225B			G	GW		N			X										
OW-226B	11-1-24	1000	G	GW	1	N												X	
OW-227B	11-1-24	1030	G	GW	1	N												X	
MW-319B			G	GW		N		X											
MW-320B			G	GW		N		X											
Equipment Blank-1			G	GW		N		X											

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp (°C) Obs'd. _____ Corr'd _____		Therm ID No. _____
Relinquished by: Ben Porter	Company: Accom	Date/Time: 11-1-24	Received by:	Company:	Date/Time
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time.
Relinquished by:	Company:	Date/Time	Received in Laboratory by: JH	Company:	Date/Time 11-1-24 1100

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11/7/2024

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bindert, Zach T	Carrier Tracking No(s): N/A	COC No: 310-77962.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Zach.Bindert@et.eurofinsus.com	State of Origin: Iowa	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): State - Iowa; State Program - Iowa		Job #: 310-294219-1
Address: 180 S. Van Buren Avenue, .	Due Date Requested: 11/14/2024			
City: Barberton	TAT Requested (days): N/A			
State, Zip: OH, 44203				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Black Hawk County Landfill (IDNR)	Project #: 31017149			
Site: 310 - Black Hawk County (IDNR)	SSOW#: N/A			

Analysis Requested

Preservation Codes: -

Other: N/A

GOES

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:						
OW-226B (310-294219-1)	11/1/24	10:00 Central	G	Water			X	1	
OW-227B (310-294219-2)	11/1/24	10:30 Central	G	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]	11/1/24 1545		[signature] Collins	11-2-24 9:30	[illegible]
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:

Eurofins – Cleveland Sample Receipt Form/Narrative **Login # :**
Barberton Facility

Client Shipping/Receiving Site Name

Cooler unpacked by: JC

Cooler Received on 11-2-24 Opened on 11-2-24

FedEx· 1st Grd (Exp) UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other

COOLANT (Wet Ice) Blue Ice Dry Ice Water None

1 Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN # 17 (CF +0.1 °C) Observed Cooler Temp: 2.8 °C Corrected Cooler Temp: 2.9 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	(No) NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3 Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5 Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7 Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	(Y)	(Y) (Y)
10 Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11 Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	(Yes)	No
If yes, Questions 13-17 have been checked at the originating laboratory		
13 Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC447997
14 Were VOAs on the COC?	Yes	No
15 Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	No
17 Was a LL Hg or Me Hg trip blank present?	Yes	No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container

Sample(s) were received with bubble >6 mm in diameter (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory

Time preserved. Preservative(s) added/Lot number(s)

VOA Sample Preservation - Date/Time VOAs Frozen.

ORIGIN ID ALOA (319) 277-2401
SAMPLE RECEIVING
EUROFINS TESTAMERICA
3019 VENTURE WAY

CEDAR FALLS, IA 60613
UNITED STATES US

SHIP DATE 01NOV24
ACTWGT 9.55 LB
CAD 0870970/CAFE3855

BILL SENDER

TO SHIPPING/RECEIVING
EUROFINS ENVIRONMENT TESTING NORTH
180 S. VAN BUREN AVENUE

BARBERTON OH 44203
(330) 497-9396
REF S310-100001

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 4085 8613 7012

XO CAKA

44203
OH-US CLE

Login Sample Receipt Checklist

Client: AECOM

Job Number: 310-294219-1

Login Number: 294219

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Hirsch, Preston

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 B-2 - Analytical Data Summary Tables

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-114B

Parameter Name	Units	GPS	Oct-07	Jan-08	Apr-08	Jun-08	Sep-08	Feb-09	May-09	Aug-09	Mar-10	Sep-10	May-11	Nov-11	May-12	Dec-12	Apr-13	Oct-13	Mar-14	Aug-14	Mar-15	Aug-15	Mar-16	Oct-16	Dec-16	Apr-17	Sep-17	Mar-18	Sep-18	Mar-19	Sep-19	Mar-20	Oct-20	Mar-21	Nov-21	May-22	Nov-22	Apr-23	Oct-23	May-24	Oct-24
Appendix I Inorganics																																									
Total Suspended Solids	mg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<3.77	***2.5***	<1.2	***4.6***	<0.581	***1 J***	***5.37***	***2.25***	***2.5***	***1 J***	***0.875 J***	***1.25 J***	***1.75 J***	<0.638	<0.638	***1 J***	***0.875 J***	***0.75 J***	<1.7	<1.7	***1.88***	<1.39
Turbidity, Field	NTU	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	***10.35***	***0.853***	***0.9563***	***6.833***	***0.0031***	***18.64***	***3.01***	***8.165***	***1.861***	***0.43***	***3.46***	***0.69***	***0.43***	***0.09***	0	***1.15***	0	***2.76***	***2.01***	***19.11***	***1.55***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.6	***4.9***	<0.7	***5.1***	<0.4	<0.4	***13.4***	***6.9***	***4.9***	<0.4	<0.4	***0.69 J***	***3.97***	--	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<2.73	***5.18 J***	<0.584	<0.271	<0.4	***0.501 J***	<0.161	<0.161	<0.161	<0.237	<0.237	<0.237	<0.185	<0.185	***0.272 J***	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	<0.69	<0.69	<1	<1	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	<6	<6	<6	<6	<6	<6	<6	<2.73	***6.25***	<0.584	<0.271	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***45.7***	***48.2***	***11.8***	***14.1***	***14.1***	***12.5***	***3.38***	***3.22***	***1.21***	<1	<2	<0.6	<0.185	***0.757 J***	***6.27***	***0.897 J***	***2.55 J***	<0.945	***1.3 J***	<0.945	***0.823 J***	***1.84 J***	<0.672	***1.58 J***	***2.26***	***2.14***	<0.57	<0.75	***0.924 J***	<0.88	<0.88	<0.75	<0.75	<0.75	***0.681 J***	***0.929 J***	<0.53	***0.697 J***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	***14.5***	***3.62***	***2.21***	<3	***3.29***	<2	<0.47	<0.185	<0.185	<2.72	***0.688 J***	***2.15 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***185***	***313***	***72.5***	***70.7***	***125***	***141***	***101***	***109***	***84.8***	***56.8***	***51.9***	***62.9***	***58.5***	***88.7***	***61.2***	***54.4***	***66.7***	***62***	***63.6***	***71.3***	***51.7***	***18.6***	***51.3***	***45.3***	***45.2***	***49.6***	***47.1***	***36.7***	***51.7***	***48.5***	***47.2***	***42.7***	***46.4***	***55.9***	***54.8***	***62.7***	***62.1***	***55.8***	***56.6***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	***142***	***88.6***	***107***	***79.9***	***56.5***	***60.2***	***58.1***	***59.8***	***81.9***	***56.6***	***63.1***	***66.6***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.051	<0.169	<0.169	<0.348	<0.08	<0.08	<0.039	***0.041 J***	<0.039	<0.221	<0.221	<0.221	<0.125	<0.125	<0.125	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<2.7	<0.33	<0.33	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	<1	<1	<1	<1	<1	<1	<0.051	<0.169	<0.169	<0.348	<0.08	<0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	<0.5	***0.501***	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.195	<0.195	***0.171 J***	<0.195	<0.53	<0.1	<0.1	***0.213 J***	<0.112	***0.142 J***	***0.142 J***	<0.0351	***0.065 J***	<0.0441	<0.0441	***0.174 J***	***0.086 J***	***0.087 J***	***0.061 J***	***0.066 J***	***0.051 J***	<0.051	<0.051	<0.0555	<0.055	***0.107 J***	***0.109 J***	<0.1	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.195	<0.195	***0.172 J***	<0.195	<0.53	<0.1	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	<20	***22.6***	***2.89***	<20	<20	<20	<20	<20	<2	<20	<20	<1.81	<1.81	***192***	<2.09	***0.963 J***	***1.88 J***	<1.24	<1.24	<1.24	<0.355	***2.02 J***	<0.355	<0.729	<0.729	<0.729	<0.76	<0.98	<0.98	<1.1	<1.1	<1.1	***1.81 J***	<1.1	***1.51 J***	<1.1	<1.1	***1.93 J***	***1.69 J***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	<20	<20	<20	<2	<20	<20	<1.81	<1.81	<1.81	<2.09	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	***4.37 J***	***2.25 J***	***5.1 J***	***4.37***	***3.91***	***6.15***	***1.24***	***4.5***	***2.65***	***2.82***	***1.21***	***2.9***	***2.86***	***3.38***	***3.53***	***0.447 J***	***1.45***	***1.87***	***1.94***	***1.43***	***0.842***	***2.85***	***1.34***	***1.95***	***0.753***	***2.92***	***0.83***	***1.92***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	<20	<20	<20	<20	<20	<20	<1.55	***2.23 J***	***4.63 J***	***3.83***	***4.97***	***5.1***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	***12.7 J***	***4.39 J***	***3.64 J***	***3.19***	***2.39***	***2.79***	***2.74***	<0.485	***1.36 J***	***2.51 J***	<1.22	***2 J***	<2.19	<2.19	<2.19	***4.3 J***	<2	<2	<3.2	<1.5	***3.8 J***	<1.4	***3.14 J***	<1.8	***4.23 J***	<1.8	***2.93 J***	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	<20	<20	<20	<20	<20	<20	***8.69 J***	***4.5 J***	***3.37 J***	***1.41 J***	***0.718 J***	***1.08 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<1	<0.821	<0.821	<1.04	<0.18	***0.271 J***	***0.176 J***	***0.146 J***	<0.0967	<0.211	<0.211	<0.211	<0.324	***0.979***	<0.324	<0.25	<0.27	<0.27	<0.27	<0.11	<0.21	<0.21	<0.24	<0.24	<0.24	<0.24	<0.26	<0.26
Lead, Dissolved	µg/L	NS	--	--	--	--	--	<4	<4	<4	<4	<4	<4	<1	***0.956 J***	<0.821	<1.04	<0.18	<0.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***50.4***	***65***	<50	<50	<50	<50	<50	<50	<50	<50	<50	***54.7***	***58.2***	***59***	***29.4***	***25.3***	***29.8***	***11.6***	***23.2***	***13.8***	***9.25***	***1.99 J***	***22.1***	***12.2***	***15.3***	***17***	<3	***7.17***	***10.5***	***8.69***	***9.32***	***6.85***	***12.8***	***10.3***	***19.9***	***12***	***16.2***	***13***	***14***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	<50	<50	<50	<50	<50	<50	***48.2 J***	***56.1***	***48.5 J***	***25***	***28***	***22.3***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1.69	<1.83	<1.83	<7.3	<0.7	<0.7	<3.34	<3.34	<3.34	<0.63	<0.63	<0.63	<0.928	<0.928	<0.928	***0.989 J***	<1	<1	<1	<1	<0.96	<0.96	<0.96	<0.96	<1.4	<1.4	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	<5	<5	<5	<5	<5	<5	<1.69	<1.83	<1.83	<7.3	<0.7	<0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<20	<20	<1	<20	<20	<20	<20	<20	<20	<20	<20	<1.7	<1.7	<1.7	<1.7	<0.395	<0.033	<0.033	<0.042	<0.042	<0.042	<0.042	***0.19 J***	<0.153	<0.153	<0.14	<0.14	<0.14	<0.3	<0.37	<0.37	<0.37	<0.37	<0.42	<0.42	<0.49	<0.49	<0.5	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	<20	<20	<20	<20	<20	<20	<1.7	<1.7	<1.7	<1.7	<0.395	<0.033	<0.033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.84	<0.523	<0.523	<0.134	<0.05	***0.0513 J***	<0.0325	<0.0325	<0.0325	***0.036 J***	***0.151 J***	<0.0255	<0.0644	<0.0644	***0.129 J***	<0.17	<0.27	<0.27	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57	***1.5***
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	<2	<2	<2	<2	<2	<10	<0.84	<0.523	<0.523	<0.134	<0.05	***0.157 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<2.1	***4.57 J***	<2.1	<4.17	<0.5	<0.5	<0.449	<0.449	<0.449	<0.255	<0.255	<0.255	<0.84	<0.84	<0.84	<0.52	<0.82	<0.82	<0.82	<0.85	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	<50	<50	<50	<50	<50	<50	<2.1	***2.59 J***	<2.1	<4.17	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	***87.5***	<20	***23.8***	***103***	***30.1***	***53.3***	<20	***76.2***	***79.3***	***29.4***	<20	<9.11	***84.4***	***74.5***	<3.13	***4.18 J***	***12.2***	<6.95	<6.95	<6.95	***28.4***	***6.03 J***	<5.21	<11.5	<11.5	<13.5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<6.4	***10.2 J***	<9.7	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	***54***	<20	***72***	***157***	***34.6***	<20	<9.11	***24***	***72.9***	***6.04 J***	***4.49 J***	***12.7***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																																									
1,1,1,2-Tetrachloroethane	µg/L	70	<10	<1	<10	<1	<1	<1	<1	<1	<2	<5	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<10	<1	<10	<1	<1	<1	<1	<1	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<10	<1	<10	<1	<1	<1	<1	<1	<1	<2	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	<10	<1	<10	<1	<1	<1	<1	<1	<1	<2	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethylene	µg/L	7	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<10	<1	<10	<1	<1	<1	<1	<1	<2	<1	<1	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<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	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	<10	<1	<10	<1	<1	<1	<1	<1	<1	<2	<1	***0.32 J***	<0.2	***0.43 J***	<0.2	<0.2	***0.353 J***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
2-Butanone	µg/L	4000	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	***0.73 J***	***0.56 J***	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<1.04	<1.04	<1.04	<1.04	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<1.79	<1.79	***2.02 J***	<1.79	<1.79	<1.79	<1.79	***2.36 J***	<1.79	***2.46 J***	<1.79	<1.79	***2.74 J***	***2.54 J***	***5.14 J***	***12.2***	***3.84 J***	<3.1	<3.1	<3.1	<3.1	<3.1	***8.08 J***	<3.1	<3.1	<3.1	<3.1	<3.1
Acrylonitrile	µg/L	0.32	<100	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	<5	***3.93***	<5	<0.5	***2.55***	***0.77***	***0.97***	***0.53***	<0.5	<0.5	<0.5	<0.11	<0.11	***0.16 J***	<0.11	<0.11	***0.229 J***	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	***3.58***	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
Bromochloromethane	µg/L	90	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	***1.84***	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<40	<4	<40	<4	<4	<4	<4	<4	<4	<4	<4	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<20	<2	<20	<2	<2	<2	<2	<2	<2	<5	<2	***0.24 J***	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	***0.54 J***	***0.21 J***	***0.73 J***	<0.19	***0.396 J***	<0.19	***0.458 J***	***1.16***	<0.19	<0.19	<0.19	<0.19	<0.19	***0.3 J***	***0.313 J***	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	<40	***9.71***	<40	<4	<4	<4	<4	***4.86***	<4	<4	***1.62 J***	<0.15	***1.66 J***	***3.66 J***	***2.66 J***	***2.42 J***	<0.15	***1.51 J***	<0.15	***1.17 J***	<0.15	***1.15 J***	***1.37 J***	***0.658 J***	<0.15	***1.85 J***	***0.79***	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79
Chloromethane	µg/L	NS	<30	<3	<30	<3	<3	<3	<3	<3	<3	<3	<3	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.13	<0.13	***0.14 J***	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	***0.153 J***	<0.13	***0.296 J***	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<50	<5	<50	<5	<5	<5	<5	<5	<5	<10	<5	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	***0.888 J***	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<0.17	<0.17	***0.31 J***	<0.17	<0.17	***0.6 J***	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<100	<10	<100	<10	<10	<10	<20	<10	<10	<20	<10	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<10	<1	<10	<1	<1	<1	<1	<1	<2

Black Hawk County Landfill
Appendix H Results
Monitoring Well OW-1148

Parameter Name	Units	GPL	May-2009	Nov-2010	May-2014	Nov-2014	Aug-2015	Aug-2016	May-2017	Nov-2017	Apr-2018	Nov-2018	May-2019	Nov-2019	May-2020	Nov-2020	May-2021	Nov-2021	Apr-2022	Nov-2022	May-2023	Nov-2023	May-2024	Nov-2024	May-2025	Nov-2025
Alcohols/Glycols by GC																										
Acetonitrile	ug/L	NA	< 10000	< 10000	< 126	--	--	--	< 126	--	--	< 126	--	< 126	--	--	--	--	< 126	--	< 126	--	484	--		
Isobutanol	ug/L	2100	< 10000	< 10000	< 177	--	--	--	< 177	--	--	< 177	--	< 177	--	--	--	--	< 177	--	< 177	--	< 213	--		
Pesticides (GC)																										
2,4,5-T	ug/L	70	< 0.21	< 0.5	< 0.481	--	--	--	< 0.413	--	--	< 0.346	--	< 0.397	--	--	--	--	< 0.565	--	< 0.661	--	< 0.837	--		
2,4,5-TP	ug/L	50	< 0.21	< 0.5	< 0.481	--	--	--	< 0.413	--	--	< 0.346	--	< 0.397	--	--	--	--	< 0.565	--	< 0.661	--	< 0.837	--		
Silvex (2,4,5-TP)	ug/L	50	< 0.21	< 0.5	< 0.321	--	--	--	< 0.344	--	--	< 0.327	--	< 0.349	--	--	--	--	< 0.327	--	< 0.376	--	< 0.677	--		
Inorganics																										
Ammonia	ug/L	200	< 50	< 50	< 3.1	--	--	--	< 3.84	--	--	4.13 J	--	< 5.46	--	--	--	--	< 5.2	--	< 5	--	< 5	--		
Mercury	ug/L	2	< 0.2	< 0.2	< 0.053	--	--	--	< 0.0926	--	--	< 0.148	--	< 0.333	--	--	--	--	< 0.15	--	< 0.1	--	< 0.1	--		
Sulfide	ug/L	NA	< 5000	< 5000	< 219	--	--	--	< 219	--	--	< 186	--	< 219	--	--	--	--	< 231	--	< 207	--	< 10000	--		
Tin	ug/L	4200	< 100	< 100	< 121	--	--	--	< 1.8	--	--	< 0.832	--	< 1.62	--	--	--	--	< 0.72	--	< 1.8	--	< 2.4	--		
PCBs (EPA Method 8082)																										
PCB-1016	ug/L	NA	< 0.8	< 0.8	< 0.0493	--	--	--	< 0.0434	--	--	< 0.0402	--	< 0.103	--	--	--	--	< 0.0467	--	< 0.0482	--	< 0.295	--		
PCB-1221	ug/L	NA	< 0.8	< 0.8	< 0.108	--	--	--	< 0.16	--	--	< 0.178	--	< 0.385	--	--	--	--	< 0.172	--	< 0.17	--	< 0.295	--		
PCB-1232	ug/L	NA	< 0.8	< 0.8	< 0.126	--	--	--	< 0.13	--	--	< 0.118	--	< 0.283	--	--	--	--	< 0.118	--	< 0.137	--	< 0.295	--		
PCB-1242	ug/L	NA	< 0.8	< 0.8	< 0.126	--	--	--	< 0.13	--	--	< 0.118	--	< 0.283	--	--	--	--	< 0.118	--	< 0.137	--	< 0.239	--		
PCB-1248	ug/L	NA	< 0.8	< 0.8	< 0.126	--	--	--	< 0.13	--	--	< 0.118	--	< 0.283	--	--	--	--	< 0.118	--	< 0.137	--	< 0.239	--		
PCB-1254	ug/L	NA	< 0.8	< 0.8	< 0.106	--	--	--	< 0.092	--	--	< 0.102	--	< 0.243	--	--	--	--	< 0.0989	--	< 0.0975	--	< 0.239	--		
PCB-1260	ug/L	NA	< 0.8	< 0.8	< 0.0986	--	--	--	< 0.0844	--	--	< 0.0885	--	< 0.199	--	--	--	--	< 0.0972	--	< 0.0868	--	< 0.239	--		
Pesticides (EPA Method 8081A)																										
4,4'-DDD	ug/L	0.73	< 0.032	< 0.032	< 0.00207	--	--	--	< 0.002	--	--	< 0.00198	--	< 0.00214	--	--	--	--	< 0.00196	--	0.00332 J	--	< 0.00205	--	< 0.00209	--
4,4'-DDE	ug/L	0.32	< 0.032	< 0.032	< 0.00343	--	--	--	0.00638 J	--	--	< 0.00253	--	0.01367 J	--	--	--	--	< 0.00128	--	< 0.00206	--	< 0.00198	--		
4,4'-DDT	ug/L	0.16	< 0.032	< 0.032	< 0.00243	--	--	--	< 0.00143	--	--	< 0.00163	--	0.0181 J	0.0163 J	--	--	0.00633 J	0.00779 J	0.00911 J	0.00632 J	0.00686 J	< 0.00163	--		
Aldrin	ug/L	0.05	< 0.032	< 0.032	< 0.00527	--	--	--	< 0.00161	--	--	< 0.00405	--	< 0.0248	--	--	--	--	< 0.00489	--	< 0.0048	--	< 0.00511	--		
Alpha-BHC	ug/L	0.038	< 0.032	< 0.032	< 0.00147	0.00135 J	0.00119 J	< 0.00197	< 0.00198	--	--	< 0.00193	--	0.0196 J	--	--	--	--	< 0.00185	--	< 0.00193	--	< 0.00193	--		
beta-BHC	ug/L	0.042	< 0.032	< 0.032	0.00168 J	< 0.00527	< 0.00505	< 0.005	< 0.00477	--	< 0.00528	< 0.00527	0.00641 J	0.0072 J	--	--	< 0.00535	< 0.00545	0.0177 J	< 0.00522	< 0.00545	< 0.00516	< 0.00505	< 0.00545	< 0.00524	
Delta-BHC	ug/L	NA	< 0.032	< 0.032	< 0.00147	--	--	--	< 0.00161	--	--	< 0.00405	--	< 0.0248	--	--	--	--	< 0.00489	--	< 0.0048	--	< 0.00511	--		
Alpha-BHC	ug/L	1.1	< 0.032	< 0.032	< 0.00534	--	--	--	< 0.00158	--	--	< 0.00323	--	< 0.00573	--	--	--	--	< 0.0031	--	< 0.0032	--	< 0.00341	--		
Chlordane	ug/L	0.033	< 0.032	< 0.032	< 0.0243	--	--	--	< 0.00552	--	--	< 0.0023	--	0.0148 J	--	--	--	--	< 0.0241	--	< 0.0233	--	< 0.0237	--		
Endosulfan I	ug/L	42	< 0.032	< 0.032	< 0.00302	--	--	--	< 0.00322	--	--	< 0.00322	--	0.00454 J	--	--	--	--	< 0.00327	--	< 0.00323	--	0.00311 J	--		
Endosulfan II	ug/L	42	< 0.032	< 0.032	< 0.00218	--	--	--	< 0.00224	--	--	< 0.00209	--	< 0.00236	--	--	--	--	< 0.00207	--	< 0.00208	--	< 0.00216	--		
Endosulfan sulfate	ug/L	42	< 0.032	< 0.032	< 0.0129	--	--	--	0.00421 J	0.00367 J	--	< 0.0017	--	< 0.00598	--	--	--	--	< 0.00727	--	< 0.00539	--	< 0.00284	--		
Endrin	ug/L	2	< 0.032	< 0.032	< 0.00218	--	--	--	0.00416 J	< 0.00318	--	< 0.00307	--	< 0.0107	--	--	--	--	< 0.00307	--	0.00299 J	--	< 0.00291	--		
Endrin aldehyde	ug/L	2.1	< 0.032	< 0.032	< 0.00559	--	--	--	0.0111 J	< 0.00728	--	< 0.00465	--	0.0151 J	< 0.0078	--	< 0.0083	< 0.0081	< 0.00753	< 0.0081	< 0.00795	< 0.0081	< 0.00801	< 0.00818		
gamma-BHC (Lindane)	ug/L	0.2	< 0.032	< 0.032	0.00768 J	< 0.00209	0.00827 J	0.00441 J	< 0.00233	0.00401 J	--	< 0.00209	--	0.0109 J	--	--	--	--	< 0.00207	--	0.00331 J	--	< 0.00216	--		
Heptachlor	ug/L	0.4	< 0.032	< 0.032	< 0.00539	--	--	--	0.00734 J	< 0.00265	--	< 0.0026	--	< 0.0163	--	--	--	--	< 0.00414	--	< 0.0041	--	< 0.00295	--		
Heptachlor epoxide	ug/L	0.2	< 0.032	< 0.032	< 0.00703	--	--	--	< 0.00678	--	--	< 0.0042	--	0.0112 J	--	--	--	--	< 0.00643	--	< 0.00626	--	< 0.00583	--		
Methoxychlor	ug/L	40	< 0.032	< 0.032	0.00197 J	0.00179 J	0.0118 J	0.0111 J	< 0.00319	--	--	< 0.00303	--	0.0131 J	--	--	--	--	< 0.00298	--	< 0.00238	--	0.00317 J	--		
Toxaphene	ug/L	3	< 2	< 2	< 0.0967	--	--	--	< 0.0641	--	--	< 0.0637	--	< 0.069	--	--	--	--	< 0.063	--	< 0.0624	--	< 0.0618	--		
Semivolatile Organics by GC/MS																										
1,2,4,5-Tetrachlorobenzene	ug/L	2.3	< 10	< 10	< 0.133	--	--	--	< 0.125	--	--	< 0.138	--	< 0.125	--	--	--	--	< 0.127	--	< 0.133	--	< 0.84	--		
1,2,4-Trimethylbenzene	ug/L	NA	< 10	< 10	< 1.43	--	--	--	< 1.29	--	--	< 1.48	--	< 1.35	--	--	--	--	< 1.48	--	< 1.4	--	< 1.49	--		
1,3-Dinitrobenzene	ug/L	3	< 10	< 10	< 0.189	--	--	--	< 0.17	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.17	--	< 0.19	--	< 1.2	--		
2,4,6-Trichlorophenol	ug/L	NA	< 10	< 10	< 0.126	--	--	--	< 0.143	--	--	< 0.122	--	< 0.146	--	--	--	--	< 0.404	--	< 0.593	--	< 1.12	--		
2,4-Dichlorophenol	ug/L	NA	< 10	< 10	< 0.48	--	--	--	< 0.46	--	--	< 0.48	--	< 0.5	--	--	--	--	< 0.44	--	< 0.59	--	< 0.576	--		
2,4-Dimethylphenol	ug/L	NA	< 10	< 10	< 0.247	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.27	--	< 0.262	--	< 1.01	--		
2,4-Dinitrophenol	ug/L	NA	< 10	< 10	< 0.227	--	--	--	< 0.262	--	--	< 0.235	--	< 0.268	--	--	--	--	< 0.262	--	< 0.246	--	< 1.18	--		
2,4-Dinitrotoluene	ug/L	390	< 10	< 10	< 0.106	--	--	--	< 0.103	--	--	< 0.36	--	< 0.103	--	--	--	--	< 0.787	--	< 0.795	--	< 1.26	--		
2,6-Dinitrotoluene	ug/L	39	< 10	< 10	< 0.148	--	--	--	< 0.143	--	--	< 0.148	--	< 0.143	--	--	--	--	< 0.787	--	< 0.795	--	< 1.38	--		
2,6-Dinitrotoluene	ug/L	39	< 10	< 10	< 0.167	--	--	--	< 0.112	--	--	< 0.168	--	< 0.104	--	--	--	--	< 0.568	--	< 0.139	--	< 1.26	--		
2-Chloronaphthalene	ug/L	1.6	< 20	< 20	< 0.189	--	--	--	< 0.172	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.17	--	< 0.19	--	< 1.2	--		
2-Chlorophenol	ug/L	1.6	< 20	< 20	< 1.49	--	--	--	< 1.29	--	--	< 1.48	--	< 1.35	--	--	--	--	< 1.4	--	< 1.4	--	< 1.49	--		
2-Methylphenol	ug/L	0.45	< 10	< 10	< 0.211	--	--	--	< 0.192	--	--	< 0.213	--	< 0.198	--	--	--	--	< 0.617	--	< 0.593	--	< 1.26	--		
2-Nitroaniline	ug/L	NA	< 10	< 10	< 0.168	--	--	--	< 0.147	--	--	< 0.247	--	< 0.225	--	--	--	--	< 0.267	--	< 0.24	--	< 1.26	--		
2-Nitrophenol	ug/L	0.26	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.27	--	< 0.262	--	< 1.26	--		
3,3'-Dichlorobenzidine	ug/L	NA	< 10	< 10	0.032 J	< 0.292	< 0.295	< 0.304	< 0.281	--	--	< 0.331	--	< 0.292	--	--	--	--	< 1.39	--	< 1.56	--	< 1.38	--		
3-Chloronitrobenzene	ug/L	560	< 10	< 10	< 0.236	--	--	--	< 0.232	--	--	< 0.258	--	< 0.24	--	--	--	--	< 0.258	--	< 0.253	--	< 1.49	--		
3-Chlorophenol	ug/L	40	< 10	< 10	< 0.154	--	--	--	< 0.193	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.169	--	< 0.164	--	< 1.26	--		
3-Methylnaphthalene	ug/L	28	< 10	< 10	< 0.213	--	--	--	< 0.192	--	--	< 0.213	--	< 0.198	--	--	--	--	< 0.213	--	< 0.208	--	< 1.49	--		
3-Methylphenol (o+f+meta)	ug/L	35	< 10	< 10	< 0.2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.202	--	< 0.197	--	< 1.15	--		
3-Nitroaniline	ug/L	0.097	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 0.267	--	< 0.24	--	< 0.989	--		
3-Nitrophenol	ug/L	NA	< 10	< 10	< 0.178	--	--	--	< 0.162	--	--	< 0.182	--	< 0.167	--	--	--	--	< 0.167	--	< 0.165	--	< 1.38	--		
4,6-Dinitro-2-methylphenol	ug/L	0.39	< 10	< 10	< 0.131	--	--	--	< 0.402	--	--	< 0.137	--	< 0.479	--	--	--	--	< 0.16	--	< 0.165	--	< 2.07	--		
4,6-Dinitro-2-methylphenol	ug/L	NA	< 20	< 20	< 0.233	--	--	--	< 0.212	--	--	< 0.236	--	2.83 J	--	--	--	--	< 0.236	--	< 0.23	--	< 2.7	--		
4-Methylphenol	ug/L	70	< 10	< 10	< 0.2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.202	--	< 0.197	--	< 0.873	--		
4-Methyl-2-nitroaniline	ug/L	NA	< 10	< 10	< 0.158	--	--	--	< 0.148	--	--	< 0.247	--	< 0.225	--	--	--	--	< 1	--	< 0.973	--	< 2.87	--		
4-Nitroaniline	ug/L	NA	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 0.662	--	< 0.634	--	< 1.15	--		
4,6-Dinitro-2-methylphenol	ug/L	NA	< 10	< 10	< 2.47	--	--	--	< 2.24	--	--	< 2.49	--	< 2.29	--	--	--	--	< 2.49	--	< 2.43	--	< 2.87	--		
4-Aminobiphenyl	ug/L	0.0083	< 20	< 10	< 0.133	--	--	--	< 0.903	--	--	< 0.337	--	< 0.353	--	--	--	--	< 0.337	--	< 0.329	--	< 1.3	--		
4-Bromophenyl phenyl ether	ug/L	NA	< 10	< 10	< 0.122	--	--	--	< 0.103	--	--	< 0.336	--	< 0.325	--	--	--	--	< 0.326	--	< 0.317	--	< 2.18	--		
4-Chloro-3-methylphenol	ug/L	700	< 10	< 10	< 0.231	--	--	--	< 0.192	--	--	< 0.213	--	< 0.198	--	--	--	--	< 0.262	--	< 0.288	--	< 1.09	--		
4-Nitroaniline	ug/L	20	< 10	< 10	< 0.196	--	--	--	< 0.143	--	--	< 0.155	--	0.256 J	--	--	--	--	< 0.309	--	< 0.444	--	< 1.38	--		
4-Chlorophenyl phenyl ether	ug/L	NA	< 10	< 10	< 0.236	--	--	--	< 0.232	--	--	< 0.288	--	< 0.26	--	--	--	--	< 0.288	--	< 0.273	--	< 1.49	--		
4-Nitrophenol	ug/L	NA	< 10	< 10	< 0.178	--	--	--	< 0.162	--	--	< 0.182	--	< 0.167	--	--	--	--	< 0.167	--	< 0.165	--	< 1.38	--		
4-Phenylphenol	ug/L	60	< 10	< 10	< 0.133	--	--	--	< 0.122	--	--	< 0.138	--	< 0.125	--	--	--	--	< 0.127	--	< 0.133	--	< 0.87	--		
4-Picoline (4-methyl pyridine)	ug/L	40	< 10	< 10	< 0.189	--	--	--	< 0.172	--	--	< 0.155	--	< 0.177	--	--	--	--	< 0.191	--	< 0.186	--	< 0.58	--		
5-Nitro-o-toluidine	ug/L	NA	< 10	< 10	< 0.278	--	--	--	< 0.261	--	--	< 0.284	--	< 0.26	--	--	--	--	< 0.285	--	< 0.273	--	< 1.06	--		
a,a-Dimethylphenethylamine	ug/L	NA	< 10	< 10	< 0.133	--	--	--	< 0.903	--	--	< 0.337	--	< 0.353	--	--	--	--	< 0.337	--	< 0.329	--	< 1.49	--		
Acenaphthene	ug/L	420	< 10	< 10	< 0.133	--	--	--	< 0.903	--	--	< 0.337	--	< 0.353	--	--	--	--	< 0.337	--	< 0.329	--	< 1.49	--		
Acenaphthylene	ug/L	210	< 10	< 10	< 0.133	--	--	--	< 0.903	--	--	< 0.337	--	< 0.353	--	--	--	--	< 0.337	--	< 0.329	--	< 1.49	--		
Acetophenone	ug/L	NA	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 0.393	--	< 0.383	--	< 0.45	--		
Anthracene	ug/L	2100	< 10	< 10	< 0.189	--	--	--	< 0.172	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.191	--	< 0.186	--	< 1.26	--		
Benzo (a) anthracene	ug/L	0.24	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.382	--	< 0.372	--	< 1.26	--		
Benzo (a) pyrene	ug/L	0.2	< 10	< 10	< 0.278	--	--	--	< 0.261	--	--	< 0.284	--	< 0.26	--	--	--	--	< 1.43	--	< 1.39	--	< 1.72	--		
Benzo (b) fluoranthene	ug/L	0.24	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 1.32	--	< 1.28	--	< 1.58	--		
Benzo (g,h,i) perylene	ug/L	0.26	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 1.32	--	< 1.28	--	< 1.58	--		
Benzo (k) fluoranthene	ug/L	2.4	< 10	< 10	< 0.233	--	--	--	< 0.212	--	--	< 0.236	--	< 0.219	--	--	--	--	< 0.218	--	< 0.227	--	< 1.38	--		
Benzoic Acid	ug/L	780	< 10	< 10	< 2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.874	--	< 0.656	--	< 1.26	--		
Benzyl alcohol	ug/L	780	< 10	< 10	< 2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.874	--	< 0.656	--	< 1.26	--		
Bis(2-chloroethoxy)methane	ug/L	NA	< 10	< 10	< 0.2	--	--	--	< 0.262	--	--	< 0.292	--	< 0.271	--	--	--	--	< 0.262	--	< 0.284	--	< 1.26	--		
Bis(2-chloroethyl) ether	ug/L	0.16	< 10	< 10	< 0.2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.213	--	< 0.208	--	< 1.26	--		
Bis(2-chloroisopropyl) ether	ug/L	300	< 10	< 10	< 0.2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.202	--	< 0.197	--	< 1.38	--		
Bis(2-ethylhexyl) phthalate	ug/L	6	< 10	< 10	< 0.431	--	--	--	0.0147 J	< 0.39	0.01 J+	< 0.438	< 0.438	0.0163 J	--	--	--	0.024	--	< 2.42	2.75	< 2.14	2.74	< 2.95	2.77
Butyl benzyl phthalate	ug/L	140	< 10	< 10	< 0.378	--	--	--	< 0.361	--	--	< 0.284	--	0.046 J	--	--	--	--	< 1.74	--	< 1.67	--	< 1.72	--		
Chlorobenzilate	ug/L	NA	< 10	< 10	< 0.233	--	--	--	< 0.212	--	--	< 0.236	--	< 0.219	--	--	--	--	< 0.236	--	< 0.23	--	< 0.33	--		
Chrysene	ug/L	24	< 10	< 10	< 0.322	--	--	--	< 0.292	--	--	< 0.326	--	< 0.303	--	--	--	--	< 0.308	--	< 0.309	--	< 1.26	--		
Diallate (cis or trans)	ug/L	NA	< 10	< 10	< 0.236	--	--	--	< 0.232	--	--	< 0.258	--	< 0.24	--	--	--	--	< 0.258	--	< 0.253	--	< 1.49	--		
Dibenz (a,h) anthracene	ug/L	0.024	< 10	< 10	< 0.278	--	--	--	< 0.261	--	--	< 0.284	--	< 0.26	--	--	--	--	< 1.43	--	< 1.39	--	< 1.72	--		
Dibenzofuran	ug/L	7	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.27	--	< 0.262	--	< 1.38	--		
Diethyl phthalate	ug/L	5600	< 10	< 10	0.426 J	< 0.371	< 0.372	0.517 J	< 0.363	--	--	< 0.402	--	< 0.371	--	--	--	--	< 0.393	--	< 0.295	--	< 1.26	--		
Dimethoate	ug/L	1.4	< 10	< 10	< 0.2	--	--	--	< 0.182	--	--	< 0.202	--	< 0.188	--	--	--	--	< 0.202	--	< 0.295	--	< 1.15	--		
Dimethyl phthalate	ug/L	NA	< 10	< 10	< 0.236	--	--	--	< 0.232	--	--	< 0.258	--	< 0.24	--	--	--	--	< 2.46	--	< 2.39	--	< 2.87	--		
Di-n-butyl phthalate	ug/L	700	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.271	--	< 0.25	--	--	--	--	< 1.29	--	< 1.26	--	< 1.38	--		
Di-n-octyl phthalate	ug/L	140	< 10	< 10	< 0.236	--	--	--	< 0.232	--	--	1.78 J	--	< 0.24	--	--	--	--	< 1.08	--	< 1.9	--	< 1.45	--		
Dinoseb	ug/L	7	< 10	< 10	< 0.878	--	--	--	< 0.819	--	--	< 0.889	--	< 0.844	--	--	--	--	< 0.889	--	< 0.837	--	< 0.576	--		
Diphenylamine	ug/L	100	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 0.247	--	< 0.24	--	< 1.14	--		
Disulfoton	ug/L	0.3	< 10	< 10	< 0.189	--	--	--	< 0.172	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.191	--	< 0.186	--	< 0.576	--		
Ethion	ug/L	NA	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.27	--	< 0.262	--	< 0.287	--		
Ethyl Methanesulfonate	ug/L	NA	< 10	< 10	< 0.189	--	--	--	< 0.172	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.191	--	< 0.186	--	< 0.576	--		
Fluoranthene	ug/L	280	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.764	--	< 0.743	--	< 1.08	--		
Fluorene	ug/L	280	< 10	< 10	< 0.189	--	--	--	< 0.172	--	--	< 0.194	--	< 0.177	--	--	--	--	< 0.191	--	< 0.186	--	< 1.26	--		
Hexachlorobenzene	ug/L	1	< 10	< 10	< 0.2	--	--	--	< 0.273	--	--	< 0.303	--	< 0.281	--	--	--	--	< 0.303	--	< 0.295	--	< 1.61	--		
Hexachlorobutadiene	ug/L	5	< 10	< 10	< 0.148	--	--	--	< 0.133	--	--	< 0.148	--	< 0.133	--	--	--	--	< 0.191	--	< 0.186	--	< 1.38	--		
Hexachlorocyclopentadiene	ug/L	50	< 50	< 50	< 2.1	--	--	--	< 1.91	--	--	< 2.33	--	< 1.97	--	--	--	--	< 2.12	--	< 2.07	--	< 2.01	--		
Hexachloroethane	ug/L	5	< 10	< 10	< 0.148	--	--	--	< 0.133	--	--	< 0.148	--	< 0.133	--	--	--	--	< 0.191	--	< 0.186	--	< 1.49	--		
Hexachlorophene	ug/L	1	< 10	< 10	< 1.02	--	--	--	< 0.86	--	--	< 1.04	--	< 1.75	--	--	--	--	< 1.04	--	< 0.79	--	< 0.861	--		
Isobutyl (1,2,2-trimethyl propyl) ester	ug/L	0.34	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 1.05	--	< 1.01	--	< 2.3	--		
Isodrin	ug/L	NA	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	0.0242 J	--	--	--	--	< 0.27	--	< 0.262	--	< 0.869	--		
Isophorone	ug/L	100	< 10	< 10	< 0.244	--	--	--	< 0.222	--	--	< 0.247	--	< 0.229	--	--	--	--	< 0.247	--	< 0.24	--	< 1.14	--		
Isosafrole	ug/L	2.2	< 10	< 10	< 0.181	--	--	--	< 0.283	--	--	< 0.308	--	< 0.283	--	--	--	--	< 0.287	--	< 0.287	--	< 0.576	--		
Kepone	ug/L	NA	< 10	< 20	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.27	--	< 0.262	--	< 0.87	--		
Methapyrilene	ug/L	NA	< 10	< 10	< 0.267	--	--	--	< 0.242	--	--	< 0.27	--	< 0.25	--	--	--	--	< 0.27	--	< 0.262	--	< 0.869	--		
Methyl Methanesulfonate	ug/L	1.8	< 10	< 10	< 0.236	--	--	--	< 0.192	--	--	< 0.213	--	< 0.198	--	--	--	--	< 0.213	--	< 0.208	--	< 0.576

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-205B

Parameter Name	Units	GPS	Mar-16	Dec-16	Mar-17	Jun-17	Sep-17	Nov-17	Dec-17	Mar-18	Jul-18	Sep-18	Mar-19	Oct-19	Nov-19	Mar-20	Sep-20	Mar-21	Jun-21	Nov-21	Apr-22	Nov-22	Apr-23	Sep-23	Apr-24	Oct-24
Appendix I Inorganics																										
Total Suspended Solids	mg/L	NS	***20.8***	***7***	***26.6***	***14***	***9***	***9.12***	***3.87***	***22.9***	***13.3***	***7.25***	***21.9***	***5.25***	--	***48***	***6***	***20.3***	--	***7 J***	***34***	***14***	***18.8***	***16.5***	***10***	Not Accessible
Turbidity, Field	NTU	NS	***108***	***12.47***	***39.53***	***3.316***	***6.944***	***2.733***	***8.172***	***98.7***	***6.709***	***10.48***	***152.17***	***0.53***	***10.69***	***136.35***	***1.67***	***289.85***	***2.45***	***3.13***	***65.53***	0	***144.3***	***0.81***	***59.73***	--
Turbidity, Lab	NTU	NS	***76.8***	***24.7***	***155***	***95***	***10.8***	***20.9***	***13.4***	***39.7***	***84.5***	***34.6***	***127***	***10.6***	--	***98.9***	--	--	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<0.237	<0.237	<0.185	<0.185	<0.185	***0.956 J***	<0.185	<0.185	<8.4	<0.42	<0.53	<0.53	--	<0.58	<0.51	<1.1	--	<1.1	<0.69	<0.69	<1	<1	<1	--
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***14.8***	***13.9***	***12.9***	***7.5***	***6.55***	***6.4***	***2.63***	***7.25***	<11.4	***5.31***	***11.9***	***18.8***	--	***13.4***	***6.85***	***17.5***	--	***12.4***	***10.2***	***11.1***	***18.3***	***9.14***	***9.06***	--
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***112***	***177***	***186***	***115***	***108***	***106***	***107***	***125***	***189***	***190***	***151***	***350***	--	***307***	***250***	***376***	--	***307***	***237***	***240***	***273***	***177***	***171***	--
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.221	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<3.8	<0.19	<0.27	<0.27	--	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33	--
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.042 J***	<0.0351	<0.0441	<0.0441	<0.0441	***0.052 J***	<0.0441	<0.0441	<1.2	***0.092 J***	<0.077	<0.039	--	<0.039	***0.152***	<0.051	--	<0.051	<0.055	<0.055	<0.1	<0.1	<0.1	--
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***2.33 J***	***0.68 J***	***3.03 J***	***1.06 J***	***1.32 J***	***2.86 J***	<0.729	***0.94 J***	<15.2	<0.76	***2.73 J***	<0.98	--	***2.04 J***	<1.1	***1.81 J***	--	<1.1	***1.87 J***	<1.1	***1.87 J***	<1.1	***1.98 J***	--
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***3.62***	***2.27***	***2.9***	***3.6***	***3.07***	***2.85***	***3.16***	***3.48***	***4.62 J***	***3.77***	***4.12***	***3***	--	***5.14***	***4.43***	***6.19***	--	***4.35***	***5.01***	***3.49***	***5.28***	***3.37***	***3.69***	--
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	<1.22	<1.22	<2.19	<2.19	<2.19	<2.19	<2.19	<2.19	***45.8 J***	<1.6	<2	<2	--	<3.2	<1.5	<1.4	--	<1.4	<1.8	<1.8	<1.8	<1.8	<1.8	--
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	***0.269 J***	<0.211	<0.324	<0.324	<0.324	<0.324	<0.324	<0.324	***16.2***	<0.25	<0.27	<0.27	--	<0.27	<0.11	<0.21	--	<0.21	<0.24	<0.24	<0.24	<0.24	<0.26	--
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***7.66***	***5.57***	***7.27***	***8.67***	***6.65***	***6.69***	***8.12***	***7.62***	<20	***9.79 J***	***10.7***	***11.5***	--	***15.9***	***12.3***	***18.8***	--	***12.3***	***14.6***	***10.7***	***16.2***	***9.57***	***12.6***	--
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<0.63	<0.63	<0.928	<0.928	<0.928	<0.928	<0.928	<0.928	<18	<0.9	<1	<1	--	<1	<1	<0.96	--	<0.96	<0.96	<0.96	<1.4	<1.4	<1.4	--
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.153	<0.14	<0.14	<0.14	***0.171 J***	<0.14	***0.167 J***	<6	<0.3	<0.37	<0.37	--	<0.37	<0.37	<0.42	--	<0.42	<0.49	<0.49	<0.5	<0.5	<0.5	--
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0255	<0.0644	<0.0644	<0.0644	<0.0644	<0.0644	<0.0644	<3.4	<0.17	<0.27	<0.27	--	<0.26	<0.26	<0.26	--	<0.26	<0.26	<0.26	<0.26	***0.415 J***	<0.57	--
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	<0.255	<0.255	<0.84	<0.84	<0.84	<0.84	<0.84	<0.84	<10.4	<0.52	<0.82	<0.82	--	<0.82	<0.85	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<5.21	<5.21	<11.5	<11.5	<11.5	<11.5	<11.5	<11.5	<200	<10	<10	<10	--	<10	<10	<10	--	<10	<10	<10	<6.4	<6.4	<9.7	--
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																										
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.38	<0.38	<0.38	--	<0.38	<0.38	<0.38	--	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	--	<0.19	<0.19	<0.19	--	<0.19	<0.19	<0.19	--	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	<0.47	<0.47	<0.47	--	<0.47	<0.47	<0.47	--	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	--
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	--	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--
1,1-Dichloroethane	µg/L	140	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.22	<0.22	<0.22	--	<0.22	<0.22	<0.22	--	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	--
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	--	<0.56	<0.56	<0.56	--	<0.56	<0.56	<0.56	--	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--	<0.59	<0.59	<0.59	--	<0.59	<0.59	<0.59	--	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	--
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<1.2	<1.2	<1.2	--	<1.2	<1.2	<1.2	--	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	--
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<0.34	<0.34	<0.34	--	<0.34	<0.34	<0.34	--	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	--
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	--	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	--	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	--	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--
1,4-Dichlorobenzene	µg/L	75	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.23	<0.23	***0.373 J***	--	***0.317 J***	<0.23	<0.23	--	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	--
2-Butanone	µg/L	4000	<0.47	<1.04	***18.2***	***1.36 J***	<1.04	<1.04	<1.04	<1.04	--	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<2	<2	<2	--	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	--
4-Methyl-2-pentanone	µg/L	560	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	--	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--
Acetone	µg/L	6300	<1.79	<1.79	***298***	***6.02 J***	***3.33 J***	<1.79	<1.79	***7.47 J***	--	<3.1	***3.9 J***	<3.1	--	<3.1	<3.1	<3.1	--	<3.1	<3.1	<3.1	***6.7 J***	<3.1	***71.2***	--
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	--	<2.2	<2.2	<2.2	--	<2.2	<2.2	<2.2	--	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	--
Benzene	µg/L	5	***0.225 J***	***0.387 J***	***0.482 J***	***0.207 J***	***0.138 J***	***0.173 J***	***0.235 J***	***0.264 J***	--	***0.374 J***	***0.225 J***	***0.898***	--	***0.446 J***	***0.242 J***	***0.471 J***	--	***0.493 J***	***0.256 J***	***0.354 J***	***0.334 J***	***0.464 J***	<0.22	--
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	--	<0.54	<0.54	<0.54	--	<0.54	<0.54	<0.54	--	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	--
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	--	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--
Bromomethane	µg/L	10	<0.22	<0.22	<0.22	<0.22	<0.22	***0.48 J***	<0.22	<0.22	--	<1.1	<1.1	***3.38 J***	--	<1.1	<1.1	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--
Carbon disulfide	µg/L	700	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	--	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	--	<0.65	<0.65	<0.65	--	<0.65	<0.65	<0.65	--	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	--
Chlorobenzene	µg/L	100	***0.409 J***	<0.19	***0.647 J***	***0.323 J***	***0.232 J***	***0.239 J***	***0.275 J***	***0.464 J***	--	***0.707 J***	***0.471 J***	***1.53***	--	***1.04***	***0.571 J***	<0.4	--	***0.897 J***	***0.489 J***	***0.52 J***	***0.61 J***	<0.4	<0.4	--
Chloroethane	µg/L	2800	***1.35 J***	***0.863 J***	<0.15	***0.604 J***	***0.312 J***	***0.547 J***	***0.288 J***	<0.15	--	<0.79	<0.79	***0.998 J***	--	<0.79	<0.79	***0.997 J***	--	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	--
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	--	<0.61	<0.61	<0.61	--	***0.614 J***	<0.61	<0.61	--	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	--
cis-1,2-Dichloroethylene	µg/L	70	***0.243 J***	***0.74 J***	***0.371 J***	***0.304 J***	***0.217 J***	***0.259 J***	***0.261 J***	***0.454 J***	--	***0.855 J***	***0.498 J***	***1.17***	--	***1.02***	***0.224 J***	***0.685 J***	--	***0.571 J***	***0.52 J***	***0.44 J***	***0.366 J***	<0.21	<0.21	--
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	--	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	--
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	--
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	--	<0.33	<0.33	<0.33	--	<0.33	<0.33	<0.33	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	--
Dichloromethane	µg/L	5	<0.17	***0.275 J***	***0.258 J***	***0.19 J***	***0.236 J***	<0.17	***15.5***	***1.28 J***	--	<1.7	<1.7	<1.7	--	<1.7	<1.7	<1.7	--	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	--
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.31	<0.31	<0.31	--	<0.31	<0.31	<0.31	--	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	--
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	--	<7	<7	<7	--	<7	<7	<7	--	<7	<7	<7	<7	<7	<7	--
Styrene	µg/L	100	<0.1	<0.1	<0.1	***0.137 J***	<0.1	<0.1	<0.1	<0.1	--	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	--	<0.48	<0.48	<0.48	--	<0.48	<0.48	<0.48	--	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	--
Toluene	µg/L	1000	<0.15	<0.15	<0.15	***0.276 J***	<0.15	<0.15	***1.15***	<0.15	--	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	***0.499 J***	<0.43	<0.43	--
Trans-1,2-dichloroethylene	µg/L	100	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	--	<0.56	<0.56	<0.56	--	<0.56	<0.56	<0.56	--	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<1.1	<1.1	<1.1	--	<1.1	<1.1	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	--	<0.78	<0.78	<0.78	--	<0.78	<0.78	<0.78	--	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	--
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	--	<0.38	<0.38	<0.38	--	<0.38	<0.38	<0.38	--	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	--	<1.3	<1.3	<1.3	--	<1.3	<1.3	<1.3	--	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	--
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	--	<2.5	<2.5	<2.5	--	<2.5	<2.5	<2.5	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--
Vinyl Chloride	µg/L	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	<0.6	<0.6	<0.18	--	<0.18	<0.18	<0.18	--	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	--
Xylenes	µg/L	10000	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<0.4	<0.4	<0.4	--	<0.4	<0.4	<0.4	--	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	--

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix H Results
Monitoring Well OW-205B

Constituent Name	Units	LTPL	Mar-17	Jun-18	Mar-18	Jun-18	Sep-18	Mar-19	Jun-19	Sep-19	Mar-20	Sep-20	Mar-21	Jun-21	Mar-21	Apr-22	Mar-22	Apr-23	Sep-23	Apr-24
Alcohols/Glycols by GC																				
Acetonitrile	ug/L	NS	< 126	--	--	--	< 126	--	< 126	--	--	< 484	--	--	< 484	--	< 484	--	--	--
Isobutanol	ug/L	2100	< 177	--	--	--	< 177	--	< 177	--	--	< 563	--	--	< 563	--	< 563	--	--	--
Perchlorate (LC)																				
ClO4-T	ug/L	70	< 0.493	--	--	--	< 0.532	--	< 0.5	--	--	< 0.0496	--	--	< 0.158	--	< 0.07	--	--	--
ClO4-T-DUP	ug/L	70	< 0.493	--	--	--	< 0.532	--	< 0.5	--	--	< 0.0496	--	--	< 0.158	--	< 0.07	--	--	--
Meas. CLO4 - TPS	ug/L	50	< 0.329	--	--	--	< 0.355	--	< 0.333	--	--	< 0.0331	--	--	< 0.106	--	< 0.07	--	--	--
Inorganics																				
Ammonia	ug/L	200	< 3.06	--	--	--	< 4.2	--	< 5	--	--	< 5	--	--	< 5.3	--	< 4.3	--	--	--
Mercury	ug/L	2	< 0.112	--	--	--	< 0.31	--	< 0.1	--	--	< 0.1	--	--	< 0.35	--	< 0.31	--	--	--
Sulfide	ug/L	NS	47000	46000	42500	250	< 200	< 200	27500	--	250	< 10000	--	--	< 200	250	< 200	< 200	< 200	< 200
TOC	ug/L	4200	< 1.62	--	--	--	**0.78 J**	--	< 1.8	--	--	< 2.4	--	--	< 3	--	< 3	--	--	--
PCBs (EPA Method 8082)																				
PCB-1016	ug/L	NS	< 0.0472	--	--	--	< 0.0493	--	< 0.0472	--	--	< 0.209	--	--	< 0.292	--	< 0.198	--	--	--
PCB-1221	ug/L	NS	< 0.378	--	--	--	< 0.395	--	< 0.378	--	--	< 0.209	--	--	< 0.292	--	< 0.198	--	--	--
PCB-1232	ug/L	NS	< 0.12	--	--	--	< 0.126	--	< 0.12	--	--	< 0.209	--	--	< 0.292	--	< 0.198	--	--	--
PCB-1242	ug/L	NS	< 0.12	--	--	--	< 0.126	--	< 0.12	--	--	< 0.233	--	--	< 0.236	--	< 0.128	--	--	--
PCB-1248	ug/L	NS	< 0.12	--	--	--	< 0.126	--	< 0.12	--	--	< 0.233	--	--	< 0.236	--	< 0.128	--	--	--
PCB-1254	ug/L	NS	< 0.1	--	--	--	< 0.105	--	< 0.1	--	--	< 0.233	--	--	< 0.236	--	< 0.128	--	--	--
PCB-1260	ug/L	NS	< 0.0878	--	--	--	< 0.105	--	< 0.0878	--	--	< 0.233	--	--	< 0.236	--	< 0.128	--	--	--
Pesticides (EPA Method 8081A)																				
4,4'-DDD	ug/L	0.73	< 0.00202	--	--	--	< 0.00205	--	**0.00298**	--	--	< 0.002	< 0.0107	< 0.00481	< 0.00941	< 0.007	< 0.0014	< 0.0107	< 0.027	< 0.0276
4,4'-DDE	ug/L	0.32	**0.00348 J**	--	--	--	< 0.00239	--	< 0.00238	--	--	< 0.00235	< 0.0107	< 0.00481	< 0.00902	< 0.007	< 0.0014	< 0.0107	< 0.027	< 0.0276
4,4'-DDT	ug/L	0.16	**0.00347 J**	--	--	--	< 0.00454	--	**0.00619 J**	< 0.00394	--	< 0.00422	--	--	< 0.0155	--	< 0.0049	--	--	--
Aldrin	ug/L	0.05	< 0.00506	--	--	--	< 0.00513	--	< 0.00488	--	--	< 0.005	--	--	< 0.0155	--	< 0.0177	--	--	--
Alpha-BHC	ug/L	0.038	< 0.00939	--	--	--	< 0.00936	--	< 0.00185	--	--	< 0.00188	--	--	< 0.0113	--	< 0.0177	--	--	--
beta-BHC	ug/L	0.042	< 0.00539	< 0.00523	--	--	< 0.00545	--	< 0.00516	--	--	< 0.00533	--	--	< 0.0166	--	< 0.043	--	--	--
Chlordane	ug/L	2	< 0.0878	--	--	--	< 0.105	--	< 0.0878	--	--	< 0.0878	--	--	< 0.0878	--	< 0.0878	--	--	--
delta-BHC	ug/L	1.1	< 0.00154	--	--	--	**0.00302 J**	--	< 0.00154	--	--	< 0.00259	--	--	< 0.0166	--	< 0.0166	--	--	--
Dieldrin	ug/L	0.033	**0.00266 J**	--	--	--	< 0.00219	--	< 0.00219	--	--	< 0.00219	--	--	< 0.0155	--	< 0.0192	--	--	--
Endosulfan I	ug/L	42	< 0.00225	--	--	--	< 0.00227	--	**0.00528**	< 0.0027	< 0.00522	< 0.00241	< 0.0025	--	< 0.0124	< 0.0027	< 0.0161	< 0.0124	< 0.021	< 0.0247
Endosulfan II	ug/L	42	< 0.00215	--	--	--	< 0.00216	--	< 0.00268	--	--	< 0.00211	--	--	< 0.0093	--	< 0.0197	--	--	--
Endosulfan sulfate	ug/L	NA	< 0.00205	< 0.0126	--	--	< 0.00208	--	< 0.00268	--	--	< 0.00278	--	--	< 0.0164	--	< 0.0197	--	--	--
Endrin	ug/L	2	**0.0004 J**	--	--	--	< 0.00178	--	**0.00404 J**	--	--	< 0.00231	--	--	< 0.0112	--	< 0.0197	--	--	--
Endrin aldehyde	ug/L	2.1	**0.00125 J**	--	--	--	< 0.0691	--	< 0.00786	--	--	< 0.00931	--	--	< 0.0108	--	< 0.0197	--	--	--
gamma-BHC (Lindane)	ug/L	0.2	< 0.00213	--	--	--	< 0.00216	--	< 0.00206	--	--	< 0.00211	--	--	< 0.0167	--	< 0.0169	--	--	--
Heptachlor	ug/L	0.4	< 0.00292	--	--	--	< 0.00296	--	< 0.0028	--	--	< 0.00289	--	--	< 0.0155	--	< 0.0169	--	--	--
Heptachlor epoxide	ug/L	0.2	< 0.00605	--	--	--	< 0.00693	--	< 0.00656	--	--	< 0.00678	--	--	< 0.0102	--	< 0.0137	--	--	--
Methoxychlor	ug/L	40	< 0.0029	--	--	--	< 0.00439	--	< 0.0026	--	--	**0.00403 J**	--	--	< 0.0155	--	< 0.0197	--	--	--
Toxaphene	ug/L	3	< 0.0623	--	--	--	< 0.0628	--	< 0.0624	--	--	< 0.0644	--	--	< 0.064	--	< 0.092	--	--	--
Semivolatile Organics by GC/MS																				
1,4,5-Trichlorobenzene	ug/L	2.1	< 0.123	--	--	--	< 1.07	--	< 0.12	--	--	< 1.74	--	--	< 1.82	--	< 0.126	--	--	--
1,4-Trimethylbenzene	ug/L	NS	< 1.09	--	--	--	< 1.6	--	< 1.37	--	--	< 1.41	--	--	< 1.48	--	< 1.48	--	--	--
1,5-Dimethylnaphthalene	ug/L	1	< 0.706	--	--	--	< 0.9	--	< 1.08	--	--	< 1.09	--	--	< 1.14	--	< 1.1	--	--	--
1,6-Dimethylnaphthalene	ug/L	NS	< 0.242	--	--	--	< 0.31	--	< 0.385	--	--	< 1.07	--	--	< 1.11	--	< 0.81	--	--	--
1,7-Dimethylnaphthalene	ug/L	NS	< 0.7 J	--	--	--	< 0.9	--	< 0.98	--	--	< 0.103	--	--	< 0.168	--	< 2.05	--	--	--
1-Naphthylamine	ug/L	NS	< 1.07	--	--	--	< 2.76	--	< 0.257	--	--	< 0.927	--	--	< 1	--	< 2.66	--	--	--
2,4,5,6-Tetrachlorotoluene	ug/L	NS	< 0.989	--	--	--	< 5.76	--	< 0.535	--	--	< 1.08	--	--	< 1.13	--	< 5.68	--	--	--
2,4,5-Trichlorophenol	ug/L	700	< 1.42	--	--	--	< 0.65	--	< 0.749	--	--	< 5.2	--	--	< 5.25	--	< 5.48	--	--	--
2,4,6-Tribromophenol	ug/L	16	< 0.978	--	--	--	< 0.82	--	< 0.749	--	--	< 5.2	--	--	< 5.25	--	< 5.48	--	--	--
2,4,6-Trichlorophenol	ug/L	10	< 0.917	--	--	--	< 0.66	--	< 0.122	--	--	< 1.8	--	--	< 1.81	--	< 0.868	--	--	--
2,4-Dichlorophenol	ug/L	140	< 0.96	--	--	--	< 0.82	--	< 0.96	--	--	< 5.2	--	--	< 5.25	--	< 5.48	--	--	--
2,4-Dimethylphenol	ug/L	140	< 2.06	--	--	--	< 2.67	--	< 2.74	--	--	< 5.2	--	--	< 5.25	--	< 5.48	--	--	--
2,4-Dinitrophenol	ug/L	0.45	< 0.841	--	--	--	< 4.29	--	< 0.492	--	--	< 5.2	--	--	< 5.25	--	< 4.58	--	--	--
2,4-Dinitrotoluene	ug/L	NS	< 0.978	--	--	--	< 2.63	--	< 0.235	--	--	< 5.2	--	--	< 5.25	--	< 0.719	--	--	--
2,6-Dichlorophenol	ug/L	0.26	< 1.07	--	--	--	< 2.76	--	< 0.257	--	--	< 5.2	--	--	< 5.25	--	< 0.516	--	--	--
2,6-Dinitrotoluene	ug/L	NS	< 1.24	--	--	--	< 14.3	--	< 1.33	--	--	< 5.3	--	--	< 5.36	--	< 2.47	--	--	--
2-Acetylaminofluorene	ug/L	560	< 1.02	--	--	--	< 2.64	--	< 0.248	--	--	< 1.41	--	--	< 1.48	--	< 0.681	--	--	--
2-Chloronaphthalene	ug/L	60	< 0.841	--	--	--	< 1.73	--	< 0.16	--	--	< 5.2	--	--	< 5.25	--	< 0.516	--	--	--
2-Methylnaphthalene	ug/L	28	< 0.844	--	--	--	< 2.18	--	< 0.203	--	--	< 1.41	--	--	< 1.48	--	< 0.638	--	--	--
2-Methylphenol (o-Cresol)	ug/L	35	< 0.8	--	--	--	< 2.07	--	< 0.193	--	--	< 1.69	--	--	< 1.18	--	< 0.905	--	--	--
2-Naphthylamine	ug/L	0.057	< 0.978	--	--	--	< 2.13	--	< 0.235	--	--	< 0.935	--	--	< 0.977	--	< 2.22	--	--	--
2-Nitroaniline	ug/L	70	< 0.978	--	--	--	< 2.63	--	< 0.235	--	--	< 5.2	--	--	< 5.25	--	< 0.719	--	--	--
2-Nitrophenol	ug/L	NS	< 0.711	--	--	--	< 1.8	--	< 1.03	--	--	< 1.74	--	--	< 1.82	--	< 1.28	--	--	--
3,3'-Dichlorobenzidine	ug/L	0.39	< 2.04	--	--	--	< 9.16	--	< 0.866	--	--	< 1.96	--	--	< 2.05	--	< 1.49	--	--	--
3,3'-Dimethylbenzidine	ug/L	NS	< 0.933	--	--	--	< 2.45	--	< 0.225	--	--	< 2.17	--	--	< 2.27	--	< 1.5	--	--	--
3-(Methylthio)-1	ug/L	70	**1.45 J**	--	--	--	< 2.07	--	< 0.193	--	--	< 0.826	--	--	< 0.864	--	< 0.716	--	--	--
3-Methylcholanthrene	ug/L	NS	< 1.38	--	--	--	< 18.2	--	< 0.942	--	--	< 2.73	--	--	< 2.84	--	< 1.92	--	--	--
3-Nitroaniline	ug/L	NS	< 0.978	--	--	--	< 0.67	--	< 0.42	--	--	< 1.69	--	--	< 1.14	--	< 2.07	--	--	--
3,6-Dimethylphenanthrene	ug/L	NS	< 0.87	--	--	--	< 2.63	--	< 0.24	--	--	< 2.74	--	--	< 2.84	--	< 2.48	--	--	--
4-Aminobiphenyl	ug/L	0.0083	< 1.33	--	--	--	< 3.45	--	< 0.321	--	--	< 1.04	--	--	< 1.09	--	< 2.34	--	--	--
4-Bromophenyl phenyl ether	ug/L	NS	< 1.29	--	--	--	< 3.33	--	< 0.31	--	--	< 2.07	--	--	< 2.16	--	< 0.745	--	--	--
4-Chloro-3-methylphenol	ug/L	700	< 0.841	--	--	--	< 2.95	--	< 0.278	--	--	< 1.03	--	--	< 1.08	--	< 0.894	--	--	--
4-Chloroaniline	ug/L	28	< 0.942	--	--	--	< 1.57	--	< 0.16	--	--	< 1.2	--	--	< 1.26	--	< 0.84	--	--	--
4-Chlorophenyl phenyl ether	ug/L	NS	< 1.11	--	--	--	< 2.82	--	< 0.267	--	--	< 1.41	--	--	< 1.48	--	< 0.758	--	--	--
4-Nitroaniline	ug/L	NS	< 0.978	--	--	--	< 2.63	--	< 0.235	--	--	< 5.2	--	--	< 5.25	--	< 0.719	--	--	--
4-Nitrophenol	ug/L	60	< 0.522	--	--	--	< 0.29	--	< 1.48	--	--	< 2.72	--	--	< 2.84	--	< 0.89	--	--	--
4-Nitroquinoline-n-oxide	ug/L	NS	< 0.766	--	--	--	< 1.59	--	< 0.182	--	--	< 0.57	--	--	< 1.52	--	< 2.58	--	--	--
5,12-Dimethylbenz(a)anthracene	ug/L	NS	< 1.13	--	--	--	< 2.87	--	< 0.267	--	--	< 3	--	--	< 3.06	--	< 2.72	--	--	--
5-Aminoallfetose	ug/L	420	< 1.22	--	--	--	< 3.45	--	< 0.321	--	--	< 1.41	--	--	< 1.48	--	< 0.681	--	--	--
5-Aminonaphthalene	ug/L	210	< 0.933	--	--	--	< 0.65	--	< 0.62	--	--	< 1.41	--	--	< 1.48	--	< 0.706	--	--	--
Acenaphthene	ug/L	NS	< 0.978	--	--	--	< 0.65	--	< 0.374	--	--	< 3.26	--	--	< 3.41	--	< 0.716	--	--	--
Acetochlor	ug/L	2100	< 0.706	--	--	--	< 1.59	--	< 0.182	--	--	< 1.2	--	--	< 1.25	--	< 0.916	--	--	--
Alfentanil citrate	ug/L	0.24	< 1.07	--	--	--	< 3.93	--	< 0.364	--	--	< 5.2	--	--	< 5.25	--	< 0.968	--	--	--
Alfentanil hydrochloride	ug/L	0.24	< 1.07	--	--	--	< 3.93	--	< 0.36	--	--	< 0.83	--	--	< 0.87	--	< 0.58	--	--	--
Atrazine (2-chloro-4-ethylamino-6-isopropylamino-1,3,5-triazine)	ug/L	0.24	< 1.07	--	--	--	< 3.93	--	< 0.364	--	--	< 5.2	--	--	< 5.25	--	< 0.968	--	--	--
Atrazine-desethyl	ug/L	0.24	< 1.07	--	--	--	< 3.93	--	< 0.364	--	--	< 5.2	--	--	< 5.25	--	< 0.968	--	--	--
Benzo (a) anthracene	ug/L	0.24	< 1.07	--	--	--	< 3.93	--	< 0.364	--	--	< 5.2	--	--	< 5.25	--	< 0.968	--	--	--
Benzo (a) pyrene	ug/L	0.2	< 1.13	--	--	--	< 18.6	--	< 1.06	--	--	< 3.63	--	--	< 3.7	--	< 0.92	--	--	--
Benzo (b) fluoranthene	ug/L	0.24	< 1.38	--	--	--	< 15.1	--	< 1.07	--	--	< 3.9	--	--	< 3.96	--	< 0.27	--	--	--
Benzo (g,h,i) perylene	ug/L	0.24	< 0.889	--	--	--	< 3.93	--	< 0.364	--	--	< 5.2	--	--	< 5.25	--	< 0.968	--	--	--
Benzo (k) fluoranthene	ug/L	2.4	< 0.889	--	--	--	< 3.93	--	< 0.61	--	--	< 5.2	--	--	< 5.25	--	< 2.34	--	--	--
Benzoic Acid	ug/L	700	< 0.8	--	--	--	< 4.9	--	< 0.642	--	--	< 5.2	--	--	< 5.25	--	< 1.38	--	--	--
Bis(2-chloroethoxy)methane	ug/L	NS	< 1.16	--	--	--	< 2.95	--	< 0.278	--	--	< 5.2	--	--	< 5.25	--	< 0.809	--	--	--
Bis(2-chloroethyl) Ether	ug/L	0.16	< 0.8	--	--	--	< 2.18	--	< 0.203	--	--	< 5.2	--	--	< 5.25	--	< 0.872	--	--	--
Bis(2-chloroisopropyl) ether	ug/L	300	< 0.8	--	--	--	< 2.07	--	< 0.193	--	--	< 5.3	--	--	< 5.36	--	< 0.574	--	--	--
Bis(2-ethylhexyl) phthalate	ug/L	6	< 1.73	--	--	--	< 26.7	--	< 1.48	--	--	< 2.83	--	--	< 2.92	--	< 5.89	--	--	--
Butyl benzyl phthalate	ug/L	140	< 1.11	--	--	--	< 17.1	--	< 1.44	--	--	< 1.63	--	--	< 1.7	--	< 0.74	--	--	--
Chlorobenzilate	ug/L	NS	< 0.933	--	--	--	< 2.45	--	< 0.225	--	--	< 3.15	--	--	< 3.3	--	< 2.81	--	--	--
Chrysene	ug/L	24	< 1.29	--	--	--	< 3.33	--	< 0.31	--	--	< 5.2	--	--	< 5.25	--	< 0.516	--	--	--
Cinchonine (cinchonan-9-ol)	ug/L	NS	< 1.02	--	--	--	< 2.64	--	< 0.246	--	--	< 1.41	--	--	< 1.48	--	< 0.26	--	--	--
Cinchonidine (cinchonan-9-ol)	ug/L	0.024	< 1.02	--	--	--	< 2.64	--	< 0.246	--	--	< 1.41	--	--	< 1.48	--	< 0.26	--	--	--
Dibenzofuran	ug/L	NS	< 1.07	--	--	--	< 2.76	--	< 0.25	--	--	< 5.2	--	--	< 5.36	--	< 0.787	--	--	--
Diethyl phthalate	ug/L	5600	< 1.16	--	--	--	< 3.1	--	< 0.289	--	--	< 1.2	--	--	< 1.25	--	< 1.38	--	--	--
Dimethoate	ug/L	1.4	< 1.2	--	--	--	< 3.1	--	< 0.289	--	--	< 1.69	--	--	< 1.18	--	< 0.845	--	--	--
Dimethyl phthalate	ug/L	NS	< 1.02	--	--	--	< 25.3	--	< 2.34	--	--	< 2.73	--	--	< 2.84	--	< 1.06	--	--	--
Di-n-butyl phthalate	ug/L	700	< 2.27	--	--	--	< 15.1	--	< 1.23	--	--	< 3.2	--	--	< 3.26	--	< 5.89	--	--	--
Di-n-octyl phthalate	ug/L	140	< 1.02	--	--	--	< 90.5	--	< 2.83	--	--	< 3.26	--	--	< 3.41	--	< 7.49	--	--	--
Dinoseb	ug/L	7	< 0.91	--	--	--	< 4.84	--	< 0.46	--	--	< 0.616	--	--	< 0.648	--	< 2.26	--	--	--
Diphenylamine	ug/L	180	< 2.93	--	--	--	< 7.59	--	< 0.706	--	--	< 0.957	--	--	< 1	--	< 6.28	--	--	--
Disulfoton	ug/L	0.7	< 1.29	--	--	--	< 3.33	--	< 0.31	--	--	< 0.696	--	--	< 0.727	--	< 2.81	--	--	--
Ethyl Methanesulfonate	ug/L	NS	< 0.867	--	--	--	< 1.72	--	< 0.16	--	--	< 0.543	--	--	< 0.568	--	< 0.83	--	--	--
Famphur	ug/L	NS	< 1.09	--	--	--	< 3.45	--	< 0.321	--	--	< 0.696	--	--	< 0.727	--	< 0.83	--	--	--
Fluoranthene	ug/L	280	< 1.47	--	--	--	< 7.82	--	< 0.727	--	--	< 1.62	--	--	< 1.69	--	< 1.49	--	--	--
Fluorene	ug/L	280	< 0.889	--	--	--	< 2.18	--	< 0.203	--	--	< 1.41	--	--	< 1.48	--	< 0.638	--	--	--
Hexachlorobenzene	ug/L	1	< 1.2	--	--	--	< 3.1	--	< 0.289	--	--	< 1.13	--	--	< 1.18	--	< 0.716	--	--	--
Hexachlorobutadiene	ug/L	3	< 0.978	--	--	--	< 1.59	--	< 0.182	--	--	< 1.3	--	--	< 1.36	--	< 0.916	--	--	--
Hexachlorocyclopentadiene	ug/L	50	< 0.4	--	--	--	< 20.7	--	< 2.93	--	--	< 2.28	--	--	< 2.39	--	< 0.43	--	--	--
Hexachloroethane	ug/L	3	< 0.256	--	--	--	< 1.65	--	< 0.15	--	--	< 1.01	--	--	< 1.48	--	< 1.69	--	--	--
Hexachloropropene	ug/L	NA	< 7.28	--	--	--	< 18.6	--	< 1.76	--	--	< 1.74	--	--	< 1.82	--	< 2.73	--	--	--
Indeno (1,2,3-cd) pyrene	ug/L	0.24	< 1.07	--	--	--	< 16.9	--	< 1.27	--	--	< 2.17	--	--	< 2.27	--	< 0.47	--	--	--
Isodrin	ug/L	NA	< 1.09	--	--	--	< 4.3	--	< 0.896	--	--	< 0.63	--	--	< 0.659	--	< 2	--	--	--
Isophorone	ug/L	100	< 0.978	--	--	--	< 2.53	--	< 0.235	--	--	< 1.08	--	--	< 1.13	--	< 0.989	--	--	--
Isosafrole	ug/L	NS	< 0.8	--	--	--	< 2.95	--	< 0.193	--	--	< 0.543	--	--	< 0.568	--	< 2.45	--	--	--
Leptophos	ug/L	NS	< 1.07	--	--	--	< 2.76	--	< 0.257	--	--	< 3.06	--	--	< 3.16	--	< 1.66	--	--	--
Methyl chloride	ug/L	NS	< 1.07	--	--	--	< 2.76	--	< 0.257	--	--	< 0.348	--	--	< 0.364	--	< 0.83	--	--	--
Methyl Methanesulfonate	ug/L	1.8	< 0.922	--	--	--	< 1.65	--	< 0.15	--	--	< 0.565	--	--	< 0.588	--	< 0.77	--	--	--
Methyl parathion	ug/L	14	< 0.978	--	--	--	< 3.45	--	< 0.321	--	--	< 1.2	--	--	< 1.25	--	< 0.851	--	--	--
N-Nitrosodiethylamine	ug/L	NS	< 1.33	--	--	--	< 3.45	--	< 0.321	--	--	< 0.543	--	--	< 0.568	--	< 3.61	--	--	--
N-Nitrosodiethylamine	ug/L	0.0004	< 0.922	--	--	--	< 2.18	--	< 0.203	--	--	< 0.989	--	--	< 1.03	--	< 0.766	--	--	--
N-Nitrosodi-n-butylamine	ug/L	0.0063	< 1.29	--	--	--	< 3.33	--	< 0.31	--	--	< 0.543	--	--	< 0.568	--	< 3.61	--	--	--
N-Nitrosodi-n-propylamine	ug/L	NS	< 1.16	--	--	--	< 2.95	--	< 0.278	--	--	< 1.09	--	--	< 1.14	--	< 0.958	--	--	--
N-Nitrosodiphenylamine	ug/L	36	< 1.01	--	--	--	< 7.59	--	< 0.706	--	--	< 1.63	--	--	< 1.68	--	< 0.706	--	--	--
N-Nitrosomethylethylamine	ug/L	0.008	< 0.889	--	--	--	< 2.3	--	< 0.214	--	--	< 1.41	--	--	< 1.48	--	< 0.29	--	--	--
N-Nitrosopiperidine	ug/L	NS	< 0.867	--	--	--	< 1.72	--	< 0.16	--	--	< 0.543	--	--	< 0.568	--	< 0.83	--	--	--
N-Nitrosopyrrolidine	ug/L	0.0681	< 1.02	--	--	--	< 2.64	--	< 0.246	--	--	< 0.543	--	--	< 0.568	--	< 1.49	--	--	--
O,O,O-Triethylphosphorothioate	ug/L	NS	< 0.889	--	--	--	< 2.18	--	< 0.203	--	--	< 0.543	--	--	< 0.568	--	< 0.766	--	--	--
o-Toluidine	ug/L	11	< 0.8	--	--	--	< 2.07	--	< 0.193	--	--	< 0.739	--	--	< 0.764	--	< 0.83	--	--	--
p-Dimethylaminoazobenzene	ug/L	NS	< 1.07	--	--	--	< 2.76	--	< 0.257	--	--	< 0.648	--	--	< 0.886	--	< 2.34	--	--	--
Parathion ethyl	ug/L	NS	< 0.8	--	--	--	< 2.07	--	< 0.193	--	--	< 1.74	--	--	< 1.82	--	< 2.26	--	--	--
Parathion methyl	ug/L	3	< 0.867	--	--	--	< 1.73	--	< 0.16	--	--	< 0.815	--	--	< 0.852	--	< 2.46	--	--	--
Pentachlorobenzene	ug/L	NA	< 0.978	--	--	--	< 2.53	--	< 0.235	--	--	< 0.63	--	--	< 0.659	--	< 2.45	--	--	--
Pentachloronitrobenzene	ug/L	NS	< 1.47	--	--	--	< 3.79	--	< 0.353	--	--	< 0.543	--	--	< 0.568	--	< 6.17	--	--	--
Pentachlorophenol	ug/L	1	< 1.07	--	--	--	< 26.7	--	< 2.48	--	--	< 2.5	--	--	< 2.61	--	< 2.45	--	--	--
Phenacetin	ug/L	NS	< 0.756	--	--	--	< 6.44	--	< 0.595	--	--	< 1.396	--	--	< 2.05	--	< 2.55	--	--	--
Phenanthrene	ug/L	210	< 1.67	--	--	--	< 9.5	--	< 0.642	--	--	< 3.2	--	--	< 3.25	--	< 0.86	--	--	--
Phenol	ug/L	2000	< 0.8	--	--	--	< 27.6	--	< 2.57	--	--	< 2.61	--	--	< 2.73	--	< 1.11	--	--	--
Pronamide	ug/L	5.4	< 0.756	--	--	--	< 1.59	--	< 0.182	--	--	< 0.543	--	--	< 0.568	--	< 3.61	--	--	--
Pyrene	ug/L	21	< 1.16	--	--	--	< 2.89	--	< 0.278	--	--	< 0.543	--	--	< 0.568	--	< 2.87	--	--	--
Safrole	ug/L	NS	< 0.889	--	--	--	< 2.3	--	< 0.214	--	--	< 0.543	--	--	< 0.568	--	< 2.66	--	--	--
Thionazin	ug/L	NS	< 1.38	--	--	--	< 3.56	--	< 0.332	--	--	< 0.826	--	--	< 0.864	--	< 3.79	--	--	--
Volatile Organic Compounds																				
1,1,1,2-Tetrachloroethane	ug/L	NS	< 0.15	--	--	--	< 0.43	--	< 0.42	--	--	< 0.63	--	--	< 0.45	--	< 0.49	--	--	--
1,1,1-Trichloroethane	ug/L	70	< 0.16	--	--	--	< 0.5	--	< 0.75	--	--	< 0.75	--	--	< 0.75	--	< 0.76	--	--	--
1,1,2,2-Tetrachloroethane	ug/L	600	< 0.17	--	--	--	< 0.3	--	< 0.2	--	--	< 0.3	--	--	< 0.3	--	< 0.3	--	--	--
1,1,2-Trichloroethane	ug/L	NS	< 0.16	--	--	--	< 0.4	--	< 0.4	--	--	< 0.4	--	--	< 0.4	--	< 0.4	--	--	--
1,1,2-Trichlorotrifluoroethane	ug/L	NS	< 0.18	--	--	--	< 0.68	--	< 0.68	--	--	< 0.68	--	--	< 0.68	--	< 0.68	--	--	--
1,1-Dichloroethane	ug/L	NS	< 1.3	--	--	--	< 1.6	--	< 0.9	--	--	< 0.6	--	--	< 0.6	--	< 0.6	--	--	--
1,1-Dichloroethene	ug/L	NS	< 0.17	--	--	--	< 0.5	--	< 0.7	-

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-220B

Parameter Name	Units	GPS	Mar-20	Aug-20	Sep-20	Dec-20	Mar-21	Jun-21	Oct-21	Apr-22	Nov-22	Apr-23	Sep-23	May-24	Oct-24
Appendix I Inorganics															
Total Suspended Solids	mg/L	NS	***104***	***83.5***	***66.4***	***39.9***	***67***	--	***70***	***56***	***95***	***70***	***58***	***115***	***81***
Turbidity, Field	NTU	NS	***8.25***	***19.97***	***7***	***3.24***	***3.75***	***14.44***	--	***7.52***	***10.31***	***7.69***	***9.51***	***4.72***	***5.01***
Turbidity, Lab	NTU	NS	***343***	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	µg/L	6	***0.681 J***	<0.51	<0.51	<0.51	<1.1	--	<4.4	<2.76	<0.69	<1	<1	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***13.3***	***9.74***	***13.4***	***12.8***	***13.2***	--	***14.5***	***4.87 J***	***14.5***	***16.4***	***14.5***	***14.4***	***25.3***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***706***	***867***	***732***	***853***	***722***	--	***792***	***847***	***706***	***1120***	***664***	***904***	***1010***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.27	<0.27	<0.27	<0.27	<0.27	--	<1.08	<1.08	<0.27	<0.33	<0.33	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.461***	***0.087 J***	***0.143***	***0.094 J***	<0.051	--	<0.051	<0.22	<0.055	<0.1	<0.1	<0.1	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***6.06***	***7.31***	***5.42***	***5.31***	***5.66***	--	***5.37***	***5.81 J***	***5.56***	***6.52***	***6.44***	***7***	***6.62***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***32.5***	***30.9***	***25.4***	***26.3***	***27.4***	--	***21.4***	***25.4***	***18.9***	***24.9***	***17.3***	***21.7***	***15.8***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	<3.2	***5.29***	<1.5	<1.5	***2.22 J***	--	<1.4	<7.2	<1.8	<1.8	***2.09 J***	<1.8	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	***0.39 J***	***0.477 J***	***0.252 J***	***0.226 J***	***0.369 J***	--	<0.21	***0.272 J***	<0.24	***0.274 J***	***0.401 J***	<0.26	***0.697***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***123***	***106***	***108***	***109***	***124***	--	***108***	***147***	***99.7***	***141***	***106***	***135***	***130***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***1.83 J***	<1	<1	<1	<0.96	--	<0.96	<3.84	<0.96	<1.4	<1.4	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.37	<0.37	<0.37	<0.37	<0.42	--	<0.42	<1.96	<0.49	<0.5	<0.5	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.26	<0.26	<0.26	<0.26	<0.26	--	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57	***1.54***
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	<0.82	***1.21 J***	***0.874 J***	<0.85	***1.18 J***	--	***1.26 J***	<4.4	***1.72 J***	***1.34 J***	***2.1 J***	***1.37 J***	***1.92 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<10	<10	<10	<10	<10	--	<10	<40	<10	<6.4	***6.44 J***	<9.7	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics															
1,1,1,2-Tetrachloroethane	µg/L	70	<0.38	<3.8	<0.38	<0.38	<0.38	--	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.19	<1.9	<0.19	<0.19	<0.19	--	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.47	<4.7	<0.47	<0.47	<0.47	--	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.45	<4.5	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	***1.02***	***10.7***	***0.873 J***	***0.868 J***	***0.898 J***	--	***0.791 J***	***1.04***	***0.689 J***	***0.975 J***	<0.22	***0.94 J***	***0.54 J***
1,1-Dichloroethylene	µg/L	7	<0.56	<5.6	<0.56	<0.56	<0.56	--	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.59	<5.9	<0.59	<0.59	<0.59	--	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<1.2	<12	<1.2	<1.2	<1.2	--	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.34	<3.4	<0.34	<0.34	<0.34	--	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.37	<3.7	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.39	<3.9	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.27	<2.7	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	***3.29***	***20.5***	***2.56***	***1.86***	***1.97***	--	<0.23	***1.81***	***1.54***	***2.14***	<0.23	***1.87***	***2.35***
2-Butanone	µg/L	4000	<2.1	<21	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	<2.1	<2.1	***5.29 J***	<2.1
2-Hexanone	µg/L	NS	<2	<20	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<2.1	<21	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	<3.1	<31	***12.1***	<3.1	***5.78 J***	--	***10***	<3.1	***12.8***	***4.69 J***	***12.7***	***10.8***	***7.67 J***
Acrylonitrile	µg/L	0.32	<2.2	<22	<2.2	<2.2	<2.2	--	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***3.91***	***32.5***	***2.98***	***2.78***	***2.75***	--	***2.32***	***2.42***	***1.91***	***2.64***	***1.77***	***2.29***	***2.29***
Bromochloromethane	µg/L	90	<0.54	<5.4	<0.54	<0.54	<0.54	--	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.39	<3.9	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<1.1	<11	<11	<1.1	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.45	<4.5	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.65	<6.5	<0.65	<0.65	<0.65	--	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	***0.758 J***	***5.13 J***	<0.4	***0.528 J***	***0.501 J***	--	<0.4	***0.418 J***	***0.414 J***	***0.435 J***	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	***5.58***	***39.8 J***	<7.9	***3.11 J***	<0.79	--	***2.86 J***	***2.79 J***	***1.56 J***	<0.79	<0.79	***2.09 J***	***1.26 J***
Chloromethane	µg/L	NS	<0.61	<6.1	<6.1	<0.61	<0.61	--	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***0.772 J***	***13.8***	***0.698 J***	***0.574 J***	***0.573 J***	--	***0.507 J***	***0.703 J***	<0.21	***0.345 J***	<0.21	***0.474 J***	***0.407 J***
cis-1,3-Dichloropropene	µg/L	NS	<0.25	<2.5	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.75	<7.5	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.33	<3.3	<0.33	<0.33	<0.33	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<1.7	<17	<1.7	<1.7	<1.7	--	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.31	<3.1	<0.31	<0.31	<0.31	--	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<7	<70	<7	<7	<7	--	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.37	<3.7	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.48	<4.8	<0.48	<0.48	<0.48	--	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	<0.43	<4.3	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.27	<2.7	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.56	<5.6	<5.6	<0.56	<0.56	--	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<1.1	<11	<1.1	<1.1	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.78	<7.8	<7.8	<0.78	<0.78	--	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.43	<4.3	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.38	<3.8	<3.8	<0.38	<0.38	--	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<1.3	<13	<1.3	<1.3	<1.3	--	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<2.5	<25	<2.5	<2.5	<2.5	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	<0.18	<1.8	<1.8	<0.18	<0.18	--	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Xylenes	µg/L	10000	<0.4	<4	<0.4	<0.4	<0.4	--	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix II Results
Monitoring Well OW-220B

Parameter Name	Units	GPS	Sep-20	Mar-21	Jun-21	Oct-21	Apr-22	Nov-22	Apr-23	Sep-23	May-24
Alcohols/Gycols by GC											
Acetonitrile	µg/L	NS	<404	--	--	<404	--	<404	--	--	--
Isobutanol	µg/L	2100	<553	--	--	<553	--	<553	--	--	--
Herbicides (GC)											
2,4,5-T	µg/L	70	<0.0364	--	--	<0.158	--	Sample Lost	--	--	--
2,4-D	µg/L	70	***1.25***	<0.525	<3.18	<0.619	<0.549	Sample Lost	<0.598	<1.32	<0.239
Silvex (2,4,5-TP)	µg/L	50	***0.379***	<0.326	<0.747	***0.763 J***	<0.129	Sample Lost	<0.141	<0.359	***0.372***
Inorganics											
Cyanide	µg/L	200	<5	--	--	<5.3	--	<4.3	--	--	--
Mercury	µg/L	2	<0.1	--	--	<0.15	--	<0.11	--	--	--
Sulfide	µg/L	NS	<10000	--	--	<231	--	***447 J***	--	--	--
Tin	µg/L	4200	<2.4	--	--	<3	--	<3	--	--	--
PCBs (EPA Method 8082)											
PCB-1016	µg/L	NS	<0.306	--	--	<0.28	--	<0.173	--	--	--
PCB-1221	µg/L	NS	<0.306	--	--	<0.28	--	<0.173	--	--	--
PCB-1232	µg/L	NS	<0.306	--	--	<0.28	--	<0.173	--	--	--
PCB-1242	µg/L	NS	<0.306	--	--	<0.28	--	<0.173	--	--	--
PCB-1248	µg/L	NS	<0.247	--	--	<0.226	--	<0.112	--	--	--
PCB-1254	µg/L	NS	<0.247	--	--	<0.226	--	<0.112	--	--	--
PCB-1260	µg/L	NS	<0.247	--	--	<0.226	--	<0.112	--	--	--
Pesticides (EPA Method 8081A)											
4,4'-DDD	µg/L	0.73	***0.0093 J***	--	--	***0.017 J***	--	<0.0276	--	--	--
4,4'-DDE	µg/L	0.51	***0.00589 J***	--	--	<0.00914	--	<0.0276	--	--	--
4,4'-DDT	µg/L	0.51	<0.00447	--	--	<0.0129	--	<0.0429	--	--	--
Aldrin	µg/L	0.01	***0.023 J***	--	--	<0.0129	--	<0.0327	--	--	--
alpha-BHC	µg/L	0.028	<0.002	--	--	<0.0108	--	<0.0296	--	--	--
beta-BHC	µg/L	0.042	<0.00565	--	--	<0.014	--	<0.0378	--	--	--
Chlordane	µg/L	2	<0.0753	--	--	<0.237	--	<0.827	--	--	--
delta-BHC	µg/L	2.1	***0.00715 J***	--	--	***0.0214 J***	--	<0.0276	--	--	--
Dieldrin	µg/L	0.011	***0.00964 J***	--	--	<0.0129	--	<0.0265	--	--	--
Endosulfan I	µg/L	42	***0.00407 J***	--	--	<0.0118	--	<0.0337	--	--	--
Endosulfan II	µg/L	42	<0.00224	--	--	<0.00871	--	<0.0296	--	--	--
Endosulfan sulfate	µg/L	NS	<0.00294	--	--	<0.00903	--	<0.0306	--	--	--
Endrin	µg/L	2	<0.00224	--	--	<0.0108	--	<0.0265	--	--	--
Endrin aldehyde	µg/L	2.1	<0.00859	--	--	<0.0103	--	<0.0296	--	--	--
gamma-BHC (Lindane)	µg/L	0.2	<0.00224	--	--	<0.0151	--	<0.0367	--	--	--
Heptachlor	µg/L	0.4	<0.00306	--	--	<0.0129	--	<0.0337	--	--	--
Heptachlor epoxide	µg/L	0.2	<0.00718	--	--	<0.00978	--	<0.0296	--	--	--
Methoxychlor	µg/L	40	***0.00639 J***	--	--	<0.0151	--	<0.0418	--	--	--
Toxaphene	µg/L	3	<0.0682	--	--	<0.441	--	<0.704	--	--	--
Semivolatile Organics by GC/MS											
1,2,4,5-Tetrachlorobenzene	µg/L	2.1	<1.78	--	--	<1.84	--	<0.587	--	--	--
1,3,5-Trinitrobenzene	µg/L	NS	<1.44	--	--	<1.49	--	<2.5	--	--	--
1,3-Dinitrobenzene	µg/L	1	<1.11	--	--	<1.15	--	<3.48	--	--	--
1,4-Naphthoquinone	µg/L	NS	<1.09	--	--	<1.13	--	<3.91	--	--	--
1,4-Phenylenediamine	µg/L	NS	<0.556	--	--	<0.575	--	<2.07	--	--	--
1-Naphthylamine	µg/L	NS	<0.978	--	--	<1.01	--	<2.72	--	--	--
2,3,4,6-Tetrachlorophenol	µg/L	NS	<1.1	--	--	<1.14	--	<5.76	--	--	--
2,4,5-Trichlorophenol	µg/L	700	<1.22	--	--	<1.26	--	<5.76	--	--	--
2,4,6-Trichlorophenol	µg/L	16	<1.33	--	--	<1.38	--	<5.43	--	--	--
2,4-Dichlorophenol	µg/L	20	<1.22	--	--	<1.26	--	<0.924	--	--	--
2,4-Dimethylphenol	µg/L	100	<1.11	--	--	<1.15	--	***1.43 J***	--	--	--
2,4-Dinitrophenol	µg/L	14	<6.33	--	--	<6.55	--	<14.1	--	--	--
2,4-Dinitrotoluene	µg/L	0.25	<1.22	--	--	<1.26	--	<6.96	--	--	--
2,6-Dichlorophenol	µg/L	NS	<1.22	--	--	<1.26	--	<0.75	--	--	--
2,6-Dinitrotoluene	µg/L	0.26	<1.22	--	--	<1.26	--	<0.565	--	--	--
2-Acetylaminofluorene	µg/L	NS	<1.33	--	--	<1.38	--	<2.93	--	--	--
2-Chloronaphthalene	µg/L	560	<1.44	--	--	<1.49	--	<0.696	--	--	--
2-Chlorophenol	µg/L	40	<1.22	--	--	<1.26	--	<0.587	--	--	--
2-Methylnaphthalene	µg/L	28	<1.44	--	--	<1.49	--	<0.641	--	--	--
2-Methylphenol (o-Cresol)	µg/L	35	<1.11	--	--	<1.15	--	<0.707	--	--	--
2-Naphthylamine	µg/L	0.097	<0.956	--	--	<0.989	--	<2.28	--	--	--
2-Nitroaniline	µg/L	NS	<1.33	--	--	<1.38	--	<6.41	--	--	--
2-Nitrophenol	µg/L	NS	<1.78	--	--	<1.84	--	<7.39	--	--	--
3,3'-Dichlorobenzidine	µg/L	0.39	<2	--	--	<2.07	--	<1.52	--	--	--
3,3'-Dimethylbenzidine	µg/L	NS	<2.22	--	--	<2.3	--	<1.63	--	--	--
3/4-Methylphenol	µg/L	70	<0.844	--	--	<0.874	--	<0.761	--	--	--
3-Methylcholanthrene	µg/L	NS	<2.78	--	--	<2.87	--	<0.348	--	--	--
3-Nitroaniline	µg/L	NS	<1.11	--	--	<1.15	--	<2.93	--	--	--
4,6-Dinitro-2-methylphenol	µg/L	NS	<2.78	--	--	<2.87	--	<7.5	--	--	--
4-Aminobiphenyl	µg/L	0.0083	<1.07	--	--	<1.1	--	<2.39	--	--	--
4-Bromophenyl phenyl ether	µg/L	NS	<2.11	--	--	<2.18	--	<0.761	--	--	--
4-Chloro-3-methylphenol	µg/L	700	<1.06	--	--	<1.09	--	<0.913	--	--	--
4-Chloroaniline	µg/L	28	<1.33	--	--	<1.38	--	<0.674	--	--	--
4-Chlorophenyl phenyl ether	µg/L	NS	<1.44	--	--	<1.49	--	<0.75	--	--	--
4-Nitroaniline	µg/L	NS	<1.89	--	--	<1.95	--	<1.41	--	--	--
4-Nitrophenol	µg/L	60	<2.78	--	--	<2.87	--	<8.26	--	--	--
5-Nitro-o-toluidine	µg/L	NS	<3.44	--	--	<3.56	--	<3.04	--	--	--
7,12-Dimethylbenz (a) anthracene	µg/L	NS	<1.02	--	--	<1.06	--	<2.07	--	--	--
Acenaphthene	µg/L	420	<1.44	--	--	<1.49	--	<0.696	--	--	--
Acenaphthylene	µg/L	210	<1.44	--	--	<1.49	--	<0.783	--	--	--
Acetophenone	µg/L	NS	<3.33	--	--	<3.45	--	<0.75	--	--	--
Anthracene	µg/L	2100	<1.22	--	--	<1.26	--	<0.946	--	--	--
Benzo (a) anthracene	µg/L	0.24	<1.22	--	--	<1.26	--	<0.924	--	--	--
Benzo (a) pyrene	µg/L	0.2	<1.67	--	--	<1.72	--	<8.8	--	--	--
Benzo (b) fluoranthene	µg/L	0.24	<1.33	--	--	<1.38	--	<5.33	--	--	--
Benzo (g,h,i) perylene	µg/L	21	<1.78	--	--	<1.84	--	<6.85	--	--	--
Benzo (k) fluoranthene	µg/L	2.4	<1.33	--	--	<1.38	--	<2.39	--	--	--
Benzyl alcohol	µg/L	700	<1.22	--	--	<1.26	--	<1.41	--	--	--
Bis(2-chloroethoxy)methane	µg/L	NS	<1.22	--	--	<1.26	--	<0.826	--	--	--
Bis(2-chloroethyl)ether	µg/L	0.16	<1.22	--	--	<1.26	--	<0.891	--	--	--
Bis(2-chloroisopropyl) ether	µg/L	300	<1.33	--	--	<1.38	--	<0.587	--	--	--
Bis(2-ethylhexyl)phthalate	µg/L	6	<2.89	--	--	<2.99	--	<5.98	--	--	--
Butyl benzyl phthalate	µg/L	140	<1.67	--	--	<1.72	--	<5.87	--	--	--
Chlorobenzilate	µg/L	NS	<3.22	--	--	<3.33	--	<3.91	--	--	--
Chrysene	µg/L	24	<1.22	--	--	<1.26	--	<0.946	--	--	--
Diallate (cis or trans)	µg/L	NS	<1.44	--	--	<1.49	--	<4.35	--	--	--
Dibenzo (a,h) anthracene	µg/L	0.024	<2.11	--	--	<2.18	--	<4.24	--	--	--
Dibenzofuran	µg/L	7	<1.33	--	--	<1.38	--	<0.804	--	--	--
Diethyl phthalate	µg/L	5600	<1.22	--	--	<1.26	--	<1.85	--	--	--
Dimethoate	µg/L	1.4	<1.11	--	--	<1.15	--	<3.91	--	--	--
Dimethyl phthalate	µg/L	NS	<2.78	--	--	<2.87	--	<1.09	--	--	--
Di-n-butyl phthalate	µg/L	700	<1.33	--	--	<1.38	--	<6.09	--	--	--
Di-n-octyl phthalate	µg/L	140	<3.33	--	--	<3.45	--	<7.61	--	--	--
Dinoseb	µg/L	7	<0.556	--	--	<0.575	--	<2.61	--	--	--
Diphenylamine	µg/L	180	<0.978	--	--	<1.01	--	<6.52	--	--	--
Disulfoton	µg/L	0.7	<0.711	--	--	<0.736	--	<2.61	--	--	--
Ethyl Methanesulfonate	µg/L	NS	<0.556	--	--	<0.575	--	<3.91	--	--	--
Famphur	µg/L	NS	<0.711	--	--	<0.736	--	<4.13	--	--	--
Fluoranthene	µg/L	280	<1.04	--	--	<1.08	--	<1.85	--	--	--
Fluorene	µg/L	280	<1.44	--	--	<1.49	--	<0.859	--	--	--
Hexachlorobenzene	µg/L	1	<1.56	--	--	<1.61	--	<0.761	--	--	--
Hexachlorobutadiene	µg/L	1	<1.33	--	--	<1.38	--	<0.935	--	--	--
Hexachlorocyclopentadiene	µg/L	50	<2.33	--	--	<2.41	--	<5.54	--	--	--
Hexachloroethane	µg/L	1	<1.44	--	--	<1.49	--	<1.05	--	--	--
Hexachloropropene	µg/L	NS	<1.78	--	--	<1.84	--	<2.83	--	--	--
Indeno (1,2,3-cd) pyrene	µg/L	0.24	<2.22	--	--	<2.3	--	<4.57	--	--	--
Isodrin	µg/L	NS	<0.644	--	--	<0.667	--	<5.11	--	--	--
Isophorone	µg/L	100	<1.1	--	--	<1.14	--	<1.01	--	--	--
Isosafrole	µg/L	NS	<0.556	--	--	<0.575	--	<2.5	--	--	--
Kepone	µg/L	NS	<2	--	--	<2.07	--	<1.09	--	--	--
Methapyrilene	µg/L	NS	<2.11	--	--	<2.18	--	<0.826	--	--	--
Methyl Methanesulfonate	µg/L	1.8	<0.556	--	--	<0.575	--	<3.59	--	--	--
Nitrobenzene	µg/L	14	<1.22	--	--	<1.26	--	<0.87	--	--	--
N-Nitrosodiethylamine	µg/L	NS	<0.556	--	--	<0.575	--	<3.7	--	--	--
N-Nitrosodimethylamine	µg/L	0.0034	<1.01	--	--	<1.05	--	<0.783	--	--	--
N-Nitrosodi-n-butylamine	µg/L	0.032	<0.556	--	--	<0.575	--	<4.24	--	--	--
N-Nitrosodi-n-propylamine	µg/L	NS	<1.11	--	--	<1.15	--	<1	--	--	--
N-Nitrosodiphenylamine	µg/L	36	<1.06	--	--	<1.09	--	<0.815	--	--	--
N-Nitrosomethylethylamine	µg/L	0.008	<1.44	--	--	<1.49	--	<5.33	--	--	--
N-Nitrosopiperidine	µg/L	NS	<0.556	--	--	<0.575	--	<2.93	--	--	--
N-Nitrosopyrrolidine	µg/L	0.083	<0.556	--	--	<0.575	--	<3.91	--	--	--
O,O,O-Triethyl phosphorothioate	µg/L	NS	<0.556	--	--	<0.575	--	<3.48	--	--	--
o-Toluidine	µg/L	11	<0.744	--	--	<0.77	--	<3.15	--	--	--
p-(Dimethylamino)azobenzene	µg/L	NS	<0.867	--	--	<0.897	--	<2.39	--	--	--
Parathion-ethyl	µg/L	NS	<1.78	--	--	<1.84	--	<2.39	--	--	--
Parathion-methyl	µg/L	1	<0.833	--	--	<0.862	--	<2.5	--	--	--
Pentachlorobenzene	µg/L	NS	<0.644	--	--	<0.667	--	<3.04	--	--	--
Pentachloronitrobenzene	µg/L	NS	<0.556	--	--	<0.575	--	<6.3	--	--	--
Pentachlorophenol	µg/L	1	<2.56	--	--	<2.64	--	<10.4	--	--	--
Phenacetin	µg/L	NS	<2	--	--	<2.07	--	<2.07	--	--	--
Phenanthrene	µg/L	210	<1.22	--	--	<1.26	--	<0.859	--	--	--
Phenol	µg/L	2000	<2.67	--	--	<2.76	--	<1.2	--	--	--
Phorate	µg/L	1.4	<0.556	--	--	<0.575	--	<3.48	--	--	--
Pronamide	µg/L	5	<0.556	--	--	<0.575	--	<2.93	--	--	--
Pyrene	µg/L	210	<1.56	--	--	<1.61	--	<0.859	--	--	--
Safrole	µg/L	NS	<0.556	--	--	<0.575	--	<3.04	--	--	--
Thionazin	µg/L	NS	<0.844	--	--	<0.874	--	<3.8	--	--	--
Volatile Organic Compounds											
1,1-Dichloropropene	µg/L	NS	<0.43	--	--	<0.43	--	<0.43	--	--	--
1,2,4-Trichlorobenzene	µg/L	70	<0.75	--	--	<0.75	--	<0.75	--	--	--
1,3-Dichlorobenzene	µg/L	600	<0.3	--	--	<0.3	--	<0.3	--	--	--
1,3-Dichloropropane	µg/L	NS	<0.4	--	--	<0.4	--	<0.4	--	--	--
2,2-Dichloropropane	µg/L	NS	0.766 J	--	--	<0.69	--	<0.69	--	--	--
Acrolein	µg/L	NS	<3.6	--	--	<3.6	--	<3.6	--	--	--
Allyl chloride	µg/L	NS	<0.7	--	--	<0.7	--	<0.7	--	--	--
Chloroprene	µg/L	NS	<0.23	--	--	<0.23	--	<0.23	--	--	--
Dichlorodifluoromethane	µg/L	1000	<2.5	--	--	<0.25	--	<0.25	--	--	--
Ethyl Methacrylate	µg/L	NS	<0.68	--	--	<0.68	--	<0.68	--	--	--
Methacrylonitrile	µg/L	NS	<3.3	--	--	<3.3	--	<3.3	--	--	--
Methyl Methacrylate	µg/L	NS	<0.76	--	--	<0.76	--	<0.76	--	--	--
Naphthalene	µg/L	100	<3	--	--	<3	--	<3	--	--	--
Propionitrile	µg/L	NS	<3.4	--	--	<3.4	--	<3.4	--	--	--

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-224B

Parameter Name	Units	GPS	Jan-23	Mar-23	Aug-23	Sep-23	Dec-23	Apr-24	Oct-24
Appendix I Inorganics									
Total Suspended Solids	mg/L	NS	***15.5***	***9***	***16.5***	***16.5***	***20.5***	***33***	***25***
Turbidity, Field	NTU	NS	***24.84***	***8.9***	***28.62***	***104.1***	***4.69***	***67.89***	***22.29***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--
Antimony	µg/L	6	<2.76	***1.65 J***	***1.23 J***	<4	<1	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Arsenic	µg/L	10	***2.98***	***3.51***	***4.99***	***6.57***	***6.26***	***5.7***	***7.7***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Barium	µg/L	2000	***1700***	***1860***	***2120***	***1770***	***2370***	***2580***	***2570***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.27	<1.08	<0.33	<0.33	<0.33	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Cadmium	µg/L	5	***1.53***	***1.33***	***0.387***	***0.454***	***0.234***	***0.349***	***0.24***
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Chromium	µg/L	100	***8.34***	***9.01***	***9.25***	***9.24***	***12.6***	***7.68***	***8.2***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***55.4***	***62***	***29.9***	***24.8***	***21.7***	***32.5***	***23***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Copper	µg/L	1300	***17.2***	***11.6 J***	***3.5 J***	***2.5 J***	***1.94 J***	***7.43***	***2.45 J***
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Lead	µg/L	15	***0.801***	***1.27***	***0.926***	***1.61***	***1.37***	***1.44***	***1.74***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Nickel	µg/L	722	***280***	***272***	***143***	***125***	***105***	***172***	***116***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Selenium	µg/L	50	***1.96 J***	***1.97 J***	***2.64 J***	<1.4	<1.4	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Silver	µg/L	100	<0.49	<0.49	<0.5	<0.5	<0.5	<2	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.26	<0.26	***1.42***	<0.26	<0.26	<0.57	***1.37***
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Vanadium	µg/L	35	***2.45 J***	***3.37 J***	***5.35 J***	***3.6 J***	***3.21 J***	<4.4	***3.16 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Zinc	µg/L	2000	***10.2 J***	<10	<6.4	<25.6	<6.4	<9.7	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Appendix I Organics									
1,1,1,2-Tetrachloroethane	µg/L	70	<0.38	<0.38	<3.8	<0.38	<0.38	<3.8	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.19	<0.19	<1.9	<0.19	<0.19	<1.9	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.47	<0.47	<4.7	<0.47	<0.47	<4.7	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.45	<0.45	<4.5	<0.45	<0.45	<4.5	<0.45
1,1-Dichloroethane	µg/L	140	***0.242 J***	***0.383 J***	<2.2	<0.22	<0.22	<2.2	<0.22
1,1-Dichloroethylene	µg/L	7	<0.56	<0.56	<5.6	<0.56	<0.56	<5.6	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.59	<0.59	<5.9	<0.59	<0.59	<5.9	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<1.2	<1.2	<12	<1.2	<1.2	<12	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.34	<0.34	<3.4	<0.34	<0.34	<3.4	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.37	<0.37	<3.7	<0.37	<0.37	<3.7	<0.37
1,2-Dichloroethane	µg/L	5	<0.39	<0.39	<3.9	<0.39	<0.39	<3.9	<0.39
1,2-Dichloropropane	µg/L	5	<0.27	<0.27	<2.7	<0.27	<0.27	<2.7	<0.27
1,4-Dichlorobenzene	µg/L	75	***1.97***	***3.18***	***2.81 J***	***3.29***	***2.95***	<2.3	***3.52***
2-Butanone	µg/L	4000	<2.1	***7.65 J***	<21	<2.1	***4.77 J***	<21	***5.07 J***
2-Hexanone	µg/L	NS	<2	<2	<20	<2	<2	<20	<2
4-Methyl-2-pentanone	µg/L	560	<2.1	<2.1	<21	<2.1	<2.1	<21	<2.1
Acetone	µg/L	6300	<3.1	<3.1	<31	***6.7 J***	***5.43 J***	<31	***10.5***
Acrylonitrile	µg/L	0.32	<2.2	<2.2	<22	<2.2	<2.2	<22	<2.2
Benzene	µg/L	5	***2.05***	***3.24***	***4.34 J***	***4.36***	***4.2***	***3.02 J***	***4.21***
Bromochloromethane	µg/L	90	<0.54	<0.54	<5.4	<0.54	<0.54	<5.4	<0.54
Bromodichloromethane	µg/L	80	<0.39	<0.39	<3.9	<0.39	<0.39	<3.9	<0.39
Bromomethane	µg/L	10	<1.1	<1.1	<11	<1.1	<1.1	<11	<1.1
Carbon disulfide	µg/L	700	<0.45	<0.45	<4.5	<0.45	<0.45	<4.5	<0.45
Carbon Tetrachloride	µg/L	5	<0.65	<0.65	<6.5	<0.65	<0.65	<6.5	<0.65
Chlorobenzene	µg/L	100	<0.4	<0.4	<4	<0.4	***0.429 J***	<4	<0.4
Chloroethane	µg/L	2800	<0.79	<0.79	<7.9	<0.79	<0.79	<7.9	<0.79
Chloromethane	µg/L	NS	<0.61	<0.61	<6.1	<0.61	<0.61	<6.1	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***1.35***	***1.22***	<2.1	<0.21	<0.21	<2.1	***0.26 J***
cis-1,3-Dichloropropene	µg/L	NS	<0.25	<0.25	<2.5	<0.25	<0.25	<2.5	<0.25
Dibromochloromethane	µg/L	80	<0.75	<0.75	<7.5	<0.75	<0.75	<7.5	<0.75
Dibromomethane	µg/L	70	<0.33	<0.33	<3.3	<0.33	<0.33	<3.3	<0.33
Dichloromethane	µg/L	5	<1.7	<1.7	<17	<1.7	<1.7	<17	<1.7
Ethylbenzene	µg/L	700	***0.458 J***	***0.472 J***	<3.1	<0.31	<0.31	<3.1	<0.31
Iodomethane	µg/L	NS	<7	<7	<70	<7	<7	<70	<7
Styrene	µg/L	100	<0.37	<0.37	<3.7	<0.37	<0.37	<3.7	<0.37
Tetrachloroethylene	µg/L	5	<0.48	<0.48	<4.8	<0.48	<0.48	<4.8	<0.48
Toluene	µg/L	1000	<0.43	<0.43	<4.3	***0.539 J***	<0.43	<4.3	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.27	<0.27	<2.7	<0.27	<0.27	<2.7	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.56	<0.56	<5.6	<0.56	<0.56	<5.6	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<1.1	<1.1	<11	<1.1	<1.1	<11	<1.1
Tribromomethane	µg/L	80	<0.78	<0.78	<7.8	<0.78	<0.78	<7.8	<0.78
Trichloroethylene	µg/L	5	<0.43	<0.43	<4.3	<0.43	<0.43	<4.3	<0.43
Trichlorofluoromethane	µg/L	2000	<0.38	<0.38	<3.8	<0.38	<0.38	<3.8	<0.38
Trichloromethane	µg/L	80	<1.3	<1.3	<13	<1.3	<1.3	<13	<1.3
Vinyl Acetate	µg/L	NS	<2.5	<2.5	<25	<2.5	<2.5	<25	<2.5
Vinyl Chloride	µg/L	2	<0.18	<0.18	<1.8	<0.18	<0.18	<1.8	<0.18
Xylenes	µg/L	10000	<0.4	<0.4	<4	<0.4	<0.4	<4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix H Results
Monitoring Well OW-224B

Constituent Name	Units	UPL	9/6/23	12/12/23
Alcohols/Glycols by GC				
Acetonitrile	µg/L	NA	<170	<2600
Isobutanol	µg/L	2150	<530	<2400
Pesticides (GC)				
2,4,5-T	µg/L	70	<0.024	<0.03
2,4-D	µg/L	70	<0.0085	<0.026
Silvex (2,4,5-TP)	µg/L	50	<0.0086	<0.026
Inorganics				
Fluoride	mg/L	200	<0.3	<3.5
Mercury	mg/L	2	<0.18	<0.11
Sulfide	mg/L	NA	<10.01	<1.011
TOC	mg/L	4260	<2.3	<2.3
PCBs (EPA Method 8082)				
PCB-1016	µg/L	NA	<0.177	<0.782
PCB-1221	µg/L	NA	<0.177	<0.782
PCB-1232	µg/L	NA	<0.177	<0.782
PCB-1242	µg/L	NA	<0.177	<0.782
PCB-1248	µg/L	NA	<0.112	<0.0228
PCB-1254	µg/L	NA	<0.155	<0.0168
PCB-1260	µg/L	NA	<0.155	<0.0168
Pesticides (EPA Method 8081A)				
4,4'-DDD	µg/L	0.79	<0.0181	<0.0238
4,4'-DDE	µg/L	0.32	<0.0181	<0.0286
4,4'-DDT	µg/L	0.16	<0.0108	<0.0191
Aldrin	µg/L	0.05	<0.0333	<0.021
Alpha-BHC	µg/L	0.038	<0.0181	<0.000168
beta-BHC	µg/L	0.042	<0.0181	<0.0493
Delta-BHC	µg/L	1.1	<0.0181	<0.0493
Alpha-BHC	µg/L	1.1	<0.004	<0.0595
Dieldrin	µg/L	0.033	<0.0371	<0.02
Endosulfan I	µg/L	42	<0.0181	<0.0267
Endosulfan II	µg/L	42	<0.0182	<0.0248
Endosulfan sulfate	µg/L	NA	<0.0313	<0.0172
Endrin	µg/L	2	<0.0271	<0.0267
Endrin aldehyde	µg/L	2.1	<0.0182	<0.0267
gamma-BHC (Lindane)	µg/L	0.2	<0.0371	<0.000541
Heptachlor	µg/L	0.4	<0.0184	<0.0219
Heptachlor epoxide	µg/L	0.2	<0.0182	<0.0381
Methoxychlor	µg/L	40	<0.0927	<0.0956
Toxaphene	µg/L	3	<0.719	<0.954
Semivolatile Organics by GC/MS				
1,2,4,5-Tetrachlorobenzene	µg/L	2.3	<0.529	<0.54
1,2,4-Trimethylbenzene	µg/L	NA	<2.25	<2.3
1,3-Dinitrobenzene	µg/L	3	<3.18	<3.2
1,4-Naphthoquinone	µg/L	NA	<1.33	<1.6
1,4-Phenylenediamine	µg/L	NA	<1.86	<1.9
1-Naphthylamine	µg/L	NA	<2.42	<2.5
2,3,4,6-Tetrachlorophenol	µg/L	NA	<5.2	<5.3
2,4,5-Trichlorophenol	µg/L	700	<1.2	<1.3
2,4,6-Trichlorophenol	µg/L	16	<1.9	<2
2,4-Dichlorophenol	µg/L	60	<0.833	<0.85
2,4-Dimethylphenol	µg/L	140	<0.833	<0.85
2,4-Dinitrophenol	µg/L	14	<3.17	<3.2
2,4-Dinitrotoluene	µg/L	0.49	<1.27	<1.3
2,6-Dichlorophenol	µg/L	NA	<0.676	<0.68
2,6-Dinitrotoluene	µg/L	0.36	<0.35	<0.52
2-Acetylaminofluorene	µg/L	NA	<2.61	<2.7
2-Chloronaphthalene	µg/L	560	<0.627	<0.64
2-Chlorophenol	µg/L	40	<0.249	<0.44
2-Methylnaphthalene	µg/L	28	<0.178	<0.18
2-Methylphenol (o-Cresol)	µg/L	31	<0.637	<0.66
2-Naphthylamine	µg/L	0.057	<2.86	<2.9
2-Nitroaniline	µg/L	60	<0.57	<0.58
2-Nitrophenol	µg/L	NA	<0.32	<0.8
3,3'-Dichlorobenzidine	µg/L	0.39	<1.37	<1.4
3,3'-Dimethylbenzidine	µg/L	NA	<1.47	<1.5
3/4-Methylphenol	µg/L	70	<0.686	<0.7
3-Methylcholanthrene	µg/L	NA	<0.314	<0.32
3-Nitroaniline	µg/L	NA	<2.66	<2.7
4,6-Dinitro-2-methylphenol	µg/L	NA	<6.76	<6.8
4-Aminobiphenyl	µg/L	0.00053	<2.16	<2.2
4-Bromophenyl phenyl ether	µg/L	NA	<0.686	<0.7
4-Chloro-3-methylphenol	µg/L	700	<0.824	<0.84
4-Chloroaniline	µg/L	49	<0.608	<0.62
4-Chlorophenyl phenyl ether	µg/L	NA	<0.676	<0.68
4-Nitroaniline	µg/L	NA	<0.608	<0.62
4-Nitrophenol	µg/L	60	<7.45	<7.6
4-Nitroquinoline-1-oxide	µg/L	NA	<2.35	<2.8
5,12-Dimethylbenz(a)anthracene	µg/L	NA	<1.06	<1.9
Acenaphthene	µg/L	420	***0.013 J***	<0.64
Acenaphthylene	µg/L	210	<0.706	<0.72
Acetophenone	µg/L	NA	<0.676	<0.68
Aniline	µg/L	2100	<0.853	<0.87
Benzo (a) anthracene	µg/L	0.24	<0.833	<0.85
Benzo (a) pyrene	µg/L	0.2	<7.68	<8.1
Benzo (b) fluoranthene	µg/L	0.24	<4.8	<4.9
Benzo (g,h,i) perylene	µg/L	1.4	<2.18	<2.2
Benzo (k) fluoranthene	µg/L	2.4	<2.18	<2.2
Benzoic Acid	µg/L	280	<1.27	<1.3
Benzyl alcohol	µg/L	780	<1.27	<1.3
Bis(2-chloroethoxy)methane	µg/L	NA	<0.705	<0.76
Bis(2-chloroethyl) ether	µg/L	0.16	<0.804	<0.82
Bis(2-chloroisopropyl) ether	µg/L	200	<0.529	<0.54
Bis(2-ethylhexyl) phthalate	µg/L	6	<1.39	<1.5
Butyl benzyl phthalate	µg/L	140	<1.25	<1.4
Carbazole	µg/L	NA	<1.33	<1.6
Chrysene	µg/L	24	<0.833	<0.85
Diallate (cis or trans)	µg/L	NA	<1.92	<2
Dibenz (a,h) anthracene	µg/L	0.024	<0.706	<0.72
Dibenzofuran	µg/L	7	<0.725	<0.74
Diethyl phthalate	µg/L	6600	<1.27	<1.3
Dimethoate	µg/L	1.4	<2.33	<2.6
Dimethyl phthalate	µg/L	NA	<0.98	<1
Di-n-butyl phthalate	µg/L	700	***0.79 J***	<1.6
Di-n-octyl phthalate	µg/L	140	<6.86	<7
Diphenyl amine	µg/L	7	<0.36	<2.4
Diphenyl hydrazine	µg/L	180	<1.88	<2
Disulfoton	µg/L	0.7	<2.45	<2.4
Ethyl Methanesulfonate	µg/L	NA	<1.53	<1.6
Famphur	µg/L	NA	<1.33	<1.6
Fluoranthene	µg/L	280	<1.92	<2
Fluorene	µg/L	280	<0.833	<0.85
Hexachlorobenzene	µg/L	0.3	<0.686	<0.7
Hexachlorobutadiene	µg/L	5	<0.843	<0.86
Hexachlorocyclopentadiene	µg/L	50	<5	<5.1
Hexachloroethane	µg/L	3	<0.902	<0.92
Hexachloropropene	µg/L	NA	<2.92	<3.6
Isodrin (1,2,3-cdl) pa rene	µg/L	0.18	<1.12	<1.2
Isosafrole	µg/L	NA	<1.63	<1.7
Isophorone	µg/L	100	<0.912	<0.93
Isosafrole	µg/L	NA	<2.45	<2.5
Kepone	µg/L	NA	<0.98	<1
Methapyrilene	µg/L	NA	<1.53	<1.6
Methyl Methanesulfonate	µg/L	1.8	<3.28	<3.3
Naphthalene	µg/L	14	<0.784	<0.8
N-Nitrosodiethylamine	µg/L	NA	<1.33	<1.4
N-Nitrosodiethylamine	µg/L	0.0054	<0.706	<0.72
N-Nitrosodi-n-butylamine	µg/L	0.032	<1.82	<3
N-Nitrosodi-n-propylamine	µg/L	NA	<0.902	<0.92
N-Nitrosodiphenylamine	µg/L	99	<0.725	<0.74
N-Nitrosomethylethylamine	µg/L	0.008	<4.8	<4.9
N-Nitrosopiperidine	µg/L	NA	<1.66	<2.7
N-Nitrosopyrrolidine	µg/L	0.081	<1.53	<1.6
O,O,O-Triethylphosphorothioate	µg/L	NA	<2.84	<2.9
O-Toluidine	µg/L	13	<2.84	<2.9
O,O,O-triethylphosphorothioate	µg/L	NA	<2.16	<2.2
Parathion ethyl	µg/L	NA	<2.16	<2.2
Parathion methyl	µg/L	3	<2.25	<2.3
Pentachlorobenzene	µg/L	NA	<2.75	<2.8
Pentachloronitrobenzene	µg/L	NA	<1.49	<1.8
Pentachlorophenol	µg/L	1	<36.41	<6.6
Phenacetin	µg/L	NA	<1.06	<1.9
Phenanthrene	µg/L	210	<0.775	<0.79
Phenol	µg/L	2000	<1.08	<1.2
Pronamide	µg/L	5.4	<3.18	<3.2
Pyrazontide	µg/L	3	<2.96	<3.2
Pyrene	µg/L	210	<0.833	<0.85
Safrole	µg/L	NA	<2.75	<2.8
Thionazin	µg/L	NA	<3.33	***5.29 J***
Volatile Organic Compounds				
1,1-Dichloroethane	µg/L	NA	<0.43	<0.43
1,1,2-Trichloroethane	µg/L	70	<0.76	<0.76
1,1-Dichloroethene	µg/L	600	<0.3	<0.3
1,2-Dichloropropane	µg/L	NA	<0.4	<0.4
1,2-Dichloropropene	µg/L	NA	<0.68	<0.68
Acrolein	µg/L	NA	<1.6	<1.6
Allyl chloride	µg/L	NA	<0.7	<0.7
Benzene	µg/L	5	<0.17	<0.17
Bis(chloromethyl)ether	µg/L	0.006	<0.22	<0.22
Ethyl Methacrylate	µg/L	NA	<0.68	<0.68
Methacrylonitrile	µg/L	NA	<1.3	<1.3
Methyl Methacrylate	µg/L	NA	<0.76	<0.76
Propionitrile	µg/L	100	<1	<1
Propionitrile	µg/L	NA	<1.4	<1.4

Detections at or above the RL are shown in bold italics on gray background.
Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.
NA = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-225B

Parameter Name	Units	GPS	Jan-23	Mar-23	Aug-23	Sep-23	Dec-23	Apr-24	Jul-24	Oct-24
Appendix I Inorganics										
Total Suspended Solids	mg/L	NS	***9***	***16.7***	***10.4***	***17.5***	***15.5***	***42.5***	***34***	***18.2***
Turbidity, Field	NTU	NS	***6.26***	***35.7***	***7.74***	***5.71***	***17.09***	***48.28***	***60.59***	***19.72***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<0.69	<0.69	<1	<1	<1	<1	--	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***1.45 J***	***1.68 J***	***2.42***	***2.16***	***2.74***	***5.86***	***6.52***	***6.29***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***1510***	***1360***	***1680***	***1070***	***1420***	***1710***	--	***1380***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.27	<0.27	<0.33	<0.33	<0.33	<0.33	--	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.895***	***0.646***	***0.999***	***0.484***	***0.522***	***0.398***	--	***0.502***
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***3.92 J***	***4.47 J***	***4.25 J***	***3.15 J***	***4.4 J***	***4.47 J***	--	***10.4***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***26.9***	***30.9***	***34.9***	***21***	***30.6***	***33.3***	--	***30***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***7.26***	***5.56***	***5.84***	***3.45 J***	***5.8***	***3.23 J***	--	***3.48 J***
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Lead	µg/L	15	***0.416 J***	***0.333 J***	***0.886***	***0.561***	***0.673***	***0.957***	--	***1.55***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***102***	***120***	***126***	***85***	***126***	***144***	--	***124***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***1.41 J***	***1.35 J***	***1.44 J***	<1.4	<1.4	<1.4	--	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.49	<0.49	<0.5	<0.5	<0.5	<0.5	--	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57	--	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***1.15 J***	***1.23 J***	***2.37 J***	<1.1	***1.59 J***	***1.81 J***	--	***2.36 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<10	<10	<6.4	<6.4	<6.4	<9.7	--	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Appendix I Organics										
1,1,1,2-Tetrachloroethane	µg/L	70	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	--	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
1,1-Dichloroethane	µg/L	140	***0.317 J***	***0.443 J***	<0.22	***0.287 J***	***0.331 J***	***0.274 J***	--	<0.22
1,1-Dichloroethylene	µg/L	7	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	--	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	--	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	--	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37
1,2-Dichloroethane	µg/L	5	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39
1,2-Dichloropropane	µg/L	5	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.23	***1.25***	***0.498 J***	***1.07***	***0.875 J***	***0.791 J***	--	***0.738 J***
2-Butanone	µg/L	4000	<2.1	***6.58 J***	<2.1	***5.86 J***	***5.43 J***	***6.31 J***	--	<2.1
2-Hexanone	µg/L	NS	<2	<2	<2	<2	<2	<2	--	<2
4-Methyl-2-pentanone	µg/L	560	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--	<2.1
Acetone	µg/L	6300	<3.1	<3.1	***5.85 J***	***6.68 J***	<3.1	***40.9***	--	***5.1 J***
Acrylonitrile	µg/L	0.32	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	--	<2.2
Benzene	µg/L	5	***0.777***	***0.972***	***1***	***1.28***	***1.2***	***1.18***	--	***0.983***
Bromochloromethane	µg/L	90	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	--	<0.54
Bromodichloromethane	µg/L	80	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39
Bromomethane	µg/L	10	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1
Carbon disulfide	µg/L	700	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
Carbon Tetrachloride	µg/L	5	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	--	<0.65
Chlorobenzene	µg/L	100	***0.531 J***	***0.865 J***	***0.542 J***	***0.988 J***	***0.728 J***	***0.772 J***	--	<0.4
Chloroethane	µg/L	2800	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	--	<0.79
Chloromethane	µg/L	NS	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	--	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***0.844 J***	***0.749 J***	<0.21	***1.16***	***1.17***	***0.778 J***	--	***0.842 J***
cis-1,3-Dichloropropene	µg/L	NS	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	--	<0.25
Dibromochloromethane	µg/L	80	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	--	<0.75
Dibromomethane	µg/L	70	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	--	<0.33
Dichloromethane	µg/L	5	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	--	<1.7
Ethylbenzene	µg/L	700	<0.31	***0.626 J***	<0.31	***0.504 J***	<0.31	<0.31	--	<0.31
Iodomethane	µg/L	NS	<7	<7	<7	<7	<7	<7	--	<7
Styrene	µg/L	100	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37
Tetrachloroethylene	µg/L	5	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	--	<0.48
Toluene	µg/L	1000	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1
Tribromomethane	µg/L	80	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	--	<0.78
Trichloroethylene	µg/L	5	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	<0.43
Trichlorofluoromethane	µg/L	2000	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<0.38
Trichloromethane	µg/L	80	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	--	<1.3
Vinyl Acetate	µg/L	NS	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	<2.5
Vinyl Chloride	µg/L	2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	--	<0.18
Xylenes	µg/L	10000	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	--	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix H Results
Monitoring Well OW-225B

Constituent Name	Units	UPL	9/6/23	12/12/23
Alcohols/Glycols by GC				
Acetonitrile	ug/L	NA	<11	<.2469
Isobutanol	ug/L	2193	***85.7 J***	<.5468
Perchlorate (LC)				
ClO4-T	ug/L	70	<0.128	<0.0671
Nitrate	mg/L	10	<0.0662	**0.0811**
Nitrate + Nitrite (as N)	mg/L	10	<0.0662	**0.0811**
Inorganics				
Ammonia	ug/L	209	<14	***430 J***
Mercury	ug/L	2	<0.14	<0.11
Sulfide	ug/L	NA	***302 J***	<1.810
TOC	mg/L	4260	<2.2	<2.2
PCBs (EPA Method 8082)				
PCB-1016	ug/L	NA	<0.17	<0.1791
PCB-1221	ug/L	NA	<0.17	<0.1791
PCB-1232	ug/L	NA	<0.17	<0.1791
PCB-1242	ug/L	NA	<0.17	<0.1791
PCB-1248	ug/L	NA	<0.17	<0.1689
PCB-1254	ug/L	NA	<0.11	<0.1689
PCB-1260	ug/L	NA	<0.11	<0.0685
Pesticides (EPA Method 8081A)				
4,4'-DDD	ug/L	0.73	<0.027	<0.0242
4,4'-DDE	ug/L	0.32	<0.027	<0.0201
4,4'-DDT	ug/L	0.31	<0.042	<0.0194
Aldrin	ug/L	0.05	<0.0202	<0.0213
Alpha-BHC	ug/L	0.038	<0.029	<0.0097
beta-BHC	ug/L	0.042	<0.037	<0.0087
delta-BHC	ug/L	1.1	<0.0202	<0.0111
Alpha-BHC	ug/L	1.1	<0.021	<0.011
Chlordane	ug/L	0.033	<0.026	<0.0202
Endosulfan I	ug/L	42	<0.0353	<0.0073
Endosulfan II	ug/L	42	<0.029	<0.0052
Endosulfan sulfate	ug/L	NA	<0.03	<0.0176
Endrin	ug/L	2	<0.026	<0.0071
Endrin aldehyde	ug/L	2.1	<0.026	<0.0262
gamma-BHC (Lindane)	ug/L	0.2	<0.036	<0.0095
Heptachlor	ug/L	0.4	<0.033	<0.0223
Heptachlor epoxide	ug/L	0.2	<0.029	<0.0151
Methoxychlor	ug/L	40	<0.083	<0.035
Toxaphene	ug/L	3	<0.66	<0.97
Semivolatile Organics by GC/MS				
1,2,4,5-Tetrachlorobenzene	ug/L	2.3	<0.414	<0.1063
1,2,4-Trimethylbenzene	ug/L	NA	<2.05	<1.3
1,2,5-Oxadiazole	ug/L	1	<3.64	<3.35
1,2-Naphthoquinone	ug/L	NA	<4.09	<3.72
1,2-Phenylenediamine	ug/L	NA	<2.16	<1.98
1-Naphthylamine	ug/L	NA	<2.84	<2.6
2,4,5,6-Tetrachlorophenol	ug/L	NA	<6.03	<5.67
2,4,5-Trichlorophenol	ug/L	390	<6.02	<5.52
2,4,6-Trichlorophenol	ug/L	16	<3.68	<3.33
2,4-Dichlorophenol	ug/L	60	<0.966	<0.895
2,4-Dimethylphenol	ug/L	120	<2.84	<2.61
2,4-Dinitrophenol	ug/L	14	<14.8	<13.5
2,4-Dinitrotoluene	ug/L	0.49	<7.27	<6.91
2,6-Dichlorophenol	ug/L	NA	<0.784	<0.719
2,6-Dinitrotoluene	ug/L	0.26	<0.581	<0.542
2-Acetylaminofluorene	ug/L	NA	<3.07	<2.81
2-Chloronaphthalene	ug/L	560	<0.727	<0.667
2-Chlorophenol	ug/L	40	<0.414	<0.3663
2-Methylnaphthalene	ug/L	20	<0.45	<0.0412
2-Methylphenol (o-Cresol)	ug/L	30	<0.709	<0.617
2-Naphthylamine	ug/L	0.057	<2.39	<2.19
2-Nitroaniline	ug/L	0.19	<2.16	<1.98
2-Nitrophenol	ug/L	NA	<7.73	<7.08
3,3'-Dichlorobenzidine	ug/L	0.39	<1.58	<1.46
3,3'-Dimethylbenzidine	ug/L	NA	<1.7	<1.56
3-(Methylthio)propionitrile	ug/L	70	<0.795	<0.723
3-Methylcholanthrene	ug/L	NA	<0.364	<0.333
3-Nitroaniline	ug/L	NA	<3.07	<2.81
4,6-Dinitro-2-methylphenol	ug/L	NA	<7.84	<7.19
4-Aminobiphenyl	ug/L	0.0003	<2.5	<2.29
4-Bromophenyl phenyl ether	ug/L	NA	<0.795	<0.729
4-Chloro-3-methylphenol	ug/L	700	<0.902	<0.8271
4-Chloroaniline	ug/L	49	<0.709	<0.6498
4-Chlorophenyl phenyl ether	ug/L	NA	<0.784	<0.719
4-Nitroaniline	ug/L	NA	<2.84	<2.61
4-Nitrophenol	ug/L	60	<14.6	<7.92
4-Nitroquinoline	ug/L	NA	<3.18	<2.92
5,12-Dimethylbenz[a]anthracene	ug/L	NA	<2.16	<1.98
Acenaphthene	ug/L	420	<0.727	<0.667
Acenaphthylene	ug/L	210	<0.818	<0.75
Acetophenone	ug/L	NC	<0.784	<0.719
Aniline	ug/L	2193	<0.909	<0.8336
Benzo (a) anthracene	ug/L	0.24	<0.966	<0.885
Benzo (a) pyrene	ug/L	0.2	<3.2	<2.48
Benzo (b) fluoranthene	ug/L	0.24	<3.32	<3.3
Benzo (g,h,i) perylene	ug/L	210	<2.16	<1.98
Benzo (k) fluoranthene	ug/L	2.4	<2.5	<2.29
Benzyl alcohol	ug/L	780	<1.48	<1.35
Bis(2-chloroethoxy)methane	ug/L	NA	<0.864	<0.7792
Bis(2-chloroethyl) ether	ug/L	0.16	<0.932	<0.854
Bis(2-chloroisopropyl) ether	ug/L	200	<0.414	<0.3663
Bis(2-ethylhexyl) phthalate	ug/L	6	<6.25	<5.73
Butyl benzyl phthalate	ug/L	140	<6.14	<5.63
Carbazole	ug/L	NA	<4.09	<3.75
Chrysene	ug/L	24	<0.909	<0.806
Diallate (cis or trans)	ug/L	NA	<4.55	<4.17
Dibenz (a,h) anthracene	ug/L	0.024	<0.909	<0.8336
Dibenzofuran	ug/L	7	<0.841	<0.771
Diethyl phthalate	ug/L	6400	<1.93	<1.77
Dimethoate	ug/L	1.4	<4.09	<3.75
Dimethyl phthalate	ug/L	NA	<1.14	<1.04
Di-n-butyl phthalate	ug/L	700	<6.36	<5.83
Di-n-octyl phthalate	ug/L	140	<7.95	<7.29
Diphenyl amine	ug/L	7	<2.73	<2.5
Diphenylamine	ug/L	180	<2.92	<2.25
Disulfoton	ug/L	0.7	<2.73	<2.5
Ethyl Methanesulfonate	ug/L	NA	<4.09	<3.75
Fenphos	ug/L	NA	<4.32	<3.96
Fluoranthene	ug/L	280	<1.93	<1.77
Fluorene	ug/L	280	<0.909	<0.8336
Hexachlorobenzene	ug/L	1	<0.795	<0.729
Hexachlorobutadiene	ug/L	5	<0.977	<0.896
Hexachlorocyclopentadiene	ug/L	50	<3.41	<3.13
Hexachloroethane	ug/L	5	<1.1	<1.01
Hexachloropropene	ug/L	NA	<2.95	<2.71
Indeno (1,2,3-cd) pyrene	ug/L	0.24	<4.77	<4.38
Isodrin	ug/L	NA	<5.34	<4.9
Isophorone	ug/L	100	<1.06	<0.969
Isosafrole	ug/L	NA	<3.69	<3.4
Kepone	ug/L	NA	<1.14	<1.04
Methapyrilene	ug/L	NA	<4.09	<3.75
Methyl Methanesulfonate	ug/L	1.8	<3.75	<3.44
Naphthalene	ug/L	14	<0.909	<0.8311
N-Nitrosodibutylamine	ug/L	NA	<3.86	<3.54
N-Nitrosodiethylamine	ug/L	0.0054	<0.818	<0.75
N-Nitrosodimethylamine	ug/L	0.0102	<4.43	<4.06
N-Nitrosodi-n-propylamine	ug/L	NA	<1.05	<0.958
N-Nitrosodiphenylamine	ug/L	99	<0.414	<0.781
N-Nitrosomethylethylamine	ug/L	0.008	<3.32	<3.3
N-Nitrosopiperidine	ug/L	NA	<3.07	<2.81
N-Nitrosopyrrolidine	ug/L	0.041	<4.09	<3.75
O,O,O-Triethylphosphorothioate	ug/L	NA	<3.64	<3.35
o-Toluidine	ug/L	13	<3.3	<3.03
O-Toluidine hydrochloride	mg/L	NA	<2.5	<2.29
Parathion ethyl	ug/L	NA	<2.5	<2.29
Parathion methyl	ug/L	3	<2.05	<1.4
Pentachlorobenzene	ug/L	NA	<3.18	<2.92
Pentachloronitrobenzene	ug/L	NA	<6.18	<5.66
Pentachlorophenol	ug/L	1	<10.8	<7.98
Pharmacists	ug/L	NA	<1.36	<1.98
Phenacetin	ug/L	210	<0.898	<0.813
Phenol	ug/L	2000	<1.25	<1.15
Pronamide	ug/L	1.8	<3.68	<3.37
Propionitrile	ug/L	5	<3.07	<2.81
Pyridine	ug/L	37	<0.909	<0.8336
Safrole	ug/L	NA	<3.18	<2.92
Thionazin	ug/L	NA	<3.98	<3.65
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	ug/L	70	<0.76	<0.75
1,1,1-Trichloroethane	ug/L	640	<0.3	<0.3
1,1,2,2-Tetrachloroethane	ug/L	NA	<0.4	<0.4
1,1,2-Trichlorotrifluoroethane	ug/L	NA	<0.68	<0.68
1,1-Dichloroethane	ug/L	NA	<1.6	<1.6
1,1-Dichloroethene	ug/L	NA	<0.7	<0.7
1,2,3-Trichlorobenzene	ug/L	1000	<0.32	<0.32
1,2,3-Trichloropropane	ug/L	NA	<0.68	<0.68
1,2,4-Trichlorobenzene	ug/L	NA	<1.3	<1.3
1,2,4-Trimethylbenzene	ug/L	NA	<0.76	<0.76
1,2-Dibromo-3-chloropropane	ug/L	100	<1	<1
1,2-Dibromoethane	ug/L	NA	<1.4	<1.4

Detections at or above the RL are shown in bold italics on gray background.
Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.
NA = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-226B

Parameter Name	Units	GPS	Jan-23	Mar-23	Aug-23	Sep-23	Dec-23	May-24	Jul-24	Oct-24
Appendix I Inorganics										
Total Suspended Solids	mg/L	NS	***112***	***74***	***62***	***57***	***10***	***48***	***49***	***56***
Turbidity, Field	NTU	NS	***138.17***	***40.59***	***22.77***	***82.31***	***41.44***	***24.86***	***19.15***	***37.92***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<0.69	<2.76	<1	<5	<1	<1	--	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***5.53***	***5.08***	***7.88***	***8.57 J***	***8.09***	***8.05***	***7.48***	***10***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***1400***	***1790***	***1720***	***1500***	***1660***	***1450***	--	***1830***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.27	<1.08	<0.33	<1.65	<0.33	<0.33	--	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.19***	***0.188***	***0.508***	<0.5	***0.26***	***0.148 J***	--	***0.23***
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***9.42***	***8.87***	***9.03***	***10.4 J***	***9.11***	***9.35***	--	***11.2***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***34.5***	***28.7***	***26***	***19.7***	***24.6***	***18.8***	--	***25***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***3.99 J***	<7.2	***2.51 J***	<9	***3.09 J***	***3.06 J***	--	***5.35***
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Lead	µg/L	15	***2.61***	***1.27***	***1.28***	***1.81 J***	***2.02***	***0.978***	--	***2.47***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***84.3***	***81.2***	***78.9***	***66.6***	***85.1***	***70.5***	--	***94.7***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***1.46 J***	***1.6 J***	<1.4	<7	<1.4	<1.4	--	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.49	<0.49	<0.5	<2.5	<0.5	<0.5	--	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.26	<0.26	<1.04	<1.3	<0.26	<0.57	--	***0.955 J***
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***4.35 J***	***4.24 J***	***8.12 J***	<5.5	***2.88 J***	***2.74 J***	--	***4.09 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<10	<40	<6.4	<32	<6.4	<9.7	--	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--
Appendix I Organics										
1,1,1,2-Tetrachloroethane	µg/L	70	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	--	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
1,1-Dichloroethane	µg/L	140	***0.917 J***	***1.15***	<0.22	***0.752 J***	***0.913 J***	***0.755 J***	--	***0.942 J***
1,1-Dichloroethylene	µg/L	7	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	--	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	--	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	--	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37
1,2-Dichloroethane	µg/L	5	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39
1,2-Dichloropropane	µg/L	5	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	--	<0.23
2-Butanone	µg/L	4000	<2.1	***4.34 J***	<2.1	***5.17 J***	<2.1	<2.1	--	<2.1
2-Hexanone	µg/L	NS	<2	<2	<2	<2	<2	<2	--	<2
4-Methyl-2-pentanone	µg/L	560	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--	<2.1
Acetone	µg/L	6300	<3.1	<3.1	***5.81 J***	***12.3***	***4.46 J***	***5.36 J***	--	***9.02 J***
Acrylonitrile	µg/L	0.32	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	--	<2.2
Benzene	µg/L	5	***2.41***	***2.51***	***2.44***	***2.16***	***2.77***	***2.02***	--	***2.59***
Bromochloromethane	µg/L	90	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	--	<0.54
Bromodichloromethane	µg/L	80	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39
Bromomethane	µg/L	10	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1
Carbon disulfide	µg/L	700	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
Carbon Tetrachloride	µg/L	5	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	--	<0.65
Chlorobenzene	µg/L	100	<0.4	<0.4	<0.4	***0.588 J***	<0.4	<0.4	--	***0.492 J***
Chloroethane	µg/L	2800	***1.52 J***	***0.811 J***	<0.79	<0.79	<0.79	<0.79	--	<0.79
Chloromethane	µg/L	NS	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	--	<0.61
cis-1,2-Dichloroethylene	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	--	<0.25
Dibromochloromethane	µg/L	80	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	--	<0.75
Dibromomethane	µg/L	70	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	--	<0.33
Dichloromethane	µg/L	5	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	--	<1.7
Ethylbenzene	µg/L	700	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	--	***0.439 J***
Iodomethane	µg/L	NS	<7	<7	<7	<7	<7	<7	--	<7
Styrene	µg/L	100	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37
Tetrachloroethylene	µg/L	5	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	--	<0.48
Toluene	µg/L	1000	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1
Tribromomethane	µg/L	80	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	--	<0.78
Trichloroethylene	µg/L	5	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	<0.43
Trichlorofluoromethane	µg/L	2000	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<0.38
Trichloromethane	µg/L	80	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	--	<1.3
Vinyl Acetate	µg/L	NS	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	<2.5
Vinyl Chloride	µg/L	2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	--	<0.18
Xylenes	µg/L	10000	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	--	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix II Results
Monitoring Well OW-226B

Parameter Name	Units	GPS	Sep-23	Dec-23	May-24	Jul-24	Oct-24
Alcohols/Gycols by GC							
Acetonitrile	µg/L	NS	<11	--	--	--	<2600
Isobutanol	µg/L	2100	<30	--	--	--	<2400
Herbicides (GC)							
2,4,5-T	µg/L	70	<0.156	--	--	--	<0.34
2,4-D	µg/L	70	<0.333	--	--	--	<1.31
Silvex (2,4,5-TP)	µg/L	50	<0.0904	--	--	--	<0.115
Inorganics							
Cyanide	µg/L	200	<4.3	--	--	--	***3.99 J***
Mercury	µg/L	2	<0.42	--	--	--	<0.11
Sulfide	µg/L	NS	***2310***	***2000***	<1410	<1410	<1410
Tin	µg/L	4200	<11.5	--	--	--	<2.3
PCBs (EPA Method 8082)							
PCB-1016	µg/L	NS	<0.185	--	--	--	<0.738
PCB-1221	µg/L	NS	<0.185	--	--	--	<0.738
PCB-1232	µg/L	NS	<0.185	--	--	--	<0.738
PCB-1242	µg/L	NS	<0.185	--	--	--	<0.738
PCB-1248	µg/L	NS	<0.12	--	--	--	<0.621
PCB-1254	µg/L	NS	<0.12	--	--	--	<0.621
PCB-1260	µg/L	NS	<0.12	--	--	--	<0.621
Pesticides (EPA Method 8081A)							
4,4'-DDD	µg/L	0.73	<0.0293	--	--	--	<0.0225
4,4'-DDE	µg/L	0.51	<0.0293	--	--	--	<0.027
4,4'-DDT	µg/L	0.51	<0.0457	--	--	--	<0.018
Aldrin	µg/L	0.01	<0.0348	--	--	--	<0.0198
alpha-BHC	µg/L	0.028	<0.0315	--	--	--	<0.009
beta-BHC	µg/L	0.042	<0.0402	--	--	--	<0.0378
Chlordane	µg/L	2	<0.88	--	--	--	<0.351
delta-BHC	µg/L	2.1	<0.0293	--	--	--	<0.0288
Dieldrin	µg/L	0.011	<0.0283	--	--	--	<0.0189
Endosulfan I	µg/L	42	<0.0359	--	--	--	<0.0252
Endosulfan II	µg/L	42	<0.0315	--	--	--	<0.0234
Endosulfan sulfate	µg/L	NS	<0.0326	--	--	--	<0.0162
Endrin	µg/L	2	<0.0283	--	--	--	<0.0252
Endrin aldehyde	µg/L	2.1	<0.0315	--	--	--	<0.0243
gamma-BHC (Lindane)	µg/L	0.2	<0.0391	--	--	--	<0.009
Heptachlor	µg/L	0.4	<0.0359	--	--	--	<0.0207
Heptachlor epoxide	µg/L	0.2	<0.0315	--	--	--	<0.0288
Methoxychlor	µg/L	40	<0.0446	--	--	--	<0.0288
Toxaphene	µg/L	3	<0.75	--	--	--	<0.9
Semivolatile Organics by GC/MS							
1,2,4,5-Tetrachlorobenzene	µg/L	2.1	<0.563	--	--	--	<0.563
1,3,5-Trinitrobenzene	µg/L	NS	<2.4	--	--	--	<2.4
1,3-Dinitrobenzene	µg/L	1	<3.33	--	--	--	<3.33
1,4-Naphthoquinone	µg/L	NS	<3.75	--	--	--	<3.75
1,4-Phenylenediamine	µg/L	NS	<1.98	--	--	--	<1.98
1-Naphthylamine	µg/L	NS	<2.6	--	--	--	<2.6
2,3,4,6-Tetrachlorophenol	µg/L	NS	<5.52	--	--	--	<5.52
2,4,5-Trichlorophenol	µg/L	700	<5.52	--	--	--	<5.52
2,4,6-Trichlorophenol	µg/L	16	<5.21	--	--	--	<5.21
2,4-Dichlorophenol	µg/L	20	<0.885	--	--	--	<0.885
2,4-Dimethylphenol	µg/L	100	<0.604	--	--	--	<0.604
2,4-Dinitrophenol	µg/L	14	<13.5	--	--	--	<13.5
2,4-Dinitrotoluene	µg/L	0.25	<6.67	--	--	--	<6.67
2,6-Dichlorophenol	µg/L	NS	<0.719	--	--	--	<0.719
2,6-Dinitrotoluene	µg/L	0.26	<0.542	--	--	--	<0.542
2-Acetylaminofluorene	µg/L	NS	<2.81	--	--	--	<2.81
2-Chloronaphthalene	µg/L	560	<0.667	--	--	--	<0.667
2-Chlorophenol	µg/L	40	<0.563	--	--	--	<0.563
2-Methylnaphthalene	µg/L	28	<0.615	--	--	--	<0.615
2-Methylphenol (o-Cresol)	µg/L	35	<0.677	--	--	--	<0.677
2-Naphthylamine	µg/L	0.097	<2.19	--	--	--	<2.19
2-Nitroaniline	µg/L	NS	<6.15	--	--	--	<6.15
2-Nitrophenol	µg/L	NS	<7.08	--	--	--	<7.08
3,3'-Dichlorobenzidine	µg/L	0.39	<1.46	--	--	--	<1.46
3,3'-Dimethylbenzidine	µg/L	NS	<1.56	--	--	--	<1.56
3/4-Methylphenol	µg/L	70	<0.729	--	--	--	<0.729
3-Methylcholanthrene	µg/L	NS	<0.333	--	--	--	<0.333
3-Nitroaniline	µg/L	NS	<2.81	--	--	--	<2.81
4,6-Dinitro-2-methylphenol	µg/L	NS	<7.19	--	--	--	<7.19
4-Aminobiphenyl	µg/L	0.0083	<2.29	--	--	--	<2.29
4-Bromophenyl phenyl ether	µg/L	NS	<0.729	--	--	--	<0.729
4-Chloro-3-methylphenol	µg/L	700	<0.875	--	--	--	<0.875
4-Chloroaniline	µg/L	28	<0.646	--	--	--	<0.646
4-Chlorophenyl phenyl ether	µg/L	NS	<0.719	--	--	--	<0.719
4-Nitroaniline	µg/L	NS	<1.35	--	--	--	<1.35
4-Nitrophenol	µg/L	60	<7.92	--	--	--	<7.92
5-Nitro-o-toluidine	µg/L	NS	<2.92	--	--	--	<2.92
7,12-Dimethylbenz (a) anthracene	µg/L	NS	<1.98	--	--	--	<1.98
Acenaphthene	µg/L	420	<0.667	--	--	--	<0.667
Acenaphthylene	µg/L	210	<0.75	--	--	--	<0.75
Acetophenone	µg/L	NS	<0.719	--	--	--	<0.719
Anthracene	µg/L	2100	<0.906	--	--	--	<0.906
Benzo (a) anthracene	µg/L	0.24	<0.885	--	--	--	<0.885
Benzo (a) pyrene	µg/L	0.2	<8.44	--	--	--	<8.44
Benzo (b) fluoranthene	µg/L	0.24	<5.1	--	--	--	<5.1
Benzo (g,h,i) perylene	µg/L	21	<6.56	--	--	--	<6.56
Benzo (k) fluoranthene	µg/L	2.4	<2.29	--	--	--	<2.29
Benzyl alcohol	µg/L	700	<1.35	--	--	--	<1.35
Bis(2-chloroethoxy)methane	µg/L	NS	<0.792	--	--	--	<0.792
Bis(2-chloroethyl)ether	µg/L	0.16	<0.854	--	--	--	<0.854
Bis(2-chloroisopropyl) ether	µg/L	300	<0.563	--	--	--	<0.563
Bis(2-ethylhexyl)phthalate	µg/L	6	<5.73	--	--	--	<5.73
Butyl benzyl phthalate	µg/L	140	<5.63	--	--	--	<5.63
Chlorobenzilate	µg/L	NS	<3.75	--	--	--	<3.75
Chrysene	µg/L	24	<0.906	--	--	--	<0.906
Diallate (cis or trans)	µg/L	NS	<4.17	--	--	--	<4.17
Dibenzo (a,h) anthracene	µg/L	0.024	<4.06	--	--	--	<4.06
Dibenzofuran	µg/L	7	<0.771	--	--	--	<0.771
Diethyl phthalate	µg/L	5600	<1.77	--	--	--	<1.77
Dimethoate	µg/L	1.4	<3.75	--	--	--	<3.75
Dimethyl phthalate	µg/L	NS	<1.04	--	--	--	<1.04
Di-n-butyl phthalate	µg/L	700	<5.83	--	--	--	<5.83
Di-n-octyl phthalate	µg/L	140	<7.29	--	--	--	<7.29
Dinoseb	µg/L	7	<2.5	--	--	--	<2.5
Diphenylamine	µg/L	180	<6.25	--	--	--	<6.25
Disulfoton	µg/L	0.7	<2.5	--	--	--	<2.5
Ethyl Methanesulfonate	µg/L	NS	<3.75	--	--	--	<3.75
Famphur	µg/L	NS	<3.96	--	--	--	<3.96
Fluoranthene	µg/L	280	<1.77	--	--	--	<1.77
Fluorene	µg/L	280	<0.823	--	--	--	<0.823
Hexachlorobenzene	µg/L	1	<0.729	--	--	--	<0.729
Hexachlorobutadiene	µg/L	1	<0.896	--	--	--	<0.896
Hexachlorocyclopentadiene	µg/L	50	<5.31	--	--	--	<5.31
Hexachloroethane	µg/L	1	<1.01	--	--	--	<1.01
Hexachloropropene	µg/L	NS	<2.71	--	--	--	<2.71
Indeno (1,2,3-cd) pyrene	µg/L	0.24	<4.38	--	--	--	<4.38
Isodrin	µg/L	NS	<4.9	--	--	--	<4.9
Isophorone	µg/L	100	<0.969	--	--	--	<0.969
Isosafrole	µg/L	NS	<2.4	--	--	--	<2.4
Kepone	µg/L	NS	<1.04	--	--	--	<1.04
Methapyrilene	µg/L	NS	<0.792	--	--	--	<0.792
Methyl Methanesulfonate	µg/L	1.8	<3.44	--	--	--	<3.44
Nitrobenzene	µg/L	14	<0.833	--	--	--	<0.833
N-Nitrosodiethylamine	µg/L	NS	<3.54	--	--	--	<3.54
N-Nitrosodimethylamine	µg/L	0.0034	<0.75	--	--	--	<0.75
N-Nitrosodi-n-butylamine	µg/L	0.032	<4.06	--	--	--	<4.06
N-Nitrosodi-n-propylamine	µg/L	NS	<0.958	--	--	--	<0.958
N-Nitrosodiphenylamine	µg/L	36	<0.781	--	--	--	<0.781
N-Nitrosomethylethylamine	µg/L	0.008	<5.1	--	--	--	<5.1
N-Nitrosopiperidine	µg/L	NS	<2.81	--	--	--	<2.81
N-Nitrosopyrrolidine	µg/L	0.083	<3.75	--	--	--	<3.75
O,O,O-Triethyl phosphorothioate	µg/L	NS	<3.33	--	--	--	<3.33
o-Toluidine	µg/L	11	<3.02	--	--	--	<3.02
p-(Dimethylamino)azobenzene	µg/L	NS	<2.29	--	--	--	<2.29
Parathion-ethyl	µg/L	NS	<2.29	--	--	--	<2.29
Parathion-methyl	µg/L	1	<2.4	--	--	--	<2.4
Pentachlorobenzene	µg/L	NS	<2.92	--	--	--	<2.92
Pentachloronitrobenzene	µg/L	NS	<6.04	--	--	--	<6.04
Pentachlorophenol	µg/L	1	<10	--	--	--	<10
Phenacetin	µg/L	NS	<1.98	--	--	--	<1.98
Phenanthrene	µg/L	210	<0.823	--	--	--	<0.823
Phenol	µg/L	2000	<1.15	--	--	--	<1.15
Phorate	µg/L	1.4	<3.33	--	--	--	<3.33
Pronamide	µg/L	5	<2.81	--	--	--	<2.81
Pyrene	µg/L	210	<0.823	--	--	--	<0.823
Safrole	µg/L	NS	<2.92	--	--	--	<2.92
Thionazin	µg/L	NS	<3.65	--	--	--	<3.65
Volatile Organic Compounds							
1,1-Dichloropropene	µg/L	NS	<0.43	--	--	--	<0.43
1,2,4-Trichlorobenzene	µg/L	70	<0.75	--	--	--	<0.75
1,3-Dichlorobenzene	µg/L	600	<0.3	--	--	--	<0.3
1,3-Dichloropropane	µg/L	NS	<0.4	--	--	--	<0.4
2,2-Dichloropropane	µg/L	NS	<0.69	--	--	--	<0.69
Acrolein	µg/L	NS	<3.6	--	--	--	<3.6
Allyl chloride	µg/L	NS	<0.7	--	--	--	<0.7
Chloroprene	µg/L	NS	<0.23	--	--	--	<0.23
Dichlorodifluoromethane	µg/L	1000	***1.23 J***	--	--	--	***1.7 J***
Ethyl Methacrylate	µg/L	NS	<0.68	--	--	--	<0.68
Methacrylonitrile	µg/L	NS	<3.3	--	--	--	<3.3
Methyl Methacrylate	µg/L	NS	<0.76	--	--	--	<0.76
Naphthalene	µg/L	100	<3	--	--	--	***9.24***
Propionitrile	µg/L	NS	<3.4	--	--	--	<3.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-227B

Parameter Name	Units	GPS	Jan-23	Mar-23	Aug-23	Sep-23	Dec-23	May-24	Oct-24
Appendix I Inorganics									
Total Suspended Solids	mg/L	NS	***30***	***10.3***	***16***	***30***	***27***	***68***	***46***
Turbidity, Field	NTU	NS	***32.27***	***21.58***	***1.32***	***7.88***	***1.03***	***9.52***	***6.55***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--
Antimony	µg/L	6	<0.69	<0.69	<1	<1	<1	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Arsenic	µg/L	10	***6.91***	***2.67***	***4.14***	***7.85***	***5.32***	***16.9***	***16.2***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Barium	µg/L	2000	***1330***	***1690***	***1740***	***1460***	***1560***	***1920***	***2080***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.27	<0.27	<0.33	<0.33	<0.33	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.387***	***0.54***	***0.771***	***0.71***	***0.398***	***0.216***	***0.165 J***
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Chromium	µg/L	100	***6.13***	***5.3***	***6.68***	***5.8***	***6.04***	***6.53***	***7.49***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***17.2***	***25.6***	***33***	***34.1***	***26.4***	***23.5***	***22.1***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Copper	µg/L	1300	***11.6***	***6.2***	***3.81 J***	***2.65 J***	***1.82 J***	<1.8	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Lead	µg/L	15	<0.24	<0.24	***0.464 J***	***0.388 J***	***0.465 J***	***0.659***	***0.582***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Nickel	µg/L	722	***73.5***	***90.1***	***98.9***	***76***	***83.6***	***78.4***	***87***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Selenium	µg/L	50	***1.79 J***	***1.48 J***	<1.4	<1.4	<1.4	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Silver	µg/L	100	<0.49	<0.49	<0.5	<0.5	<0.5	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.26	<0.26	<1.04	<0.26	<0.26	<0.57	***0.867 J***
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Vanadium	µg/L	35	***1.78 J***	***1.82 J***	***6.34 J***	***1.51 J***	***1.67 J***	***2.48 J***	***2.38 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Zinc	µg/L	2000	<10	<10	<6.4	<6.4	<6.4	<9.7	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--
Appendix I Organics									
1,1,1,2-Tetrachloroethane	µg/L	70	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	***0.425 J***	***0.543 J***	<0.22	<0.22	***0.555 J***	***0.647 J***	***0.505 J***
1,1-Dichloroethylene	µg/L	7	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	***0.45 J***	<0.23	<0.23	<0.23	***0.244 J***	***0.371 J***	<0.23
2-Butanone	µg/L	4000	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	<3.1	<3.1	***5.57 J***	***8.32 J***	***6.19 J***	***8.33 J***	***9.25 J***
Acrylonitrile	µg/L	0.32	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***1.31***	***1.95***	***2.69***	***2.77***	***2.78***	***2.99***	***2.92***
Bromochloromethane	µg/L	90	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	***2.03 J***	***1.22 J***	<0.79	<0.79	***1.11 J***	***0.804 J***	***0.805 J***
Chloromethane	µg/L	NS	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	<0.21	<0.21	<0.21	<0.21	***0.285 J***	<0.21	***0.242 J***
cis-1,3-Dichloropropene	µg/L	NS	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.31	<0.31	<0.31	***0.347 J***	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Xylenes	µg/L	10000	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix II Results
Monitoring Well OW-227B

Parameter Name	Units	GPS	Sep-23	Dec-23	May-24	Jul-24	Oct-24
Alcohols/Gycols by GC							
Acetonitrile	µg/L	NS	<570	--	--	--	<2600
Isobutanol	µg/L	2100	<550	--	--	--	<2400
Herbicides (GC)							
2,4,5-T	µg/L	70	<0.161	--	--	--	<0.713
2,4-D	µg/L	70	<0.344	--	--	--	<2.74
Silvex (2,4,5-TP)	µg/L	50	<0.0935	--	--	--	<0.241
Inorganics							
Cyanide	µg/L	200	<4.3	--	--	--	***4.98 J***
Mercury	µg/L	2	<0.14	--	--	--	<0.11
Sulfide	µg/L	NS	***1690***	***1240***	<1410	<1410	<1410
Tin	µg/L	4200	<2.3	--	--	--	<2.3
PCBs (EPA Method 8082)							
PCB-1016	µg/L	NS	<0.181	--	--	--	<0.721
PCB-1221	µg/L	NS	<0.181	--	--	--	<0.721
PCB-1232	µg/L	NS	<0.181	--	--	--	<0.721
PCB-1242	µg/L	NS	<0.181	--	--	--	<0.721
PCB-1248	µg/L	NS	<0.117	--	--	--	<0.607
PCB-1254	µg/L	NS	<0.117	--	--	--	<0.607
PCB-1260	µg/L	NS	<0.117	--	--	--	<0.607
Pesticides (EPA Method 8081A)							
4,4'-DDD	µg/L	0.73	<0.0287	--	--	--	<0.022
4,4'-DDE	µg/L	0.51	<0.0287	--	--	--	<0.0264
4,4'-DDT	µg/L	0.51	<0.0447	--	--	--	<0.0176
Aldrin	µg/L	0.01	<0.034	--	--	--	<0.0193
alpha-BHC	µg/L	0.028	<0.0309	--	--	--	<0.00879
beta-BHC	µg/L	0.042	<0.0394	--	--	--	<0.0369
Chlordane	µg/L	2	<0.862	--	--	--	<0.343
delta-BHC	µg/L	2.1	<0.0287	--	--	--	<0.0281
Dieldrin	µg/L	0.011	<0.0277	--	--	--	<0.0185
Endosulfan I	µg/L	42	<0.0351	--	--	--	<0.0246
Endosulfan II	µg/L	42	<0.0309	--	--	--	<0.0229
Endosulfan sulfate	µg/L	NS	<0.0319	--	--	--	<0.0158
Endrin	µg/L	2	<0.0277	--	--	--	<0.0246
Endrin aldehyde	µg/L	2.1	<0.0309	--	--	--	<0.0237
gamma-BHC (Lindane)	µg/L	0.2	<0.0383	--	--	--	<0.00879
Heptachlor	µg/L	0.4	<0.0351	--	--	--	<0.0202
Heptachlor epoxide	µg/L	0.2	<0.0309	--	--	--	<0.0281
Methoxychlor	µg/L	40	<0.0436	--	--	--	<0.0281
Toxaphene	µg/L	3	<0.734	--	--	--	<0.879
Semivolatile Organics by GC/MS							
1,2,4,5-Tetrachlorobenzene	µg/L	2.1	<0.509	--	--	--	<0.563
1,3,5-Trinitrobenzene	µg/L	NS	<2.17	--	--	--	<2.4
1,3-Dinitrobenzene	µg/L	1	<3.02	--	--	--	<3.33
1,4-Naphthoquinone	µg/L	NS	<3.4	--	--	--	<3.75
1,4-Phenylenediamine	µg/L	NS	<1.79	--	--	--	<1.98
1-Naphthylamine	µg/L	NS	<2.36	--	--	--	<2.6
2,3,4,6-Tetrachlorophenol	µg/L	NS	<5	--	--	--	<5.52
2,4,5-Trichlorophenol	µg/L	700	<5	--	--	--	<5.52
2,4,6-Trichlorophenol	µg/L	16	<4.72	--	--	--	<5.21
2,4-Dichlorophenol	µg/L	20	<0.802	--	--	--	<0.885
2,4-Dimethylphenol	µg/L	100	<0.547	--	--	--	<0.604
2,4-Dinitrophenol	µg/L	14	<12.3	--	--	--	<13.5
2,4-Dinitrotoluene	µg/L	0.25	<6.04	--	--	--	<6.67
2,6-Dichlorophenol	µg/L	NS	<0.651	--	--	--	<0.719
2,6-Dinitrotoluene	µg/L	0.26	<0.491	--	--	--	<0.542
2-Acetylaminofluorene	µg/L	NS	<2.55	--	--	--	<2.81
2-Chloronaphthalene	µg/L	560	<0.604	--	--	--	<0.667
2-Chlorophenol	µg/L	40	<0.509	--	--	--	<0.563
2-Methylnaphthalene	µg/L	28	<0.557	--	--	--	<0.615
2-Methylphenol (o-Cresol)	µg/L	35	<0.613	--	--	--	<0.677
2-Naphthylamine	µg/L	0.097	<1.98	--	--	--	<2.19
2-Nitroaniline	µg/L	NS	<5.57	--	--	--	<6.15
2-Nitrophenol	µg/L	NS	<6.42	--	--	--	<7.08
3,3'-Dichlorobenzidine	µg/L	0.39	<1.32	--	--	--	<1.46
3,3'-Dimethylbenzidine	µg/L	NS	<1.42	--	--	--	<1.56
3/4-Methylphenol	µg/L	70	<0.66	--	--	--	<0.729
3-Methylcholanthrene	µg/L	NS	<0.302	--	--	--	<0.333
3-Nitroaniline	µg/L	NS	<2.55	--	--	--	<2.81
4,6-Dinitro-2-methylphenol	µg/L	NS	<6.51	--	--	--	<7.19
4-Aminobiphenyl	µg/L	0.0083	<2.08	--	--	--	<2.29
4-Bromophenyl phenyl ether	µg/L	NS	<0.66	--	--	--	<0.729
4-Chloro-3-methylphenol	µg/L	700	<0.792	--	--	--	<0.875
4-Chloroaniline	µg/L	28	<0.585	--	--	--	<0.646
4-Chlorophenyl phenyl ether	µg/L	NS	<0.651	--	--	--	<0.719
4-Nitroaniline	µg/L	NS	<1.23	--	--	--	<1.35
4-Nitrophenol	µg/L	60	<7.17	--	--	--	<7.92
5-Nitro-o-toluidine	µg/L	NS	<2.64	--	--	--	<2.92
7,12-Dimethylbenz (a) anthracene	µg/L	NS	<1.79	--	--	--	<1.98
Acenaphthene	µg/L	420	<0.604	--	--	--	<0.667
Acenaphthylene	µg/L	210	<0.679	--	--	--	<0.75
Acetophenone	µg/L	NS	<0.651	--	--	--	<0.719
Anthracene	µg/L	2100	<0.821	--	--	--	<0.906
Benzo (a) anthracene	µg/L	0.24	<0.802	--	--	--	<0.885
Benzo (a) pyrene	µg/L	0.2	<7.64	--	--	--	<8.44
Benzo (b) fluoranthene	µg/L	0.24	<4.62	--	--	--	<5.1
Benzo (g,h,i) perylene	µg/L	21	<5.94	--	--	--	<6.56
Benzo (k) fluoranthene	µg/L	2.4	<2.08	--	--	--	<2.29
Benzyl alcohol	µg/L	700	<1.23	--	--	--	<1.35
Bis(2-chloroethoxy)methane	µg/L	NS	<0.717	--	--	--	<0.792
Bis(2-chloroethyl)ether	µg/L	0.16	<0.774	--	--	--	<0.854
Bis(2-chloroisopropyl) ether	µg/L	300	<0.509	--	--	--	<0.563
Bis(2-ethylhexyl)phthalate	µg/L	6	<5.19	--	--	--	<5.73
Butyl benzyl phthalate	µg/L	140	<5.09	--	--	--	<5.63
Chlorobenzilate	µg/L	NS	<3.4	--	--	--	<3.75
Chrysene	µg/L	24	<0.821	--	--	--	<0.906
Diallate (cis or trans)	µg/L	NS	<3.77	--	--	--	<4.17
Dibenzo (a,h) anthracene	µg/L	0.024	<3.68	--	--	--	<4.06
Dibenzofuran	µg/L	7	<0.698	--	--	--	<0.771
Diethyl phthalate	µg/L	5600	<1.6	--	--	--	<1.77
Dimethoate	µg/L	1.4	<3.4	--	--	--	<3.75
Dimethyl phthalate	µg/L	NS	<0.943	--	--	--	<1.04
Di-n-butyl phthalate	µg/L	700	<5.28	--	--	--	<5.83
Di-n-octyl phthalate	µg/L	140	<6.6	--	--	--	<7.29
Dinoseb	µg/L	7	<2.26	--	--	--	<2.5
Diphenylamine	µg/L	180	<5.66	--	--	--	<6.25
Disulfoton	µg/L	0.7	<2.26	--	--	--	<2.5
Ethyl Methanesulfonate	µg/L	NS	<3.4	--	--	--	<3.75
Famphur	µg/L	NS	<3.58	--	--	--	<3.96
Fluoranthene	µg/L	280	<1.6	--	--	--	<1.77
Fluorene	µg/L	280	<0.745	--	--	--	<0.823
Hexachlorobenzene	µg/L	1	<0.66	--	--	--	<0.729
Hexachlorobutadiene	µg/L	1	<0.811	--	--	--	<0.896
Hexachlorocyclopentadiene	µg/L	50	<4.81	--	--	--	<5.31
Hexachloroethane	µg/L	1	<0.915	--	--	--	<1.01
Hexachloropropene	µg/L	NS	<2.45	--	--	--	<2.71
Indeno (1,2,3-cd) pyrene	µg/L	0.24	<3.96	--	--	--	<4.38
Isodrin	µg/L	NS	<4.43	--	--	--	<4.9
Isophorone	µg/L	100	<0.877	--	--	--	<0.969
Isosafrole	µg/L	NS	<2.17	--	--	--	<2.4
Kepone	µg/L	NS	<0.943	--	--	--	<1.04
Methapyrilene	µg/L	NS	<0.717	--	--	--	<0.792
Methyl Methanesulfonate	µg/L	1.8	<3.11	--	--	--	<3.44
Nitrobenzene	µg/L	14	<0.755	--	--	--	<0.833
N-Nitrosodiethylamine	µg/L	NS	<3.21	--	--	--	<3.54
N-Nitrosodimethylamine	µg/L	0.0034	<0.679	--	--	--	<0.75
N-Nitrosodi-n-butylamine	µg/L	0.032	<3.68	--	--	--	<4.06
N-Nitrosodi-n-propylamine	µg/L	NS	<0.868	--	--	--	<0.958
N-Nitrosodiphenylamine	µg/L	36	<0.708	--	--	--	<0.781
N-Nitrosomethylethylamine	µg/L	0.008	<4.62	--	--	--	<5.1
N-Nitrosopiperidine	µg/L	NS	<2.55	--	--	--	<2.81
N-Nitrosopyrrolidine	µg/L	0.083	<3.4	--	--	--	<3.75
O,O,O-Triethyl phosphorothioate	µg/L	NS	<3.02	--	--	--	<3.33
o-Toluidine	µg/L	11	<2.74	--	--	--	<3.02
p-(Dimethylamino)azobenzene	µg/L	NS	<2.08	--	--	--	<2.29
Parathion-ethyl	µg/L	NS	<2.08	--	--	--	<2.29
Parathion-methyl	µg/L	1	<2.17	--	--	--	<2.4
Pentachlorobenzene	µg/L	NS	<2.64	--	--	--	<2.92
Pentachloronitrobenzene	µg/L	NS	<5.47	--	--	--	<6.04
Pentachlorophenol	µg/L	1	<9.06	--	--	--	<10
Phenacetin	µg/L	NS	<1.79	--	--	--	<1.98
Phenanthrene	µg/L	210	<0.745	--	--	--	<0.823
Phenol	µg/L	2000	<1.04	--	--	--	<1.15
Phorate	µg/L	1.4	<3.02	--	--	--	<3.33
Pronamide	µg/L	5	<2.55	--	--	--	<2.81
Pyrene	µg/L	210	<0.745	--	--	--	<0.823
Safrole	µg/L	NS	<2.64	--	--	--	<2.92
Thionazin	µg/L	NS	<3.3	--	--	--	<3.65
Volatile Organic Compounds							
1,1-Dichloropropene	µg/L	NS	<0.43	--	--	--	<0.43
1,2,4-Trichlorobenzene	µg/L	70	<0.75	--	--	--	<0.75
1,3-Dichlorobenzene	µg/L	600	<0.3	--	--	--	<0.3
1,3-Dichloropropane	µg/L	NS	<0.4	--	--	--	<0.4
2,2-Dichloropropane	µg/L	NS	<0.69	--	--	--	<0.69
Acrolein	µg/L	NS	<3.6	--	--	--	<3.6
Allyl chloride	µg/L	NS	<0.7	--	--	--	<0.7
Chloroprene	µg/L	NS	<0.23	--	--	--	<0.23
Dichlorodifluoromethane	µg/L	1000	<0.25	--	--	--	<0.25
Ethyl Methacrylate	µg/L	NS	<0.68	--	--	--	<0.68
Methacrylonitrile	µg/L	NS	<3.3	--	--	--	<3.3
Methyl Methacrylate	µg/L	NS	<0.76	--	--	--	<0.76
Naphthalene	µg/L	100	<3	--	--	--	<3
Propionitrile	µg/L	NS	<3.4	--	--	--	<3.4

Detections at or above the RL are shown in bold italics on gray background.
Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.
NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-401B

Parameter Name	Units	GPS	Sep-10	Feb-11	Mar-11	May-11	Jun-11	Aug-11	Nov-11	Feb-12	May-12	Dec-12	Apr-13	Oct-13	Apr-14	Aug-14	Mar-15	Aug-15	Mar-16	Oct-16	Dec-16	Apr-17	Sep-17	Apr-18	Sep-18	Apr-19	Oct-19	Apr-20	Oct-20	Apr-21	Nov-21	Apr-22	Nov-22	Mar-23	Sep-23	May-24	Jul-24	Oct-24
Appendix I Inorganics																																						
Total Suspended Solids	mg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	***77***	***68.7***	***56.9***	***89.8***	***74***	***77.9***	***83.1***	***58.5***	***56.1***	***86***	***92***	***64.7***	***68***	***72***	***26***	***90***	***102***	***85***	***48***	***76***	***76***	***73***	***77***
Turbidity, Field	NTU	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	***2.665***	***2.087***	***4.091***	***3.148***	***1.788***	***9.256***	***1.462***	***3.131***	***1.581***	***7.112***	***20.15***	***0.85***	***5.09***	***2.58***	***2.94***	***0.6***	0	0	***8.59***	***2.09***	***3.37***	***7.54***	***8.38***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	***165***	***253***	***600***	***211***	***397***	***113***	***299***	***164***	***177***	***710***	***313***	***191***	***175***	--	--	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<6	<6	<6	***6.3***	<6	***6.88***	<2.73	***0.27 J***	***8.91***	<0.584	<0.271	<0.4	<0.4	<0.161	<0.161	<0.161	<0.237	<0.237	<0.237	<0.185	***0.239 J***	<0.42	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	<1.1	<0.69	<0.69	<2.76	<1	<1	--	<1
Antimony, Dissolved	µg/L	NS	<6	<6	<6	<6	<6	<6	<2.73	***0.14 J***	***8.88***	<0.584	<0.271	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	<10	***1.04***	<3	<6	<4	<4	<0.6	***7.54***	***0.62 J***	***1.08 J***	***7.45***	***6.04***	***6.42***	***8.94***	***9.13***	***10***	***8.98***	***13.1***	***12.7***	***11.5***	***12.6***	***11.6***	***10.5***	***12***	***11.7***	***12.8***	***14.3***	***13.7***	***10.6***	***10.4***	***7.2***	***5.96 J***	***4.75***	***5.67***	***7.25***	***8.77***
Arsenic, Dissolved	µg/L	NS	<1	<1	<3	<6	***9.84***	<4	<0.47	***7.14***	<0.37	***2.39***	***5.37***	***5.92***	***6.13***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***220***	***462***	***167***	***373***	***198***	***209***	***183***	***256***	***214***	***256***	***207***	***283***	***235***	***312***	***280***	***307***	***317***	***442***	***441***	***427***	***775***	***575***	***591***	***870***	***1160***	***1650***	***1620***	***1800***	***1490***	***1300***	***1110***	***1230***	***1140***	***1710***	--	***1760***
Barium, Dissolved	µg/L	NS	***208***	***197***	***241***	***209***	***188***	***199***	***173***	***236***	***205***	***247***	***183***	***245***	***224***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<1	<1	<1	<1	<1	<1	<0.051	***0.22 J***	<0.169	<0.169	<0.348	***0.167 J***	<0.08	<0.039	<0.039	<0.039	<0.221	<0.221	<0.221	<0.125	<0.125	<0.19	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<1.08	<0.33	<0.33	--	<0.33
Beryllium, Dissolved	µg/L	NS	<1	<1	<1	<1	<1	<1	<0.051	<0.0178	<0.169	<0.169	<0.348	***0.374 J***	<0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	<0.5	***0.51***	***0.964***	<0.5	<0.5	<0.5	***0.149 J***	***0.44 J***	<0.195	<0.195	<0.53	***0.147 J***	<0.1	<0.112	<0.112	<0.112	<0.0351	<0.0351	<0.0351	<0.0441	<0.0441	<0.06	<0.06	<0.077	<0.039	<0.039	***0.076 J***	***0.068 J***	<0.051	<0.055	<0.055	<0.22	<0.1	<0.1	--	<0.1
Cadmium, Dissolved	µg/L	NS	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.124	***0.25 J***	<0.195	<0.195	<0.53	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	<20	***22***	<20	<20	<20	<20	***28.1***	***3.33***	***9.8 J***	***10.3 J***	<2.09	***6.56***	***2.24***	***1.89 J***	***1.32 J***	***1.3 J***	***1.64 J***	***1.1 J***	***1.68 J***	***1.85 J***	***1.63 J***	***1.32 J***	***1.33 J***	***2.9 J***	***2.41 J***	***2.9 J***	***2.6 J***	***2.4 J***	***1.93 J***	***1.73 J***	***1.79 J***	<4.4	***1.5 J***	***1.34 J***	--	***2.24 J***
Chromium, Dissolved	µg/L	NS	<20	<20	<20	<20	<20	<20	***3.43 J***	<0.39	<1.81	<1.81	<2.09	***2.25***	***1.3 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	<20	<20	***20.7***	***21.5***	***20.3***	***22.9***	***22.6***	***23.2***	***16.4 J***	***21.2***	***27.7***	***30.5***	***34.9***	***44.8***	***38.1***	***42.3***	***31.9***	***27.7***	***25.7***	***21***	***21.4***	***18.1***	***15.7***	***13.2***	***13.1***	***12.4***	***13.2***	***10***	***6.7***	***3.69***	***3.22***	***2.58***	***2.21***	***2.5***	--	***2.87***
Cobalt, Dissolved	µg/L	NS	<20	<20	<20	***20.1***	<20	***21.8***	***21.5***	***24.3***	***12.6 J***	***21.1***	***23.1***	***31.7***	***35.4***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	<20	***44.6***	***31.3***	***43.7***	***25.6***	***30.6***	***17.9 J***	***10.5***	***6.51 J***	***2.88 J***	***2.02 J***	***88.1***	***2.36***	<0.485	<0.485	<0.485	***1.39 J***	<1.22	***1.26 J***	<2.19	<2.19	<1.6	<1.6	***2.02 J***	<2	<3.2	***1.76 J***	<1.4	<1.4	***2.2 J***	<1.8	<7.2	<1.8	<1.8	--	<1.8
Copper, Dissolved	µg/L	NS	<20	<20	<20	***27.8***	***24.2***	***32***	***16 J***	***4.85***	***2.37 J***	***2.8 J***	<0.85	***116***	<0.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<4	***5.8***	<4	<4	<4	<4	<1	***5.41***	<0.821	<0.821	<1.04	***1.85***	***0.486 J***	***0.117 J***	***0.164 J***	***0.158 J***	***0.246 J***	***0.299 J***	***0.909***	***0.331 J***	***0.59***	***0.252 J***	***0.333 J***	***0.78***	***0.49 J***	***1.13***	***0.671***	***1.05***	***0.329 J***	***0.64***	***0.387 J***	<0.96	<0.24	<0.26	--	***0.312 J***
Lead, Dissolved	µg/L	NS	<4	<4	<4	<4	<4	<4	<1	***0.2 J***	***1.19 J***	<0.821	<1.04	***0.357 J***	<0.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***54.1***	<50	<50	<50	<50	<50	***44.6 J***	***39.1***	***25.5 J***	***26.5 J***	***28.5***	***37.8***	***42.8***	***60.2***	***55.4***	***76.5***	***53.4***	***48.2***	***51.6***	***50.9***	***55.7***	***47.2***	***30.4 J***	***55.7***	***57.9***	***53.9***	***60.4***	***54.2***	***46.3***	***43.5***	***42***	***50.1***	***40***	***47***	--	***38.3***
Nickel, Dissolved	µg/L	NS	<50	<50	<50	<50	<50	<50	***29.6 J***	***45.6***	***14.6 J***	***20.2 J***	***22***	***38.1***	***44.6***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<5	<5	<5	<5	<5	<5	<1.69	***23.3***	<1.83	<1.83	***7.75 J***	<0.7	<0.7	<3.34	<3.34	<3.34	***1.02 J***	<0.63	<0.63	<0.928	<0.928	<0.9	<0.9	<1	<1	***1.02 J***	***1.54 J***	<0.96	***1.2 J***	<0.96	<3.84	<1.4	<1.4	--	<1.4
Selenium, Dissolved	µg/L	NS	<5	<5	<5	<5	<5	<5	<1.69	***34.1***	<1.83	<1.83	<7.3	<0.7	<0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<20	<20	<20	<20	<20	<20	<1.7	<0.027	<1.7	<1.7	<0.395	***0.0341 J***	<0.033	<0.042	<0.042	***0.053 J***	<0.153	<0.153	<0.153	<0.14	***0.161 J***	<0.3	<0.3	<0.37	<0.37	<0.37	<0.37	<0.42	<0.42	***0.516 J***	<0.49	<1.96	<0.5	<0.5	--	<0.5
Silver, Dissolved	µg/L	NS	<20	<20	<20	<20	<20	<20	<1.7	<0.027	<1.7	<1.7	<0.395	<0.033	<0.033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<2	<2	<2	<2	<2	<2	<0.84	<0.0087	<0.523	<0.523	<0.134	<0.05	<0.05	<0.0325	<0.0325	<0.0325	<0.0255	<0.0255	<0.0255	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.27	<0.26	<0.26	***0.962 J***	<0.26	<0.26	<0.26	<1.04	<0.26	<0.57	--	<0.57
Thallium, Dissolved	µg/L	NS	<10	<2	<2	<2	<2	<2	<0.84	<0.0087	<0.523	<0.523	<0.134	***0.0565 J***	<0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	<50	<50	<50	<50	<50	<50	<2.1	***4.42***	***6.61 J***	<2.1	<4.17	***0.688 J***	***1 J***	***1.36 J***	***1.15 J***	***1.26 J***	***1.31 J***	***1.54 J***	***1.61 J***	***1.61 J***	***1.9 J***	***1.95 J***	***1.77 J***	***2.21 J***	***2.52 J***	***3.41 J***	***2.86 J***	***3.93 J***	***3.64 J***	***3.11 J***	***2.25 J***	<4.4	***2.17 J***	***2.55 J***	--	***3.15 J***
Vanadium, Dissolved	µg/L	NS	<50	<50	<50	<50	<50	<50	<2.1	***1.51***	***4.04 J***	<2.1	<4.17	***1.12 J***	***1.12 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	***70.8***	***57.7***	<20	<20	<20	<20	<9.11	***61.8***	***10.6 J***	***66***	<3.13	***18.5***	***6.15 J***	<6.95	<6.95	<6.95	<5.21	<5.21	***5.99 J***	<11.5	<11.5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<40	<6.4	<9.7	--	<9.7
Zinc, Dissolved	µg/L	NS	***40.6***	***72.3***	<20	<20	<20	<20	<9.11	***9.93***	***24.2***	***53.6***	***3.18 J***	***44***	***7.54 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																																						
1,1,1,2-Tetrachloroethane	µg/L	70	<5	<1	<1	<1	<1	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<0.38
1,1,1-Trichloroethane	µg/L	200	<1	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<1	<1	<4	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	--	<0.47
1,1,2-Trichloroethane	µg/L	5	<1	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
1,1-Dichloroethane	µg/L	140	<1	<1	<1	<1	<1	<1	***0.26 J***	<0.21	***0.22 J***	***0.3 J***	<0.21	***0.367 J***	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	--	<0.22
1,1-Dichloroethylene	µg/L	7	<2	<2	<2	<2	<2	<2	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--	<0.56
1,2,3-Trichloropropane	µg/L	0.006	<1	<1	<1	<1	<1	<1	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	--	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<10	<10	<10	<10	<10	<10	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	--	<1.2
1,2-Dibromoethane	µg/L	0.05	<10	<10	<10	<10	<10	<10	<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	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	--	<0.34
1,2-Dichlorobenzene	µg/L	600	<1	<1	<1	<1	<1	<1	<0.14	<0.14	<0.14	<0.14	***0.189 J***	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37
1,2-Dichloroethane	µg/L	5	<1	<1	<1	<1	<1	<1	***0.18 J***	<0.18	***0.18 J***	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	***0.328 J***	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39
1,2-Dichloropropane	µg/L	5	<1	<1	<1	<1	<1	<1	<0.87	<0.87	<0.11	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	--	<0.27
1,4-Dichlorobenzene	µg/L	75	<1	<1	<4	<1	<1	<1	***1.38***	***1.02***	***0.71 J***	***1.43***	***1.45***	***1.66***	<0.2	<0.2	***0.931 J***	<0.2	<0.2	***0.924 J***	***0.802 J***	***0.918 J***	***0.811 J***	***0.988 J***	<0.23	<0.23	***0.929 J***	***1.15***	<0.23	<0.23	***0.753 J***	***0.241 J***	***0.963 J***	***1.14***	***0.926 J***	***1.22***	--	<0.23
2-Butanone	µg/L	4000	<10	<10	<10	<10	<10	<10	<0.47	***1.13 J***	<0.16	***0.56 J***	<0.47	***2.03 J***	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<1.04	***1.73 J***	***3.01 J***	<1.04	<2.1	<2.1	***3 J***	***2.52 J***	<2.1	***3.4 J***	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--	<2.1
2-Hexanone	µg/L	NS	<10	<10	<10	<10	<10	<10	***0.35 J***	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2
4-Methyl-2-pentanone	µg/L	560	<10	<10	<10	<10	<10	<10	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--	<2.1
Acetone	µg/L	6300	<10	<10	<10	<10	<10	<10	***5.18 J***	***1.84 J***	<1.79	***1.8 J***	<1.79	<1.79	<1.79	***6.97 J***	***4.8 J***	<1.79	***5.79 J***	***6.38 J***	***2.93 J***	***3.39 J***	***11.8***	***15.8***	<3.1	<3.1	***7.44 J***	<3.1	***15.2***	***14.2***	***5.58 J***	***4.97 J***	<3.1	***4.62 J***	***6.58 J***	***9.57 J***	--	***8.8 J***
Acrylonitrile	µg/L	0.32	<10	<10	<10	<10	<10	<10	<0.53	<0.53	<0.19	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	--	<2.2
Benzene	µg/L	5	***3.89***	***2.94***	***3.44***	***3.54***	***3.18***	***4.05***	***5.3***	***4.11***	***3.39***	***5.62***	***4.54***	***5.24***	***5.12***	***5.14***	***4.96***	***3.75***	***4.16***	***4.35***	***3.6***	***4.84***	***4.07***	***4.75***	<0.22	***5.67***	***4.64***	***5.81***	***4.5***	***4.01***	***4.15***	***4.08***	***4.01***	***2.7***	***4.41***	***3.79***	--	***3.46***
Bromochloromethane	µg/L	90	<5	<5	<5	<5	<5	<5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	--	<0.54
Bromodichloromethane	µg/L	80	<1	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39
Bromomethane	µg/L	10	<4	<4	<4	<4	<20	<4	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1
Carbon disulfide	µg/L	700	<10	<1	<4	<1	<1	<1	***0.18 J***	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
Carbon Tetrachloride	µg/L	5	<5	<2	<4	<2	<2	<2	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	--	<0.65
Chlorobenzene	µg/L	100	<1	<1	<1	<1	<1	<1	***0.56 J***	***0.4 J***	***0.32 J***	***0.5 J***	***0.468 J***	***0.589 J***	<0.19	***0.383 J***	***0.362 J***	<0.19	<0.19	***0.357 J***	***0.292 J***	***0.381 J***	***0.319 J***	***0.491 J***	<0.4	***0.453 J***	<0.4	***0.614 J***	<0.4	***0.428 J***	***0.508 J***	<0.4	***0.463 J***	***0.472 J***	***0.474 J***	***0.473 J***	--	***0.45 J***
Chloroethane	µg/L	2800	<4	<4	<4	<4	<4	<4	<0.15	***2.96 J***	***2.15 J***	***3.47 J***	***2.9 J***	***2.73 J***	***2.42 J***	***2.76 J***	***0.808 J***	***1.87 J***	***1.8 J***	***2.37 J***	***1.77 J***	***2.03 J***	***1.33 J***	***1.46 J***	<0.79	***1.44 J***	<0.79	***1.03 J***	***0.86 J***	<0.79	<0.79	***0.833 J***	***1.05 J***	<0.79	***1.58 J***	***0.998 J***	--	<0.79
Chloromethane	µg/L	NS	<3	<3	<3	<3	<3	<3	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	--	<0.61
cis-1,2-Dichloroethylene	µg/L	70	<1	<1	<1	***1.3***	<1	***0.34 J***	***0.32 J***	***0.45 J***	***0.43 J***	***0.231 J***	***0.314 J***	<0.13	***0.403 J***	***0.475 J***	***0.28 J***	***0.541 J***	***0.452 J***	***0.257 J***	***0.402 J***	***0.313 J***	***0.332 J***	<0.21	***0.266 J***	***0.245 J***	<0.21	***0.214 J***	***0.217 J***	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<10	<5	<5	<5	<5	<5	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	--	<0.25
Dibromochloromethane	µg/L	80	<5	<5	<5	<5	<5	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	--	<0.75
Dibromomethane	µg/L	70	<1	<1	<1	<1	<1	<1	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	--	<0.33
Dichloromethane	µg/L	5	<5	<5	<5	<5	<5	<5	<0.17	***0.66 J***	<0.17	***0.4 J***	***0.322 J***	<0.17	***0.59 J***	***0.275 J***	<0.17	<0.17	***0.255 J***	<0.17	<0.17	<0.17	***0.355 J***	<0.17	<0.17	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	--	<1.7
Ethylbenzene	µg/L	700	<1	<1	<1	<1	<1	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	--	<0.31
Iodomethane	µg/L	NS	<20	<10	<50	<10	<10	<20	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	--	<7
Styrene	µg/L	100	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37
Tetrachloroethylene	µg/L	5	<1	<1	<1	<1	<1	<1	<0.18	<0.18	<0.18	<0.18

Black Hawk County Landfill
Appendix H Results
Monitoring Well OW-401B

Parameter Name	Units	LOQ	MW-401	MW-401A	DUP-401	MW-401B	DUP-401	MW-501	Aug-21	MW-501	Nov-21	Sep-21	MW-517	MW-518	Apr-18	Jul-18	Jul-18	Sep-18	Nov-18	Mar-19	Sep-19	Nov-19	Mar-20	Sep-20	Nov-20	Mar-21	Sep-21	Nov-21	Mar-22	Sep-22	Nov-22	Mar-23	Sep-23	Nov-23	Mar-24
Alcohols/Glycols by GC																																			
Acetonitrile	ug/L	NA	110000	126	--	--	--	--	--	--	**101 J**	<126	<126	--	<126	--	--	--	<126	--	<126	--	<488	--	--	<484	--	<484	--	--	--	--	--	--	--
Isobutanol	ug/L	2100	110000	177	--	--	--	--	--	--	<177	<177	<177	--	<177	--	--	--	<177	--	<177	--	<568	--	--	<564	--	<564	--	--	--	--	--	--	--
Pesticides (GC)																																			
2,4,5-T	ug/L	70	<0.6	<0.67	--	--	--	--	--	--	<0.622	--	<0.644	--	Not sample	--	--	--	<0.617	--	<0.76	--	<0.695	--	--	<0.69	--	<0.69	--	<0.57	--	<0.57	--	<0.57	--
2,4,5-TP	ug/L	50	<0.5	<0.56	--	--	--	--	--	--	<0.518	--	<0.536	--	Not sample	--	--	--	<0.514	--	<0.633	--	**0.597**	<0.57	2.96	<0.575	--	<0.575	<0.58	<0.47	<0.614	<0.367	<0.367	<2.38
Silvex (2,4,5-TP)	ug/L	50	<0.5	<0.51	--	--	--	--	--	--	<0.548	--	<0.536	--	Not sample	--	--	--	<0.545	--	<0.57	--	<0.599	--	--	**0.681**	--	<0.67	<0.144	<0.0856	<0.0266	<0.0266	<0.21	
Inorganics																																			
2,3-dinitro	ug/L	200	<10	<3.7	--	--	--	--	--	--	<3.84	--	4.77 J	--	<3.46	--	--	--	<3.2	--	<5	--	<5	--	--	<3.3	--	<3.3	--	<4.3	--	<4.3	--	<4.3	--
Mercury	ug/L	2	<0.2	<0.024	--	--	--	--	--	--	**0.0593 J**	<0.0506	<0.139	--	<0.112	--	--	--	<0.11	--	<0.1	--	<0.1	--	--	<0.1	--	<0.1	--	<0.12	--	**0.0 J**	<0.2	<1.46	<1.61
Sulfide	ug/L	NA	<1000	320	--	--	--	--	--	--	<219	--	**<1000**	**861 J**	**<1000**	**4300**	**4500**	**2010**	**<1000**	**2430**	**<1000**	**2010**	**<1000**	<1000	--	**956 J**	--	**518 J**	**405 J**	<250	<1.46	<1410		
Tin	ug/L	4200	<100	<16.7	--	--	--	--	--	--	<118	--	<0.833	--	<1.92	--	--	--	0.569 J	--	<1.8	--	<2.6	--	--	<3	--	<3	--	--	--	--	--	--	--
PCBs (EPA Method 8082)																																			
PCB-1016	ug/L	NA	<0.8	<0.0542	--	--	--	--	--	--	<0.0493	--	<0.0493	--	Not sample	--	--	--	<0.0477	--	<0.049	--	<0.209	--	--	<0.186	--	<0.186	--	--	--	--	--	--	--
PCB-1221	ug/L	NA	<0.8	<0.2	--	--	--	--	--	--	<0.182	--	<0.186	--	Not sample	--	--	--	<0.176	--	<0.177	--	<0.209	--	--	<0.186	--	<0.186	--	--	--	--	--	--	--
PCB-1232	ug/L	NA	<0.8	<0.138	--	--	--	--	--	--	<0.126	--	<0.138	--	Not sample	--	--	--	<0.123	--	<0.122	--	<0.209	--	--	<0.186	--	<0.186	--	--	--	--	--	--	--
PCB-1242	ug/L	NA	<0.8	<0.138	--	--	--	--	--	--	<0.126	--	<0.138	--	Not sample	--	--	--	<0.123	--	<0.122	--	<0.209	--	--	<0.186	--	<0.186	--	--	--	--	--	--	--
PCB-1254	ug/L	NA	<0.8	<0.116	--	--	--	--	--	--	<0.105	--	<0.105	--	Not sample	--	--	--	<0.103	--	<0.102	--	<0.201	--	--	<0.207	--	<0.207	--	<0.125	--	--	--	--	--
PCB-1260	ug/L	NA	<0.8	<0.052	--	--	--	--	--	--	<0.05	--	<0.05	--	Not sample	--	--	--	<0.0484	--	<0.0486	--	<0.201	--	--	<0.201	--	<0.207	--	<0.125	--	--	--	--	--
Pesticides (EPA Method 8081A)																																			
4,4'-DDD	ug/L	0.75	<0.032	<0.0018	--	--	--	--	--	--	<0.00189	--	**0.0141 J**	--	**0.0252 J**	--	--	--	<0.00194	--	<0.00195	--	<0.00207	--	--	<0.0068	--	<0.0187	--	--	--	--	--	--	--
4,4'-DDE	ug/L	0.32	<0.032	<0.0051	--	--	--	--	--	--	<0.00231	--	**0.0176 J**	--	**0.0176 J**	--	--	--	**0.0184 J**	--	**0.0161 J**	--	**0.0135 J**	--	--	<0.01	--	<0.0187	--	--	--	--	--	--	--
4,4'-DDT	ug/L	0.16	<0.032	<0.0038	--	--	--	--	--	--	<0.003	--	**0.0151 J**	--	**0.0251 J**	--	--	--	**0.0164 J**	--	**0.0118 J**	--	**0.0116 J**	--	--	<0.0161	--	<0.0187	--	--	--	--	--	--	--
Aldrin	ug/L	0.08	<0.032	<0.0045	--	--	--	--	--	--	<0.00472	--	<0.00527	--	**0.0292 J**	--	--	--	**0.0221 J**	--	<0.00486	--	<0.00517	--	--	<0.0161	--	<0.0364	--	--	--	--	--	--	--
Alpha-BHC	ug/L	0.028	<0.032	<0.0053	--	--	--	--	--	--	<0.00179	--	**0.00736 J**	--	**0.0096 J**	--	--	--	<0.00183	--	<0.00183	--	<0.00196	--	--	<0.0116	--	<0.0193	--	--	--	<0.0193	--	--	--
beta-BHC	ug/L	0.042	<0.032	<0.0048	--	--	--	--	--	--	**0.00168 J**	<0.00745	**0.0093 J**	--	**0.0155 J**	<0.00522	--	**0.0171 J**	**0.0101 J**	**0.0126 J**	**0.0101 J**	**0.0107 J**	**0.0119 J**	<0.00585	--	**0.0113 J**	**0.0047 J**	**0.0159 J**	**0.0107 J**	**0.0177 J**	<0.0403	<0.0407			
delta-BHC	ug/L	0.1	<0.032	<0.0051	--	--	--	--	--	--	<0.00231	--	**0.0176 J**	--	**0.0176 J**	--	--	--	**0.0184 J**	--	**0.0161 J**	--	**0.0135 J**	--	--	<0.01	--	<0.0187	--	--	--	--	--	--	--
Delta-BHC	ug/L	1.1	<0.032	<0.0021	--	--	--	--	--	--	<0.00231	--	<0.00263	--	<0.00263	--	--	--	**0.0103 J**	--	**0.0102 J**	--	<0.00207	--	--	**0.0113**	--	<0.0187	<0.0214	<0.187	<0.0256	<0.0201	
Dieldrin	ug/L	0.033	<0.032	<0.0032	--	--	--	--	--	--	<0.00211	--	<0.0263	--	**0.00568 J**	--	--	--	**0.00905 J**	--	**0.0112 J**	--	<0.00207	--	--	<0.0161	--	<0.0295	--	--	--	--	--	--	--
Endosulfan I	ug/L	42	<0.032	<0.0042	--	--	--	--	--	--	<0.00211	--	<0.0263	--	**0.0149 J**	--	--	--	**0.00727 J**	--	<0.00195	--	<0.0207	--	--	<0.0161	--	<0.0375	--	--	--	--	--	--	--
Endosulfan II	ug/L	42	<0.032	<0.0019	--	--	--	--	--	--	<0.002	--	<0.00218	--	<0.00211	--	--	--	<0.00204	--	<0.00205	--	**0.0109 J**	--	--	<0.00963	--	<0.0335	--	--	--	--	--	--	--
Endosulfan sulfate	ug/L	NA	<0.032	<0.0032	--	--	--	--	--	--	<0.00263	--	<0.00263	--	**0.0168**	**0.0162**	--	<0.0272	**0.00587 J**	**0.0132 J**	<0.0027	<0.00207	<0.00207	<0.00585	--	<0.00963	--	<0.0187	<0.0183	<0.01	<0.0241	<0.0187	<0.0256	<0.0201	
Endrin	ug/L	2	<0.032	<0.0019	--	--	--	--	--	--	<0.002	--	<0.00218	--	**0.00138 J**	--	--	--	**0.00377 J**	--	**0.00213 J**	--	**0.00127 J**	--	--	<0.0118	--	<0.0202	--	--	--	--	--	--	--
Endrin aldehyde	ug/L	2.1	<0.032	<0.0073	--	--	--	--	--	--	**0.00999 J**	<0.00745	<0.00459	--	**0.0256 J**	--	--	--	<0.00795	--	<0.00859	--	<0.00207	--	--	**0.0161**	--	**0.041 J**	<0.0357	<0.029	<0.0193	<0.0262		
gamma-BHC (Lindane)	ug/L	0.2	<0.032	<0.0019	--	--	--	--	--	--	<0.002	--	**0.00531 J**	--	**0.0259 J**	--	--	--	<0.00208	--	<0.00205	--	<0.00218	--	--	<0.0056	--	<0.0495	--	--	--	--	--	--	--
Heptachlor	ug/L	0.4	<0.032	<0.0026	--	--	--	--	--	--	<0.00273	--	<0.00263	--	<0.00263	--	--	--	<0.00639	--	<0.00383	--	<0.00829	--	--	<0.0161	--	<0.0375	--	--	--	--	--	--	--
Heptachlor epoxide	ug/L	0.2	<0.032	<0.0061	--	--	--	--	--	--	<0.00642	--	<0.00789	--	<0.00789	--	--	--	<0.00624	--	<0.00614	--	<0.00207	--	--	<0.0107	--	<0.0112	--	--	--	--	--	--	--
Methoxychlor	ug/L	40	<0.032	<0.0051	--	--	--	--	--	--	<0.00231	--	<0.00263	--	**0.00601 J**	--	--	--	**0.00777 J**	--	**0.00777 J**	--	**0.00702 J**	--	--	<0.0161	--	**0.00702 J**	--	--	--	--	--	--	--
Toxaphene	ug/L	3	<2	<0.858	--	--	--	--	--	--	<0.0411	--	<0.0667	--	<0.0674	--	--	--	<0.0624	--	<0.0627	--	<0.0667	--	--	<0.084	--	<0.784	--	--	--	--	--	--	--
Semivolatile Organics by GC/MS																																			
1,4,5-Trimethylnaphthalene	ug/L	2.1	<10	<0.12	--	--	--	--	--	--	<0.128	--	<0.129	--	<0.12	--	--	--	<0.781	--	<0.12	--	<0.12	--	--	<0.126	--	<0.614	--	--	--	--	--	--	--
1,6,7-Trimethylnaphthalene	ug/L	NA	<10	<1.28	--	--	--	--	--	--	<1.36	--	<1.37	--	<1.28	--	--	--	<1.85	--	<0.96	--	<1.65	--	--	<1.41	--	<2.01	--	--	--	--	--	--	--
1,7-Dimethylnaphthalene	ug/L	1	<10	<0.17	--	--	--	--	--	--	<0.181	--	<0.183	--	<0.213	--	--	--	<1.16	--	<0.89	--	<1.32	--	--	<0.89	--	<3.64	--	--	--	--	--	--	--
1,8-Naphthalenediamine	ug/L	NA	<10	<3.14	--	--	--	--	--	--	<3.149	--	<3.331	--	<3.175	--	--	--	<5.693	--	<2.96	--	<3.29	--	--	<4.07	--	<4.09	--	--	--	--	--	--	--
2,3,5-Trimethylnaphthalene	ug/L	NA	<10	<0.8	--	--	--	--	--	--	<0.84	--	<0.851	--	<0.851	--	--	--	<0.55	--	<0.7	--	<0.825	--	--	<0.505	--	<2.16	--	--	--	--	--	--	--
2-Naphthylamine	ug/L	28	<10	<0.19	--	--	--	--	--	--	<0.202	--	<0.218	--	<0.228	--	--	--	<0.216	--	<0.103	--	<1.63	--	--	<1.41	--	<0.67	--	--	--	--	--	--	--
2-Methylnaphthalene (oil fraction)	ug/L	1	<10	<0.18	--	--	--	--	--	--	<0.193	--	<0.209	--	<0.225	--	--	--	<0.855	--	<0.978	--	<1.65	--	--	<0.89	--	<0.739	--	--	--	--	--	--	--
2-Naphthylamine	ug/L	0.057	<10	<0.22	--	--	--	--	--	--	<0.234	--	<0.253	--	<0.275	--	--	--	<0.25	--	<1.2	--	<1.68	--	--	<0.935	--	<2.38	--	--	--	--	--	--	--
2-Nitroaniline	ug/L	60	<10	<0.15	--	--	--	--	--	--	<0.162	--	<0.175	--	<0.188	--	--	--	<0.177	--	<0.0815	--	<1.38	--	--	<0.126	--	<0.644	--	--	--	--	--	--	--
2-Nitrophenol	ug/L	NA	<10	<0.3	--	--	--	--	--	--	<0.324	--	<0.35	--	<0.375	--	--	--	<0.296	--	<0.163	--	<2.76	--	--	<0.126	--	<0.784	--	--	--	--	--	--	--
3,3'-Dimethylbenzidine	ug/L	0.19	<10	<0.89	--	--	--	--	--	--	<0.97	--	<1.04	--	<1.04	--	--	--	<0.97	--	<0.97	--	<1.04	--	--	<0.97	--	<1.04	--	--	--	--	--	--	--
3-Methylcholanthrene	ug/L	0.0093	<10	<0.3	--	--	--	--	--	--	<0.309	--	<0.335	--	<0.375	--	--	--	<0.341	--	<1.63	--	<3.3	--	--	<3.08	--	<2.5	--	--	--	--	--	--	--
3-Methylcholanthrene	ug/L	NA	<10	<0.19	--	--	--	--	--	--	<0.369	--	<0.335	--	<0.363	--	--	--	<0.33	--	<1.68	--	<2.38	--	--	<2.87	--	<0.792	--	--	--	--	--	--	--
4,5-Dihydroacephenanthrylene	ug/L	0.16	<10	<0.18	--	--	--	--	--	--	<0.193	--	<0.209	--	<0.225	--	--	--	<0.205	--	<1.63	--	<1.65	--	--	<1.41	--	<0.902	--	--	--	--	--	--	--
4-Aminobiphenyl	ug/L	0.00053	<10	<0.3	--	--	--	--	--	--	<0.309	--	<0.335	--	<0.375	--	--	--	<0.341	--	<1.63	--	<3.3	--	--	<3.08	--	<2.5	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/L	NA	<10	<0.19	--	--	--	--	--	--	<0.369	--	<0.335	--	<0.363	--	--	--	<0.33	--	<1.68	--	<2.38	--	--	<2.87	--	<0.792	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/L	700	<10	**0.71 J**	**0.866 J**	**0.419 J**	**0.326 J**	**0.531 J**	**1.12 J**	**0.902 J**	<0.216	--	<0.238	--	<0.238	--	--	--	<0.295	--	<1.81	--	<1.19	--	--	<1.83	--	<0.902	--	--	--	--	--	--	--
4-Chloroaniline	ug/L	20	<10	<0.14	--	--	--	--	--	--	<0.148	--	<0.167	--	<0.179	--	--	--	<0.253	--	<0.815	--	<1.65	--	--	<1.41	--	<0.706	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/L	NA	<10	<0.21	--	--	--	--	--	--	<0.266	--	<0.282	--	<0.313	--	--	--	<0.284	--	<1.36	--	<1.62	--	--	<1.41	--	<0.784	--	--	--	--	--	--	--
4-Nitroaniline	ug/L	NA	<10	<0.19	--	--	--	--	--	--	<0.216	--	<0.238	--	<0.238	--	--	--	<0.216	--	<0.103	--	<1.65	--	--	<1.41	--	<0.902	--	--	--	--	--	--	--
4-Nitrophenol	ug/L	60	<10	<0.12	--	--	--	--	--	--	<0.128	--	<0.143	--	<0.12	--	--	--	<0.107	--	<0.163	--	<2.76	--	--	<0.126	--	<0.644	--	--	--	--	--	--	--
5-Nitro-o-toluidine	ug/L	NA	<10	<0.17	--	--	--	--	--	--	<0.181	--	<0.196	--	<0.213	--	--	--	<0.193	--	<0.924	--	<3.08	--	--	<2.87	--	<1.98	--	--	--	--	--	--	--
7,12-Dimethylbenz(a)anthracene	ug/L	NA	<10	<0.25	--	--	--	--	--	--	<0.266	--	<0.287	--	<0.313	--	--	--	<0.284	--	<1.36	--	<1.51	--	--	<0.89	--	<2.16	--	--	--	--	--	--	--
9-Anthracenamine	ug/L	420	<10	<0.3	--	--	--	--	--	--	<0.309	--	<0.335	--	<0.375	--	--	--	<0.341	--	<1.63	--	<1.65	--	--	<1.41	--	<0.727	--	--	--	--	--	--	--
9-Fluorenylamine	ug/L	210	<10	<0.21	--	--	--	--	--	--	<0.233	--	<0.251	--	<0.263	--	--	--	<0.216	--	<1.63	--	<1.65	--	--	<1.41	--	<0.818	--	--	--	--	--	--	--
Acenaphthene	ug/L	NA	<10	<0.22	--	--	--	--	--	--	<0.234	--	**0.418 J**	--	**0.519 J**	--	--	--	**0.518 J**	--	<1.9	--	<3.75	--	--	<3.26	--	<0.784	--	--	--	--	--	--	--
Acenaphthylene	ug/L	2100	<10	<0.17	--	--	--	--	--	--	<0.181	--	<0.196	--	<0.213	--	--	--	<0.193	--	<0.924	--	<1.86	--	--	<1.41	--	<0.989	--	--	--	--	--	--	--
Anthracene	ug/L	10000	<10	<0.17	--	--	--	--	--	--	<0.181	--	<0.196	--	<0.213	--	--	--	<0.193	--	<0.924	--	<1.86	--	--	<1.41	--	<0.989	--	--	--	--	--	--	--
Benzo (a) anthracene	ug/L	0.24	<10	<0.24	--	--	--	--	--	--	<0.266	--	<0.276	--	<0.3	--	--	--	<0.886	--	<0.86	--	<1.38	--	--	<1.2	--	<0.966	--	--	--	--	--	--	--
Benzo (a) pyrene	ug/L	0.2	<10	<0.25	--	--	--	--	--	--	<0.266	--	<0.287	--	<0.313	--	--	--	<1.16	--	<0.83	--	<1.68	--	--	<1.41	--	<0.7	--	--	--	--	--	--	--
Benzo (b) fluoranthene	ug/L	0.24	<10	<0.31	--	--	--	--	--	--	<0.33	--	<0.366	--	<0.388	--	--	--	<1.16	--	<1.03	--	<1.5	--	--	<1.26	--	<0.42	--	--	--	--	--	--	--
Benzo (g,h,i) perylene	ug/L	0.26	<10	<0.22	--	--	--	--	--	--	<0.234	--	<0.253	--	<0.275	--	--	--	<1.02	--	<0.76	--	<1.38	--	--	<1.04	--	<0.889	--	--	--	--	--	--	--
Benzo (k) fluoranthene	ug/L	2.4	<10	<0.2	--	--	--	--	--	--	<0.213	--	<0.23	--	<0.25	--	--	--	<0.68	--	<1	--	<1.5	--	--	<1.3	--	<2.3	--	--	--	--	--	--	--
Bis(2-Chloroethoxy) methane	ug/L	590	<10	<0.18	--	--	--	--	--	--	<0.193	--	<0.207	--	<0.225	--	--	--	<0.682	--	<0.36	--	<1.38	--	--	<1.2	--	<1.48	--	--	--	--	--	--	--
Bis(2-Chloroethyl) ether	ug/L	NA	<10	<0.26	--	--	--	--	--	--	<0.277	--	<0.295	--	<0.305	--	--	--	<0.295	--	<1.68	--	<1.38	--	--	<1.2	--	<0.868	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) phthalate	ug/L	6.35	<10	<0.18	--	--	--	--	--	--	<0.193	--	<0.207	--	<0.225	--	--	--	<0.716	--	<1.03	--	<1.38	--	--	<1.2	--	<0.932	--	--	--	--	--	--	--
Bis(2-Naphthylamino)propane	ug/L	300	<10	<0.19	--	--	--	--	--	--	<0.193	--	<0.207	--	<0.225	--	--	--	<0.205	--	<0.979	--	<1.5	--	--	<1.26	--	<0.614	--	--	--	--	--	--	--
Bis(2-ethylhexyl) phthalate	ug/L	6	<10	**0.545 J**	<0.38	<0.416	<0.566	**2.37 J**	<0.81	<0.402	<0.446	--	**2.16 J**	--	--	--	--	--	<1.64	--	<1.6	--	<3.26	--	--	<2.83	--	<2.42	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/L	140	<10	<0.14	--	--	--	--	--	--	<0.162	--	<0.167	--	<0.179	--	--	--	<0.155	--	<0.163	--	<1.68	--	--	<1.41	--	<0.14	--	--	--	--	--	--	--
Chlorobenzilate	ug/L	NA	<10	<0.23	--	--	--	--	--	--	<0.323	--	<0.288	--	<0.263	--	--	--	<0.228	--	<1.14	--	<3.63	--	--	<3.35	--	<4.08	--	--	--	--	--	--	--
Chrysene	ug/L	2.1	<10	<0.29	--	--	--	--	--	--	<0.309	--	<0.335	--	<0.363	--	--	--	<0.352	--	<0.96	--	<1.38	--	--	<1.2	--	<0.889	--	--	--	--	--	--	--
Cresidine (cresol, amino)	ug/L	NA	<10	<0.23	--	--	--	--	--	--	<0.285	--	<0.264	--	<0.288	--	--	--	<0.265	--	<1.25	--	<1.62	--	--	<1.41	--	<4.52	--	--	--	--	--	--	--
Dibenz (a,h) anthracene	ug/L	0.024	<10	<0.23	--	--	--	--	--	--	<0.266	--	<0.276	--	<0.3	--	--	--	<0.886	--	<0.86	--	<1.38	--	--	<1.2	--	<0.966	--	--	--	--	--	--	--
Dibenzofuran	ug/L	1	<10	<0.19	--	--	--	--	--	--	<0.207	--	<0.223	--	<0.213	--	--	--	<0.205	--	<0.97	--	<1.65	--	--	<1.41	--	<0.841	--	--	--	--	--	--	--
Diethyl phthalate	ug/L	6400	<10	**1.46 J**	**0.917 J**	**0.412 J**	--	**0.35 J**	**3.18 J**	**1.56 J**	--	--	**1.03 J**	--	**1.03 J**	--	--	--	**4.32 J**	--	**4.44 J**	--	**3.58 J**	--	--	**1.59 J**	--	**1.93**	--	--	--	--	--	--	--
Dimethoate	ug/L	1.4	<10	<0.17	--	--	--	--	--	--	<0.181	--	<0.196	--	<0.213	--	--	--	<0.807	--	<0.96	--	<1.65	--	--	<0.89	--	<4.08	--	--	--	--	--	--	--
Dimethyl phthalate	ug/L	NA	<10	<0.23	--	--	--	--	--	--	<0.245	--	<0.266	--	<0.288	--	--	--	<2.49	--	<0.9	--	<3.13	--	--	<2.71	--	<1.14	--	--	--	--	--	--	--
Di-n-butyl phthalate	ug/L	700	<10	**0.788 J**	<0.63	<0.582	<0.51	<0.507	<0.63	<0.518	<0.518	--	<0.518	--	<0.518	--	--	--	<2.18	--	<1.6	--	<3.5	--	--	<3.26	--	<5.76	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/L	140	<10	<0.23	--	--	--	--	--	--	**1.8 J**	<0.318	<0.266	--	<0.288	--	--	--	<1.01	--	<1.4	--	<3.76	--	--	<3.26	--	<7.06	--	--	--	--	--	--	--
Diphenyl	ug/L	7	<10	<0.43	--	--	--	--	--	--	<0.457	--	<0.496	--	<0.538	--	--	--	<0.489	--	<2.58	--	<0.625	--	--	<0.504	--	<2.73	--	--	--	--	--	--	--
Diphenylamine	ug/L	100	<10	<0.66	--	--	--	--	--	--	<0.702	--	<0.759	--	<0.825	--	--	--	<0.75	--	<3.09	--	<3.1	--	--	<0.907	--	<5.92	--	--	--	--	--	--	--
Disulfoton	ug/L	0.7	<10	<0.14	--	--	--	--	--	--	<0.369	--	<0.335	--	<0.363	--	--	--	<0.33	--	<1.68	--	<2.38	--	--	<0.896	--	<2.73	--	--	--	--	--	--	--
Ethyl Methanesulfonate	ug/L	NA	<10	<0.15	--	--	--	--	--	--	<0.156	--	<0.172	--	<0.188	--	--	--	<0.137	--	<0.853	--	<0.625	--	--	<0.448	--	<4.09	--	--	--	--	--	--	--
Fenphos	ug/L	49	<10	<0.67	--	--	--	--	--	--	<0.702	--	<0.759	--	<0.488	--	--	--	<0.75	--	<3.09	--	<3.1	--	--	<0.907	--	<4.92	--	--	--	--	--	--	--
Fluoranthene	ug/L	280	<10	<0.33	--	--	--	--	--	--	<0.365	--	<0.339	--	<0.413	--	--	--	<0.773	--	<1.2	--	<1.68	--	--	<1.26	--	<1.82	--	--	--	--	--	--	--
Fluorene	ug/L	1400	<10	<0.23	--	--	--	--	--	--	<0.266	--	<0.287	--	<0.313	--	--	--	<0.284	--	<1.36	--	<1.51	--	--	<0.89	--	<2.16	--	--	--	--	--	--	--
Hexachlorobenzene	ug/L	0	<10	<0.27	--	--	--	--	--	--	<0.287	--	<0.305	--	<0.328	--	--	--	<0.807	--	<1.7	--	<1.7	--	--	<1.26	--	<0.756	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	1	<10	<0.13	--	--	--	--	--	--	<0.138	--	<0.148	--	<0.163	--	--	--	<0.193	--	<0.924	--	<1.6	--	--	<0.89	--	<0.977	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/L	50	<10	<0.89	--	--	--	--	--	--	<0.931	--	<1.01	--	<1.06	--	--	--	<2.91	--	<3.91	--	<2.62	--	--	<3.78	--	<5.8	--	--	--	--	--	--	--
Hexachloroethane	ug/L	1	<10	<0.13	--	--	--	--	--	--	<0.138	--	<0.148	--	<0.163	--	--	--	<0.138	--	<0.783	--	<1.65	--	--	<0.89	--	<1.3	--	--	--	--	--	--	--
Hexachlorophene	ug/L	1.64	<10	<0.66	--	--	--	--	--	--	<0.702	--	<0.759	--	<0.825	--	--	--	<0.86	--	<3.09	--	<3.1	--	--	<0.907	--	<5.92	--	--	--	--	--	--	--
Indeno (1,2,3-cd) pyrene	ug/L	0.24	<10	<0.24	--	--	--	--	--	--	<0.266	--	<0.276	--	<0.3	--	--	--	<1.02	--	<0.76	--	<2.5	--	--	<2.47	--	<0.77	--	--	--	--	--	--	--
Isodrin	ug/L	NA	<10	<0.38	--	--	--	--	--	--	<0.404	--	<0.437	--	<0.475	--	--	--	<0.432	--	<0.7	--	<0.795	--	--	<0.504	--	<5.38	--	--	--	--	--	--	--
Isophorone	ug/L	100	<10	<0.22	--	--	--	--	--	--	<0.234	--	<0.253	--	<0.275	--	--	--	<0.25	--	<1.2	--	<1.38	--	--	<1.08	--	<1.06	--	--	--	--	--	--	--
Isosafrole	ug/L	0.7	<10	<0.18	--	--	--	--	--

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-402B

Parameter Name	Units	GPS	Feb-11	Mar-11	May-11	Jun-11	Aug-11	Nov-11	Feb-12	May-12	Dec-12	Apr-13	Oct-13	Mar-14	Aug-14	Feb-15	Aug-15	Mar-16	Sep-16	Dec-16	Apr-17	Sep-17	Mar-18	Sep-18	Apr-19	Oct-19	Mar-20	Oct-20	Apr-21	Jun-21	Nov-21	Apr-22	Nov-22	Mar-23	Sep-23	May-24	Oct-24
Appendix I Inorganics																																					
Total Suspended Solids	mg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	<3.77	<3.2	<1.2	***2.13***	***1.75 J***	***3.87***	***8.25***	***3.87***	***6.12***	***1 J***	***8.5***	***1.63 J***	***1.63 J***	***3.87***	***2.67 J***	--	***2.5***	***3.25***	***5***	***8.33***	***5.75***	<1.39	***7.13***
Turbidity, Field	NTU	NS	--	--	--	--	--	--	--	--	--	--	--	--	***0.8575***	0	***0.993***	***0.7932***	***0.2166***	***5.753***	***1.069***	***2.017***	***1.137***	***1.927***	***4.77***	***0.79***	0	***0.63***	0	***2.4***	***0.13***	0	0	***0.38***	***1.28***	***0.82***	***0.76***
Turbidity, Lab	NTU	NS	--	--	--	--	--	--	--	--	--	--	--	--	<0.6	***1.7***	***1.2***	***1.4***	<0.4	***2.1***	***15.7***	***3.1***	***19.6***	***0.9 J***	***7.3***	***1.92***	***2.34***	--	--	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<6	<6	<6	<6	<6	<2.73	***0.13 J***	***2.1 J***	<0.584	<0.271	<0.4	<0.4	<0.161	<0.161	<0.161	<0.237	<0.237	<0.237	<0.185	<0.185	<0.42	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	--	<1.1	<0.69	<0.69	<0.69	<1	<1	<1
Antimony, Dissolved	µg/L	NS	<6	<6	<6	<6	<6	<2.73	<0.12	***2.78 J***	<0.584	<0.271	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***2.87***	<2	<6	<4	<2	<0.6	***4.98***	<0.37	<0.185	***3.22 J***	<0.33	***0.606 J***	<0.945	<0.945	<0.945	<0.672	<0.672	<0.672	<0.505	***0.708 J***	***0.694 J***	***0.615 J***	<0.75	<0.75	<0.88	***1 J***	<0.75	--	***0.845 J***	***0.847 J***	***0.782 J***	***0.826 J***	***0.962 J***	<0.53	***0.841 J***
Arsenic, Dissolved	µg/L	NS	<1	<1	<20	<2	<2	<0.47	***5.28***	<0.185	<0.185	***3.32 J***	<0.33	<0.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***423***	***383***	***355***	***324***	***287***	***266***	***370***	***310***	***380***	***374***	***260***	***357***	***284***	***365***	***294***	***378***	***283***	***381***	***358***	***469***	***609***	***489***	***444***	***691***	***573***	***892***	***866***	--	***1010***	***979***	***949***	***857***	***850***	***581***	***988***
Barium, Dissolved	µg/L	NS	***261***	***348***	***294***	***335***	***269***	***260***	***330***	***297***	***358***	***344***	***268***	***369***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<1	<1	<1	<1	<1	<0.051	***0.23 J***	<0.169	<0.169	<0.348	<0.08	<0.08	<0.039	<0.039	<0.039	<0.221	<0.221	<0.221	<0.125	<0.125	<0.19	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	--	<0.27	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	<1	<1	<1	<1	<1	<0.051	***0.03 J***	<0.169	<0.169	<0.348	<0.08	<0.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.702***	***0.569***	***0.504***	***0.623***	<0.5	***0.555***	***0.85***	***0.431 J***	***0.292 J***	<0.53	***0.596 J***	***1.16***	***0.735***	***1.29***	***0.685***	***0.41 J***	***0.644***	***0.765***	***0.582***	***0.873***	***1.23***	***0.95***	***0.873***	***1.09***	***0.462***	***1.29***	***1.12***	--	***0.951***	***0.745***	***0.697***	***0.529***	***0.569***	<0.1	***0.514***
Cadmium, Dissolved	µg/L	NS	<0.5	***0.629***	***0.553***	***0.592***	<0.5	***0.818***	***0.99***	***0.769***	***0.878***	<0.53	***0.649 J***	***1.06***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***4650***	***42.1***	***328***	***136***	***20.5***	***171***	***69.6***	***18.6 J***	***115***	***31.8***	***6.32***	***7.6***	***6.51***	***3.81 J***	***3.42 J***	***3.13 J***	***1.11 J***	***3.05 J***	***1.79 J***	***1.41 J***	***9.64***	***0.991 J***	***4.89 J***	***2.23 J***	***1.74 J***	***21.2***	***36***	--	***5.69***	***2.26 J***	***6.82***	***34.9***	***7.21***	<1.2	***8.64***
Chromium, Dissolved	µg/L	NS	<20	***26***	<20	<20	<20	***12.2 J***	***185***	<1.81	***47.9***	<2.09	<0.5	***1.7 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***23***	<20	<20	<20	<20	***10.3 J***	***12.3***	***6.82 J***	<1.55	***26.5***	***5.33***	***8.69***	***4.7***	***6.85***	***5.23***	***7.93***	***3.3***	***5.11***	***16.7***	***6.83***	***12.9***	***2.89***	***7.13***	***4.12***	***3.03***	***7.26***	***18.4***	--	***6.74***	***9.35***	***8.33***	***21.2***	***7.52***	***2.02***	***7.99***
Cobalt, Dissolved	µg/L	NS	<20	<20	<20	<20	<20	***5.29 J***	***12.5***	***5.19 J***	***20.7***	***22.3***	***5.7***	***8.25***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***77.6***	<20	***33.2***	***31.5***	***27.4***	***25***	***29.4***	***6.39 J***	***4.43 J***	***8.71***	***5.84***	***2.69***	***1.7 J***	***2.37***	***1.3 J***	***3.45 J***	<1.22	***2.3 J***	***5.38***	<2.19	***3.84 J***	<1.6	***2.1 J***	<2	<3.2	***4.01 J***	***5.69***	--	***4.23 J***	***3.08 J***	***2.82 J***	***7.64***	***4.89 J***	<1.8	***3.87 J***
Copper, Dissolved	µg/L	NS	<20	<20	***26.7***	***24.3***	***29***	***15.4 J***	***12.9***	***5.47 J***	***3.38 J***	***3.63***	***2***	***2.41***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	***7.62***	<4	<4	<4	<4	<1	***3.24***	***1.86 J***	<0.821	<1.04	<0.18	***0.233 J***	<0.0967	<0.0967	<0.0967	<0.211	<0.211	<0.211	<0.324	<0.324	<0.25	<0.25	<0.27	<0.27	<0.27	<0.27	<0.11	<0.21	--	<0.21	<0.24	<0.24	<0.24	<0.24	<0.26	<0.26
Lead, Dissolved	µg/L	NS	<4	<4	<4	<4	<4	<1	***0.91***	<0.821	<0.821	<1.04	<0.18	<0.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***761***	***354***	***313***	***594***	***256***	***505***	***288***	***328***	***282***	***1070***	***121***	***205***	***105***	***200***	***143***	***441***	***55***	***171***	***722***	***258***	***836***	***97.3***	***328***	***144***	***73.1***	***396***	***988***	--	***322***	***602***	***460***	***1270***	***402***	***30.4***	***353***
Nickel, Dissolved	µg/L	NS	***250***	***330***	***251***	***360***	***334***	***454***	***228***	***285***	***1100***	***904***	***134***	***195***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<5	<5	<5	<5	<5	<1.69	***15.1***	<1.83	<1.83	<7.3	<0.7	<0.7	<3.34	<3.34	<3.34	***0.776 J***	<0.63	<0.63	<0.928	<0.928	<0.9	<0.9	<1	<1	<1	<0.96	--	<0.96	<0.96	<0.96	<0.96	<1.4	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	<5	<5	<5	<5	<5	<1.69	***22.5***	<1.83	<1.83	<7.3	<0.7	<0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<20	<20	<20	<20	<20	<1.7	<0.027	<1.7	<1.7	<0.395	<0.033	***0.0399 J***	<0.042	***0.055 J***	<0.042	<0.153	<0.153	<0.153	<0.14	<0.14	<0.3	<0.3	<0.37	<0.37	<0.37	<0.37	<0.42	--	<0.42	<0.49	<0.49	<0.49	<0.5	<0.5	***0.645 J***
Silver, Dissolved	µg/L	NS	<20	<20	<20	<20	<20	<1.7	<0.027	<1.7	<1.7	<0.395	<0.033	<0.033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<2	<2	<2	<2	<2	<0.84	<0.0087	<0.523	<0.523	<0.134	<0.05	***0.0571 J***	<0.0325	***0.038 J***	***0.035 J***	<0.0255	***0.038 J***	***0.028 J***	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.27	<0.26	<0.26	<0.26	--	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57	<0.57
Thallium, Dissolved	µg/L	NS	<2	<2	<2	<2	<2	<0.84	***0.01 J***	<0.523	<0.523	<0.134	<0.05	<0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***52.2***	<50	<50	<50	<50	<2.1	***4.3***	***7.11 J***	<2.1	<4.17	***0.735 J***	***0.732 J***	***0.479***	<0.449	<0.449	<0.255	***0.309 J***	<0.255	<0.84	<0.84	<0.52	<0.52	<0.82	<0.82	<0.82	<0.85	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Vanadium, Dissolved	µg/L	NS	<50	<50	<50	<50	<50	<2.1	***1.87***	***4.2 J***	<2.1	<4.17	<0.5	***0.998 J***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	***107***	<20	<20	<20	<20	<9.11	***16.8***	***15.7 J***	***51.5***	<3.13	***3.73 J***	<2	<6.95	<6.95	<6.95	<5.21	<5.21	<5.21	<11.5	<11.5	<10	<10	<10	<10	<10	<10	<10	--	<10	<10	<10	<10	<6.4	<9.7	<9.7
Zinc, Dissolved	µg/L	NS	***84.7***	<20	<20	<20	<20	<9.11	***15.9***	***26.6***	***46.5***	***4.99 J***	***3.57 J***	<2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																																					
1,1,1,2-Tetrachloroethane	µg/L	70	<1	<1	<1	<1	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	--	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	--	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<1	<4	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	--	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	<1	<1	<1	<1	<1	***0.65 J***	***0.67 J***	***0.83 J***	***1.1***	***0.644 J***	***0.736 J***	<0.21	***0.666 J***	***0.942 J***	***0.533 J***	***0.318 J***	***0.501 J***	***0.619 J***	***0.423 J***	***0.741 J***	***0.706 J***	***0.595 J***	***0.503 J***	***0.682 J***	***0.574 J***	***0.651 J***	***0.611 J***	--	***0.476 J***	<0.22	***0.654 J***	***0.581 J***	<0.22	<0.22	***0.425 J***
1,1-Dichloroethylene	µg/L	7	<2	<2	<2	<2	<2	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	--	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.006	<1	<1	<1	<1	<1	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	--	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<10	<10	<10	<10	<10	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	--	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<10	<10	<10	<10	<10	<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	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	--	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<1	<1	<1	<1	<1	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<1	<1	<1	<1	<1	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	***1.18***	***1.56***	***1.43***	***1.45***	<1	<0.87	***1.01***	***0.65 J***	***1.42***	<0.87	<0.87	***0.908 J***	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	***0.92 J***	***0.431 J***	***0.352 J***	***0.615 J***	***0.368 J***	***0.58 J***	***0.341 J***	--	***0.497 J***	***0.41 J***	***0.404 J***	***0.374 J***	<0.27	<0.27	***0.296 J***
1,4-Dichlorobenzene	µg/L	75	<1	<4	<1	<1	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	***0.237 J***	***0.366 J***	<0.23	<0.23	<0.23	***0.331 J***	<0.23	<0.23	--	***0.508 J***	<0.23	***0.497 J***	***0.421 J***	***0.544 J***	<0.23	***0.591 J***
2-Butanone	µg/L	4000	<10	<10	<10	<10	<10	***1.14 J***	***0.86 J***	<0.16	***0.78 J***	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<1.04	<1.04	<1.04	<1.04	<2.1	<2.1	<2.1	<2.1	***2.86 J***	<2.1	--	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<10	<10	<10	<10	<10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<10	<10	<10	<10	<10	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	--	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	<10	<10	<10	<10	<10	<1.79	<1.79	<1.79	***1.99 J***	<1.79	<1.79	<1.79	<1.79	***6.79 J***	<1.79	***2.28 J***	<1.79	<1.79	***2.28 J***	***2.79 J***	***3.85 J***	***5.71 J***	<3.1	***4.23 J***	<3.1	***4.61 J***	<3.1	--	<3.1	<3.1	<3.1	***3.89 J***	***3.37 J***	<3.1	<3.1
Acrylonitrile	µg/L	0.32	<10	<10	<10	<10	<10	<0.53	<0.53	<0.19	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	--	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***1.15***	***1.42***	***1.29***	***1.63***	***1.49***	***1.32***	***1.25***	***0.98***	***2.19***	***0.908***	***1.4***	***1.97***	***1.48***	***1.88***	***0.866***	<0.11	***0.622***	***1.29***	***0.609***	***1.59***	***1.6***	***1.4***	***0.679***	***1.22***	***0.824***	***1.56***	***0.8***	--	***1.32***	***0.564***	***1.14***	***0.646***	***0.955***	<0.22	***0.947***
Bromochloromethane	µg/L	90	<5	<5	<5	<5	<5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	--	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<1	<1	<1	<1	<1	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<4	<4	<4	<20	<4	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	--	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<1	<4	<1	<1	<1	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<2	<4	<2	<2	<2	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	--	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<1	<1	<1	<1	<1	<0.19	<0.19	<0.19	***0.2 J***	<0.19	<0.19	<0.19	***0.317 J***	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	***0.317 J***	***0.647 J***	<0.4	<0.4	<0.4	***0.409 J***	***0.677 J***	<0.4	--	***0.862 J***	***0.784 J***	***0.766 J***	***0.799 J***	***0.803 J***	<0.4	<0.4
Chloroethane	µg/L	2800	***5.31***	***7.82***	***8.14***	***8.17***	***4.57***	***4.86***	***4.52***	***3.87 J***	***5.35***	***3.52 J***	***3.5 J***	***4.72***	***3.62 J***	***4.28***	***2.48 J***	<0.15	***1.99 J***	***2.64 J***	***1.71 J***	***2.67 J***	***2.9 J***	***3.17 J***	<0.79	***2.44 J***	***1.65 J***	***1.86 J***	***1.7 J***	--	***1.19 J***	***1.15 J***	***0.848 J***	***1.79 J***	***1.11 J***	<0.79	***0.809 J***
Chloromethane	µg/L	NS	<3	<3	<3	<3	<3	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	***0.779 J***	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	--	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***48.6***	***76.6***	***70***	***78***	***34.6***	***36.2***	***38***	***26.9***	***56.1***	***29.9***	***17***	***47***	***22.1***	***44***	***16.2***	***3.63***	***5.75***	***20.4***	***10.3***	***24.4***	***38***	***17.7***	***10.9***	***20.7***	***14.8***	***23.5***	***12.2***	--	***16.6***	***14.3***	***15.4***	***14.8***	***13.1***	***0.521 J***	***10.4***
cis-1,3-Dichloropropene	µg/L	NS	<5	<5	<5	<5	<5	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<5	<5	<5	<5	<5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	--	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<1	<1	<1	<1	<1	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<5	<5	<5	<5	<5	***0.23 J***	***0.44 J***	<0.17	***0.41 J***	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	***0.194 J***	<0.17	<0.17	<0.17	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	--	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<1	<1	<1	<1	<1	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	--	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<10	<50	<10	<10	<20	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	--	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	--	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<1	<1	<1	<1	<1	<0.18	***0.18 J***	<0.18	***0.21 J***	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	--	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	<1	<1	<1	<1	<1	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	***1.57***	***2.24***	***2.09***	***2.39***

Black Hawk County Landfill
Appendix II Results
Monitoring Well OW-402B

Parameter Name	Units	GPS	June-2011	Sep., 2011	Nov., 2011	Feb., 2012	May-2012	Dec., 2012	Feb., 2013	June-2013	Oct., 2013	Feb., 2015	Aug-15	Jan-16	Mar-16	Sep-16	Apr-17	Sep-17	Nov-17	Mar-18	Jul-18	Sep-18	Apr-19	Oct-19	Mar-20	Oct-20	Apr-21	Jun-21	Nov-21	Apr-22	Nov-22	Mar-23	Sep-23	Oct-24
Alcohols/Cyrsols by GC																																		
Acrocrylin	ug/L	NS	<10000	--	--	--	<126	--	--	--	--	--	<126	--	--	*169 J*	--	<126	--	--	--	<126	--	<126	--	<404	--	<404	--	<404	--	<404	--	--
Isobutanol	ug/L	14000	<60000	--	--	--	<757	--	--	--	--	--	<757	--	--	<757	--	<757	--	--	--	<757	--	<757	--	<2424	--	<2424	--	<2424	--	<2424	--	--
Herbicides (GC)																																		
2,4,5-T	ug/L	70	<0.55	--	--	--	<0.49	--	--	--	--	--	<0.475	--	--	<0.488	--	<0.535	--	--	--	<0.522	--	<5.2	--	*0.294*	<2.38	<0.803	<0.168	<0.75	<0.07	<0.159	<0.146	<0.727
2,4-D	ug/L	70	<3.1	--	--	--	<0.49	--	--	--	--	--	<0.51	--	--	<0.521	--	<0.575	--	--	--	<0.561	--	<5.58	--	*1.17*	<2.56	<3.14	<0.656	<2.55	<0.2	<0.622	<0.311	<2.79
Silvex (2,4,5-TP)	ug/L	50	*0.47*	*0.42*	*0.39 J*	*0.41 J*	<0.5	--	--	--	<0.517	<0.5	<0.517	<0.525	<0.548	<0.548	<0.505	<0.557	--	--	--	*1.22*	<0.535	<5.47	*2.08*	<0.972	<1.59	--	<0.154	<0.69	<0.07	<0.146	<0.666	*0.402*
Inorganics																																		
Cyanide	ug/L	200	<10	--	--	--	<1.7	--	--	--	--	--	<3.04	--	--	<3.52	--	<3.46	--	--	--	<4.2	--	<5	--	<5	--	--	<5.3	--	<4.3	--	--	--
Mercury	ug/L	2	<0.2	--	--	--	<0.024	--	--	--	--	--	*0.153 J*	<0.0926	--	<0.142	--	<0.112	--	--	--	<0.15	--	<0.1	--	<0.1	--	--	<0.15	--	<0.11	--	--	--
Sulfide	ug/L	7	<3000	--	--	--	<219	--	--	--	--	--	<219	--	--	<180	--	<219	--	--	--	<231	--	<219	--	*19.6 J*	<1000	<231	<219	<231	<231	<231	<231	<1410
Tin	ug/L	4200	<100	--	--	--	<16.7	--	--	--	--	--	<1.8	--	--	<0.832	--	<1.62	--	--	--	<0.73	--	<1.8	--	<2.4	--	--	<3	--	<3	--	--	--
PCBs (EPA Method 8082)																																		
PCB-1016	ug/L	NS	<0.8	--	--	--	<0.0659	--	--	--	--	--	<0.0472	--	--	<0.0488	--	<0.0486	--	--	--	<0.0465	--	<0.0499	--	<0.289	--	--	<0.269	--	<0.17	--	--	--
PCB-1221	ug/L	NS	<0.8	--	--	--	<0.188	--	--	--	--	--	<0.182	--	--	<0.182	--	<0.178	--	--	--	<0.178	--	<0.169	--	<0.289	--	--	<0.269	--	<0.17	--	--	--
PCB-1232	ug/L	NS	<0.8	--	--	--	<0.136	--	--	--	--	--	<0.12	--	--	<0.125	--	<0.122	--	--	--	<0.122	--	<0.116	--	<0.289	--	--	<0.269	--	<0.17	--	--	--
PCB-1242	ug/L	NS	<0.8	--	--	--	<0.163	--	--	--	--	--	<0.146	--	--	<0.149	--	<0.146	--	--	--	<0.144	--	<0.139	--	<0.289	--	--	<0.269	--	<0.17	--	--	--
PCB-1248	ug/L	NS	<0.8	--	--	--	<0.136	--	--	--	--	--	<0.12	--	--	<0.125	--	<0.122	--	--	--	<0.122	--	<0.116	--	<0.233	--	--	<0.241	--	<0.11	--	--	--
PCB-1254	ug/L	NS	<0.8	--	--	--	<0.114	--	--	--	--	--	<0.1	--	--	<0.105	--	<0.102	--	--	--	<0.0974	--	<0.253	--	<0.233	--	--	<0.241	--	<0.112	--	--	--
PCB-1260	ug/L	NS	<0.8	--	--	--	<0.0548	--	--	--	--	--	<0.0478	--	--	<0.05	--	<0.0489	--	--	--	<0.0489	--	<0.0466	--	<0.233	--	--	<0.241	--	<0.11	--	--	--
Pesticides (EPA Method 8081A)																																		
4,4'-DDD	ug/L	0.73	<0.032	--	--	--	<0.0018	--	--	--	--	--	*0.00191 J*	*0.00297 J*	--	<0.00202	--	<0.002	--	--	--	*0.00394 J*	--	<0.00196	--	*0.0147 J*	--	--	<0.00966	--	<0.027	--	--	--
4,4'-DDE	ug/L	0.51	<0.032	--	--	--	<0.0021	--	--	--	--	--	*0.00413 J*	*0.00933 J*	--	<0.00236	--	<0.00233	--	--	--	*0.00922 J*	--	*0.0123 J*	--	<0.00233	--	--	<0.00957	--	<0.027	--	--	--
4,4'-DDT	ug/L	0.51	<0.032	--	--	--	<0.0038	--	--	--	--	--	<0.00404	--	--	<0.00467	--	*0.0102 J*	--	--	--	<0.0132	--	*0.00431 J*	--	<0.00467	--	--	*0.0108 J*	--	<0.042	--	--	--
Aldrin	ug/L	0.01	<0.032	--	--	--	<0.0045	--	--	--	--	--	<0.00476	--	--	<0.00596	--	*0.0111 J*	--	--	--	*0.00603 J*	--	*0.00886 J*	--	*0.0134 J*	--	--	*0.0213 J*	--	<0.032	--	--	--
alpha-BHC	ug/L	0.026	<0.032	--	--	--	<0.0017	--	--	--	--	--	<0.00181	--	--	*0.00243 J*	--	*0.00167 J*	--	--	--	<0.00181	--	<0.00186	--	<0.00198	--	--	<0.00115	--	<0.009	--	--	--
beta-BHC	ug/L	0.042	<0.032	--	--	--	<0.0048	--	<0.0048	--	--	--	*0.0113 J*	<0.0048	--	*0.00745 J*	--	*0.052*	*0.0438*	*0.0303 J*	*0.00527*	*0.0142 J*	*0.0134 J*	*0.021 J*	<0.005	*0.0511*	<0.00522	--	<0.0149	<0.042	<0.007	<0.037	<0.037	<0.0386
Chlordane	ug/L	2	<2	--	--	--	<0.0845	--	--	--	--	--	<0.0695	--	--	<0.0878	--	<0.0715	--	--	--	<0.0747	--	<0.0696	--	<0.0715	--	--	<0.263	--	<0.81	--	--	--
delta-BHC	ug/L	2.1	<0.032	--	--	--	<0.0023	--	--	--	--	--	*0.00817 J*	<0.00323	--	<0.00258	--	*0.0064 J*	--	--	--	*0.00421 J*	--	<0.00235	--	<0.00256	--	--	<0.0172	--	<0.027	--	--	--
Dieldrin	ug/L	0.011	<0.032	--	--	--	<0.002	--	--	--	--	--	*0.0051 J*	*0.00318 J*	--	<0.00225	--	<0.00222	--	--	--	*0.00754 J*	--	*0.00557 J*	--	<0.00222	--	--	<0.00198	--	<0.026	--	--	--
Endosulfan I	ug/L	42	<0.032	--	--	--	<0.0057	--	--	--	--	--	<0.00213	--	--	<0.00225	--	*0.00266 J*	--	--	--	<0.00227	--	<0.00212	--	<0.00222	--	--	<0.0126	--	<0.033	--	--	--
Endosulfan II	ug/L	42	<0.032	--	--	--	<0.0019	--	--	--	--	--	<0.00202	--	--	<0.00213	--	<0.00211	--	--	--	<0.00216	--	<0.00207	--	<0.00211	--	--	<0.00953	--	<0.029	--	--	--
Endosulfan sulfate	ug/L	NS	<0.032	--	--	--	<0.0027	--	--	--	--	--	*0.00346 J*	<0.0105	--	<0.00281	--	*0.0127 J*	--	--	--	*0.00275*	<0.00284	*0.00794 J*	*0.00808 J*	<0.0016	<0.00278	<0.00272	<0.00966	<0.0346	<0.03	<0.03	<0.03	<0.0335
Endrin	ug/L	2	<0.032	--	--	--	*0.0145 J*	<0.0059	<0.00396	<0.00394	<0.00211	*0.00275 J*	<0.00202	--	--	<0.00214	--	*0.0116 J*	--	--	--	<0.00216	--	*0.00218 J*	--	<0.00211	--	--	<0.00115	--	<0.026	--	--	--
Endrin aldehyde	ug/L	2.1	<0.032	--	--	--	<0.0073	--	--	--	--	--	*0.00799 J*	<0.0073	--	<0.0092	--	<0.00911	--	--	--	<0.00883	--	<0.00793	--	*0.0104 J*	--	--	<0.011	--	<0.029	--	--	--
gamma-BHC (Lindane)	ug/L	0.2	<0.032	--	--	--	<0.0019	--	--	--	--	--	*0.00219 J*	*0.00133 J*	--	<0.00213	--	*0.00329 J*	--	--	--	*0.00656 J*	--	*0.00399 J*	--	<0.00211	--	--	<0.0161	--	<0.036	--	--	--
Heptachlor	ug/L	0.4	<0.032	--	--	--	<0.0026	--	--	--	--	--	<0.00277	--	--	<0.00292	--	<0.00289	--	--	--	<0.00295	--	<0.00283	--	<0.00288	--	--	<0.0138	--	<0.033	--	--	--
Heptachlor epoxide	ug/L	0.2	<0.032	--	--	--	<0.0024	--	--	--	--	--	<0.00249	--	--	<0.00268	--	<0.00278	--	--	--	<0.00403	--	<0.00383	--	<0.00278	--	--	<0.0185	--	<0.029	--	--	--
Methoxychlor	ug/L	40	<0.032	--	--	--	<0.0021	--	--	--	--	--	<0.00202	--	--	<0.00239	--	<0.00233	--	--	--	<0.00238	--	*0.00384 J*	--	*0.0248 J*	--	--	<0.0161	--	<0.041	--	--	--
Toxaphene	ug/L	3	<2	--	--	--	<0.058	--	--	--	--	--	<0.0617	--	--	<0.0652	--	<0.0648	--	--	--	<0.0659	--	<0.063	--	<0.0648	--	--	<0.471	--	<0.69	--	--	--
Semivolatile Organics by GC/MS																																		
1,2,4,5-Tetrachlorobenzene	ug/L	2.1	<10	--	--	--	<0.12	--	--	--	--	--	<0.12	--	--	<0.152	--	<0.149	--	--	--	<0.151	--	<0.757	--	<1.88	--	--	<1.82	--	<0.6	--	--	--
1,3,5-Trinitrobenzene	ug/L	NS	<10	--	--	--	<1.28	--	--	--	--	--	<1.28	--	--	<1.38	--	<1.35	--	--	--	<1.37	--	<6.92	--	<1.53	--	--	<1.48	--	<2.56	--	--	--
1,3-Dinitrobenzene	ug/L	1	<10	--	--	--	<0.17	--	--	--	--	--	<0.17	--	--	<0.255	--	<0.183	--	--	--	<1.09	--	<5.46	--	<1.18	--	--	<1.14	--	<3.56	--	--	--
2,6-Naphthalenedinitrile	ug/L	NS	<10	--	--	--	<0.14	--	--	--	--	--	<0.14	--	--	<0.177	--	<0.153	--	--	--	<0.307	--	<1.95	--	<1.15	--	--	<1.11	--	<4	--	--	--
2,6-Phenylenediamine	ug/L	NS	<10	--	--	--	<8.4	--	--	--	--	--	<8.4	--	--	<10.6	--	<9.03	--	--	--	<9.03	--	<45.4	--	<9.588	--	--	<9.568	--	<22.11	--	--	--
2-Naphthylamine	ug/L	NS	<10	--	--	--	<0.304	--	--	--	--	--	<0.258	--	--	<0.24	--	<0.258	--	--	--	<0.258	--	<1.3	--	<1.04	--	--	<1	--	<2.78	--	--	--
2,3,4,6-Tetrachlorophenol	ug/L	NS	<10	--	--	--	<0.2	--	--	--	--	--	<0.2	--	--	<0.253	--	<0.215	--	--	--	<0.538	--	<2.7	--	<1.16	--	--	<1.13	--	<5.89	--	--	--
2,4,5-Trichlorophenol	ug/L	700	<10	--	--	--	<0.22	--	--	--	--	--	<0.22	--	--	<0.278	--	<0.244	--	--	--	<0.753	--	<3.79	--	<1.41	--	--	<1.25	--	<5.89	--	--	--
2,4,6-Trichlorophenol	ug/L	16	<10	--	--	--	<0.22	--	--	--	--	--	<0.22	--	--	<0.278	--	<0.237	--	--	--	<0.753	--	<3.79	--	<1.41	--	--	<1.36	--	<5.56	--	--	--
2,4-Dichlorophenol	ug/L	20	<10	--	--	--	<0.15	--	--	--	--	--	<0.15	--	--	<0.161	--	<0.153	--	--	--	<0.533	--	<2.68	--	<1.29	--	--	<1.25	--	<0.564	--	--	--
2,4-Dimethylphenol	ug/L	100	<10	--	--	--	<0.21	--	--	--	--	--	<0.21	--	--	<0.266	--	<0.226	--	--	--	<0.226	--	<1.14	--	<1.18	--	--	<1.14	--	<0.644	--	--	--
2,4-Dinitrophenol	ug/L	14	<20	--	--	--	<3	--	--	--	--	--	<1.34	--	--	<1.7	--	<1.44	--	--	--	<2.77	--	<13.9	--	<6.71	--	--	<6.38	--	<14.4	--	--	--
2,4-Dinitrotoluene	ug/L	0.25	<10	--	--	--	<0.19	--	--	--	--	--	<0.19	--	--	<0.241	--	<0.208	--	--	--	<0.495	--	<2.49	--	<1.29	--	--	<1.25	--	<7.11	--	--	--
2,6-Dichlorophenol	ug/L	NS	<10	--	--	--	<0.27	--	--	--	--	--	<0.22	--	--	<0.278	--	<0.237	--	--	--	<0.217	--	<1.19	--	<1.29	--	--	<1.25	--	<0.767	--	--	--
2,6-Dinitrotoluene	ug/L	0.26	<10	--	--	--	<0.24	--	--	--	--	--	<0.24	--	--	<0.308	--	<0.258	--	--	--	<0.258	--	<1.3	--	<1.29	--	--	<1.25	--	<0.578	--	--	--
2-Acetylaminofluorene	ug/L	NS	<10	--	--	--	<0.002	--	--	--	--	--	<0.00202	--	--	<0.00225	--	<0.00222	--	--	--	<0.303	--	<1.33	--	<0.717	--	--	<1.36	--	<3	--	--	--
2-Chloronaphthalene	ug/L	560	<10	--	--	--	<0.23	--	--	--	--	--	<0.23	--	--	<0.291	--	<0.249	--	--	--	<0.247	--	<1.24	--	<1.53	--	--	<1.48	--	<0.711	--	--	--
2-Chlorophenol	ug/L	40	<10	--	--	--	<0.17	--	--	--	--	--	<0.15	--	--	<0.161	--	<0.161	--	--	--	<0.161	--	<0.811	--	<1.29	--	--	<1.25	--	<0.6	--	--	--
2-Methylnaphthalene	ug/L	40	<10	--	--	--	<0.19	--	--	--	--	--	<0.19	--	--	<0.241	--	<0.208	--	--	--	<0.204	--	<1.03	--	<1.53	--	--	<1.48	--	<0.456	--	--	--
2-Methylphenol (o-Cresol)	ug/L	35	<10	--	--	--	<0.18	--	--	--	--	--	<0.18	--	--	<0.226	--	<0.194	--	--	--	<0.194	--	<0.973	--	<1.18	--	--	<1.14	--	<0.722	--	--	--
2-Naphthylamine	ug/L	0.057	<10	--	--	--	<0.27	--	--	--	--	--	<0.237	--	--	<0.237	--	<0.237	--	--	--	<0.161	--	<1.19	--	<1.65	--	--	<1.25	--	<0.977	--	--	--
2-Nitroaniline	ug/L	NS	<10	--	--	--	<0.23	--	--	--	--	--	<0.23	--	--	<0.291	--	<0.247	--	--	--	<1.33	--	<6.7	--	<1.41	--	--	<1.36	--	<6.56	--	--	--
2-Nitrophenol	ug/L	NS	<10	--	--	--	<0.16	--	--	--	--	--	<0.16	--	--	<0.247	--	<0.172	--	--	--	<1.01	--	<5.19	--	<1.86	--	--	<1.82	--	<7.56	--	--	--
3,3'-Dichlorobenzidine	ug/L	0.39	<10	--	--	--	<0.46	--	--	--	--	--	<0.46	--	--	<0.582	--	<0.496	--	--	--	<0.871	--	<4.38	--	<2.12	--	--	<2.05	--	<1.56	--	--	--
3,3'-Dimethylbenzidine	ug/L	NS	<10	--	--	--	<0.202	--	--	--	--	--	<0.21	--	--	<0.226	--	<0.226	--	--	--	<0.226	--	<1.14	--	<2.35	--	--	<2.27	--	<1.67	--	--	--
3/4-Methylphenol	ug/L	70	<10	--	--	--	<0.18	--	--	--	--	--	<0.18	--	--	<0.226	--	*0.2163 J*	--	--	--	<0.194	--	<0.973	--	<0.894	--	--	<0.864	--	<0.778	--	--	--
3-Methylcholanthrene	ug/L	NS	<10	--	--	--	<0.2	--	--	--	--	--	<0.2	--	--	<0.253	--	<0.215	--	--	--	<0.957	--	<4.81	--	<2.94	--	--	<2.84	--	<5.356	--	--	--
3-Nitroaniline	ug/L	NS	<10	--	--	--	<0.222	--	--	--	--	--	<0.22	--	--	<0.278	--	<0.237	--	--	--	<0.624	--	<3.14	--	<1.18	--	--	<1.14	--	<3	--	--	--
3,6-Dimeo-2-methylphenol	ug/L	NS	<10	--	--	--	<2.81	--	--	--	--	--	<2.22	--	--	<2.78	--	<2.37	--	--	--	<2.39	--	<12	--	<2.94	--	--	<2.84	--	<7.67	--	--	--
4-Aminobiphenyl	ug/L	0.0083	<10	--	--	--	<0.3	--	--	--	--	--	<0.3	--	--	<0.38	--	<0.323	--	--	--	<0.323	--	<1.62	--	<1.13	--	--	<1.09	--	<2.44	--	--	--
4-Bromophenyl phenyl ether	ug/L	NS	<10	--	--	--	<0.19	--	--	--	--	--	<0.19	--	--	<0.307	--	<0.312	--	--	--	<0.312	--	<1.57	--	<2.24	--	--	<2.16	--	<0.778	--	--	--
4-Chloro-3-methylphenol	ug/L	700	<10	--	--	--	<0.19	--	--	--	--	--	<0.19	--	--	<0.241	--	<0.208	--	--	--	<0.28	--	<1.41	--	<1.12	--	--	<1.08	--	<0.933	--	--	--
4-Chloroaniline	ug/L	20	<10	--	--	--	<0.14	--	--	--	--	--	<0.14	--	--	<0.177	--	<0.153	--	--	--	<0.161	--	<0.811	--	<1.41	--	--	<1.36	--	<0.693	--	--	--
4-Chlorophenyl phenyl ether	ug/L	NS	<10	--	--	--	<0.25	--	--	--	--	--	<0.25	--	--	<0.316	--	<0.269	--	--	--	<0.269	--	<1.35	--	<1.53	--	--	<1.48	--	<0.767	--	--	--
4-Nitroaniline	ug/L	NS	<10	--	--	--	<0.32	--	--	--	--	--	<0.32	--	--	<0.344	--	<0.344	--	--	--	<0.344	--	<1.72	--	<2	--	--	<2	--	<1.33	--	--	--
4-Nitrophenol	ug/L	60	<10	--	--	--	<0.12	--	--	--	--	--	<0.12	--	--	<0.159	--	<0.129	--	--	--	<1.48	--	<7.46	--	<2.94	--	--	<2.84	--	<8.44	--	--	--
5-Nitro-o-toluidine	ug/L	NS	<10	--	--	--	<0.17	--	--	--	--	--	<0.17	--	--	<0.219	--	<0.189	--	--	--	<0.393	--	<0.919	--	<0.85	--	--	<0.82	--	<3.11	--	--	--
7,12-Dimethylbenz (a) anthracene	ug/L	NS	<10	--	--	--	<0.25	--	--	--	--	--	<0.25	--	--	<0.316	--	<0.269	--	--	--	<0.269	--	<1.35	--	<1.08	--	--	<1.05	--	<2.11	--	--	--
Acenaphthene	ug/L	420	<10	--	--	--	<0.3	--	--	--	--	--	<0.3	--	--	<0.38	--	<0.323	--	--	--	<0.323	--	<1.62	--	<1.53	--	--	<1.48	--	<0.711	--	--	--
Acenaphthylene	ug/L	210	<10	--	--	--	<0.21	--	--	--	--	--	<0.21	--	--	<0.266	--	<0.226	--	--	--	<0.624	--	<3.14	--	<1.53	--	--	<1.48	--	<0.8	--	--	--
Acetophenone	ug/L	NS	<10	--	--	--	<0.22	--	--	--	--	--	<0.22	--	--	<0.278	--	<0.237	--	--	--	<0.176	--	<1.89	--	<1.53	--	--	<1.41	--	<0.767	--	--	--
Anthracene	ug/L	2100	<10	--	--	--	<0.17	--	--	--	--	--	<0.17	--	--	<0.219	--	<0.183	--	--	--	<0.183	--	<0.919	--	<1.29	--	--	<1.25	--	<0.967	--	--	--
Benzo (a) anthracene	ug/L	0.24	<10	--	--	--	<0.24	--	--	--	--	--	<0.24	--	--	<0.304	--	<0.258	--	--	--	<0.366	--	<1.84	--	<1.29	--	--	<1.25	--	<0.944	--	--	--
Benzo (a) pyrene	ug/L	0.2	<10	--	--	--	<0.19	--	--	--	--	--	<0.19	--	--	<0.241	--	<0.208	--	--	--	<1.37	--	<6.86	--	<1.76	--	--	<1.7	--	<9	--	--	--
Benzo (b) fluoranthene	ug/L	0.24	<10	--	--	--	<0.31	--	--	--	--	--	<0.31	--	--	<0.392	--	<0.333	--	--	--	<1.08	--	<5.41	--	<1.41	--	--	<1.36	--	<5.44	--	--	--
Benzo (g,h,i) perylene	ug/L	21	<10	--	--	--	<0.23	--	--	--	--	--	<0.23	--	--	<0.291	--	<0.247	--	--	--	<1.62	--	<7.14	--	<1.88	--	--	<1.82	--	<7	--	--	--
Benzo (k) fluoranthene	ug/L	2.4	<10	--	--	--	<0.2	--	--	--	--	--	<0.2	--	--	<0.253	--	<0.215	--	--	--	<0.613	--	<3.08	--	<1.41	--	--	<1.36	--	<2.44	--	--	--
Benzyl alcohol	ug/L	700	<50	--	--	--	<0.25	--	--	--	--	--	<0.228	--	--	<0.198	--	<0.198	--	--	--	<0.045	--	<0.224	--	<1.29	--	--	<1.25	--	<7.44	--	--	--
Bis(2-chloroethoxy)methane	ug/L	NS	<10	--	--	--	<0.26	--	--	--	--	--	<0.26	--	--	<0.329	--	<0.28	--	--	--	<0.28	--	<1.41	--	<1.29	--	--	<1.25	--	<0.844	--	--	--
Bis(2-chloroethyl)ether	ug/L	0.16	<10	--	--	--	<0.18	--	--	--	--	--	<0.18	--	--	<0.198	--	<0.198	--	--	--	<0.204	--	<1.03	--	<1.29	--	--	<1.25	--	<0.911	--	--	--
Bis(2-chloroisopropyl) ether	ug/L	300	<10	--	--	--	<0.18	--	--	--	--	--	<0.18	--	--	<0.228	--	<0.194	--	--	--	<0.194	--	<0.973	--	<1.41	--	--	<1.36	--	<0.6	--	--	--
Bis(2-ethylhexyl)phthalate	ug/L	6	<10	<0.439	<0.39	<0.398	*1.31 J*	<0.429	<0.411	*10.5*	--	--	<0.404	--	--	<0.496	--	<0.406	<0.433	--	--	<2.49	<0.258	<12.5	<2.88	<3.66	<2.86	--	<2.95	<5.98	<6.11	<5.5	<5.39	*6.98 J*
Butyl benzyl phthalate	ug/L	140	<10	--	--	--	<0.34	--	--	--	--	--	<0.34	--	--	<0.43	--	<0.366	--	--	--	<1.65	--	<8.27	--	<1.76	--	--	<1.7	--	<6	--	--	--
Chlorobenzilate	ug/L	NS	<10	--	--	--	<0.21	--	--	--	--	--	<0.21	--	--	<0.266	--	<0.226	--	--	--	<1.14	--	<5.68	--	<1.41	--	--	<1.3	--	<4	--	--	--
Chrysene	ug/L	24	<10	--	--	--	<0.29	--	--	--	--	--	<0.29	--	--	<0.367	--	<0.312	--	--	--	<0.133	--	<1.68	--	<1.29	--	--	<1.25	--	<0.967	--	--	--
Dialkyl (c6-c, or mass)	ug/L	NS	<10	--	--	--	<0.25	--	--	--	--	--	<0.23	--	--	<0.247	--	<0.247	--	--	--	<0.247	--	<1.24	--	<1.53	--	--	<1.48	--	<4.44	--	--	--
Dibenzo (a,h) anthracene	ug/L	0.024	<10	--	--	--	<0.25	--	--	--	--	--	<0.316	--	--	<0.269	--	<0.269	--	--	--	<1.07	--	<5.89	--	<2.24	--	--	<2.16	--	<4.33	--	--	--
Dibenzofuran	ug/L	7	<10	--	--	--	<0.24	--	--	--	--	--	<0.24	--	--	<0.308	--	<0.258	--	--	--	<0.258	--	<1.3	--	<1.41	--	--	<1.36	--	<0.822	--	--	--
Diethyl phthalate	ug/L	5600	<10	--	--	--	*0.941 J*	<0.28	*1.05 J*	*0.533 J*	*0.446 J*	*1.68 J*	*0.322 J*	--	--	<0.339	--	<0.339	--	--	--	*1.78 J*	--	*1.11 J*	--	*1.29 J*	--	--	*2.79 J*	--	*3.68 J*	--	--	--
Dimethoate	ug/L	1.4	<10	--	--	--	<0.27	--	--	--	--	--	<0.27	--	--	<0.342	--	<0.29	--	--	--	<0.29	--	<1.46	--	<1.18	--	--	<1.14	--	<4	--	--	--
Dimethyl phthalate	ug/L	NS	<10	--	--	--	<0.24	--	--	--	--	--	<0.23	--	--	<0.247	--	<0.247	--	--	--	<2.35	--	<11.7	--	<2.94	--	--	<2.84	--	<5.11	--	--	--
Di-n-butyl phthalate	ug/L	700	<10	--	--	--	*0.63 J*	<0.52	<0.52	<0.52	<0.56	<0.539	<0.51	--	--	<0.646	--	<0.548	--	--	--	<1.24	--	<6.22	--	<1.41	--	--	<1.36	--	<5.22	--	--	--
Di-n-octyl phthalate	ug/L	140	<10	--	--	--	<0.25	--	--	--	--	--	*0.729 J*	<0.235	<0.235	<0.247	--	<0.247	--	--	--	<2.85	--	<14.2	--	<3.53	--	--	<3.41	--	<7.78	--	--	--
Dinoseb	ug/L	7	<10	--	--	--	<0.43	--	--	--	--	--	<0.43	--	--	<0.544	--	<0.462	--	--	--	<0.462	--	<2.32	--	<0.588	--	--	<0.568	--	<2.67	--	--	--
Diphenylamine	ug/L	180	<10	--	--	--	<0.16	--	--	--	--	--	<0.16	--	--	<0.203	--	<0.171	--	--	--	<0.71	--	<3.57	--	<0.847	--	--	<1	--	<0.67	--	--	--
Disulfoton	ug/L	0.7	<10	--	--	--	<0.29	--	--	--	--	--	<0.29	--	--	<0.367

Black Hawk County Landfill
Appendix I Results
Monitoring Well P-402A

Parameter Name	Units	GPS	Dec-16	Apr-17	Sep-17	Apr-18	Sep-18	Apr-19	Jun-19	Oct-19	May-24
Appendix I Inorganics											
Total Suspended Solids	mg/L	NS	***3.75***	***3.63***	***1.63 J***	<0.638	***0.875 J***	***1 J***	--	***0.875 J***	***2.63***
Turbidity, Field	NTU	NS	***5.355***	***0.9243***	***10.09***	***0.4912***	***2.933***	***0.27***	***45.75***	***1.08***	***1.02***
Turbidity, Lab	NTU	NS	***3.8***	***1.4***	<0.4	***0.7 J***	<0.4	***1.3***	--	***2.07***	--
Antimony	µg/L	6	<0.237	<0.185	<0.185	<0.42	<0.42	***6.92***	***1.86***	***5.91***	***2.51***
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	<0.672	***0.52 J***	***0.655 J***	<0.57	<0.57	<0.75	--	<0.75	<0.53
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***100***	***97***	***116***	***116***	***94.5***	***83.7***	--	***108***	***4.08***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.19	<0.19	<0.27	--	<0.27	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	<0.0351	<0.0441	<0.0441	<0.06	<0.06	<0.077	--	<0.039	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***0.719 J***	<0.729	***1.54 J***	***1.96 J***	***7.68***	***19***	--	***8.2***	***4.42 J***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***0.801***	***0.566***	***0.099 J***	***0.156 J***	<0.061	<0.091	--	***0.186 J***	***0.172 J***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	<1.22	***6.48***	***2.56 J***	***2.43 J***	***1.77 J***	<2	--	<2	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<0.211	<0.324	<0.324	<0.25	<0.25	<0.27	--	<0.27	<0.26
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***6.55***	***8.25***	***2.8 J***	***5.26***	<3	***2.3 J***	--	***5.96***	***7.73***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<0.63	<0.928	<0.928	<0.9	<0.9	<1	--	<1	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.14	<0.14	<0.3	<0.3	<0.37	--	<0.37	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	<0.0644	<0.17	<0.17	<0.27	--	<0.27	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***0.905 J***	<0.84	<0.84	***0.865 J***	***0.851 J***	***0.92 J***	--	<0.82	***1.36 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<5.21	<11.5	<11.5	<10	<10	<10	--	<10	***27.6***
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Appendix I Organics											
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	--	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	--	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	--	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	--	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	<0.21	<0.21	<0.21	<0.21	<0.22	<0.22	--	<0.22	<0.22
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	--	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	--	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	--	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	--	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	--	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	--	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	--	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.2	<0.2	<0.2	<0.2	<0.23	<0.23	--	<0.23	<0.23
2-Butanone	µg/L	4000	<1.04	<1.04	<1.04	<1.04	<2.1	<2.1	--	<2.1	<2.1
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<2	<2	--	<2	<2
4-Methyl-2-pentanone	µg/L	560	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	--	<2.1	<2.1
Acetone	µg/L	6300	***3.05 J***	***2.54 J***	***3.79 J***	***3.55 J***	<3.1	<3.1	--	***3.84 J***	<3.1
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	--	<2.2	<2.2
Benzene	µg/L	5	***0.167 J***	<0.11	<0.11	***0.377 J***	<0.22	<0.22	--	<0.22	<0.22
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	--	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	--	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	<0.22	<0.22	<1.1	<1.1	--	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	--	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	--	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	<0.19	<0.19	<0.19	<0.4	<0.4	--	<0.4	<0.4
Chloroethane	µg/L	2800	<0.15	<0.15	<0.15	<0.15	<0.79	<0.79	--	<0.79	<0.79
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	--	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	<0.13	<0.13	<0.13	<0.13	<0.21	<0.21	--	<0.21	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	--	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	--	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	--	<0.33	<0.33
Dichloromethane	µg/L	5	***0.321 J***	***0.579 J***	<0.17	<0.17	<1.7	<1.7	--	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	--	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<7	<7	--	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	--	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	--	<0.48	<0.48
Toluene	µg/L	1000	<0.15	<0.15	<0.15	***0.906 J***	<0.43	<0.43	--	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.21	<0.21	<0.21	<0.21	<0.27	<0.27	--	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	--	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	--	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	--	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.43	<0.43	--	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	--	<0.38	<0.38
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<1.3	<1.3	--	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	--	<2.5	<2.5
Vinyl Chloride	µg/L	2	<0.1	<0.1	<0.1	<0.1	<0.6	<0.6	--	<0.18	<0.18
Xylenes	µg/L	10000	<0.13	<0.13	<0.13	***0.203 J***	<0.4	<0.4	--	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well P-402C

Parameter Name	Units	GPS	Dec-16	Mar-17	Jun-17	Sep-17	Nov-17	Apr-18	Apr-19	Apr-20	May-24
Appendix I Inorganics											
Total Suspended Solids	mg/L	NS	***3.38***	***2.88***	***2.67 J***	***2.25***	***1.5 J***	***1.63 J***	***2 J***	<1.7	<1.39
Turbidity, Field	NTU	NS	***7.732***	***0.8558***	***1.618***	***8.29***	***1.009***	***0.9118***	***22.17***	0	***0.7***
Turbidity, Lab	NTU	NS	***1.3***	<0.4	***1.3***	<0.4	***2.7***	<0.4	***1.5***	***0.84 J***	--
Antimony	µg/L	6	***0.442 J***	***0.2 J***	***0.39 J***	<0.185	<0.185	<0.42	***0.93 J***	<0.58	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	<0.672	***0.53 J***	<0.505	<0.505	<0.505	<0.57	<0.75	<0.88	<0.53
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***71.7***	***90.6***	***81.8***	***87.6***	***84.3***	***78.4***	***74.8***	***83.1***	***70.3***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.125	<0.125	<0.19	<0.27	<0.27	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	<0.0351	<0.0441	<0.0441	<0.0441	<0.0441	<0.06	<0.077	<0.039	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	<0.355	***1.82 J***	<0.729	<0.729	<0.729	<0.76	<0.98	<1.1	<1.2
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***0.805***	***1.18***	***0.559***	***0.382 J***	***0.296 J***	***0.285 J***	***0.356 J***	***0.252 J***	***0.38 J***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***2.21 J***	***2.83 J***	***5.28***	***6.44***	***3.88 J***	***5.12***	***4.53 J***	***4.68 J***	***2.33 J***
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<0.211	<0.324	<0.324	<0.324	<0.324	<0.25	<0.27	<0.27	<0.26
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***16.4***	***37.9***	***16.1***	***5.77***	***5.05***	***3.54 J***	***3.44 J***	***2.19 J***	***2.31 J***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***0.696 J***	<0.928	<0.928	<0.928	<0.928	<0.9	<1	<1	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.14	<0.14	***0.171 J***	<0.14	<0.3	<0.37	<0.37	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	<0.0644	<0.0644	<0.0644	<0.17	<0.27	<0.26	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***0.813 J***	<0.84	***3.08 J***	***1.41 J***	<0.84	***2.24 J***	<0.82	***0.858 J***	<1.1
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<5.21	***40.3***	<11.5	<11.5	<11.5	<10	<10	<10	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--
Appendix I Organics											
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.22	<0.22	<0.22
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	***0.181 J***	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.23	<0.23	<0.23
2-Butanone	µg/L	4000	<1.04	<1.04	<1.04	<1.04	<1.04	<1.04	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1
Acetone	µg/L	6300	***3.17 J***	***3.11 J***	***3.74 J***	***4.76 J***	***4.67 J***	***3.43 J***	<3.1	<3.1	<3.1
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2
Benzene	µg/L	5	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.22	<0.22	<0.22
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	***0.795 J***	***0.179 J***	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	***1 J***	<0.22	<0.22	<0.22	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.79	<0.79	<0.79
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.21	<0.21	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	***0.391 J***	***0.635 J***	<0.17	<0.17	***0.17 J***	<0.17	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48
Toluene	µg/L	1000	***0.177 J***	<0.15	***0.334 J***	<0.15	<0.15	***0.194 J***	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.27	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	***1.48***	***1.37***	***0.376 J***	<0.28	<0.28	<0.28	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.6	<0.18	<0.18
Xylenes	µg/L	10000	<0.13	<0.13	***0.162 J***	<0.13	<0.13	***0.14 J***	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-410B

Parameter Name	Units	GPS	Dec-16	Apr-17	Jun-17	Sep-17	Nov-17	Mar-18	Sep-18	Apr-19	Sep-19	Apr-20	Sep-20	Mar-21	May-22	Mar-23	May-24
Appendix I Inorganics																	
Total Suspended Solids	mg/L	NS	***6.38***	***2.88***	***3.33 J***	***6.38***	***4.5***	***6.5***	***10***	***26.9***	***19***	***40***	***24.3***	***62***	***62***	***62***	***80***
Turbidity, Field	NTU	NS	***3.868***	***0.743***	***1.646***	***2.491***	***7.638***	***62.71***	***20.31***	***156.76***	***0.62***	***126.82***	***8.28***	***111.54***	***63.9***	***102.95***	***182.75***
Turbidity, Lab	NTU	NS	***9.2***	***1.3***	***3.3***	***3.7***	***5.6***	***25.7***	***43***	***65.7***	***74.1***	***140***	--	--	--	--	--
Antimony	µg/L	6	<0.237	<0.185	***0.366 J***	<0.185	***0.312 J***	<0.42	<0.42	<0.53	<1.06	<0.58	<0.51	<1.1	<0.69	<2.76	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***1.76 J***	***1.12 J***	***0.917 J***	***1.22 J***	***1.88 J***	***1.23 J***	***2.29***	***5.24***	***3.42 J***	***7.48***	***4.82***	***7.25***	***6.57***	***6.53***	***11.8***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***902***	***809***	***921***	***1020***	***1030***	***86.9***	***1370***	***1800***	***1630***	***2360***	***2270***	***2890***	***2370***	***3030***	***2750***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.125	<0.125	<0.19	<0.19	<0.27	<0.54	<0.27	<0.27	<0.27	<0.27	<0.27	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	<0.0351	***0.116 J***	***0.723***	***0.694***	***0.758***	<0.06	***0.112 J***	<0.077	<0.078	<0.039	<0.049	<0.051	<0.055	<0.055	<0.4
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***10.2***	***2.61 J***	***1.44 J***	***3.04 J***	***2.07 J***	***1.56 J***	***3.06 J***	***2.4 J***	<1.96	***2.73 J***	***1.45 J***	***2.83 J***	***3.46 J***	***4.3 J***	***4.13 J***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***7.6***	***3.65***	***2.38***	***3.48***	***3.1***	***0.379 J***	***4.1***	***5.4***	***2.52***	***7.34***	***2.04***	***11.6***	***17.3***	***14.3***	***13.8***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***3.01 J***	***5.3***	***2.47 J***	***3.31 J***	<2.19	<1.6	<1.6	<2	<4	<3.2	<1.5	<1.4	<1.8	<1.8	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<0.211	<0.324	<0.324	<0.324	***0.333 J***	<0.25	<0.25	<0.27	<0.54	<0.27	<0.11	<0.21	***0.261 J***	<0.24	<0.26
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***195***	***35.8***	***22.4***	***23***	***19.1***	***3.75 J***	***16.6 J***	***26.3***	***22.6***	***37.2***	***28.8***	***54.9***	***55.5***	***50.9***	***52.1***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***0.97 J***	<0.928	<0.928	<0.928	<0.928	<0.9	<0.9	<1	<2	<1	<1	<0.96	<0.96	<0.96	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.14	<0.14	<0.14	***0.17 J***	<0.3	<0.3	<0.37	<0.74	<0.37	<0.37	<0.42	<0.49	<0.49	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	***0.094 J***	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.54	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***1.93 J***	***1.56 J***	***2.65 J***	***3.07 J***	***1.8 J***	<0.52	***1.59 J***	***1.38 J***	<1.64	***1.43 J***	<0.85	***1.49 J***	***1.19 J***	***1.38 J***	***1.76 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	***7.98 J***	<11.5	<11.5	<11.5	<11.5	<10	<10	<10	<20	<10	<10	<10	<10	<10	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																	
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.2	***0.809 J***	<0.2	***0.444 J***	***0.393 J***	<0.2	<0.23	<0.23	<0.23	***0.484 J***	<0.23	<0.23	<0.23	<0.23	<0.23
2-Butanone	µg/L	4000	***2.74 J***	<1.04	<1.04	***2.3 J***	***2.45 J***	<1.04	***3.28 J***	***2.54 J***	***2.41 J***	<2.1	***3.34 J***	<2.1	<2.1	<2.1	***2.91 J***
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	***1.13 J***	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	***10.5***	***3.17 J***	***5.5 J***	***6.38 J***	***3.76 J***	***2.13 J***	***16.3***	***6.96 J***	<3.1	***6.02 J***	***7.58 J***	***4.22 J***	***9.03 J***	***8.25 J***	***17.1***
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***3.85***	***0.973***	***0.65***	***1.18***	***1.15***	<0.11	***0.81***	***0.495 J***	***0.953***	***2.96***	***1.45***	***3.6***	***1.88***	***1.77***	***2.02***
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	***0.826 J***	***1.34***	***1.31***	***1.58***	<0.19	***2.53***	<0.4	***4.19***	***5.54***	***5.15***	***4.72***	***3.99***	***4.34***	***4.54***
Chloroethane	µg/L	2800	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***0.202 J***	<0.13	***0.14 J***	<0.13	<0.13	<0.13	<0.21	<0.21	<0.21	<0.21	***0.256 J***	<0.21	<0.21	<0.21	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<0.17	***0.348 J***	***0.324 J***	<0.17	***0.343 J***	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	***0.38 J***	***0.151 J***	***0.502 J***	***0.191 J***	***0.497 J***	<0.15	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.6	<0.6	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Xylenes	µg/L	10000	***0.261 J***	***0.216 J***	<0.13	<0.13	<0.13	<0.13	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-411B

Parameter Name	Units	GPS	Dec-16	Apr-17	Jun-17	Sep-17	Nov-17	Mar-18	Sep-18	Apr-19	Sep-19	Apr-20	Sep-20	Mar-21	Apr-22	Apr-23	May-24
Appendix I Inorganics																	
Total Suspended Solids	mg/L	NS	***4.25***	***4.75***	***6***	***6***	***10.6***	***5.75***	***14***	***23.5***	***29***	***29.5***	***15.5***	***27***	***46***	***38.5***	***40***
Turbidity, Field	NTU	NS	--	***0.6127***	***3.899***	***0.4519***	***0.7708***	***0.0197***	***1.114***	0	***0.62***	***4.67***	***2.16***	***0.86***	0	***1.22***	***0.77***
Turbidity, Lab	NTU	NS	***2.1***	***6.7***	***21.3***	***16.9***	***22.3***	***17.9***	***12.2***	***29.8***	***159***	***167***	--	--	--	--	--
Antimony	µg/L	6	<0.237	<0.185	<0.185	<0.185	<0.185	<0.42	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	<0.69	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***2.03***	***1.23 J***	***1.38 J***	***1.17 J***	***1.62 J***	***1.94 J***	***0.966 J***	***3.57***	***3.52***	***4.2***	***3.97***	***4.98***	***4.85***	***4.74***	***4.07***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***483***	***459***	***558***	***441***	***459***	***510***	***856***	***480***	***425***	***454***	***420***	***479***	***477***	***605***	***687***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.125	<0.125	<0.19	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.067 J***	<0.0441	***0.116 J***	***0.094 J***	***0.079 J***	***0.39 J***	***0.159 J***	<0.077	<0.039	<0.039	<0.049	<0.051	<0.055	<0.1	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***7.13***	***2.97 J***	***1.56 J***	***1.76 J***	***1.56 J***	***0.87 J***	***11.6***	***1.25 J***	***1.6 J***	***2.49 J***	***2.04 J***	***1.64 J***	***1.35 J***	<1.1	<1.2
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***5.74***	***2.83***	***2.86***	***3***	***3.61***	***3.13***	***1.6***	***3.56***	***6.11***	***8.02***	***10.9***	***7.26***	***5.47***	***3.37***	***1.41***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***4.7 J***	***2.85 J***	<2.19	<2.19	<2.19	<1.6	<1.6	<2	<2	<3.2	<1.5	<1.4	<1.8	<1.8	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<0.211	<0.324	<0.324	<0.324	<0.324	<0.25	***1.34***	<0.27	<0.27	<0.27	<0.11	<0.21	<0.24	<0.24	<0.26
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***126***	***30***	***26.7***	***18.5***	***18.3***	***18***	***7.63***	***23.3***	***25.7***	***28.9***	***33.3***	***29.9***	***31.2***	***29.9***	***28.5***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<0.63	<0.928	<0.928	<0.928	<0.928	<0.9	<0.9	<1	<1	<1	<1	<0.96	<0.96	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.14	<0.14	<0.14	<0.14	<0.3	<0.3	<0.37	<0.37	<0.37	<0.37	<0.42	<0.49	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	<0.0644	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.27	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***3.07 J***	***1.32 J***	***1.13 J***	<0.84	***1.02 J***	***1.83 J***	***2.36 J***	<0.82	***0.924 J***	***1.41 J***	***0.912 J***	<1.1	<1.1	<1.1	<1.1
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	***13.3***	<11.5	<11.5	<11.5	<11.5	<10	<10	<10	<10	<10	<10	<10	<10	<6.4	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																	
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	***0.214 J***	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	***0.316 J***	***0.284 J***	***0.276 J***	<0.27	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
2-Butanone	µg/L	4000	<1.04	<1.04	***2.05 J***	***1.5 J***	***1.3 J***	<1.04	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	***5.98 J***	***3.92 J***	***4.6 J***	***4.28 J***	***1.95 J***	***6.26 J***	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	***3.44 J***	<3.1	***4.68 J***
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***0.859***	***1.8***	***1.53***	***2.22***	***2.27***	***1.14***	***1.74***	***1.35***	***2.5***	***1.42***	***1.78***	***0.356 J***	***0.271 J***	***0.309 J***	***0.229 J***
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	<0.22	<0.22	<0.22	***0.25 J***	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	***1.12 J***	***1.25 J***	***0.851 J***	***0.944 J***	***0.956 J***	<0.15	***0.929 J***	***0.828 J***	***1.78 J***	***1.06 J***	***1.36 J***	<0.79	<0.79	<0.79	<0.79
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***0.342 J***	***0.654 J***	***0.389 J***	***0.622 J***	***0.426 J***	***0.412 J***	***0.495 J***	***0.616 J***	***0.648 J***	***0.503 J***	<0.21	<0.21	<0.21	<0.21	<0.21
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<0.17	***0.331 J***	<0.17	<0.17	***1.21 J***	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	***0.278 J***	<0.15	***0.34 J***	<0.15	***3.58***	***0.169 J***	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	***0.619 J***	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	***0.405 J***	***0.717 J***	***0.321 J***	***0.444 J***	***0.255 J***	<0.1	<0.6	<0.6	***0.785 J***	***0.475 J***	***0.643 J***	<0.18	<0.18	<0.18	<0.18
Xylenes	µg/L	10000	<0.13	<0.13	<0.13	<0.13	***0.358 J***	<0.13	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-412B

Parameter Name	Units	GPS	Dec-16	Apr-17	Jun-17	Sep-17	Nov-17	Mar-18	Sep-18	Apr-19	Sep-19	Apr-20	Sep-20	Mar-21	Apr-22	Apr-23	May-24
Appendix I Inorganics																	
Total Suspended Solids	mg/L	NS	***6.67***	***3.5***	***4 J***	***3.38***	***3.67 J***	***3***	***6.38***	***5.63***	***14.4***	***4.88***	***6.25***	***6***	***10.3***	***10***	***9***
Turbidity, Field	NTU	NS	***1.778***	***0.0391***	***52.73***	***1.455***	***0.6655***	***11.46***	***1.829***	***13.53***	***31.07***	***15.91***	***11.01***	***1.01***	***23.42***	***31.63***	***74.33***
Turbidity, Lab	NTU	NS	***2***	***4.3***	***4.9***	***4.2***	***4***	***6.9***	***4.8***	***10.7***	***28.1***	***11.1***	--	--	--	--	--
Antimony	µg/L	6	<0.237	***0.253 J***	***0.204 J***	<0.185	<0.185	<0.42	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	<0.69	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	<0.672	***0.934 J***	***0.647 J***	***0.584 J***	***0.725 J***	<0.57	***3.29***	***1.15 J***	***3.91***	***1.34 J***	***2.15***	***2.16***	***5.14***	***4.35***	***4.18***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***444***	***574***	***582***	***614***	***574***	***643***	***167***	***797***	***951***	***890***	***1070***	***1220***	***1180***	***1510***	***1390***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.125	<0.125	<0.19	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.176 J***	<0.0441	***0.075 J***	***0.126 J***	***0.191 J***	***0.195 J***	<0.06	<0.077	***0.068 J***	***0.052 J***	***0.079 J***	<0.051	<0.055	<0.1	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***0.64 J***	***6.43***	***2.86 J***	***3.27 J***	***2.89 J***	***4.48 J***	***2.25 J***	***3.94 J***	***19***	***5.26***	***3.45 J***	***1.96 J***	***6.41***	***4.2 J***	***4.4 J***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***2***	***2.82***	***2.09***	***2.14***	***1.84***	***1.51***	<0.061	***1.61***	***1.61***	***1.36***	***1.53***	***1.53***	***1.69***	***1.75***	***1.03***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***3.58 J***	<2.19	<2.19	<2.19	<2.19	<1.6	<1.6	<2	<2	<3.2	<1.5	<1.4	<1.8	<1.8	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<0.211	***0.439 J***	***0.387 J***	***0.36 J***	***0.487 J***	***0.642***	***0.61***	***0.514***	***1.78***	***0.704***	***0.489 J***	<0.21	***0.573***	<0.24	***0.339 J***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***10.5***	***37.3***	***19.5***	***11.7***	***10.2***	***7.81***	<1	***9.67***	***8.95***	***10.1***	***12.4***	***14.4***	***16.6***	***21.3***	***20.5***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***1.02 J***	<0.928	<0.928	<0.928	<0.928	<0.9	***12.3***	<1	<1	<1	<1	<0.96	<0.96	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.14	<0.14	<0.14	<0.14	<0.3	***0.332 J***	<0.37	<0.37	<0.37	<0.37	<0.42	<0.49	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	<0.0644	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.27	<0.26	<0.26	<0.26	<0.26	***2.42***	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***3.34 J***	***2.71 J***	***2.51 J***	***1.51 J***	***2.93 J***	***2.14 J***	***6.26***	***0.849 J***	***1.99 J***	***0.945 J***	***0.921 J***	<1.1	<1.1	***1.52 J***	<1.1
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<5.21	<11.5	<11.5	<11.5	<11.5	<10	<10	<10	<10	<10	<10	<10	<10	<6.4	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																	
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	***0.429 J***	***0.316 J***	***0.37 J***	***0.322 J***	***0.914 J***	***0.333 J***	***0.422 J***	***0.421 J***	***0.462 J***	***0.834 J***	***0.308 J***	***0.363 J***	***0.431 J***	***0.327 J***	***0.234 J***
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	***0.514 J***	***0.435 J***	***0.573 J***	***0.464 J***	***0.519 J***	***0.503 J***	***0.454 J***	***0.404 J***	***0.356 J***
1,4-Dichlorobenzene	µg/L	75	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
2-Butanone	µg/L	4000	<1.04	<1.04	***1.46 J***	***1.78 J***	<1.04	<1.04	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	***2.05 J***	***3.25 J***	***4.02 J***	***5.8 J***	***5.48 J***	***2.37 J***	<3.1	***4.31 J***	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	***5.51 J***
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***0.235 J***	***0.605***	***0.668***	***0.653***	***0.706***	***0.616***	***0.852***	***0.719***	***0.921***	***0.271 J***	***0.724***	***0.692***	***0.542***	***0.525***	***0.296 J***
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	***1.02 J***	<0.22	***0.323 J***	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	***0.203 J***	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	***1.09 J***	***2.1 J***	***1.73 J***	***1.98 J***	***1.9 J***	<0.15	***1.71 J***	***0.852 J***	***1.85 J***	<0.79	***1.43 J***	***1.41 J***	***1.05 J***	***1.05 J***	***0.905 J***
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***5.9***	***8.1***	***9.47***	***11.3***	***12.7***	***14.8***	***16.7***	***15.8***	***18.4***	***10.2***	***16.3***	***16.4***	***17.5***	***17.8***	***11.8***
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<0.17	***0.374 J***	<0.17	<0.17	<0.17	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	<0.15	<0.15	***0.254 J***	<0.15	***0.386 J***	<0.15	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	***0.232 J***	***0.371 J***	***0.3 J***	***0.369 J***	***0.42 J***	***0.459 J***	***0.641 J***	***0.476 J***	***0.612 J***	***0.307 J***	***0.439 J***	***0.458 J***	***0.572 J***	***0.454 J***	***0.289 J***
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	***0.695 J***	***2.56***	***3.11***	***2.54***	***4.33***	***2.16***	***3.39***	<0.6	***5.06***	***0.81 J***	***4.14***	***4.86***	***3.63***	***3.37***	***0.812 J***
Xylenes	µg/L	10000	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-413B

Parameter Name	Units	GPS	Dec-16	Apr-17	Jun-17	Sep-17	Nov-17	Mar-18	Sep-18	Apr-19	Sep-19	Apr-20	Sep-20	Mar-21	Nov-21	Apr-22	Nov-22	Apr-23	Oct-23	May-24	Oct-24
Appendix I Inorganics																					
Total Suspended Solids	mg/L	NS	***36.5***	***48***	***62***	***46***	***78.1***	***56.6***	***62.5***	***78***	***37.4***	***51***	***36.5***	***66.3***	***40***	***52***	***83***	***74***	***80***	***128***	***75***
Turbidity, Field	NTU	NS	***24.97***	***5.833***	***24.73***	***15.8***	***15.13***	***99.73***	***23.67***	***68.39***	***4.22***	***64.67***	***13.15***	***136.32***	***0.46***	***18.93***	***27.84***	***118.55***	***40.29***	***81.81***	***25.27***
Turbidity, Lab	NTU	NS	***119***	***177***	***352***	***67***	***37.3***	***236***	***340***	***266***	***121***	***98.6***	--	--	--	--	--	--	--	--	--
Antimony	µg/L	6	<0.237	***0.291 J***	<0.185	***0.438 J***	<0.185	<0.42	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	<1.1	<0.69	<0.69	<1	<1	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***4.03***	***3.71***	***3.36***	***4.85***	***4.13***	***8.33***	***7.79***	***5.36***	***4.57***	***7.65***	***5.31***	***4.62***	***3.68***	***4.22***	***4.64***	***9.14***	***8.08***	***10.8***	***6.37***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***578***	***364***	***444***	***510***	***484***	***447***	***403***	***425***	***378***	***349***	***341***	***432***	***492***	***423***	***514***	***543***	***571***	***632***	***544***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.125	<0.125	<0.19	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.33	<0.33	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	<0.0351	<0.0441	<0.0441	<0.0441	<0.0441	<0.06	<0.06	<0.077	<0.039	<0.039	<0.049	<0.051	<0.051	<0.055	<0.055	<0.1	<0.1	<0.1	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***2.85 J***	***3.86 J***	***5.21***	***14.3***	***11.7***	***9.7***	***11.1***	***4.51 J***	***1.33 J***	***4.59 J***	***3.57 J***	***2.61 J***	<1.1	***2.3 J***	***1.56 J***	***3.59 J***	***1.76 J***	***6.15***	***2.65 J***
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***1.98***	***2.98***	***2.7***	***1.58***	***2.67***	***5.28***	***5.26***	***5.03***	***3.9***	***4.24***	***2.97***	***4.66***	***2.46***	***4.91***	***2.22***	***4.37***	***3.14***	***5.23***	***2.82***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	<1.22	<2.19	<2.19	<2.19	<2.19	<1.6	<1.6	<2	<2	<3.2	<1.5	<1.4	<1.4	<1.8	<1.8	<1.8	<1.8	***3.27 J***	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	***0.44 J***	<0.324	<0.324	<0.324	<0.324	***0.293 J***	***0.295 J***	***0.411 J***	<0.27	<0.27	<0.11	<0.21	<0.21	<0.24	<0.24	<0.24	<0.24	***1.06***	***0.286 J***
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***19.5***	***7.99***	***6.02***	***1.76 J***	***3.42 J***	***5.37***	<3	***7.47***	***3.7 J***	***3.89 J***	***3.7 J***	***4.9 J***	***3.6 J***	***4.59 J***	***3.01 J***	***5.23***	***2.03 J***	***7.58***	***5.01***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	<0.63	<0.928	<0.928	<0.928	<0.928	<0.9	<0.9	<1	<1	<1	<1	<0.96	<0.96	<0.96	<0.96	<1.4	<1.4	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	***0.164 J***	<0.14	***0.184 J***	<0.14	<0.3	<0.3	<0.37	<0.37	<0.37	<0.37	<0.42	<0.42	<0.49	<0.49	<0.5	<0.5	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	<0.0644	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.27	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***1.05 J***	<0.84	***0.94 J***	***1.58 J***	***1.23 J***	***1.7 J***	***2.2 J***	***1.92 J***	<0.82	***1.43 J***	***1.18 J***	***1.11 J***	***1.14 J***	***1.18 J***	***1.75 J***	***3.82 J***	***2.11 J***	***5.91***	***3.51 J***
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<5.21	<11.5	<11.5	<11.5	<11.5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<6.4	<6.4	<9.7	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																					
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	***0.311 J***	***0.34 J***	***0.256 J***	<0.21	***0.856 J***	***0.324 J***	<0.22	<0.22	***0.239 J***	***0.689 J***	<0.22	<0.22	<0.22	***0.292 J***	***0.342 J***	***0.261 J***	<0.22	***0.231 J***	***0.255 J***
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	<0.87	<0.87	<0.87	<0.87	<0.87	<0.87	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
1,4-Dichlorobenzene	µg/L	75	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
2-Butanone	µg/L	4000	***1.37 J***	<1.04	<1.04	<1.04	<1.04	<1.04	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	***3.16 J***	***3.34 J***	***5.29 J***	***4.32 J***	***2.06 J***	***3.87 J***	***3.69 J***	<3.1	<3.1	<3.1	<3.1	***7.36 J***	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***2.57***	***1.87***	***1.29***	***1.72***	***2.24***	***1.98***	***2***	***1.43***	***1.39***	***1.26***	***1.05***	***1.16***	***1.64***	***1.36***	***1.57***	***1.32***	***1.57***	***1.17***	***1.9***
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	***0.348 J***	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chloroethane	µg/L	2800	***1.95 J***	***1.95 J***	***0.928 J***	***1.56 J***	***1.63 J***	***1.34 J***	***1.23 J***	***0.888 J***	***1.46 J***	***0.99 J***	<0.79	***1.18 J***	***1.55 J***	***1.15 J***	***1.29 J***	***1.12 J***	***1.21 J***	***1.1 J***	***0.893 J***
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***1.49***	***1.15***	***0.588 J***	***0.748 J***	***0.825 J***	***1.01***	***0.788 J***	***0.851 J***	***0.835 J***	***0.83 J***	***0.33 J***	***0.897 J***	***1.02***	***1.13***	***0.899 J***	***0.814 J***	***0.824 J***	***0.701 J***	***0.755 J***
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	<0.17	***0.288 J***	<0.17	<0.17	***0.469 J***	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	<0.15	<0.15	***0.434 J***	<0.15	***0.426 J***	***0.161 J***	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	***0.287 J***	***0.266 J***	***0.129 J***	<0.1	***0.395 J***	***0.251 J***	<0.6	<0.6	***0.287 J***	***0.284 J***	<0.18	***0.19 J***	***0.23 J***	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Xylenes	µg/L	10000	***0.196 J***	<0.13	<0.13	<0.13	***0.154 J***	<0.13	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

NS = No standard

Black Hawk County Landfill
Appendix I Results
Monitoring Well OW-414B

Parameter Name	Units	GPS	Dec-16	Apr-17	Jun-17	Sep-17	Nov-17	Mar-18	Sep-18	Apr-19	Sep-19	Apr-20	Sep-20	Mar-21	Apr-22	Apr-23	May-24
Appendix I Inorganics																	
Total Suspended Solids	mg/L	NS	***13.4***	***53.9***	***38***	***38.9***	***34.8***	***22.6***	***42.8***	***25.7***	***15.4***	***15.5***	***13.3***	***36.8***	***29***	***25.7***	***34.7***
Turbidity, Field	NTU	NS	***17.56***	***4.469***	***3.44***	***2.734***	***2.638***	***6.704***	***2.988***	***79.17***	***21.47***	***7.36***	***14.15***	***3.29***	***0.98***	***2.93***	***1.01***
Turbidity, Lab	NTU	NS	***12.6***	***59***	***197***	***101***	***144***	***192***	***197***	***76***	***49.5***	***12.2***	--	--	--	--	--
Antimony	µg/L	6	<0.237	<0.185	<0.185	<0.185	***0.251 J***	<0.42	<0.42	<0.53	<0.53	<0.58	<0.51	<1.1	<0.69	<1	<1
Antimony, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	µg/L	10	***2.24***	***5.99***	***4.18***	***3.05***	***6.38***	***6.99***	***6.99***	***6.65***	***5.02***	***4.74***	***7.87***	***8.11***	***4.24***	***7.54***	***9.85***
Arsenic, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	µg/L	2000	***533***	***434***	***447***	***591***	***558***	***517***	***504***	***490***	***618***	***501***	***680***	***666***	***449***	***497***	***642***
Barium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beryllium	µg/L	4	<0.221	<0.125	<0.125	<0.125	<0.125	<0.19	<0.19	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.33	<0.33
Beryllium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	µg/L	5	***0.2 J***	<0.0441	***0.095 J***	***0.349 J***	***0.365 J***	***0.063 J***	<0.06	<0.077	<0.039	<0.039	<0.049	<0.051	<0.055	<0.1	<0.1
Cadmium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	µg/L	100	***3.44 J***	***4.25 J***	***5.59***	***11.5***	***8.46***	***6.21***	***3.56 J***	***2.72 J***	<0.98	<1.1	***4.45 J***	***4.08 J***	***1.86 J***	<1.1	<1.2
Chromium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	µg/L	9.83	***9.91***	***25.5***	***16.8***	***12.6***	***15.1***	***22.4***	***20.5***	***23.5***	***16.9***	***18.6***	***14.2***	***18.8***	***26.6***	***24.7***	***19.1***
Cobalt, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	µg/L	1300	***3.59 J***	***2.58 J***	<2.19	***6.43***	<2.19	<1.6	<1.6	***6.78***	<2	<3.2	***1.62 J***	<1.4	<1.8	***3.38 J***	<1.8
Copper, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	µg/L	15	<0.211	<0.324	<0.324	<0.324	<0.324	<0.25	<0.25	<0.27	<0.27	<0.27	***0.136 J***	<0.21	<0.24	<0.24	<0.26
Lead, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	µg/L	722	***118***	***69***	***54.3***	***63.9***	***67.6***	***54.6***	***52.2***	***68.2***	***92.9***	***83.7***	***116***	***93.3***	***72.5***	***74.5***	***67.2***
Nickel, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	µg/L	50	***0.742 J***	<0.928	<0.928	<0.928	<0.928	<0.9	<0.9	<1	<1	<1	<1	<0.96	<0.96	<1.4	<1.4
Selenium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	µg/L	100	<0.153	<0.14	<0.14	<0.14	<0.14	<0.3	<0.3	<0.37	<0.37	<0.37	<0.37	<0.42	<0.49	<0.5	<0.5
Silver, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	µg/L	2	<0.0255	<0.0644	<0.0644	<0.0644	<0.0644	<0.17	<0.17	<0.27	<0.27	<0.26	<0.26	<0.26	<0.26	<0.26	<0.57
Thallium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	µg/L	35	***1.81 J***	***1.01 J***	***0.872 J***	***1.59 J***	***1.59 J***	***0.829 J***	***1.09 J***	***0.997 J***	<0.82	<0.82	***1.29 J***	***1.12 J***	<1.1	<1.1	<1.1
Vanadium, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	µg/L	2000	<5.21	<11.5	<11.5	<11.5	<11.5	<10	<10	<10	<10	<10	<10	<10	<10	<6.4	<9.7
Zinc, Dissolved	µg/L	NS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix I Organics																	
1,1,1,2-Tetrachloroethane	µg/L	70	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1,1-Trichloroethane	µg/L	200	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,2,2-Tetrachloroethane	µg/L	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
1,1,2-Trichloroethane	µg/L	5	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
1,1-Dichloroethane	µg/L	140	***0.444 J***	***0.419 J***	***0.461 J***	***0.305 J***	***0.896 J***	***0.859 J***	***0.891 J***	***0.589 J***	***0.267 J***	***0.801 J***	<0.22	<0.22	<0.22	***0.242 J***	<0.22
1,1-Dichloroethylene	µg/L	7	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
1,2,3-Trichloropropane	µg/L	0.0058	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59	<0.59
1,2-Dibromo-3-chloropropane	µg/L	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
1,2-Dibromoethane	µg/L	0.05	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,2-Dichlorobenzene	µg/L	600	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	µg/L	5	<0.18	<0.18	***0.188 J***	<0.18	<0.18	<0.18	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichloropropane	µg/L	5	***2.33***	***1.22***	***1.79***	***1.65***	***1.44***	***1.6***	***1.71***	***1.12***	***0.951 J***	***0.957 J***	***0.641 J***	***0.665 J***	***0.87 J***	***0.509 J***	***0.532 J***
1,4-Dichlorobenzene	µg/L	75	<0.2	***3.4***	<0.2	<0.2	***1.53***	***3.43***	<0.23	***2.08***	<0.23	***1.64***	<0.23	***0.898 J***	***1.56***	***2.71***	***1.84***
2-Butanone	µg/L	4000	<1.04	<1.04	***1.83 J***	***2.36 J***	<1.04	***2.93 J***	<2.1	<2.1	<2.1	***2.19 J***	<2.1	<2.1	<2.1	<2.1	<2.1
2-Hexanone	µg/L	NS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2
4-Methyl-2-pentanone	µg/L	560	***0.541 J***	<0.22	<0.22	<0.22	<0.22	<0.22	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	µg/L	6300	***5.63 J***	***2.6 J***	***3.52 J***	***5.7 J***	***3.02 J***	<1.79	***4.32 J***	<3.1	<3.1	<3.1	***4.17 J***	***9.62 J***	<3.1	<3.1	***4.2 J***
Acrylonitrile	µg/L	0.32	<0.53	<0.53	<0.53	<0.53	<0.53	<0.53	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2
Benzene	µg/L	5	***1.92***	***3.02***	***2.66***	***1.43***	***1.66***	***3***	***2.32***	***2.15***	***1.51***	***1.39***	***1.97***	***1.42***	***2.15***	***2.54***	***1.98***
Bromochloromethane	µg/L	90	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Bromodichloromethane	µg/L	80	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromomethane	µg/L	10	<0.22	<0.22	<0.22	<0.22	***0.432 J***	<0.22	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Carbon disulfide	µg/L	700	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Carbon Tetrachloride	µg/L	5	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65	<0.65
Chlorobenzene	µg/L	100	<0.19	***0.59 J***	***0.568 J***	***0.482 J***	***0.558 J***	***0.783 J***	***0.608 J***	***0.604 J***	***0.919 J***	***0.939 J***	***1.28***	<0.4	***0.816 J***	***0.927 J***	***0.912 J***
Chloroethane	µg/L	2800	***3.5 J***	***2.74 J***	***3.02 J***	***2.4 J***	***2.12 J***	***1.72 J***	***7.01***	***2.46 J***	***1.29 J***	***1.71 J***	***0.899 J***	***1.05 J***	***1.52 J***	***1.31 J***	***1.23 J***
Chloromethane	µg/L	NS	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
cis-1,2-Dichloroethylene	µg/L	70	***31.3***	***17.6***	***22.5***	***27.3***	***21.5***	***22.3***	***24***	***17.3***	***18.9***	***16.5***	***10.7***	***9.21***	***10.4***	***8.99***	***6.98***
cis-1,3-Dichloropropene	µg/L	NS	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Dibromochloromethane	µg/L	80	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Dibromomethane	µg/L	70	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Dichloromethane	µg/L	5	***0.238 J***	***0.388 J***	<0.17	<0.17	***0.21 J***	<0.17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Ethylbenzene	µg/L	700	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Iodomethane	µg/L	NS	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<7	<7	<7	<7	<7	<7	<7	<7	<7
Styrene	µg/L	100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Tetrachloroethylene	µg/L	5	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Toluene	µg/L	1000	***0.257 J***	<0.15	***0.244 J***	<0.15	***0.354 J***	***0.152 J***	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trans-1,2-dichloroethylene	µg/L	100	***1.39***	***1.13***	***1.23***	***1.18***	***1.15***	***1.23***	***1.25***	***1.15***	***1.02***	***0.927 J***	***0.606 J***	***0.513 J***	***0.429 J***	***0.422 J***	***0.328 J***
trans-1,3-Dichloropropene	µg/L	NS	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56
trans-1,4-Dichloro-2-butene	µg/L	1.8	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Tribromomethane	µg/L	80	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78	<0.78
Trichloroethylene	µg/L	5	<0.19	***0.209 J***	***0.197 J***	***0.206 J***	<0.19	***0.209 J***	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Trichlorofluoromethane	µg/L	2000	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Trichloromethane	µg/L	80	<0.28	<0.28	<0.28	<0.28	<0.28	<0.28	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Vinyl Acetate	µg/L	NS	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Vinyl Chloride	µg/L	2	***7.25***	***1.23***	***3.02***	***5.08***	***4.66***	***3.14***	***5.65***	***1.12***	***3.77***	***2.82***	***2.92***	***2.04***	***1.24***	***0.926 J***	***0.9 J***
Xylenes	µg/L	10000	<0.13	<0.13	<0.13	<0.13	***0.132 J***	<0.13	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

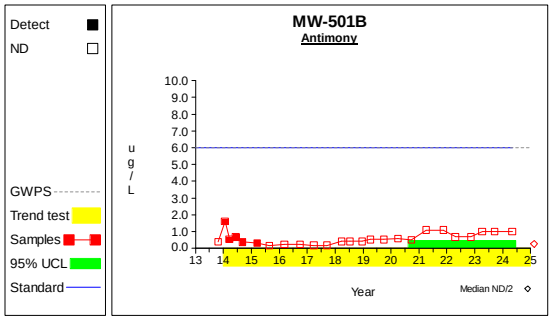
Detections at or above the RL are shown in bold italics on gray background.

Detections greater than the MDL but less than the RL are shown in bold italics on white background with a J.

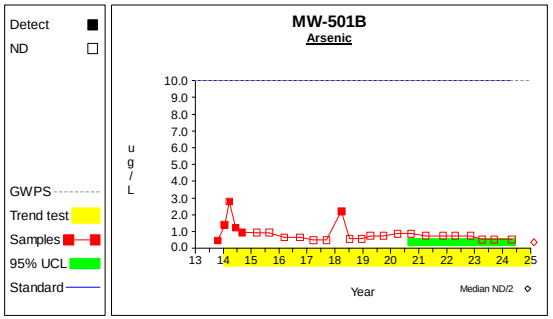
NS = No standard

APPENDIX C -Confidence Limits (Assessment) Statistical Results

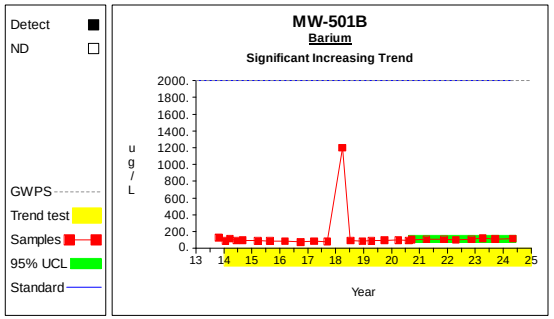
Confidence Limits (Assessment)



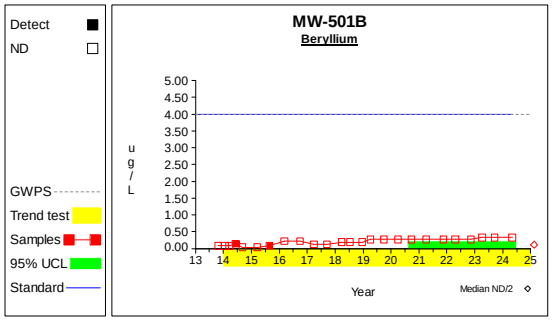
Graph 1



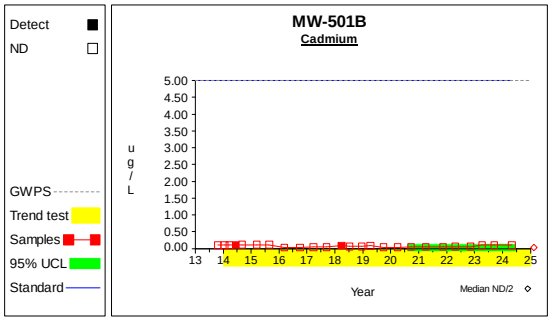
Graph 2



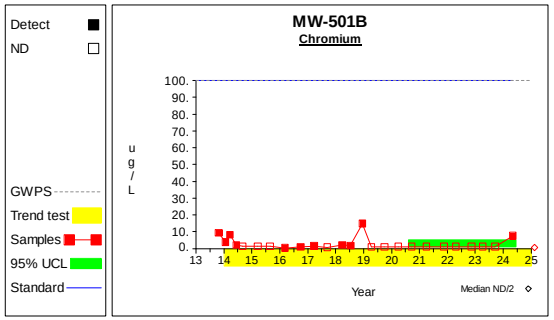
Graph 3



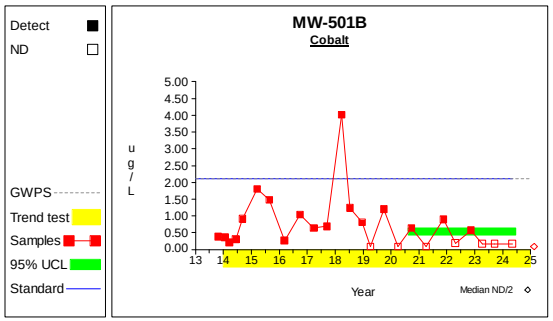
Graph 4



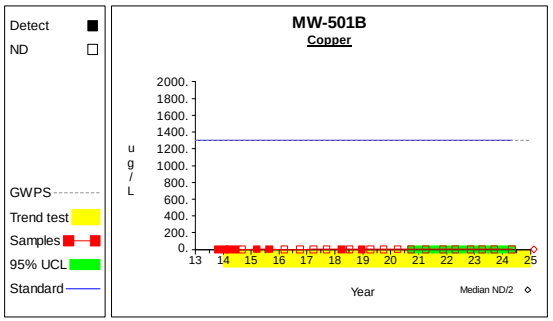
Graph 5



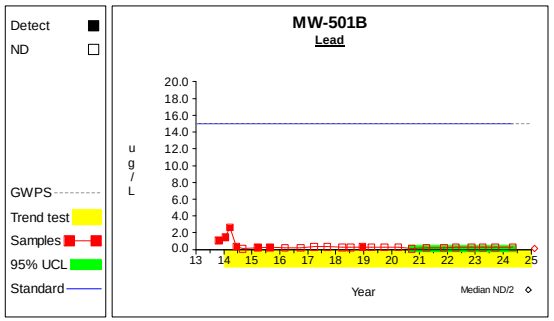
Graph 6



Graph 7

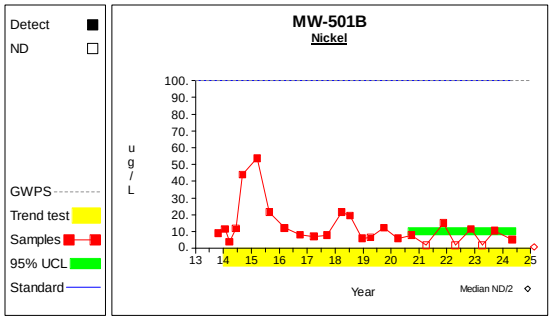


Graph 8

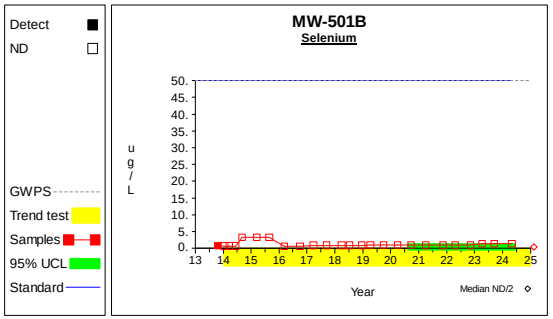


Graph 9

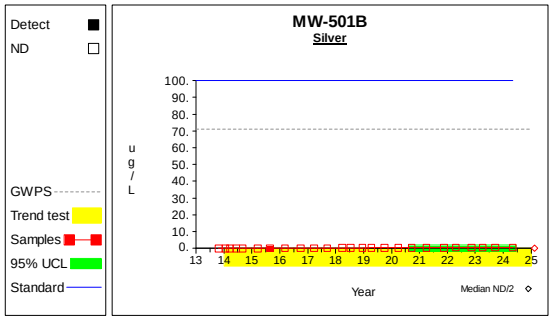
Confidence Limits (Assessment)



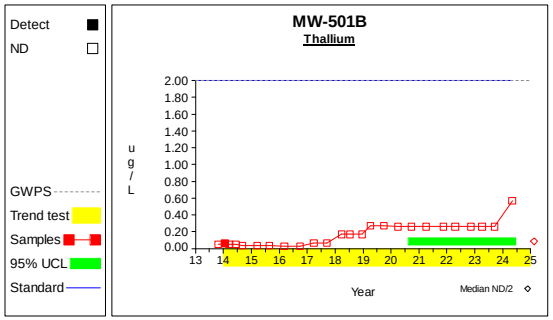
Graph 10



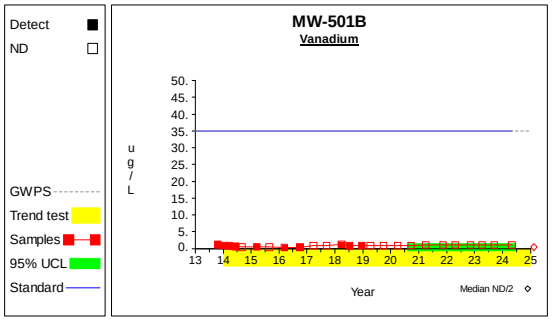
Graph 11



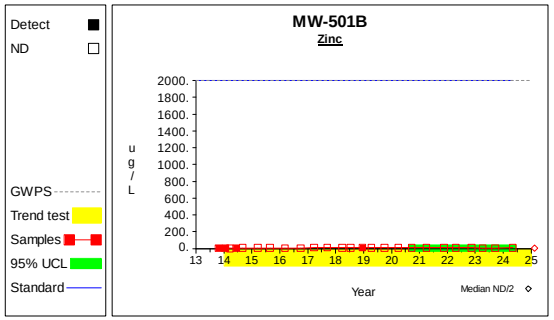
Graph 12



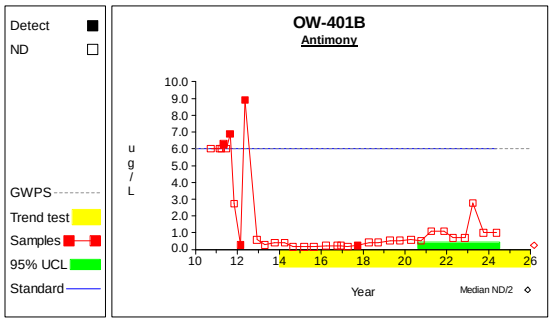
Graph 13



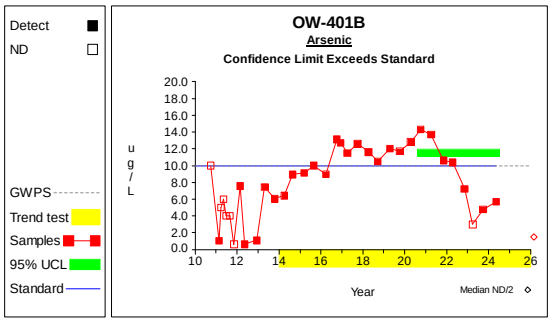
Graph 14



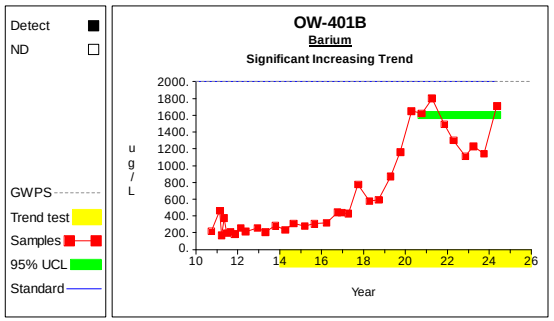
Graph 15



Graph 16

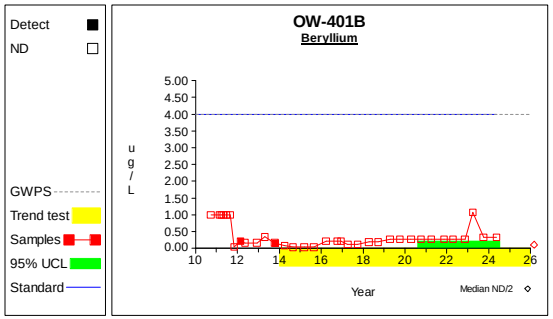


Graph 17

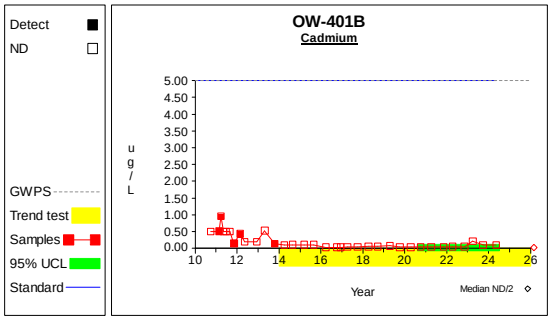


Graph 18

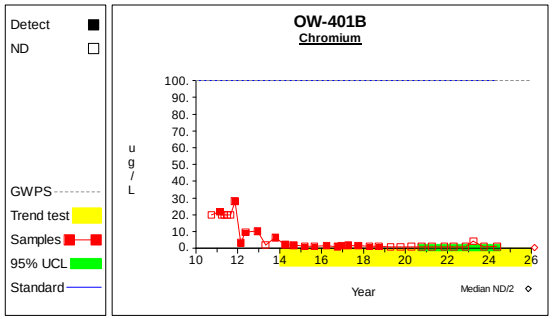
Confidence Limits (Assessment)



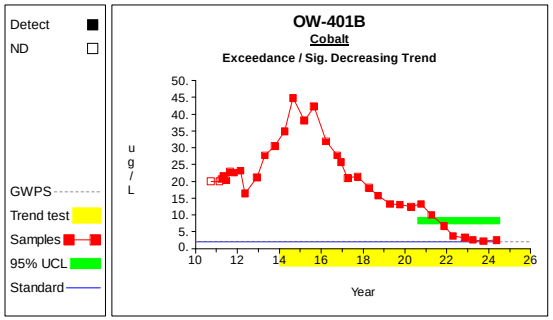
Graph 19



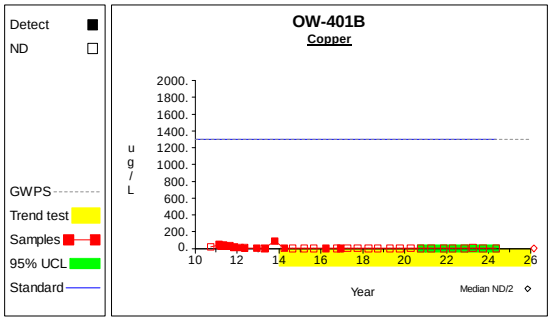
Graph 20



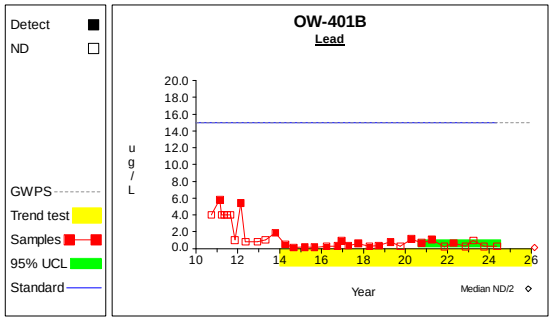
Graph 21



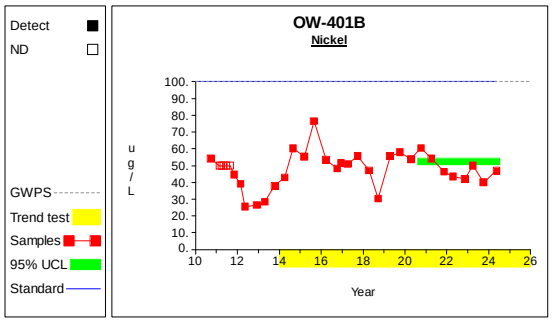
Graph 22



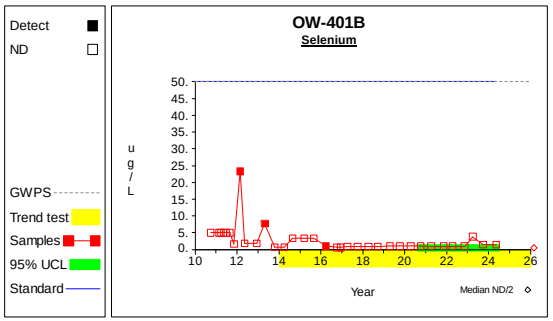
Graph 23



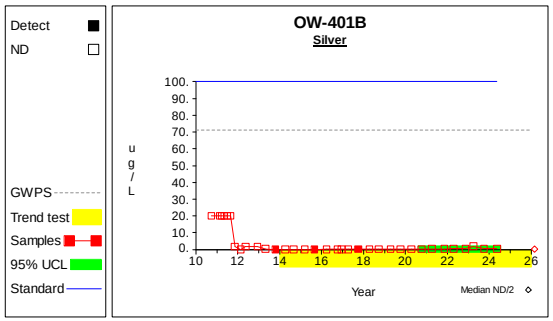
Graph 24



Graph 25

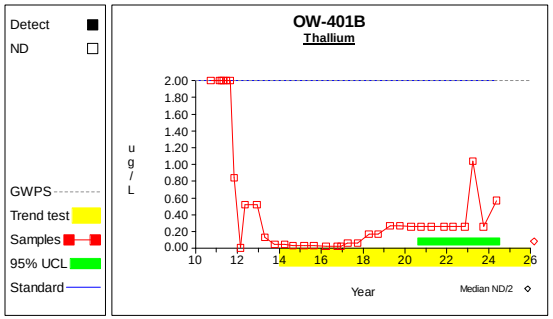


Graph 26

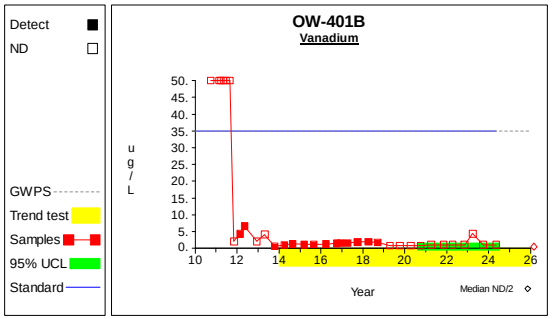


Graph 27

Confidence Limits (Assessment)



Graph 28



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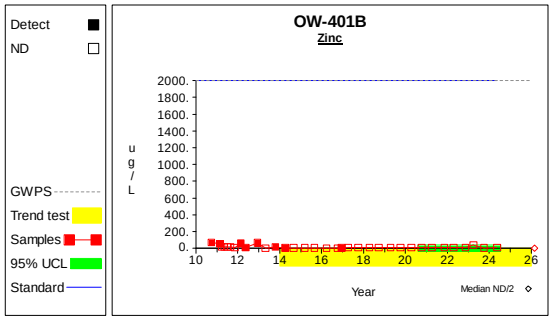

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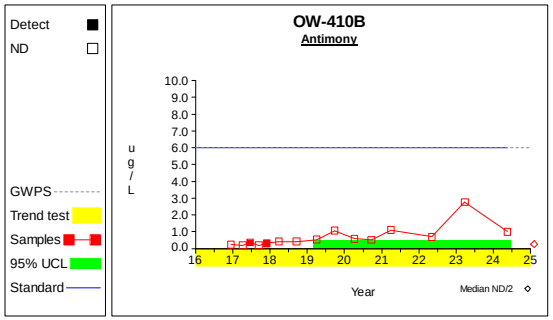

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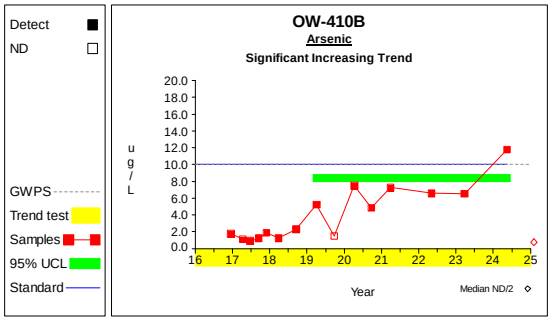

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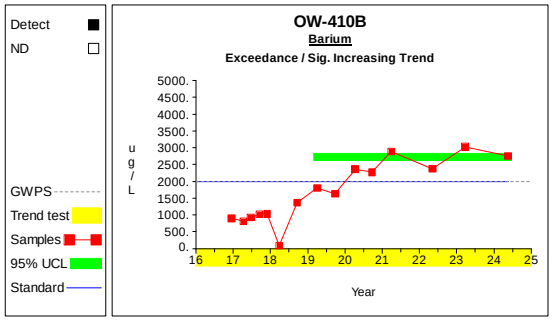

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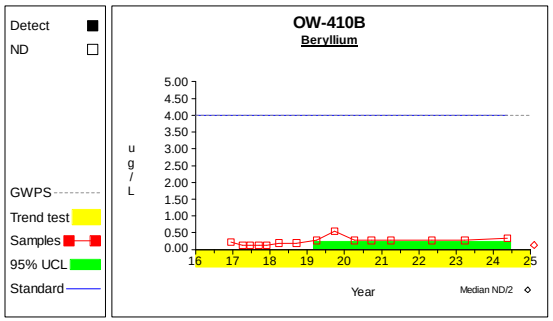

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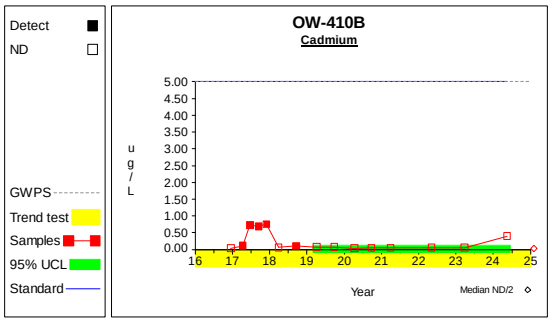

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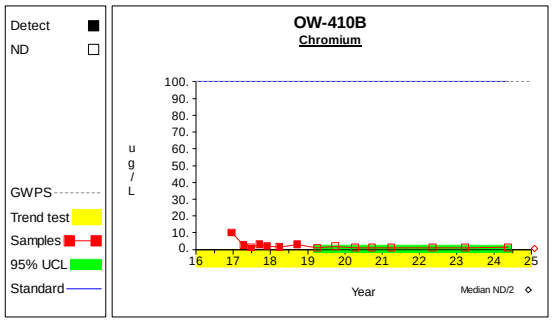
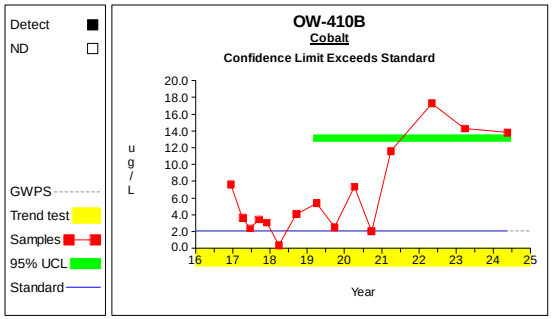


Graph 36

Confidence Limits (Assessment)



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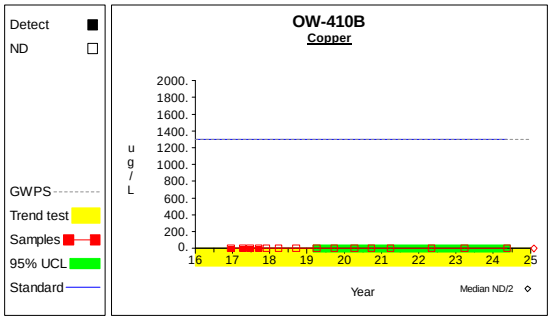

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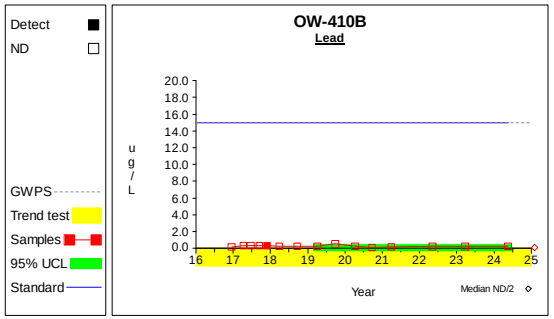

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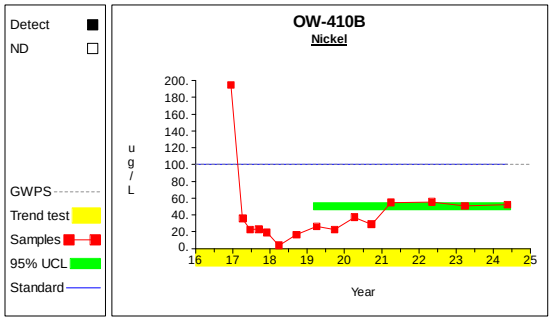

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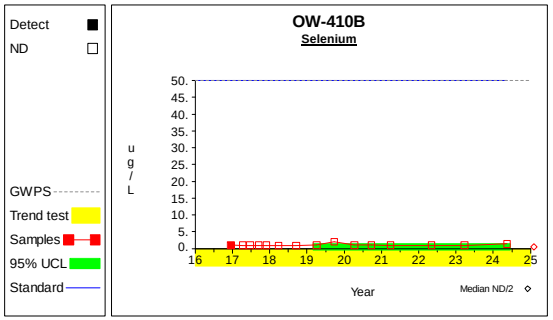

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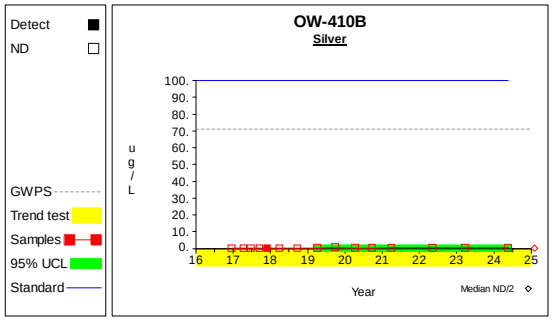

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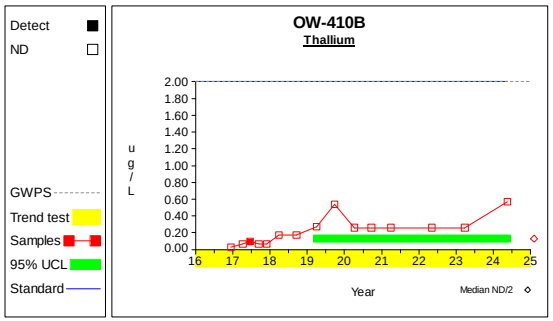

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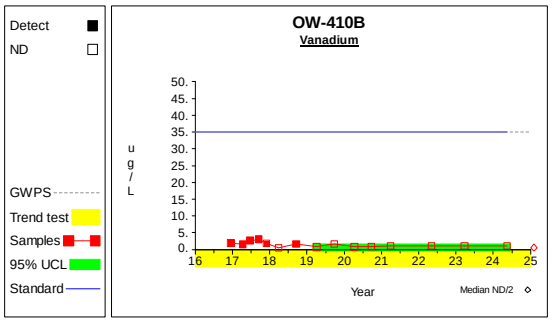

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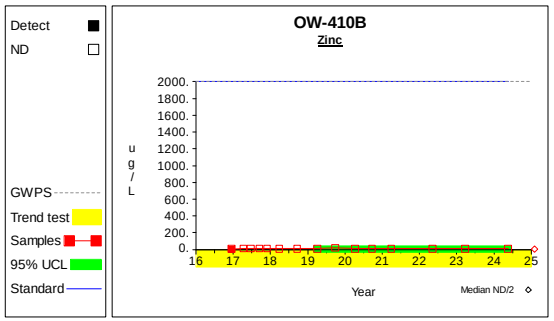
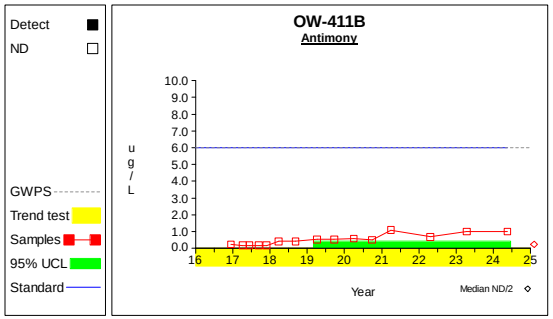


Graph 45

Confidence Limits (Assessment)



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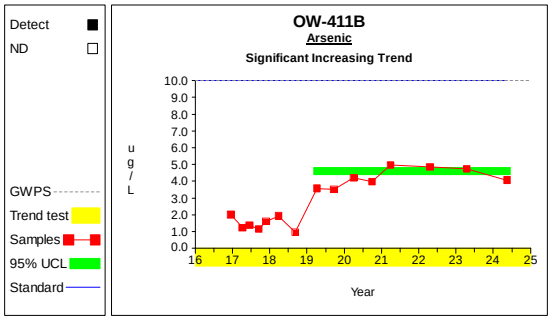

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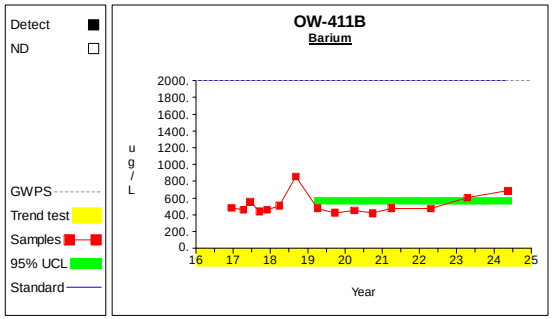

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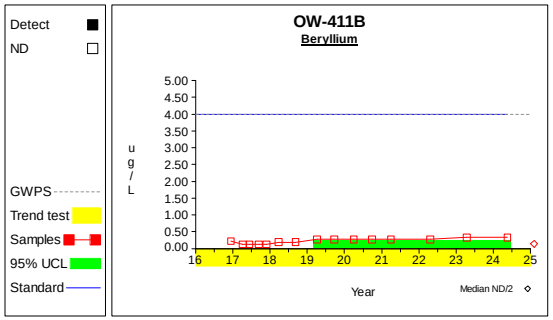

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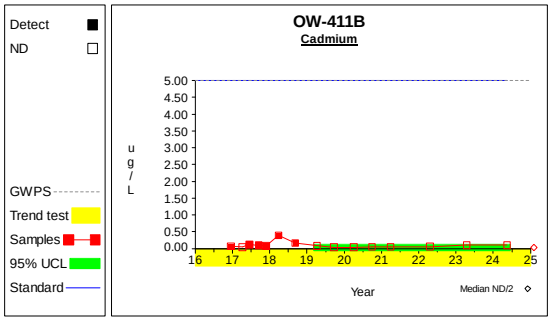

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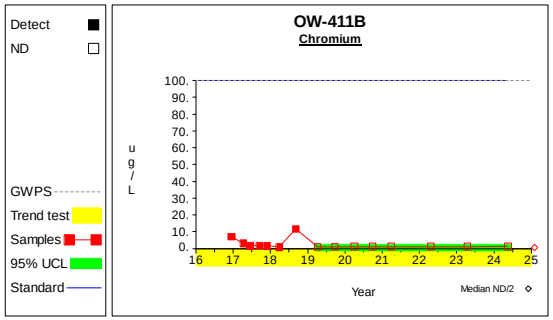

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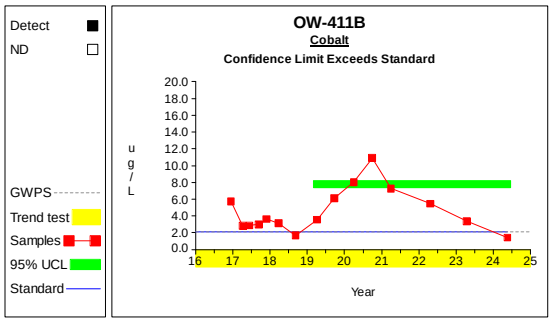

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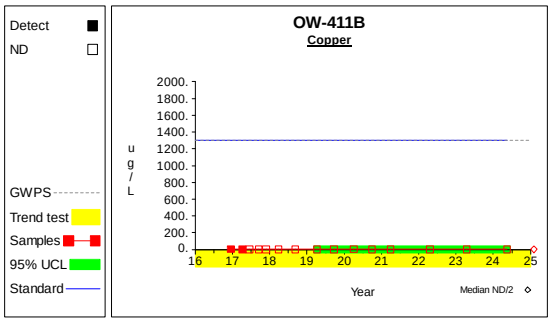

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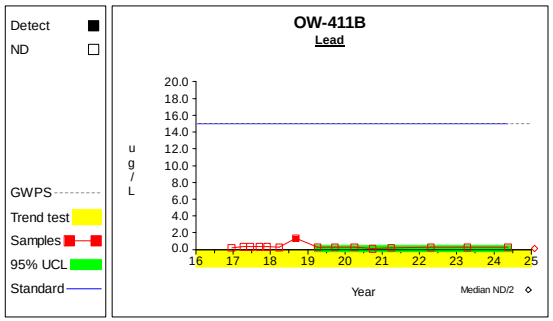
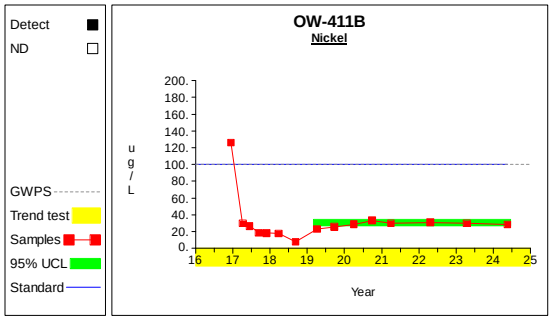
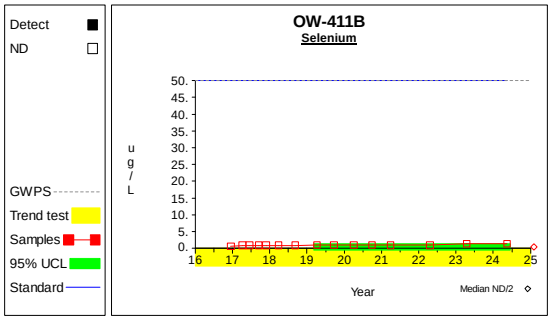


Graph 54

Confidence Limits (Assessment)



Graph 55



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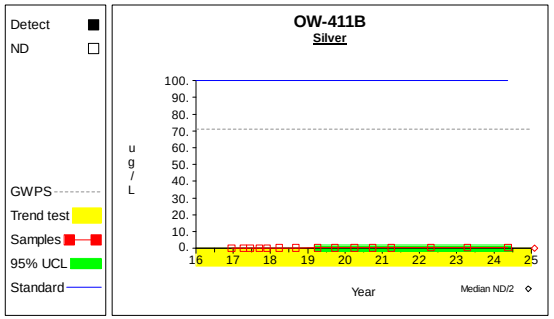

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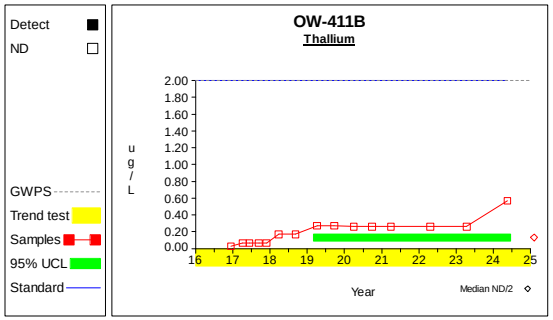

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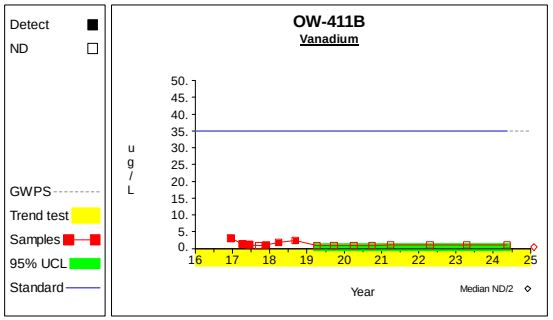

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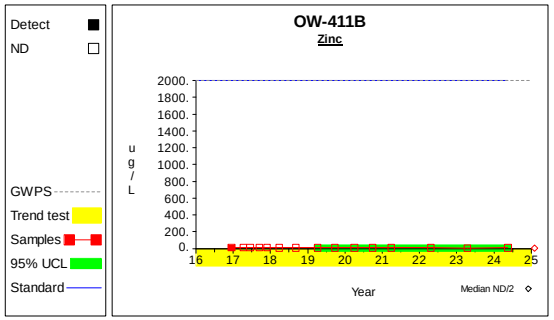

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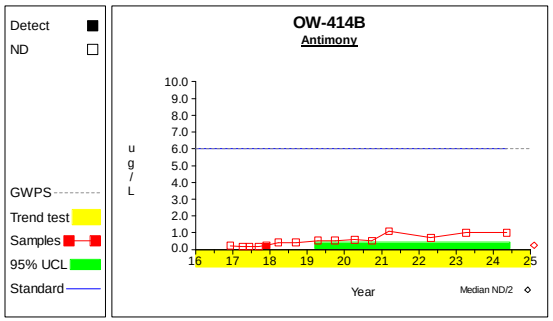

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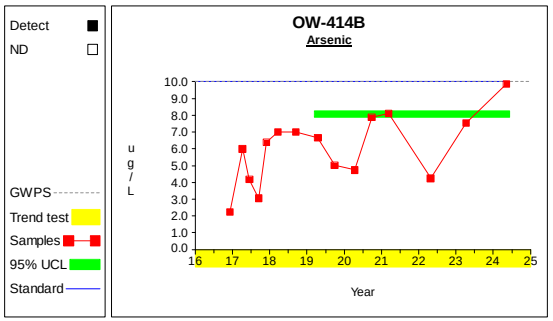

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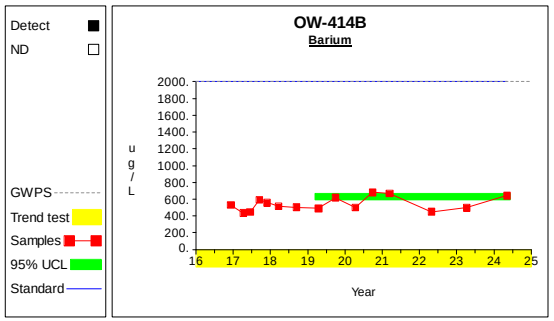
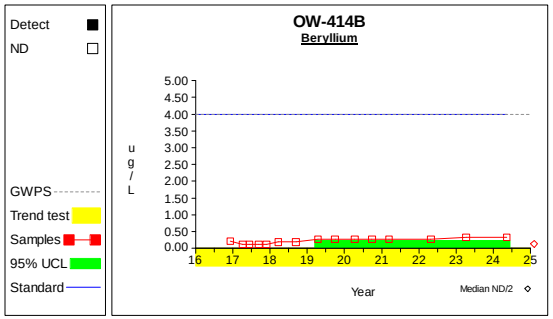


Graph 63

Confidence Limits (Assessment)



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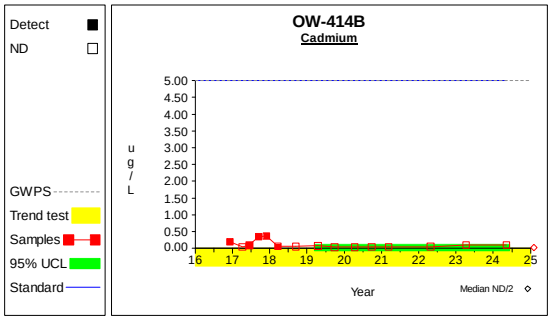

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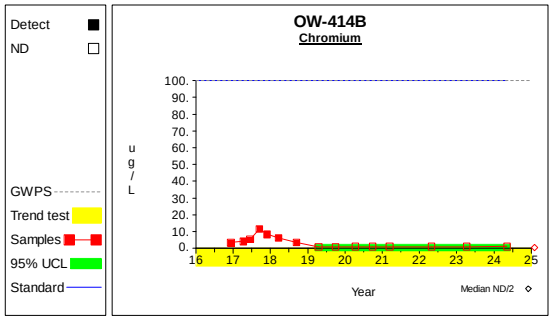
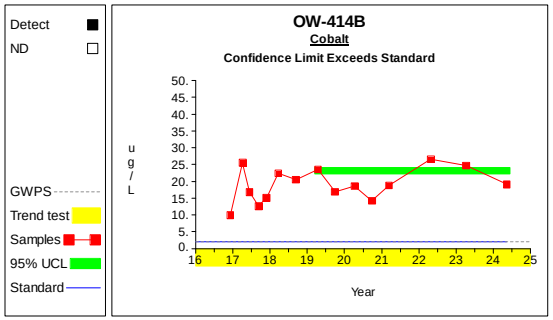
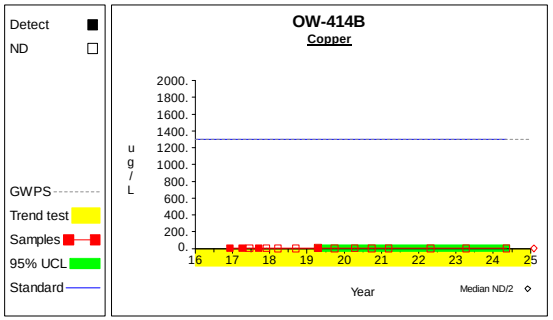


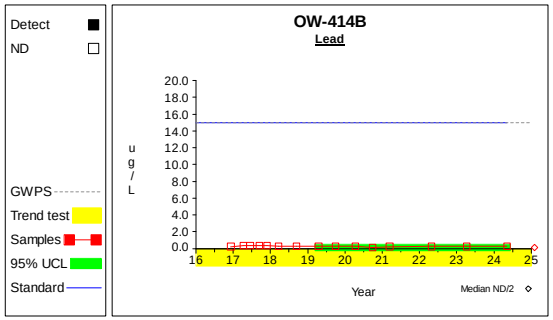
Graph 66



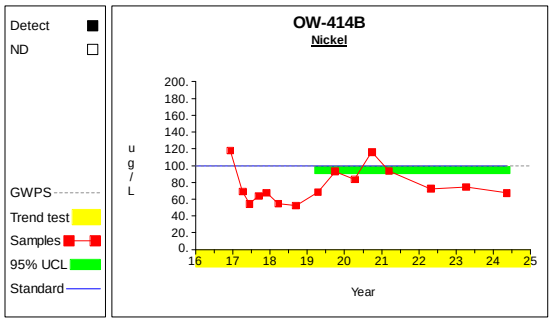
Graph 67



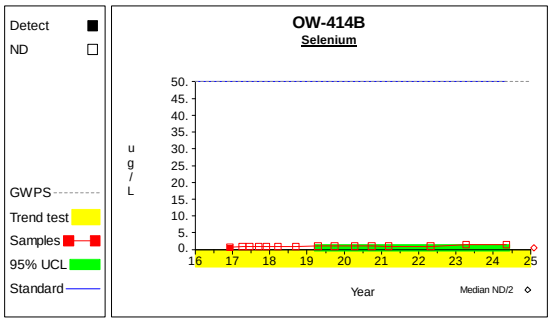
Graph 68



Graph 69



Graph 70



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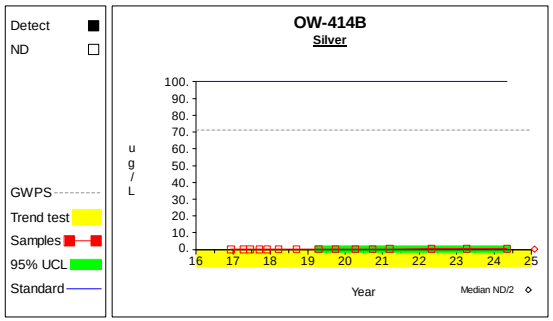
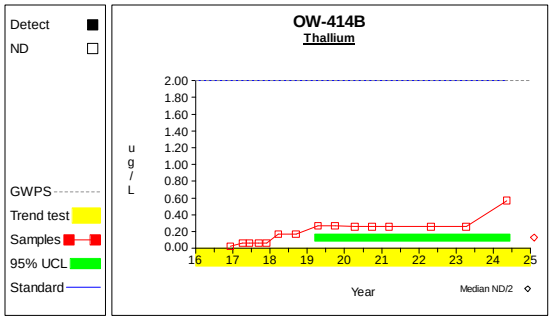
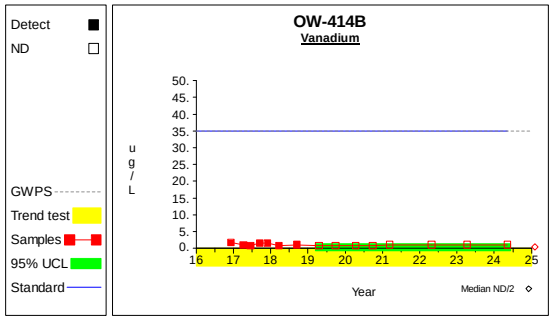


Graph 72

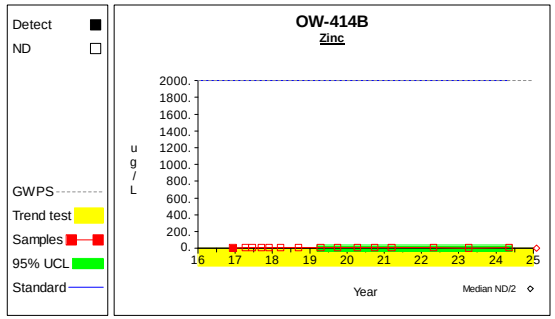
Confidence Limits (Assessment)



Graph 73



Graph 74



Graph 75

Table 1

Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Antimony	ug/L	MW-501B	8	0.265	0.000	0.670	0.265	0.265	6.000		
Arsenic	ug/L	MW-501B	8	0.375	0.000	0.670	0.375	0.375	10.000		
Barium	ug/L	MW-501B	8	110.750	6.671	0.670	106.282	115.218	2000.000	inc	
Beryllium	ug/L	MW-501B	8	0.111	0.000	0.670	0.111	0.111	4.000		
Cadmium	ug/L	MW-501B	8	0.028	0.000	0.670	0.028	0.028	5.000		
Chromium	ug/L	MW-501B	8	1.428	2.482	0.670	0.000	3.090	100.000		
Cobalt	ug/L	MW-501B	8	0.317	0.333	0.670	0.094	0.540	2.100		
Copper	ug/L	MW-501B	8	0.900	0.000	0.670	0.900	0.900	1300.000		
Lead	ug/L	MW-501B	8	0.120	0.000	0.670	0.120	0.120	15.000		
Nickel	ug/L	MW-501B	8	6.665	5.523	0.670	2.965	10.365	100.000		
Selenium	ug/L	MW-501B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	MW-501B	8	0.150	0.000	0.670	0.150	0.150	100.000		
Thallium	ug/L	MW-501B	8	0.085	0.000	0.670	0.085	0.085	2.000		
Vanadium	ug/L	MW-501B	8	0.425	0.000	0.670	0.425	0.425	35.000		
Zinc	ug/L	MW-501B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-401B	8	0.255	0.000	0.670	0.255	0.255	6.000		
Arsenic	ug/L	OW-401B	8	8.515	4.495	0.670	5.504	11.526	10.000		**
Barium	ug/L	OW-401B	8	1425.000	266.780	0.670	1246.307	1603.693	2000.000	inc	
Beryllium	ug/L	OW-401B	8	0.111	0.000	0.670	0.111	0.111	4.000		
Cadmium	ug/L	OW-401B	8	0.028	0.000	0.670	0.028	0.028	5.000		
Chromium	ug/L	OW-401B	8	0.550	0.000	0.670	0.550	0.550	100.000		
Cobalt	ug/L	OW-401B	8	5.512	4.102	0.670	2.765	8.260	2.100	dec	**
Copper	ug/L	OW-401B	8	0.900	0.000	0.670	0.900	0.900	1300.000		
Lead	ug/L	OW-401B	8	0.370	0.366	0.670	0.125	0.615	15.000		
Nickel	ug/L	OW-401B	8	47.938	6.769	0.670	43.404	52.471	100.000		
Selenium	ug/L	OW-401B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-401B	8	0.185	0.000	0.670	0.185	0.185	100.000		
Thallium	ug/L	OW-401B	8	0.085	0.000	0.670	0.085	0.085	2.000		
Vanadium	ug/L	OW-401B	8	0.550	0.000	0.670	0.550	0.550	35.000		
Zinc	ug/L	OW-401B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-410B	8	0.265	0.000	0.670	0.265	0.265	6.000		

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

Table 1

Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Arsenic	ug/L	OW-410B	8	6.305	3.089	0.670	4.236	8.374	10.000	inc	
Barium	ug/L	OW-410B	8	2387.500	497.214	0.670	2054.460	2720.540	2000.000	inc	**
Beryllium	ug/L	OW-410B	8	0.135	0.000	0.670	0.135	0.135	4.000		
Cadmium	ug/L	OW-410B	8	0.028	0.000	0.670	0.028	0.028	5.000		
Chromium	ug/L	OW-410B	8	0.550	0.000	0.670	0.550	0.550	100.000		
Cobalt	ug/L	OW-410B	8	9.288	5.760	0.670	5.429	13.146	2.100		**
Copper	ug/L	OW-410B	8	0.900	0.000	0.670	0.900	0.900	1300.000		
Lead	ug/L	OW-410B	8	0.125	0.000	0.670	0.125	0.125	15.000		
Nickel	ug/L	OW-410B	8	41.038	13.849	0.670	31.761	50.314	100.000		
Selenium	ug/L	OW-410B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-410B	8	0.185	0.000	0.670	0.185	0.185	100.000		
Thallium	ug/L	OW-410B	8	0.130	0.000	0.670	0.130	0.130	2.000		
Vanadium	ug/L	OW-410B	8	0.550	0.000	0.670	0.550	0.550	35.000		
Zinc	ug/L	OW-410B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-411B	8	0.255	0.000	0.670	0.255	0.255	6.000		
Arsenic	ug/L	OW-411B	8	4.238	0.566	0.670	3.859	4.616	10.000	inc	
Barium	ug/L	OW-411B	8	503.375	93.666	0.670	440.636	566.114	2000.000		
Beryllium	ug/L	OW-411B	8	0.135	0.000	0.670	0.135	0.135	4.000		
Cadmium	ug/L	OW-411B	8	0.026	0.000	0.670	0.026	0.026	5.000		
Chromium	ug/L	OW-411B	8	0.550	0.000	0.670	0.550	0.550	100.000		
Cobalt	ug/L	OW-411B	8	5.762	3.011	0.670	3.746	7.779	2.100		**
Copper	ug/L	OW-411B	8	0.900	0.000	0.670	0.900	0.900	1300.000		
Lead	ug/L	OW-411B	8	0.130	0.000	0.670	0.130	0.130	15.000		
Nickel	ug/L	OW-411B	8	28.838	3.125	0.670	26.744	30.931	100.000		
Selenium	ug/L	OW-411B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-411B	8	0.185	0.000	0.670	0.185	0.185	100.000		
Thallium	ug/L	OW-411B	8	0.130	0.000	0.670	0.130	0.130	2.000		
Vanadium	ug/L	OW-411B	8	0.425	0.000	0.670	0.425	0.425	35.000		
Zinc	ug/L	OW-411B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-414B	8	0.255	0.000	0.670	0.255	0.255	6.000		
Arsenic	ug/L	OW-414B	8	6.753	1.952	0.670	5.445	8.060	10.000		

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LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

Table 1

Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Barium	ug/L	OW-414B	8	567.875	92.504	0.670	505.915	629.835	2000.000		
Beryllium	ug/L	OW-414B	8	0.135	0.000	0.670	0.135	0.135	4.000		
Cadmium	ug/L	OW-414B	8	0.026	0.000	0.670	0.026	0.026	5.000		
Chromium	ug/L	OW-414B	8	0.550	0.000	0.670	0.550	0.550	100.000		
Cobalt	ug/L	OW-414B	8	20.300	4.220	0.670	17.474	23.126	2.100		**
Copper	ug/L	OW-414B	8	1.635	2.079	0.670	0.243	3.027	1300.000		
Lead	ug/L	OW-414B	8	0.130	0.000	0.670	0.130	0.130	15.000		
Nickel	ug/L	OW-414B	8	83.538	16.658	0.670	72.380	94.695	100.000		
Selenium	ug/L	OW-414B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-414B	8	0.185	0.000	0.670	0.185	0.185	100.000		
Thallium	ug/L	OW-414B	8	0.130	0.000	0.670	0.130	0.130	2.000		
Vanadium	ug/L	OW-414B	8	0.425	0.000	0.670	0.425	0.425	35.000		
Zinc	ug/L	OW-414B	8	5.000	0.000	0.670	5.000	5.000	2000.000		

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.12 / 8** = **0.265**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**0.562 - 4.494/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.265 - 1.895 * 0.0/8**^{½} = **0.265**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.265 + 1.895 * 0.0/8**^{½} = **0.265**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **808.333**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **808.333**^{½}) / 2 = [**101.381**, **174.619**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.007**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.0** / **8** = **0.375**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.125** - **9.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.375** - **1.895** * **0.0**/**8**^{½} = **0.375**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.375** + **1.895** * **0.0**/**8**^{½} = **0.375**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **808.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **808.333**^{½}) / 2 = [**101.381**, **174.619**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **886.0** / **8** = **110.75**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**98436.0** - **784996.0**/**8**) / (**8**-1))^{½} = **6.671**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **110.75** - **1.895** * **6.671**/**8**^{½} = **106.282**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **110.75** + **1.895** * **6.671**/**8**^{½} = **115.218**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **25** * (**25**-1) / 2 = **300**	Number of sample pairs during trend detection period.
6	S = **2.491**	Sen's estimator of trend.
7	var(S) = **1830.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**300** ± **2.576** * **1830.333**^{½}) / 2 = [**94.896**, **205.104**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.468**, **4.69**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Beryllium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.884 / 8** = **0.111**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.098** - **0.781/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.111** - **1.895** * **0.0/8**^{½} = **0.111**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.111** + **1.895** * **0.0/8**^{½} = **0.111**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **367.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **367.667**^{½}) / 2 = [**113.303**, **162.697**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.22 / 8** = **0.028**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.006** - **0.048/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.028** - **1.895** * **0.0/8**^{½} = **0.028**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.028** + **1.895** * **0.0/8**^{½} = **0.028**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **367.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **367.667**^{½}) / 2 = [**113.303**, **162.697**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **11.42** / **8** = **1.428**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**59.422** - **130.416**/**8**) / (**8**-1))^{½} = **2.482**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1.428** - **1.895** * **2.482/8**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1.428** + **1.895** * **2.482/8**^{½} = **3.09**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **1291.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **1291.667**^{½}) / 2 = [**91.71**, **184.29**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.223**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.535** / **8** = **0.317**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.579** - **6.426/8**) / (**8**-1))^{½} = **0.333**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.317** - **1.895** * **0.333/8**^{½} = **0.094**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.317** + **1.895** * **0.333/8**^{½} = **0.54**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **-0.037**	Sen's estimator of trend.
7	var(S) = **1581.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **1581.0**^{½}) / 2 = [**86.787**, **189.213**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.168**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **1036.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **1036.0**^{½}) / 2 = [**96.543**, **179.457**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.138**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.96** / **8** = **0.12**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.115** - **0.922**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.12** - **1.895** * **0.0**/**8**^{½} = **0.12**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.12** + **1.895** * **0.0**/**8**^{½} = **0.12**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **928.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **928.333**^{½}) / 2 = [**98.756**, **177.244**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.017**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **53.32** / **8** = **6.665**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**568.918** - **2843.022/8**) / (**8**-1))^{½} = **5.523**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **6.665** - **1.895** * **5.523/8**^{½} = **2.965**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **6.665** + **1.895** * **5.523/8**^{½} = **10.365**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **-1.088**	Sen's estimator of trend.
7	var(S) = **1619.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **1619.667**^{½}) / 2 = [**86.164**, **189.836**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.722**, **0.083**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.84** / **8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **0.0**^{½}) / 2 = [**138.0**, **138.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.2** / **8** = **0.15**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.18** - **1.44**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.15** - **1.895** * **0.0**/**8**^{½} = **0.15**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.15** + **1.895** * **0.0**/**8**^{½} = **0.15**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **191.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **191.667**^{½}) / 2 = [**120.168**, **155.832**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.68 / 8** = **0.085**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.058** - **0.462/8**) / (**8**-1))^{½} = **1.76**x**10^{-9}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.085** - **1.895** * **1.76**x**10^{-9}/8**^{½} = **0.085**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.085** + **1.895** * **1.76**x**10^{-9}/8**^{½} = **0.085**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **191.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **191.667**^{½}) / 2 = [**120.168**, **155.832**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.4 / 8** = **0.425**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**1.445** - **11.56/8**) / (**8**-1))^{½} = **8.58**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.425** - **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.425** + **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **1217.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **1217.0**^{½}) / 2 = [**93.067**, **182.933**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.024**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at MW-501B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **24** * (**24**-1) / 2 = **276**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **528.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**276** ± **2.576** * **528.667**^{½}) / 2 = [**108.385**, **167.615**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.04** / **8** = **0.255**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.52** - **4.162**/**8**) / (**8**-1))^{½} = **5.40**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.255** - **1.895** * **5.40**x**10**$^{-9}$/**8**^{½} = **0.255**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.255** + **1.895** * **5.40**x**10**$^{-9}$/**8**^{½} = **0.255**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **161.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **161.0**^{½}) / 2 = [**99.157**, **131.843**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **68.12** / **8** = **8.515**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**721.501** - **4640.334/8**) / (**8**-1))^{½} = **4.495**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **8.515** - **1.895** * **4.495/8**^{½} = **5.504**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **8.515** + **1.895** * **4.495/8**^{½} = **11.526**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **-0.144**	Sen's estimator of trend.
7	var(S) = **1257.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z** $_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1257.667**^{½}) / 2 = [**69.823**, **161.177**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.947**, **0.661**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **11400.0 / 8** = **1425.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**1.67**x**10^7 - 1.30**x**10^8/8**) / (**8**-1))^{½} = **266.78**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1425.0 - 1.895 * 266.78/8**^{½} = **1246.307**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1425.0 + 1.895 * 266.78/8**^{½} = **1603.693**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **131.867**	Sen's estimator of trend.
7	var(S) = **1257.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1257.667**^{½}) / 2 = [**69.823**, **161.177**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**88.022**, **196.986**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Beryllium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.884** / **8** = **0.111**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.098** - **0.781**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.111** - **1.895** * **0.0**/**8**^{½} = **0.111**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.111** + **1.895** * **0.0**/**8**^{½} = **0.111**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **0.0**^{½}) / 2 = [**115.5**, **115.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.22 / 8** = **0.028**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.006** - **0.048/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.028** - **1.895** * **0.0/8**^{½} = **0.028**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.028** + **1.895** * **0.0/8**^{½} = **0.028**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **0.0**^{½}) / 2 = [**115.5**, **115.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **-0.147**	Sen's estimator of trend.
7	var(S) = **1091.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1091.667**^{½}) / 2 = [**72.944**, **158.056**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.204**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **44.1** / **8** = **5.513**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**360.905** - **1944.81/8**) / (**8**-1))^{½} = **4.102**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.513** - **1.895** * **4.102/8**^{½} = **2.765**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.513** + **1.895** * **4.102/8**^{½} = **8.26**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **-3.876**	Sen's estimator of trend.
7	var(S) = **1256.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z** $_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1256.667**^{½}) / 2 = [**69.841**, **161.159**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-5.089**, **-3.162**]	Two-sided confidence interval for slope.
10	UCL(S) < 0	**Significant decreasing trend.**

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **440.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **440.667**^{½}) / 2 = [**88.462**, **142.538**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.961 / 8** = **0.37**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.034** - **8.768/8**) / (**8**-1))^{½} = **0.366**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.37** - **1.895** * **0.366/8**^{½} = **0.125**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.37** + **1.895** * **0.366/8**^{½} = **0.615**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **1229.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1229.333**^{½}) / 2 = [**70.34**, **160.66**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.045**, **0.08**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **383.5** / **8** = **47.938**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**18704.75** - **147072.25**/**8**) / (**8**-1))^{½} = **6.769**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **47.938** - **1.895** * **6.769/8**^{½} = **43.404**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **47.938** + **1.895** * **6.769/8**^{½} = **52.471**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **-1.174**	Sen's estimator of trend.
7	var(S) = **1256.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z** $_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1256.667**^{½}) / 2 = [**69.841**, **161.159**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.681**, **0.587**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.84** / **8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **161.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **161.0**^{½}) / 2 = [**99.157**, **131.843**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.48 / 8** = **0.185**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.274** - **2.19/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.185** - **1.895** * **0.0/8**^{½} = **0.185**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.185** + **1.895** * **0.0/8**^{½} = **0.185**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **307.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **307.667**^{½}) / 2 = [**92.908**, **138.092**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.68 / 8** = **0.085**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.058** - **0.462/8**) / (**8**-1))^{½} = **1.76**x**10^{-9}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.085** - **1.895** * **1.76**x**10^{-9}/8**^{½} = **0.085**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.085** + **1.895** * **1.76**x**10^{-9}/8**^{½} = **0.085**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **0.0**^{½}) / 2 = [**115.5**, **115.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **-0.07**	Sen's estimator of trend.
7	var(S) = **1091.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **1091.667**^{½}) / 2 = [**72.944**, **158.056**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.153**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-401B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **22** * (**22**-1) / 2 = **231**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **307.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**231** ± **2.576** * **307.667**^{½}) / 2 = [**92.908**, **138.092**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.12** / **8** = **0.265**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.562** - **4.494/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.265** - **1.895** * **0.0/8**^{½} = **0.265**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.265** + **1.895** * **0.0/8**^{½} = **0.265**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **139.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **139.667**^{½}) / 2 = [**37.278**, **67.722**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **50.44** / **8** = **6.305**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**384.811** - **2544.194/8**) / (**8**-1))^{½} = **3.089**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **6.305** - **1.895** * **3.089/8**^{½} = **4.236**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **6.305** + **1.895** * **3.089/8**^{½} = **8.374**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **1.16**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.264**, **1.825**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **19100.0 / 8** = **2387.5**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**4.73**x**10^7 - 3.65**x**10^8/8**) / (**8**-1))^{½} = **497.214**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2387.5 - 1.895 * 497.214/8**^{½} = **2054.46**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2387.5 + 1.895 * 497.214/8**^{½} = **2720.54**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **361.777**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**244.608**, **519.43**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Beryllium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.08** / **8** = **0.135**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.146** - **1.166/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.135** - **1.895** * **0.0/8**^{½} = **0.135**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.135** + **1.895** * **0.0/8**^{½} = **0.135**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.22** / **8** = **0.028**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.006** - **0.048**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.028** - **1.895** * **0.0**/**8**^{½} = **0.028**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.028** + **1.895** * **0.0**/**8**^{½} = **0.028**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **283.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **283.333**^{½}) / 2 = [**30.82**, **74.18**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.103**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.373**	Sen's estimator of trend.
7	var(S) = **343.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **343.0**^{½}) / 2 = [**28.646**, **76.354**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.992**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **74.3** / **8** = **9.288**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**922.328** - **5520.49/8**) / (**8**-1))^{½} = **5.76**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **9.288** - **1.895** * **5.76/8**^{½} = **5.429**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **9.288** + **1.895** * **5.76/8**^{½} = **13.146**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **1.574**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.469**, **2.502**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **243.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **243.333**^{½}) / 2 = [**32.408**, **72.592**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.63**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.0 / 8** = **0.125**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.125** - **1.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.125** - **1.895** * **0.0**/**8**^{½} = **0.125**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.125** + **1.895** * **0.0**/**8**^{½} = **0.125**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **328.3** / **8** = **41.038**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**14815.21** - **107780.89**/**8**) / (**8**-1))^{½} = **13.849**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **41.038** - **1.895** * **13.849**/**8**^{½} = **31.761**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **41.038** + **1.895** * **13.849**/**8**^{½} = **50.314**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **3.883**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-6.921**, **8.165**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.84** / **8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.48** / **8** = **0.185**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.274** - **2.19**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.185** - **1.895** * **0.0**/**8**^{½} = **0.185**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.185** + **1.895** * **0.0**/**8**^{½} = **0.185**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.04** / **8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.135** - **1.082**/**8**) / (**8**-1))^{½} = **8.76**x**10**$^{-10}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76**x**10**$^{-10}$/**8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76**x**10**$^{-10}$/**8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.22**	Sen's estimator of trend.
7	var(S) = **316.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **316.333**^{½}) / 2 = [**29.592**, **75.408**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.512**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-410B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.04 / 8** = **0.255**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.52** - **4.162/8**) / (**8**-1))^{½} = **5.40**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.255** - **1.895** * **5.40**x**10**$^{-9}$**/8**^{½} = **0.255**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.255** + **1.895** * **5.40**x**10**$^{-9}$**/8**^{½} = **0.255**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **33.9** / **8** = **4.238**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**145.892** - **1149.21/8**) / (**8**-1))^{½} = **0.566**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.238** - **1.895** * **0.566/8**^{½} = **3.859**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.238** + **1.895** * **0.566/8**^{½} = **4.616**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.634**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.221**, **0.977**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4027.0 / 8** = **503.375**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**2.09**x**10^6 - 1.62**x**10^7/8**) / (**8**-1))^{½} = **93.666**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **503.375 - 1.895 * 93.666/8**^{½} = **440.636**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **503.375 + 1.895 * 93.666/8**^{½} = **566.114**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **5.028**	Sen's estimator of trend.
7	var(S) = **407.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **407.333**^{½}) / 2 = [**26.505**, **78.495**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-25.664**, **36.737**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Beryllium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.08** / **8** = **0.135**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.146** - **1.166/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.135** - **1.895** * **0.0/8**^{½} = **0.135**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.135** + **1.895** * **0.0/8**^{½} = **0.135**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.204** / **8** = **0.026**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.005** - **0.042**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.026** - **1.895** * **0.0**/**8**^{½} = **0.026**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.026** + **1.895** * **0.0**/**8**^{½} = **0.026**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.006**	Sen's estimator of trend.
7	var(S) = **316.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **316.333**^{½}) / 2 = [**29.592**, **75.408**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.025**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.266**	Sen's estimator of trend.
7	var(S) = **342.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **342.0**^{½}) / 2 = [**28.681**, **76.319**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.976**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **46.1** / **8** = **5.763**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**329.11** - **2125.21**/**8**) / (**8**-1))^{½} = **3.011**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.763** - **1.895** * **3.011/8**^{½} = **3.746**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.763** + **1.895** * **3.011/8**^{½} = **7.779**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.355**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.887**, **1.402**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **139.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **139.667**^{½}) / 2 = [**37.278**, **67.722**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.04 / 8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.135** - **1.082/8**) / (**8**-1))^{½} = **8.76x10^{-10}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **230.7** / **8** = **28.838**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6721.19** - **53222.49/8**) / (**8**-1))^{½} = **3.125**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **28.838** - **1.895** * **3.125/8**^{½} = **26.744**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **28.838** + **1.895** * **3.125/8**^{½} = **30.931**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.785**	Sen's estimator of trend.
7	var(S) = **407.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **407.333**^{½}) / 2 = [**26.505**, **78.495**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-8.821**, **3.402**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.84** / **8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.48** / **8** = **0.185**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.274** - **2.19**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.185** - **1.895** * **0.0**/**8**^{½} = **0.185**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.185** + **1.895** * **0.0**/**8**^{½} = **0.185**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.04 / 8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.135** - **1.082/8**) / (**8**-1))^{½} = **8.76x10^{-10}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.4 / 8** = **0.425**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.445** - **11.56/8**) / (**8**-1))^{½} = **8.58**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.425** - **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.425** + **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.145**	Sen's estimator of trend.
7	var(S) = **316.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **316.333**^{½}) / 2 = [**29.592**, **75.408**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.419**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-411B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.04 / 8** = **0.255**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.52** - **4.162/8**) / (**8**-1))^{½} = **5.40**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.255** - **1.895** * **5.40**x**10**$^{-9}$**/8**^{½} = **0.255**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.255** + **1.895** * **5.40**x**10**$^{-9}$**/8**^{½} = **0.255**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **54.02** / **8** = **6.753**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**391.451** - **2918.16/8**) / (**8**-1))^{½} = **1.952**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **6.753** - **1.895** * **1.952/8**^{½} = **5.445**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **6.753** + **1.895** * **1.952/8**^{½} = **8.06**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.545**	Sen's estimator of trend.
7	var(S) = **407.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **407.333**^{½}) / 2 = [**26.505**, **78.495**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.187**, **1.187**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4543.0 / 8** = **567.875**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**2.64**x**10^6 - 2.06**x**10^7/8**) / (**8**-1))^{½} = **92.504**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **567.875 - 1.895 * 92.504/8**^{½} = **505.915**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **567.875 + 1.895 * 92.504/8**^{½} = **629.835**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **13.193**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-17.609**, **54.881**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Beryllium (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.08** / **8** = **0.135**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.146** - **1.166/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.135** - **1.895** * **0.0/8**^{½} = **0.135**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.135** + **1.895** * **0.0/8**^{½} = **0.135**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.204 / 8** = **0.026**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.005** - **0.042/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.026** - **1.895** * **0.0/8**^{½} = **0.026**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.026** + **1.895** * **0.0/8**^{½} = **0.026**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **283.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **283.333**^{½}) / 2 = [**30.82**, **74.18**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.042**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.759**	Sen's estimator of trend.
7	var(S) = **343.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **343.0**^{½}) / 2 = [**28.646**, **76.354**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.855**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **162.4 / 8** = **20.3**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**3421.36 - 26373.76/8**) / (**8**-1))^{½} = **4.22**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ **- tS/N**^{½} = **20.3 - 1.895 * 4.22/8**^{½} = **17.474**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ **+ tS/N**^{½} = **20.3 + 1.895 * 4.22/8**^{½} = **23.126**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.981**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.472**, **2.91**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **13.08** / **8** = **1.635**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**51.638** - **171.086**/**8**) / (**8**-1))^{½} = **2.079**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1.635** - **1.895** * **2.079/8**^{½} = **0.243**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1.635** + **1.895** * **2.079/8**^{½} = **3.027**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **243.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **243.333**^{½}) / 2 = [**32.408**, **72.592**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.534**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.04 / 8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.135** - **1.082/8**) / (**8**-1))^{½} = **8.76x10^{-10}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **668.3** / **8** = **83.538**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**57770.57** - **446624.89**/**8**) / (**8**-1))^{½} = **16.658**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **83.538** - **1.895** * **16.658**/**8**^{½} = **72.38**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **83.538** + **1.895** * **16.658**/**8**^{½} = **94.695**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **1.289**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-8.103**, **10.457**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.84 / 8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.48** / **8** = **0.185**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.274** - **2.19**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS**/**N**^{½} = **0.185** - **1.895** * **0.0**/**8**^{½} = **0.185**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS**/**N**^{½} = **0.185** + **1.895** * **0.0**/**8**^{½} = **0.185**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-414B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.04 / 8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.135** - **1.082/8**) / (**8**-1))^{½} = **8.76x10^{-10}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

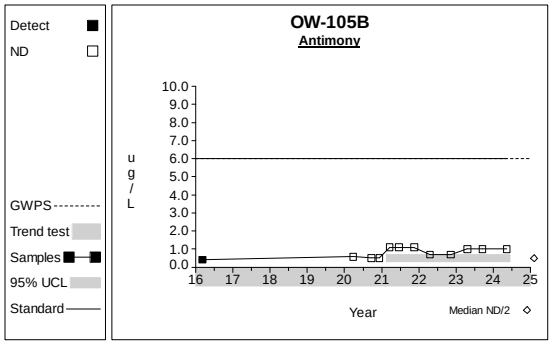
Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-414B

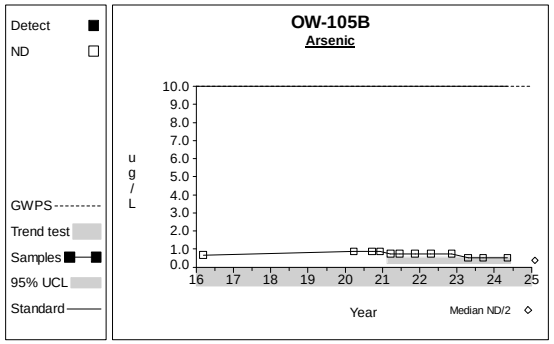
Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.4 / 8** = **0.425**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**1.445** - **11.56/8**) / (**8**-1))^{½} = **8.58**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.425** - **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.425** + **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.158**	Sen's estimator of trend.
7	var(S) = **342.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **342.0**^{½}) / 2 = [**28.681**, **76.319**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.325**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

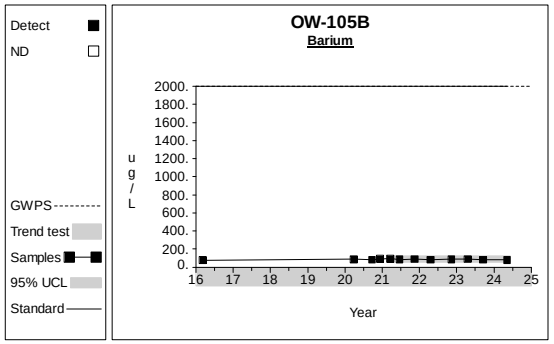
Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-414B

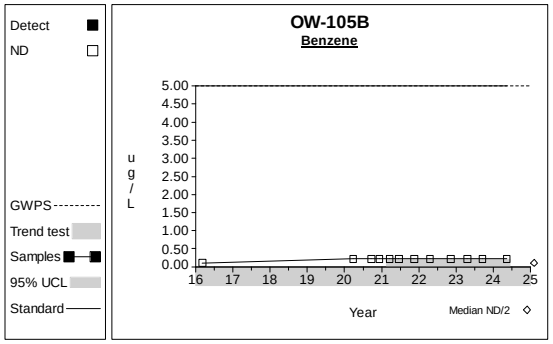
Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

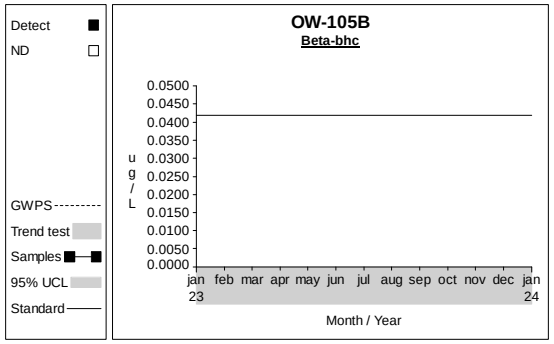
Confidence Limits (Assessment)

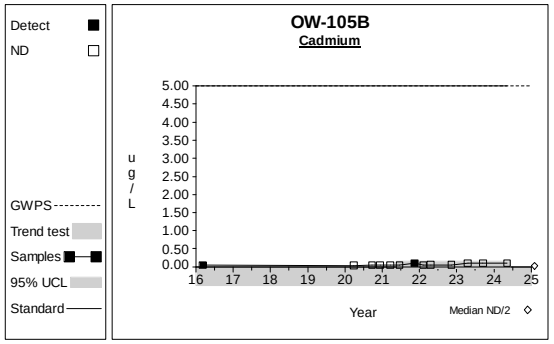


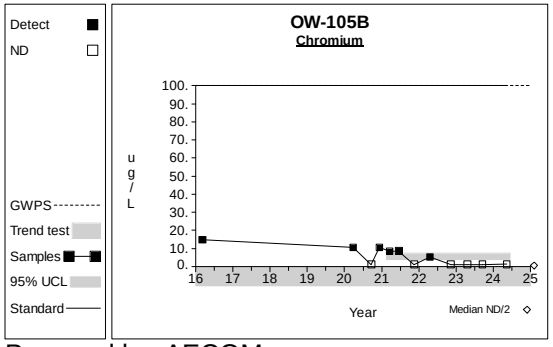


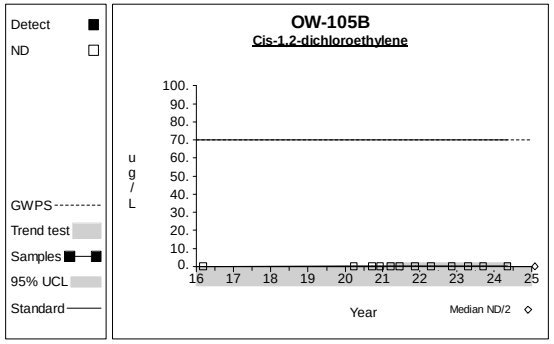


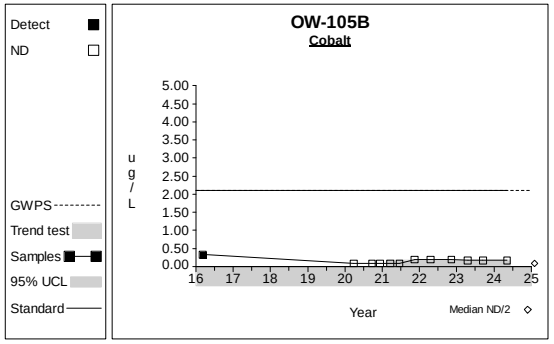




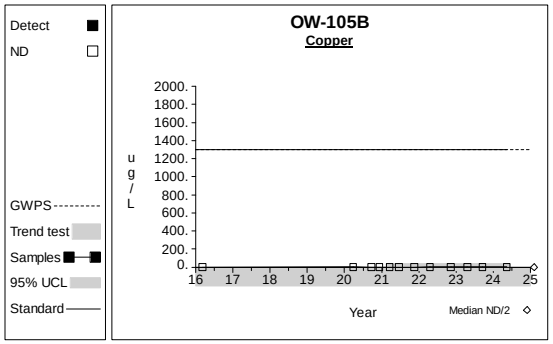


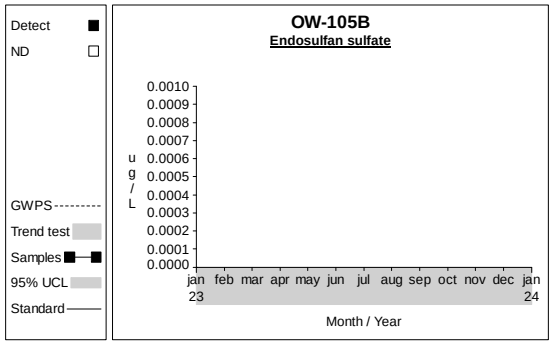


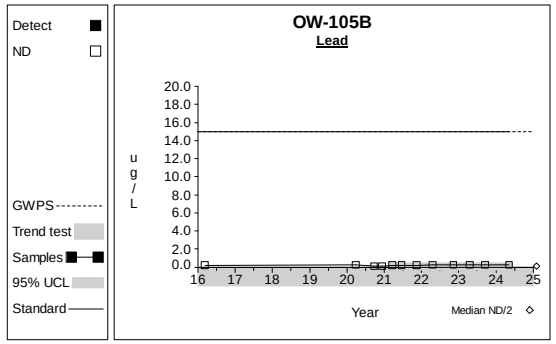


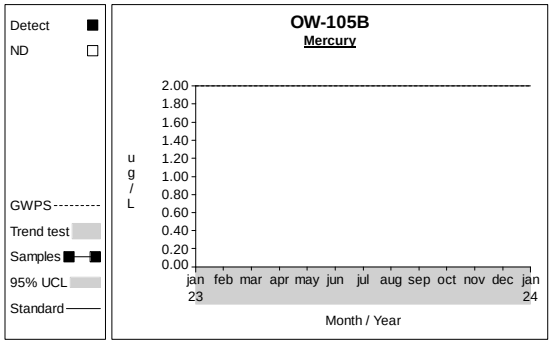


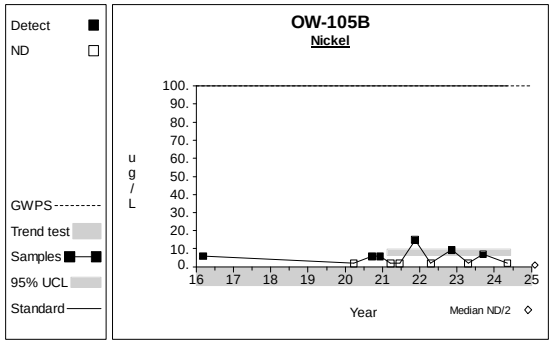
Confidence Limits (Assessment)

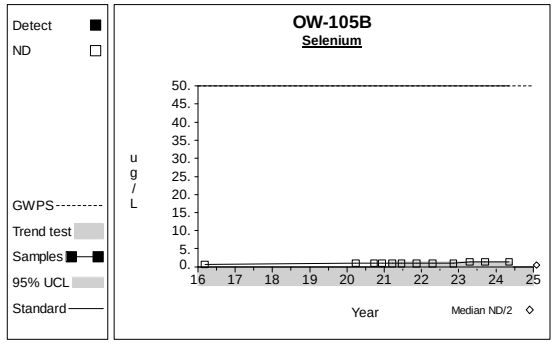


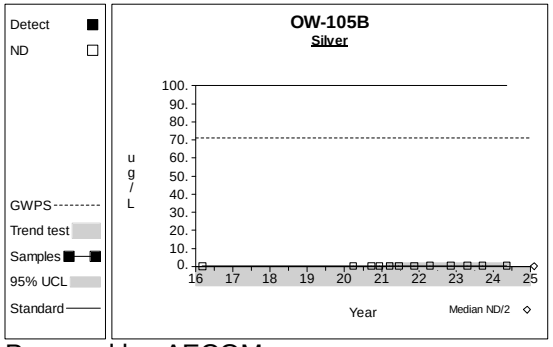


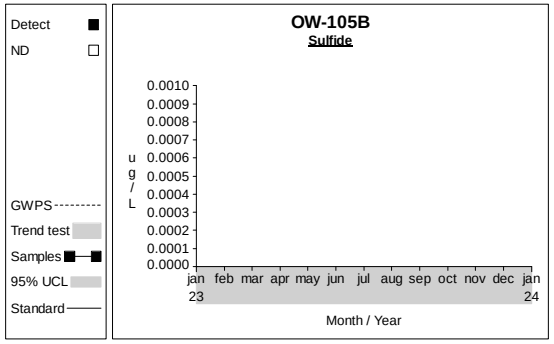


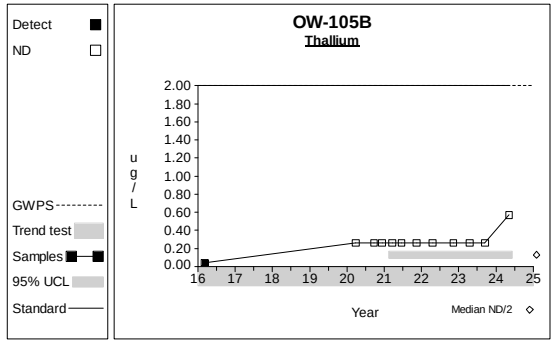




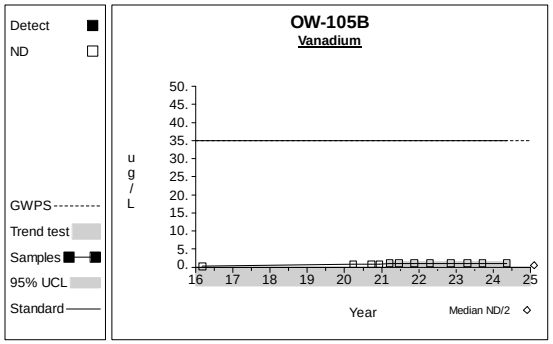


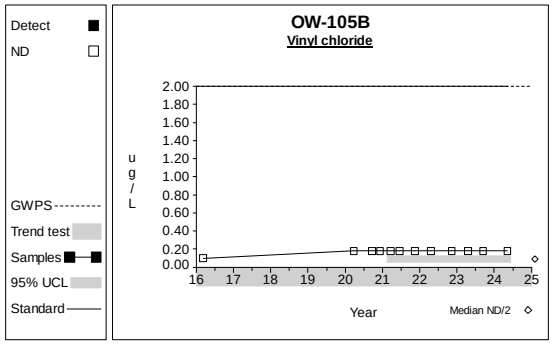


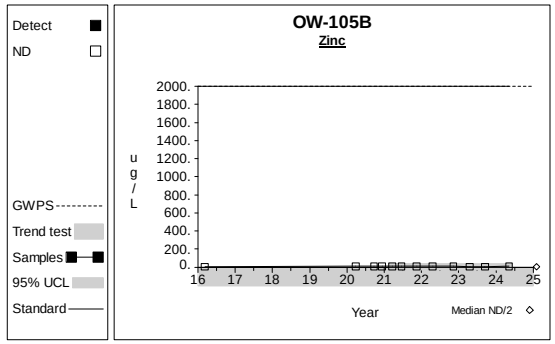


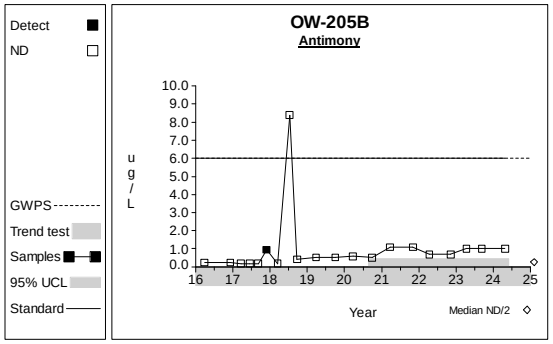


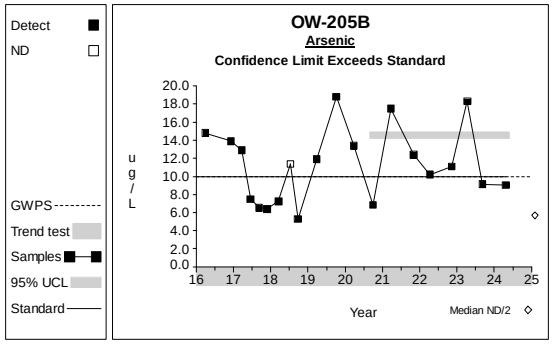
Confidence Limits (Assessment)

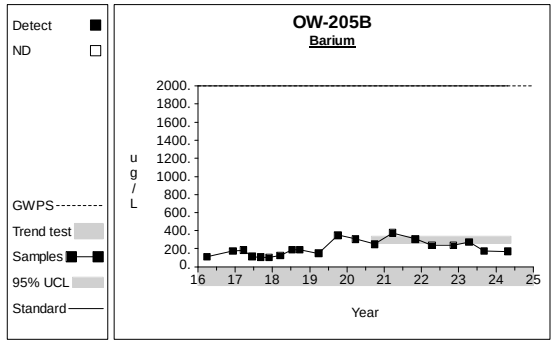


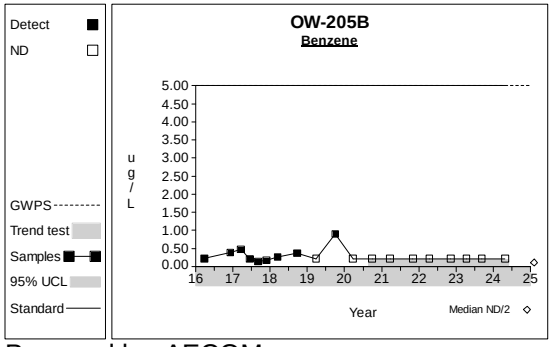


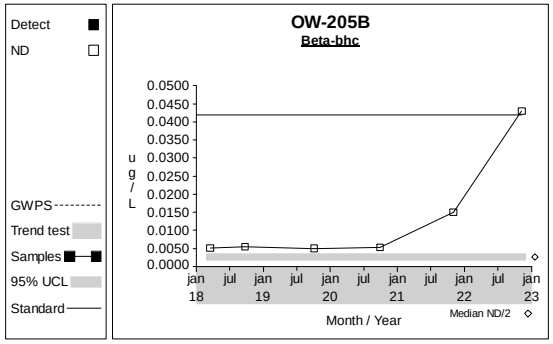


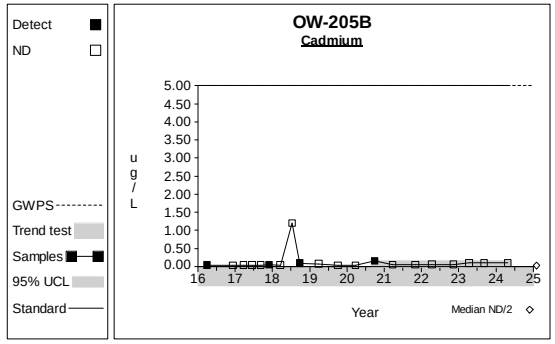




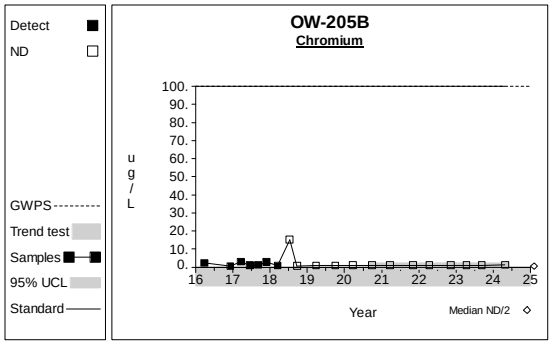


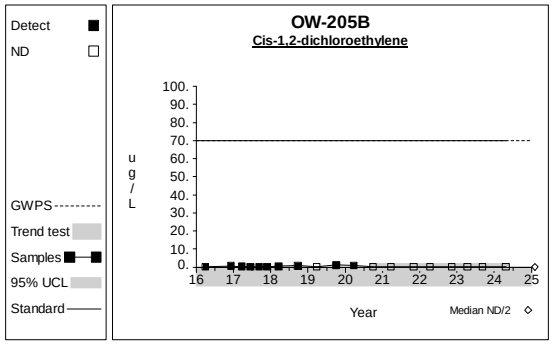


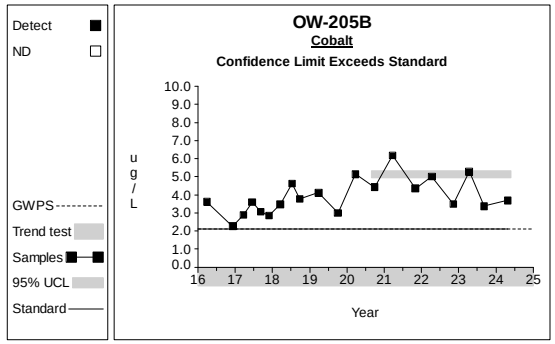


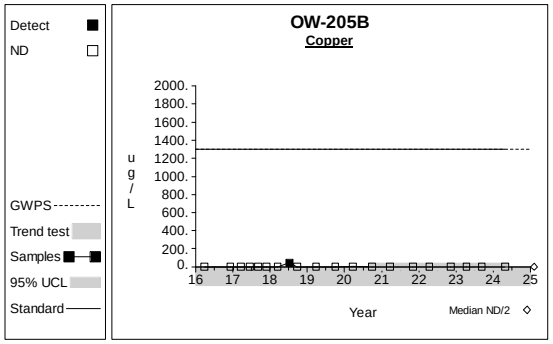


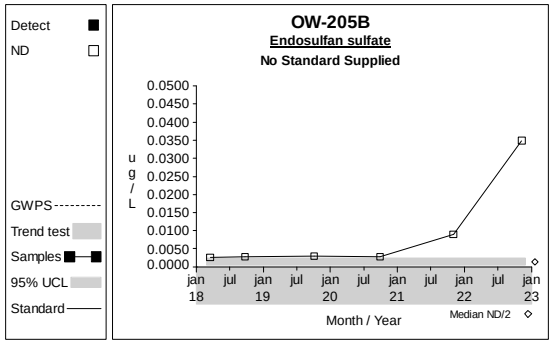
Confidence Limits (Assessment)

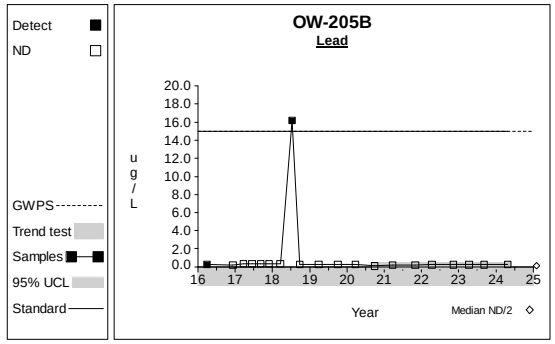


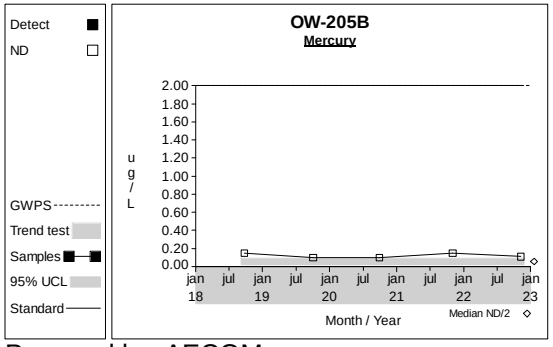


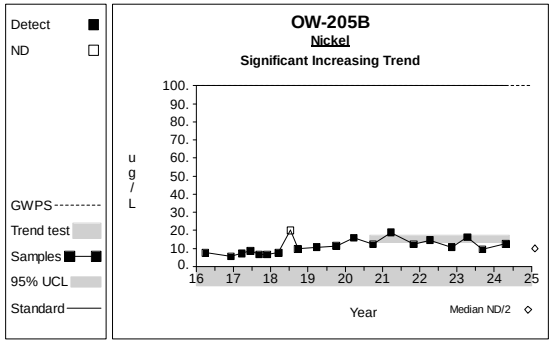


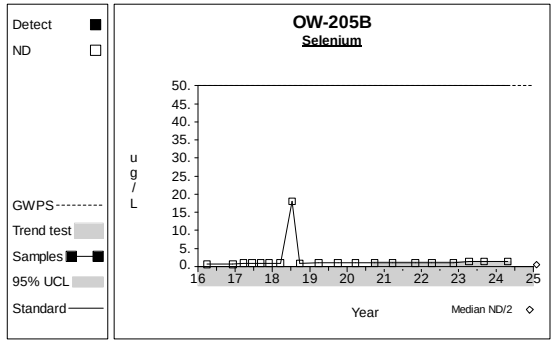




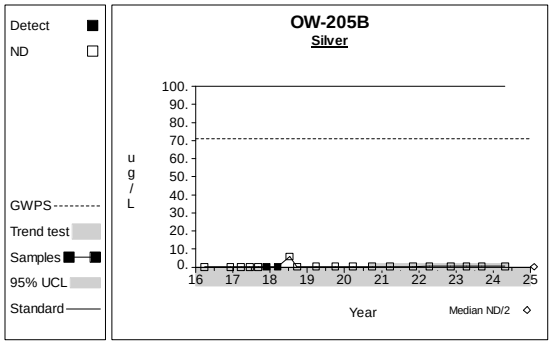


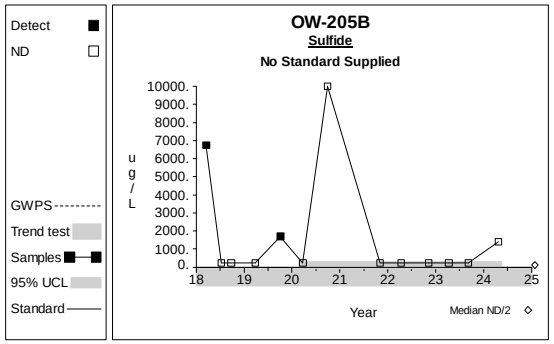


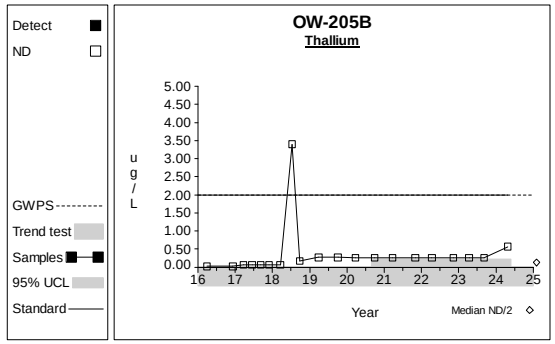


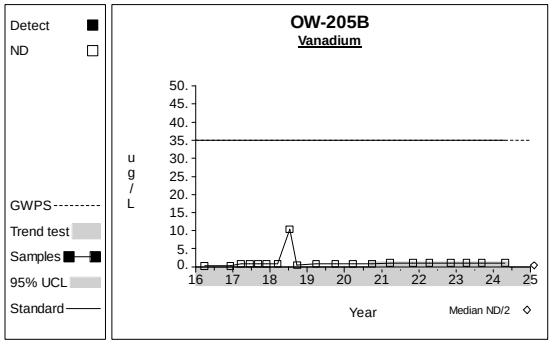


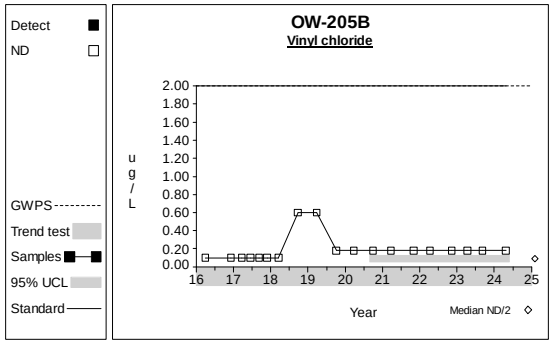
Confidence Limits (Assessment)

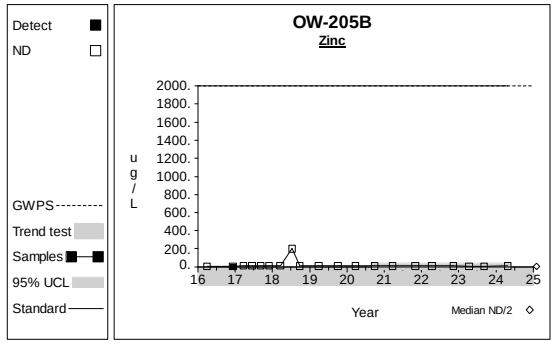


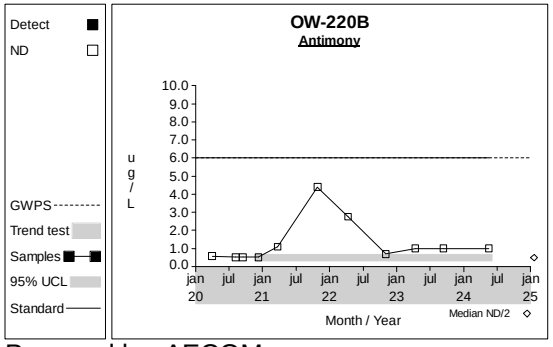


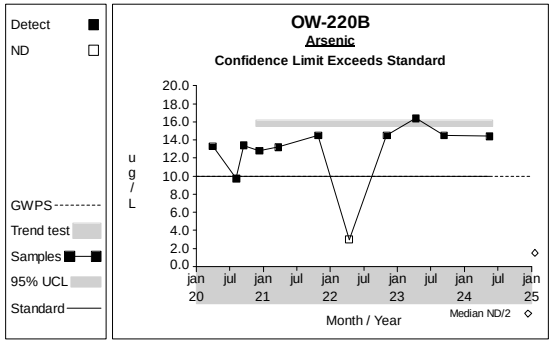


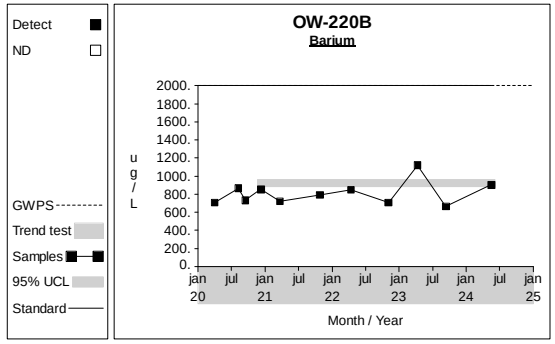




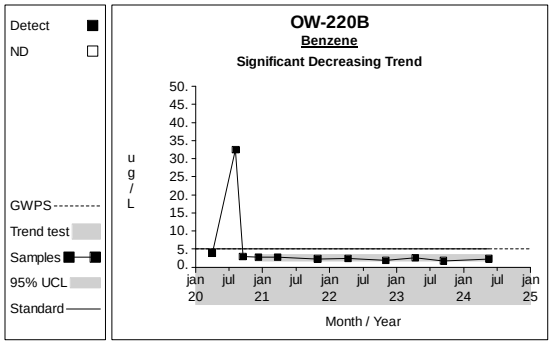


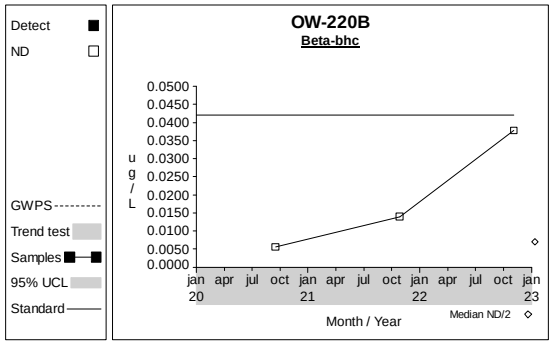


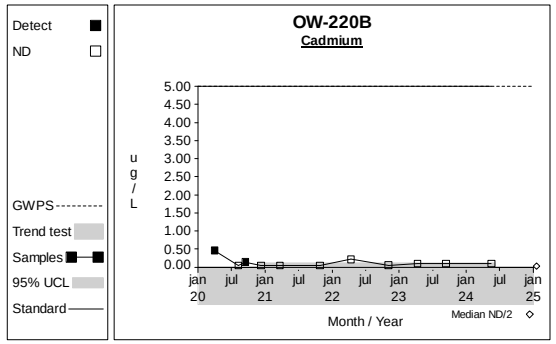


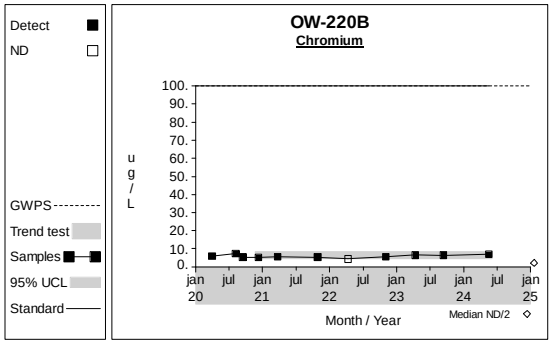


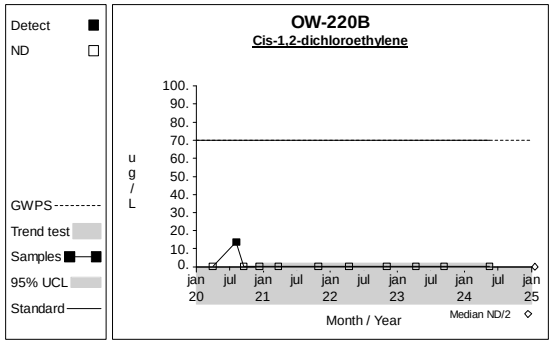
Confidence Limits (Assessment)

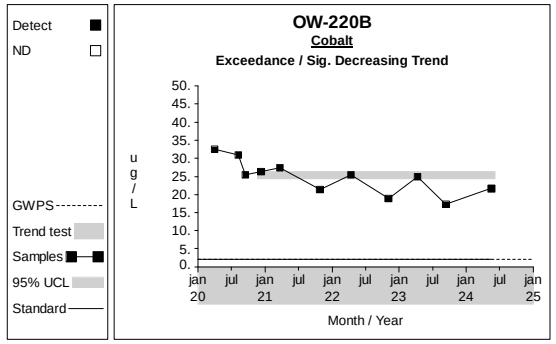


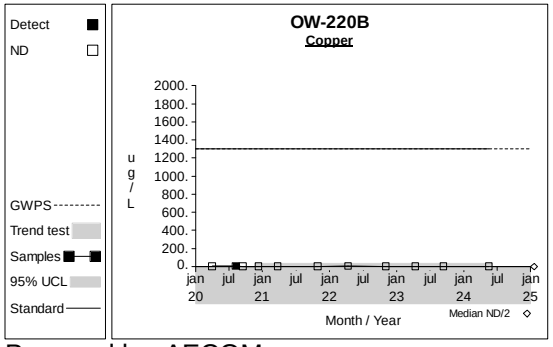


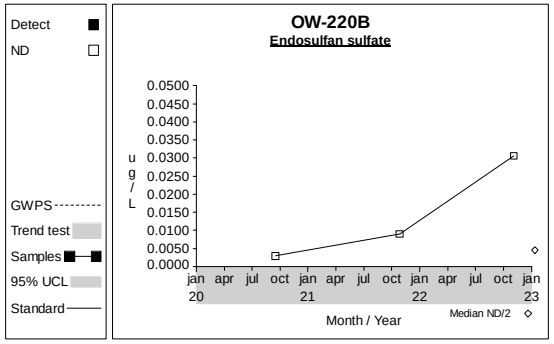


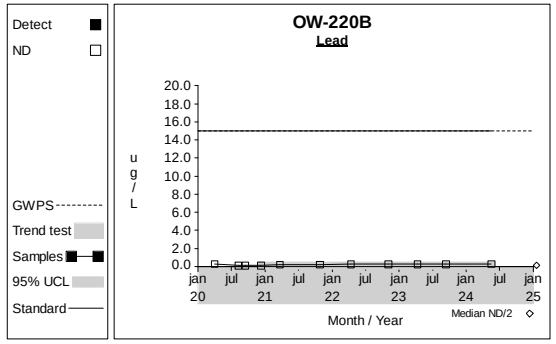












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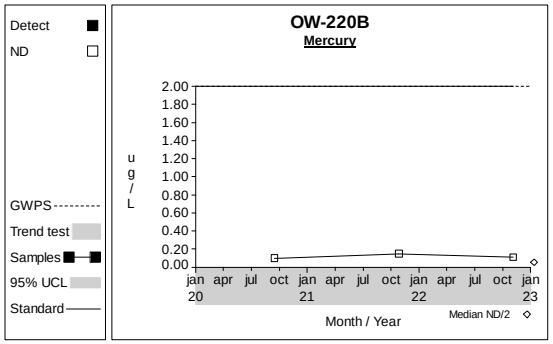

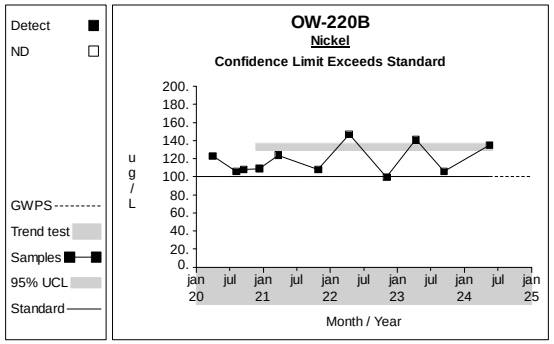

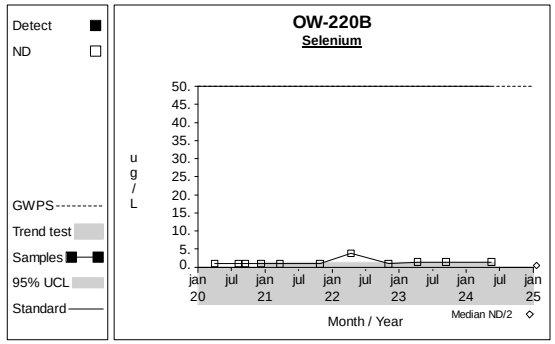

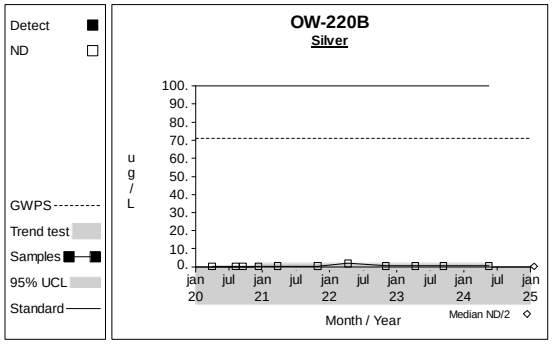

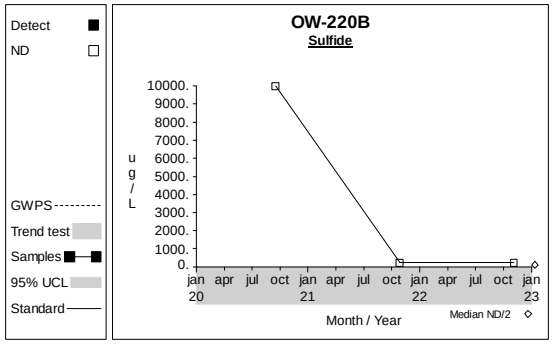

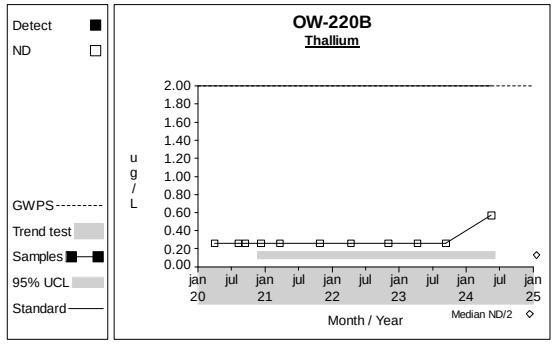

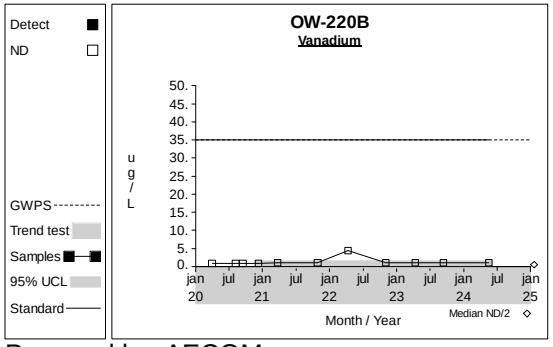

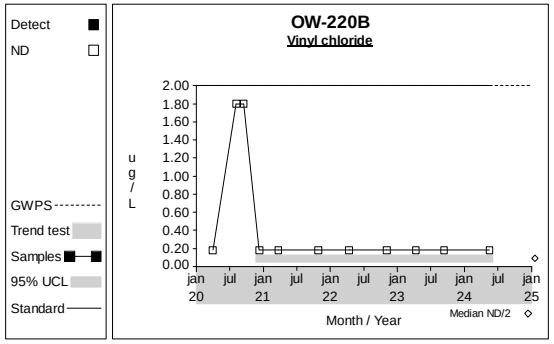

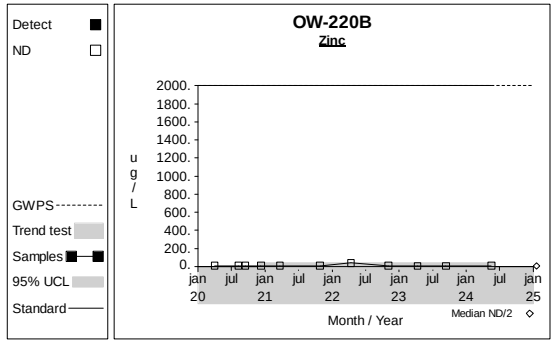

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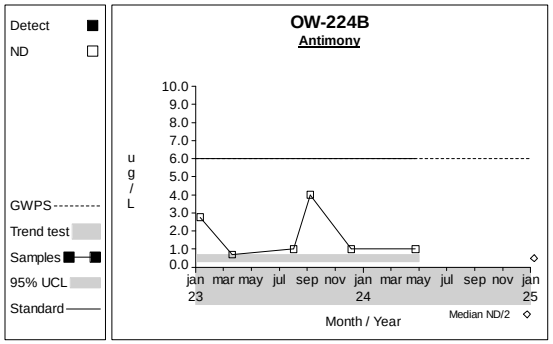

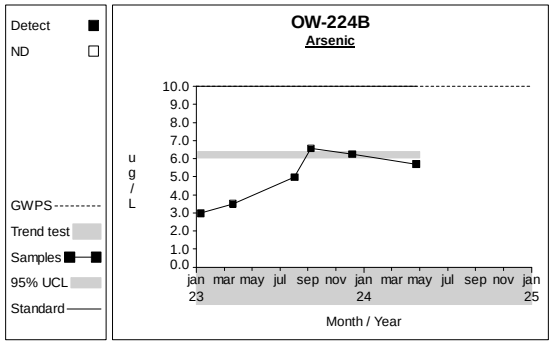

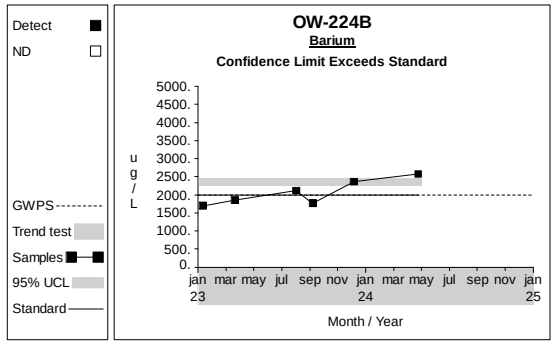

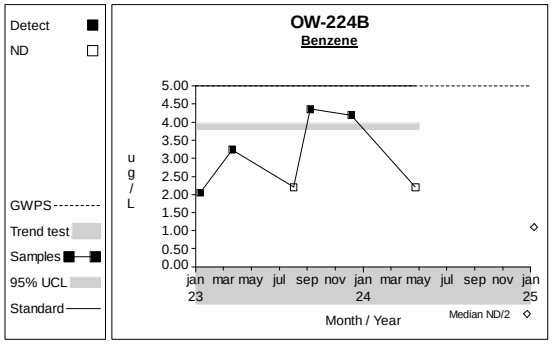

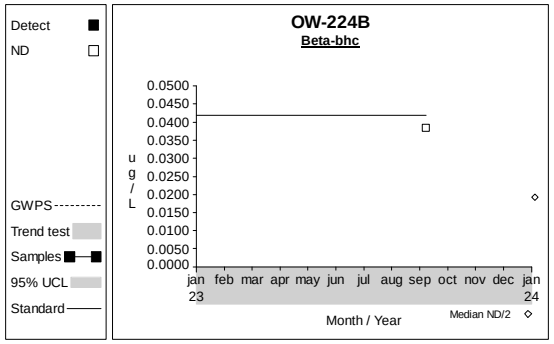

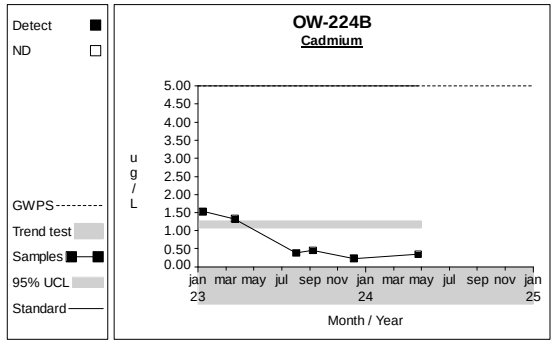

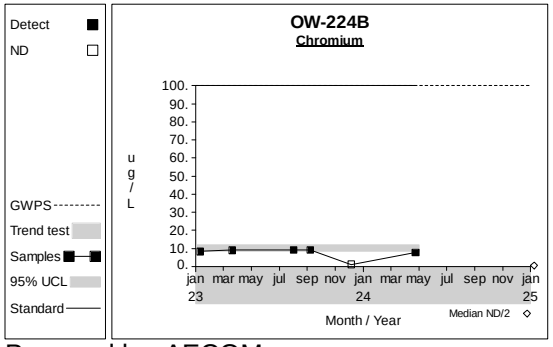

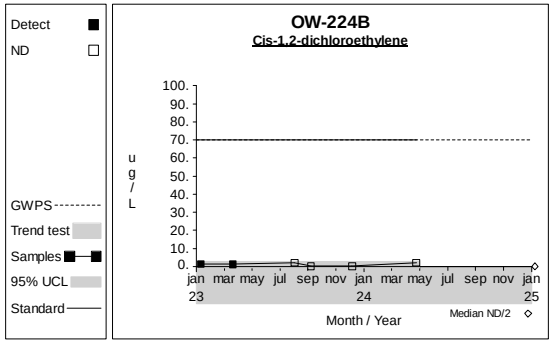

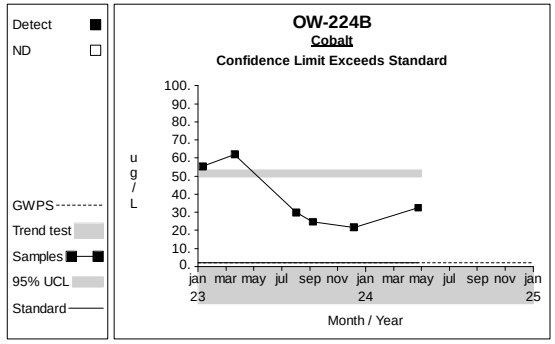

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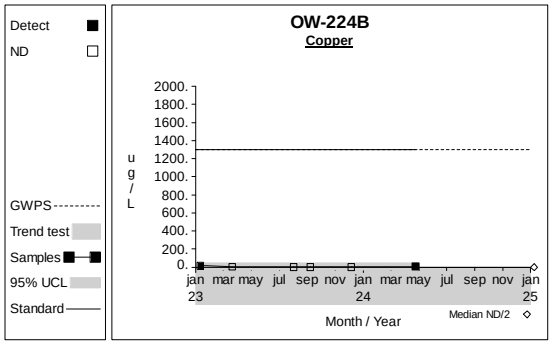

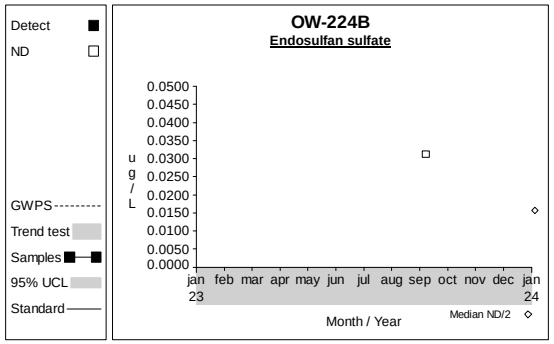

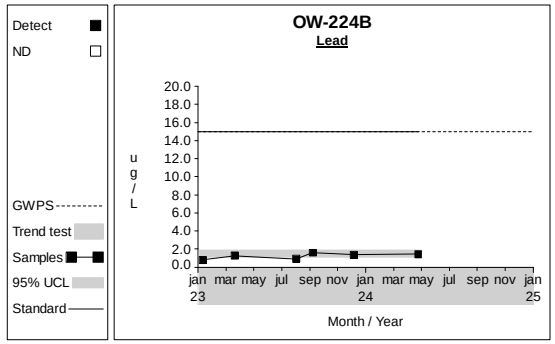

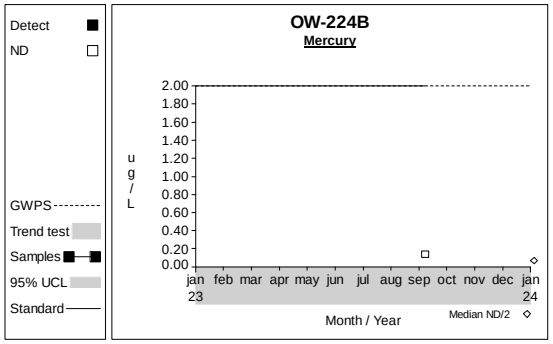

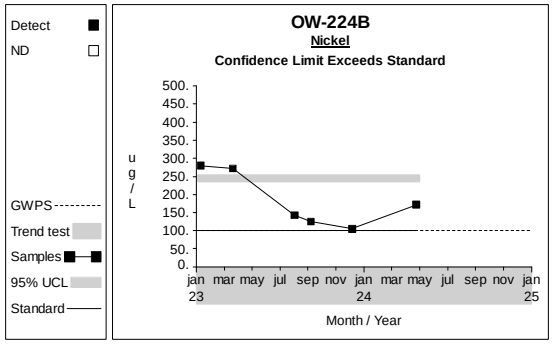

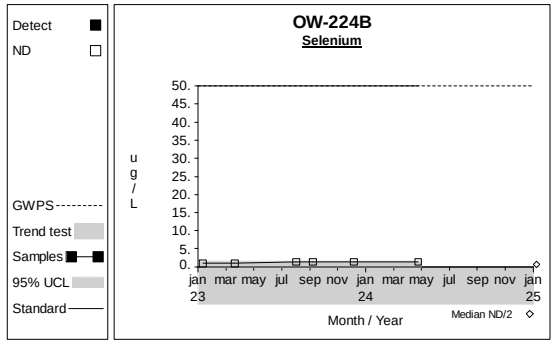

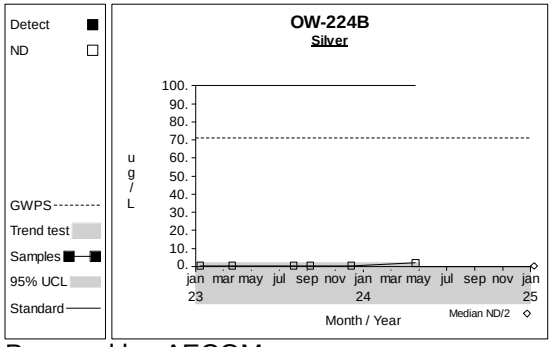

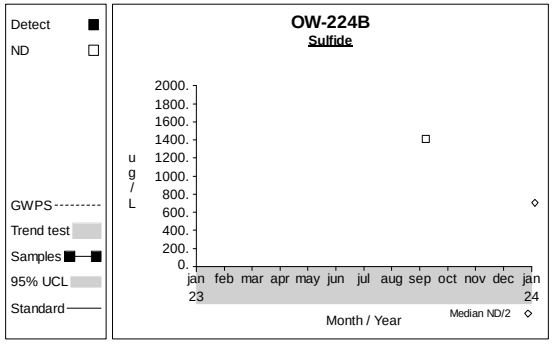

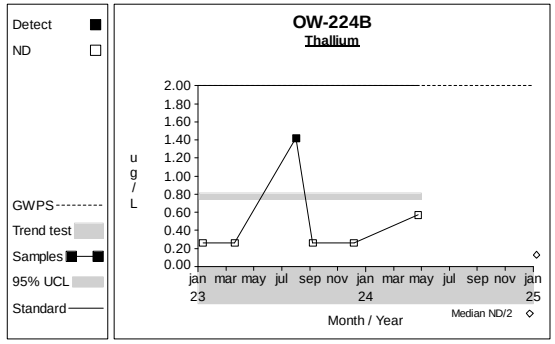

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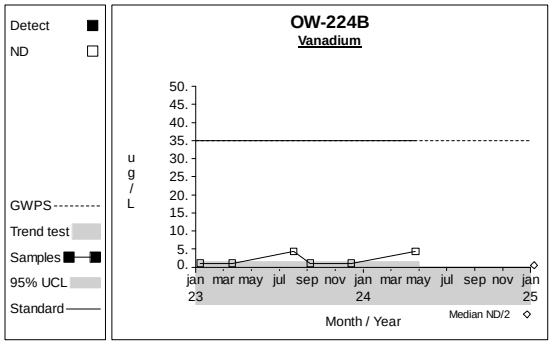

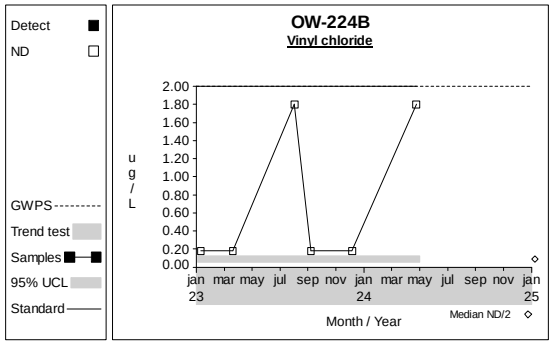

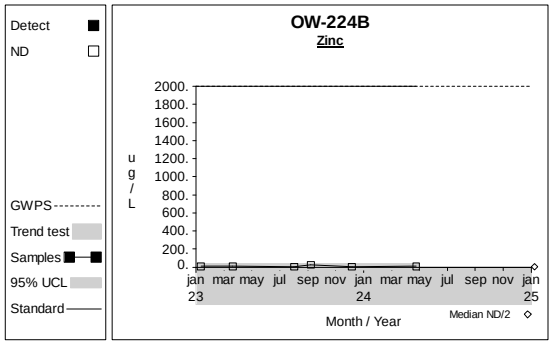

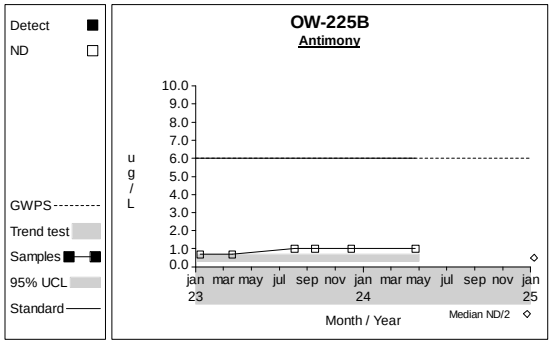

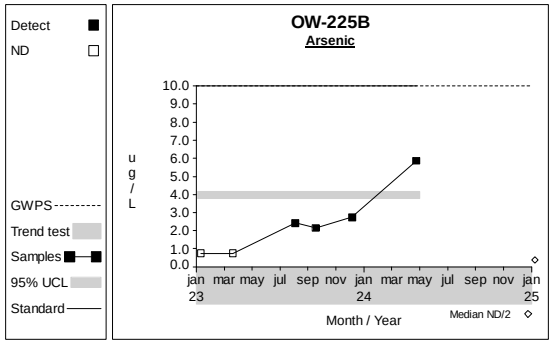

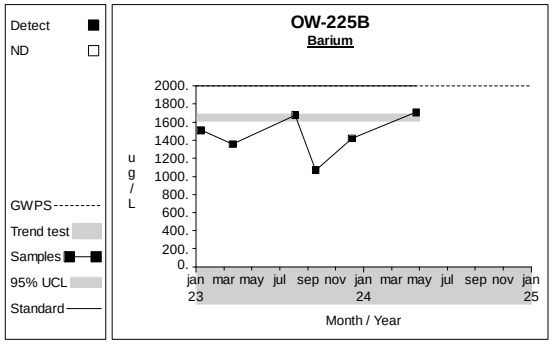

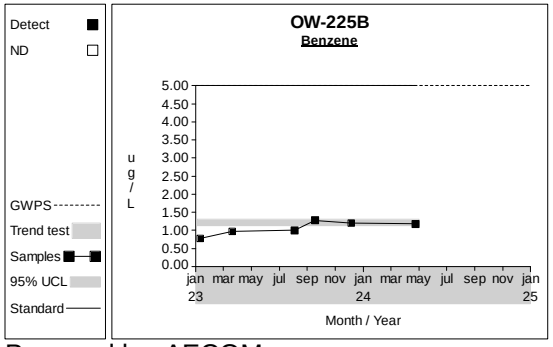

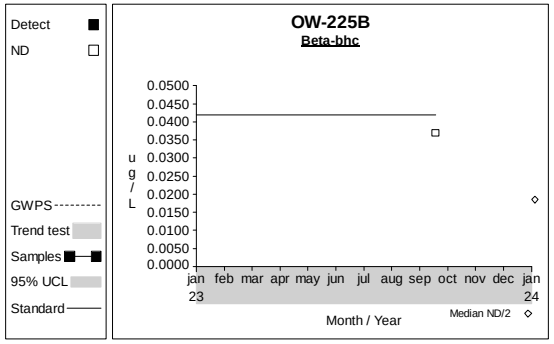

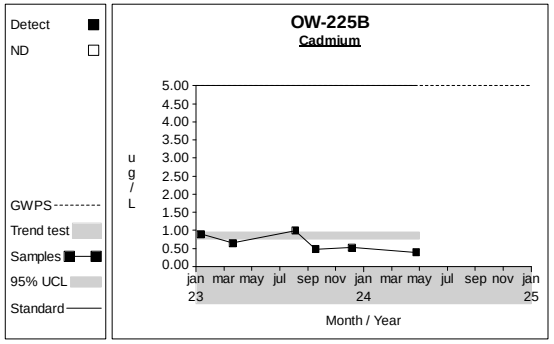

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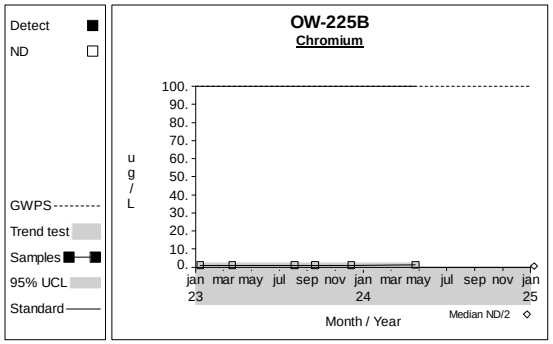
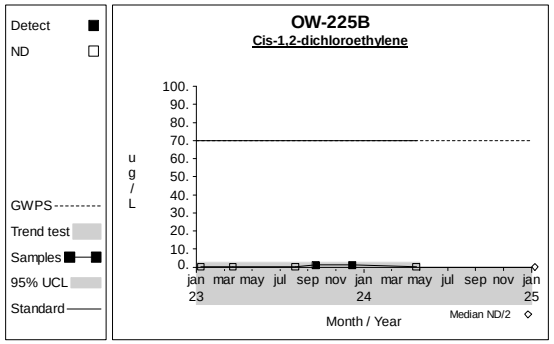
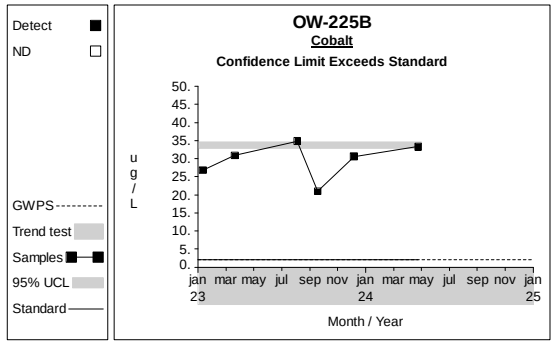
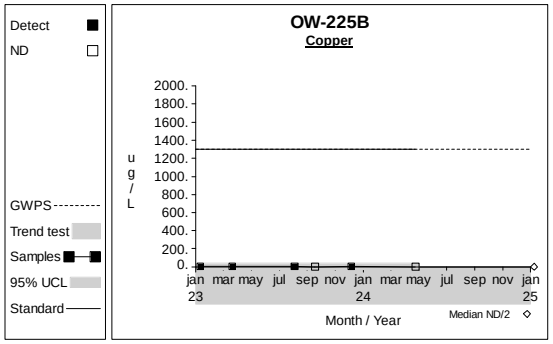
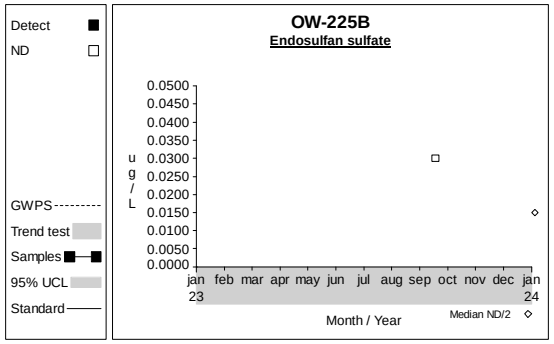
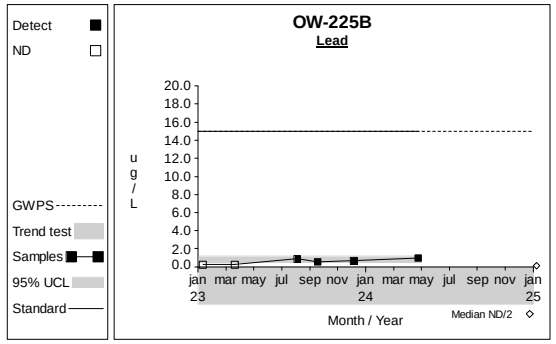


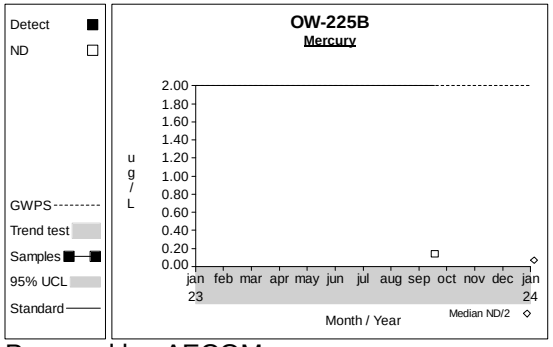


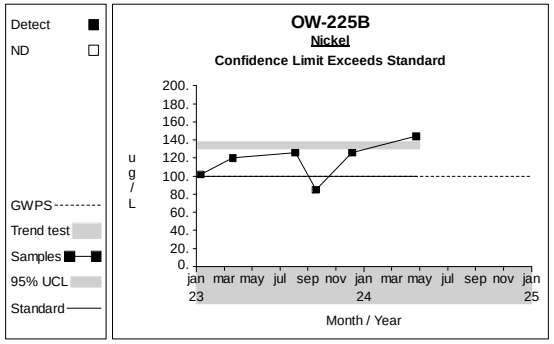


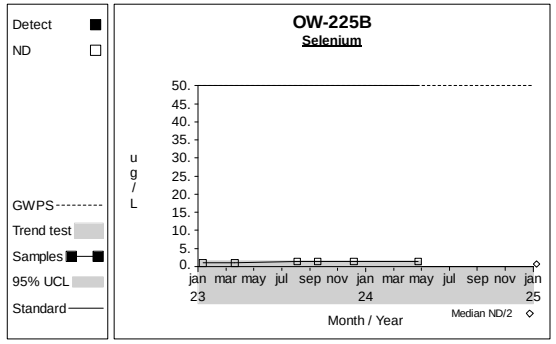




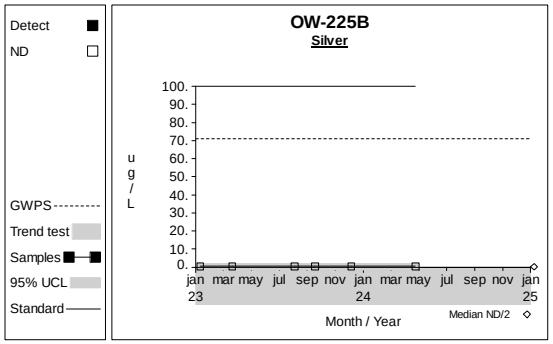


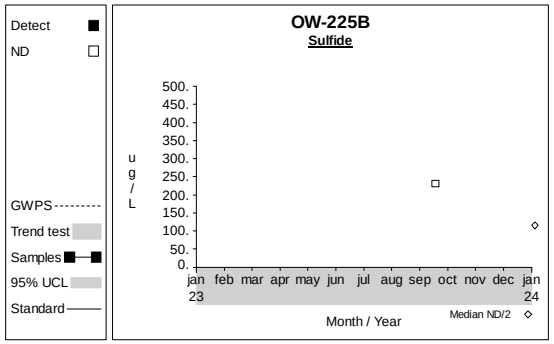


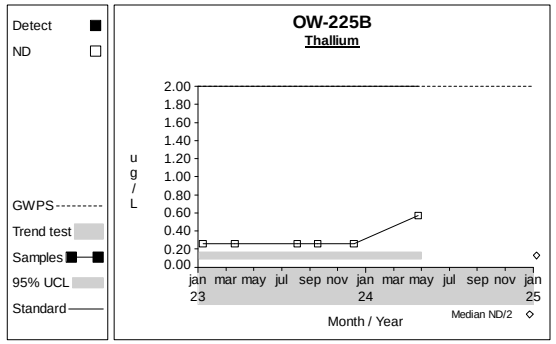


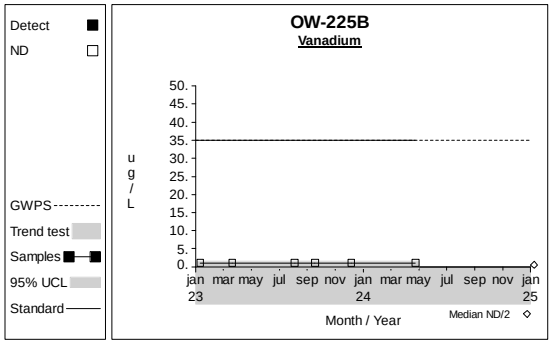


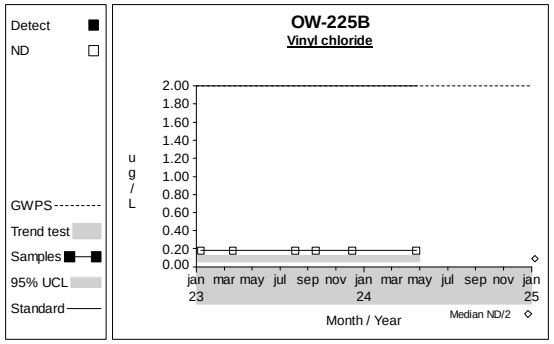
Confidence Limits (Assessment)

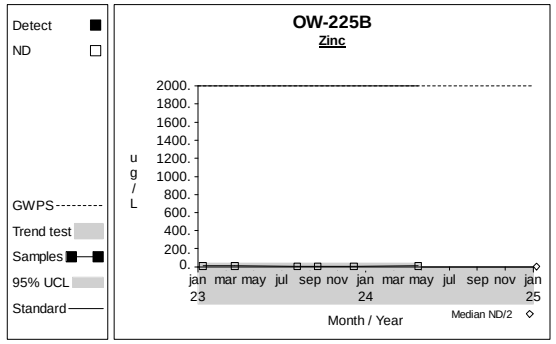


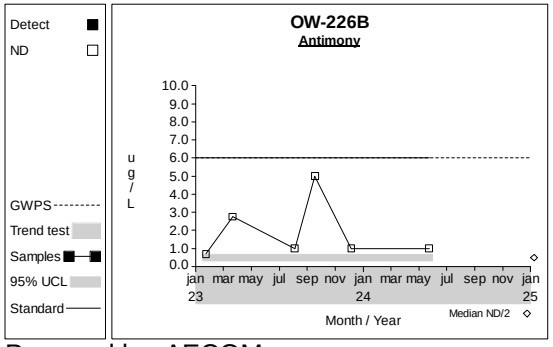


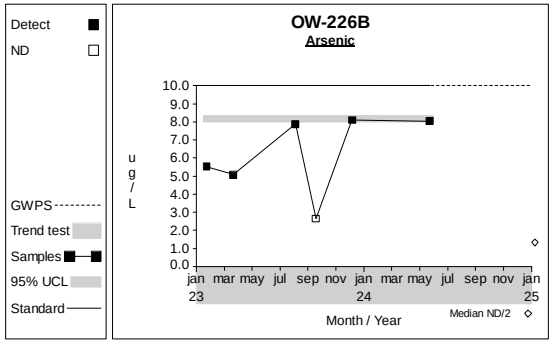


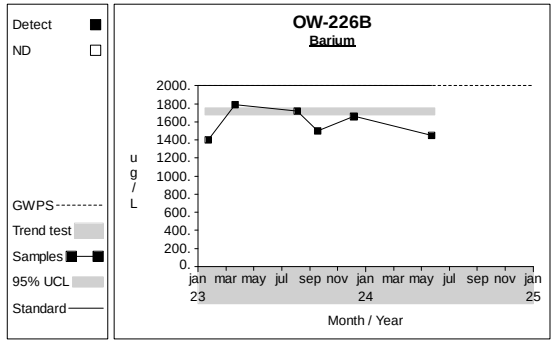




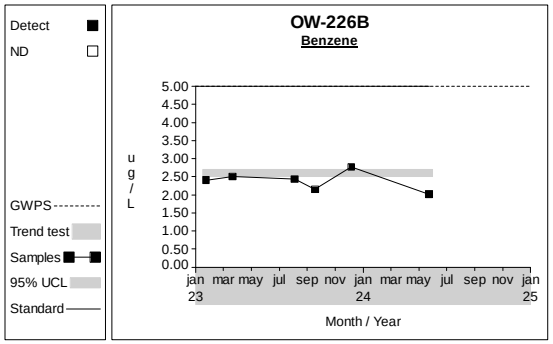


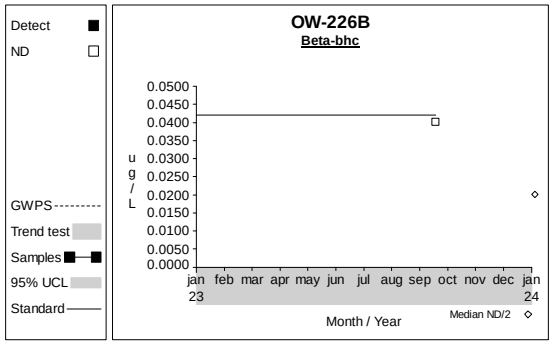


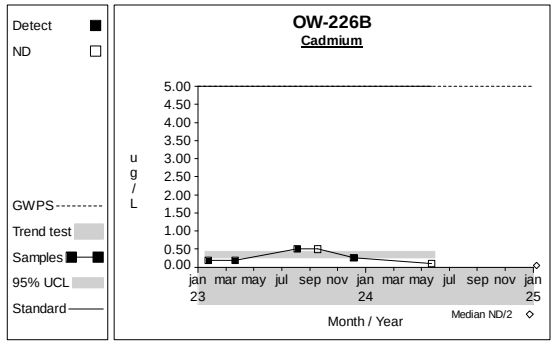


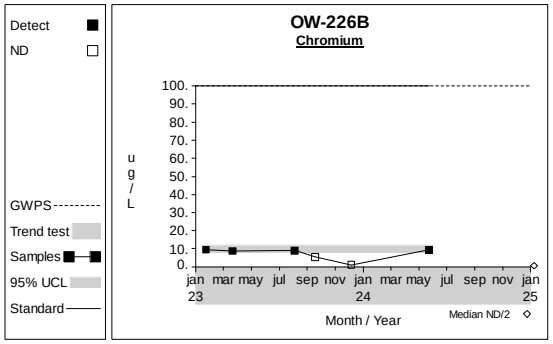


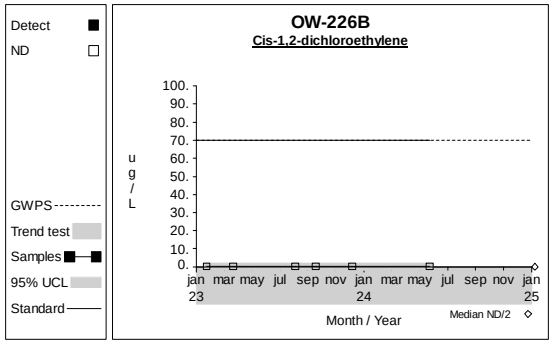
Confidence Limits (Assessment)

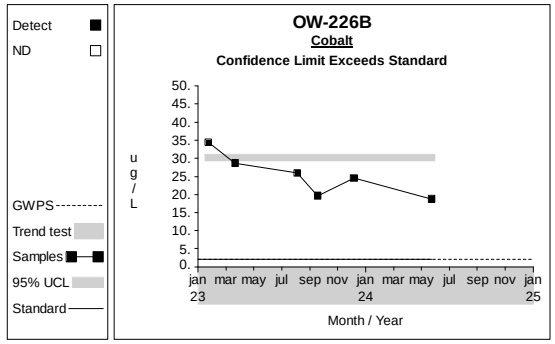


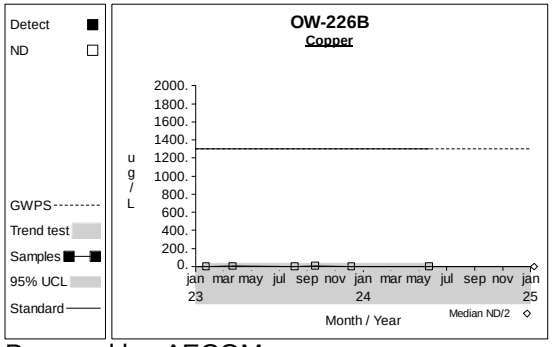


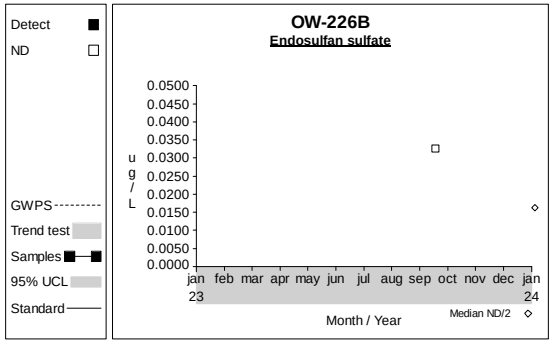


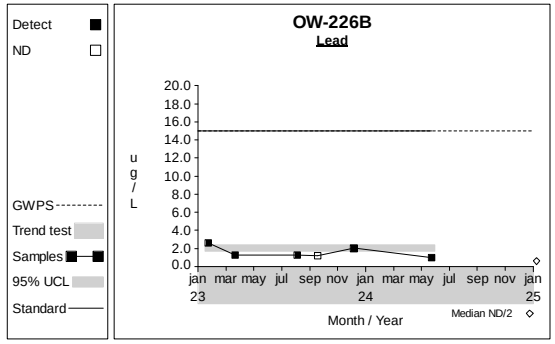












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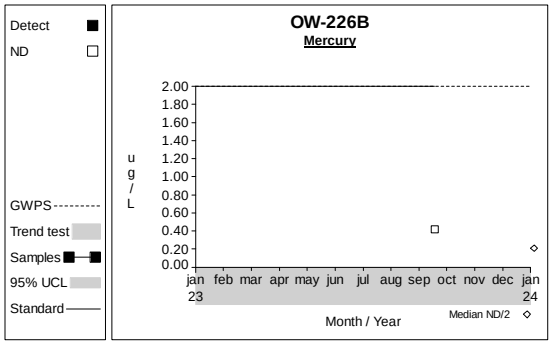

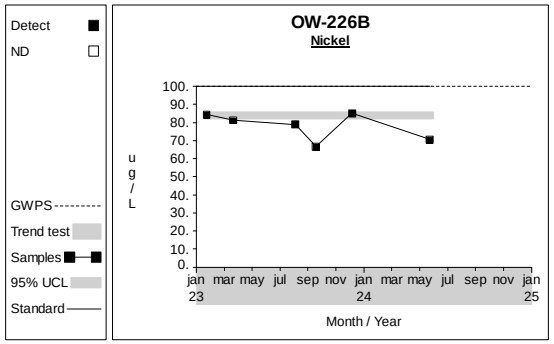

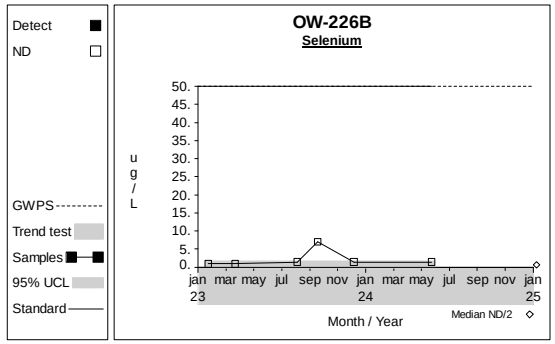

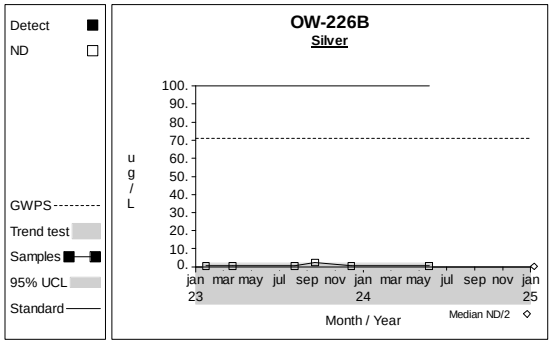

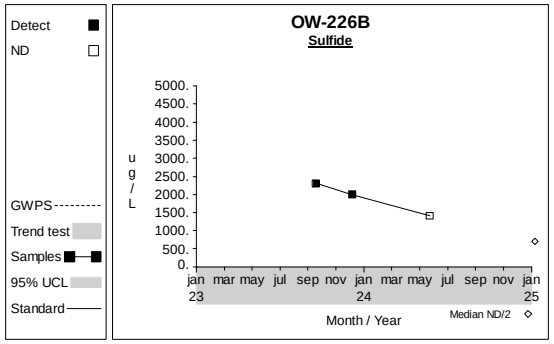

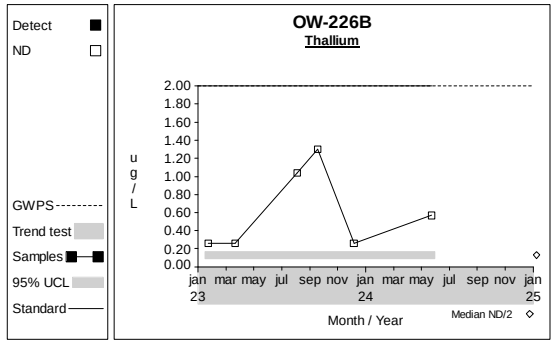

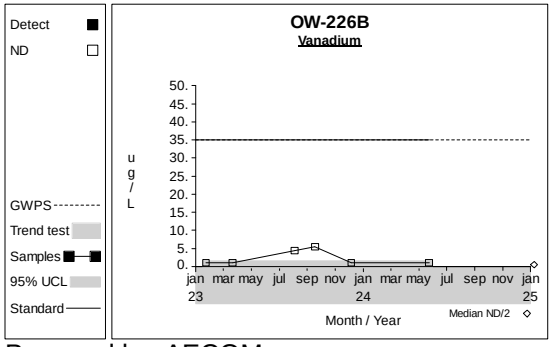

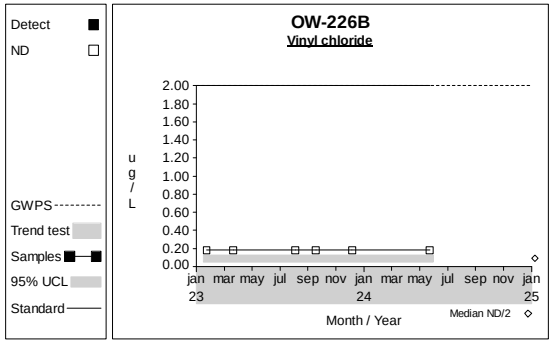

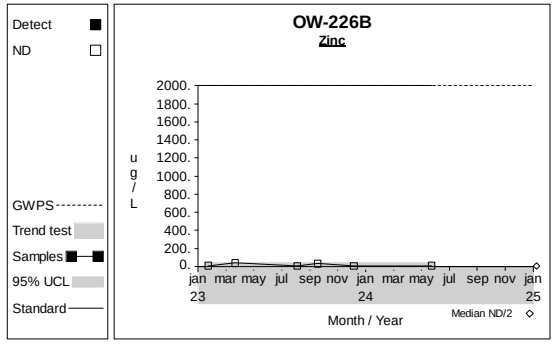

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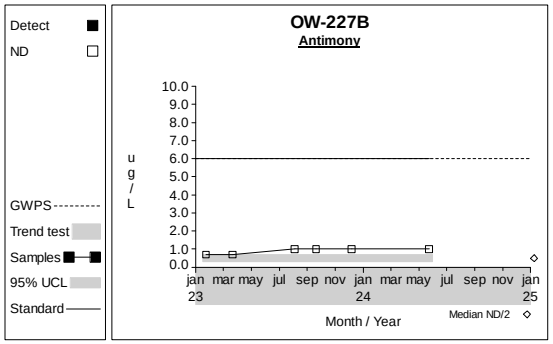

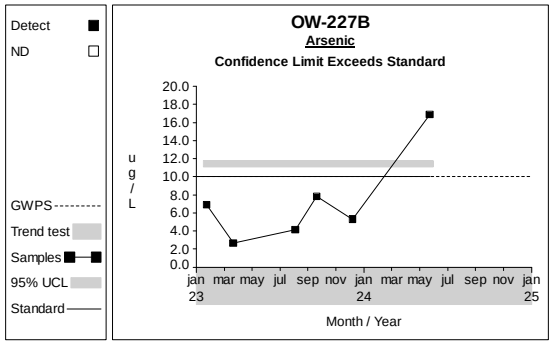

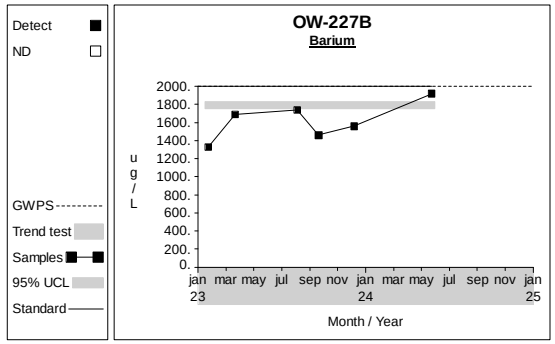

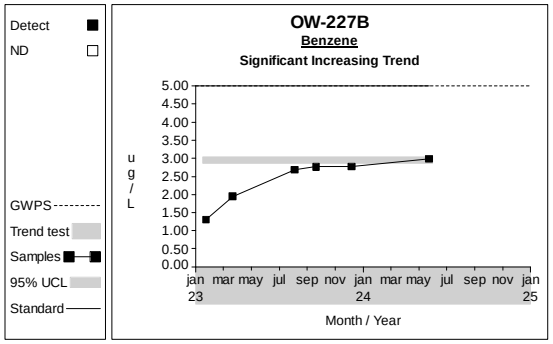

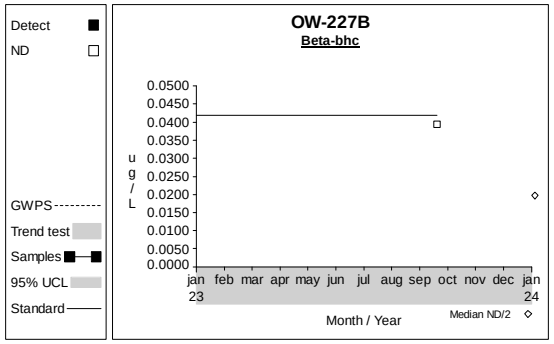

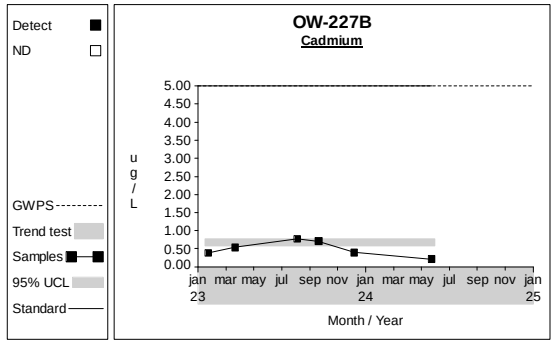

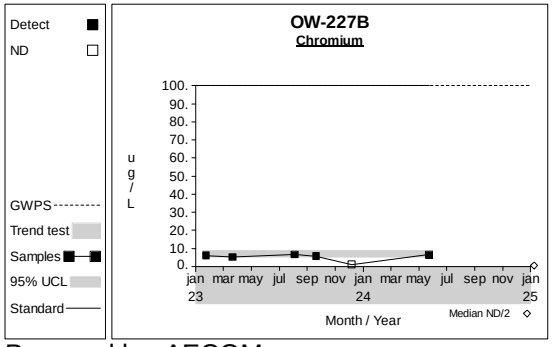

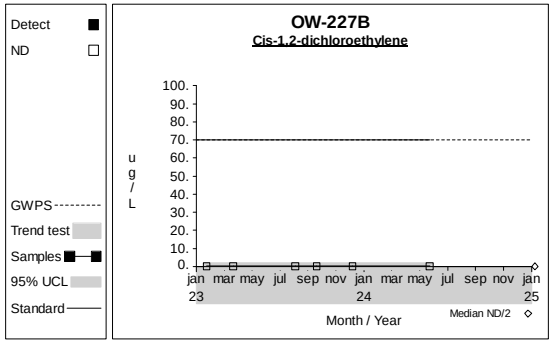

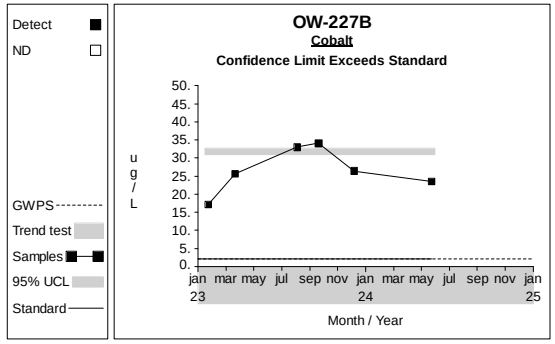

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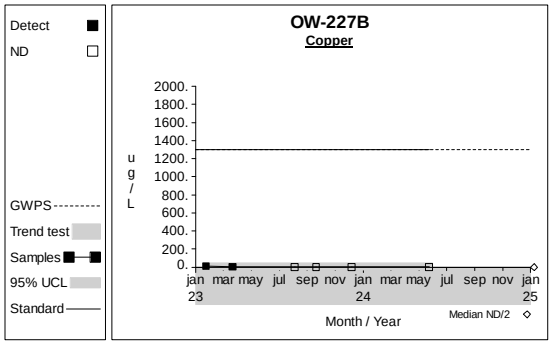

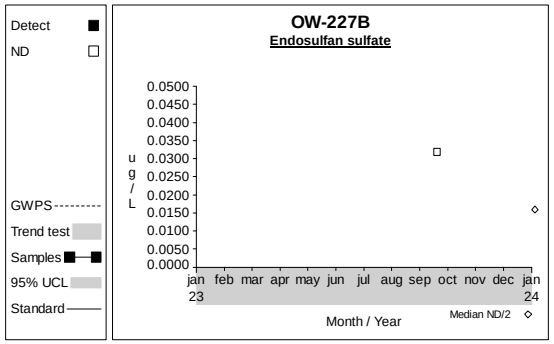

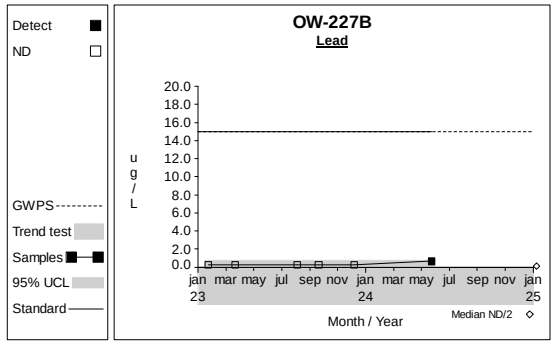

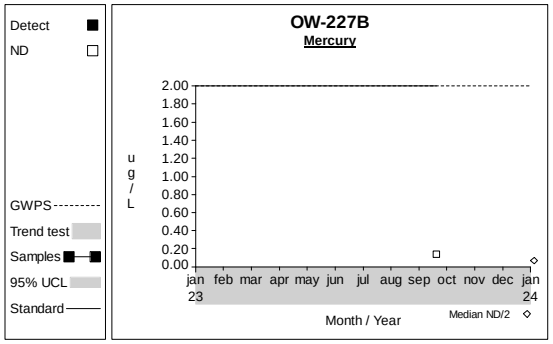

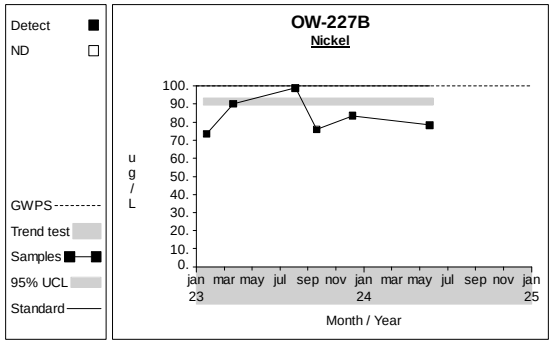

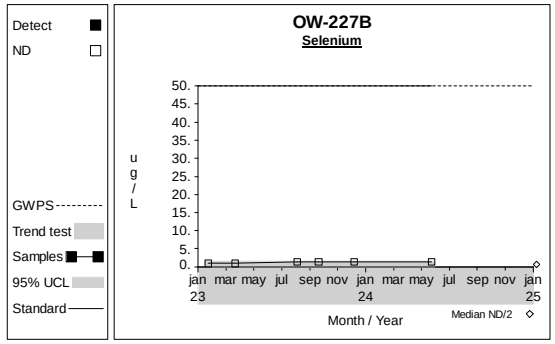

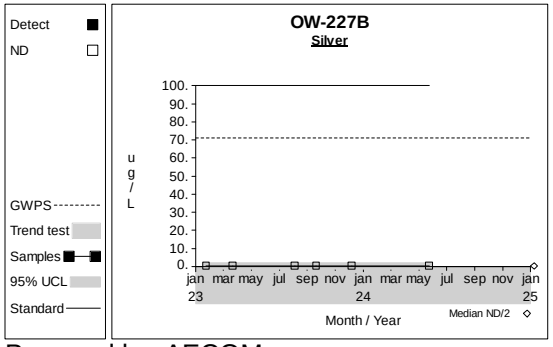

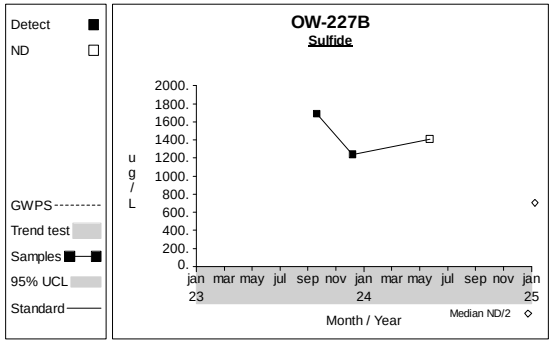

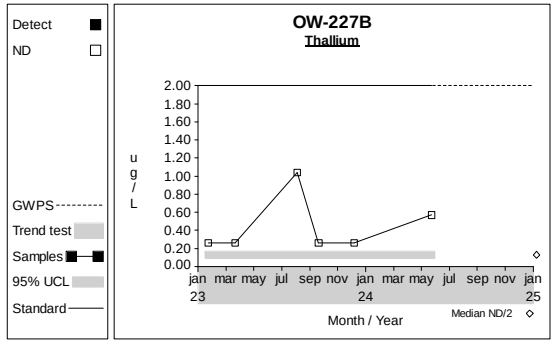

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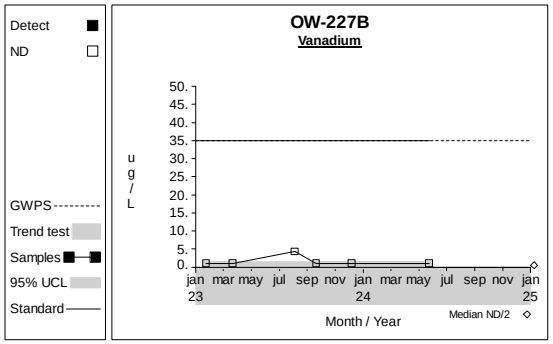

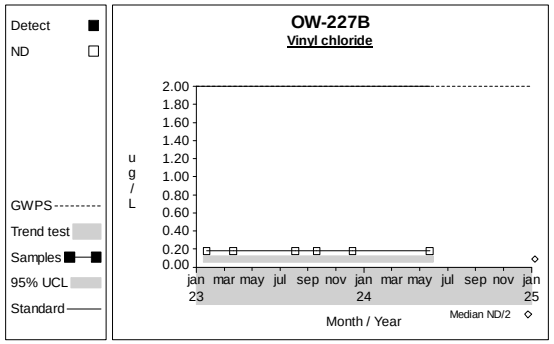

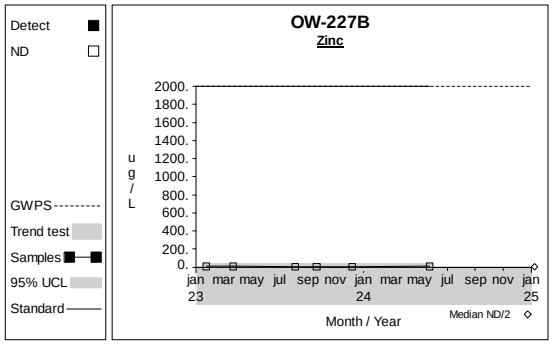

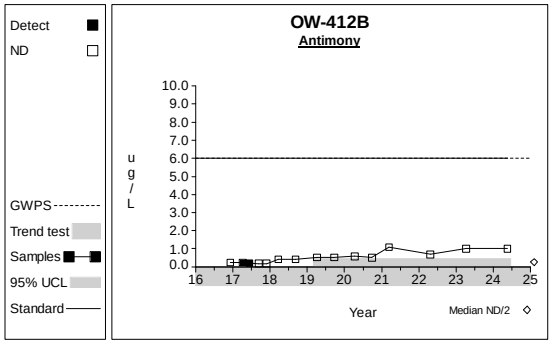

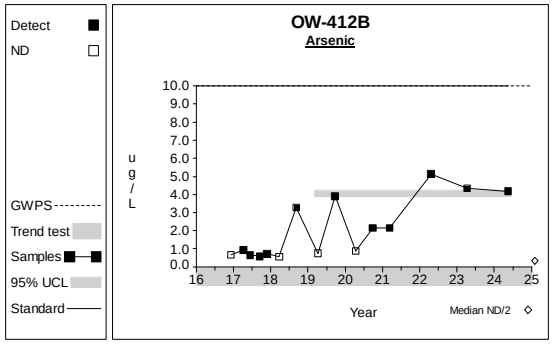

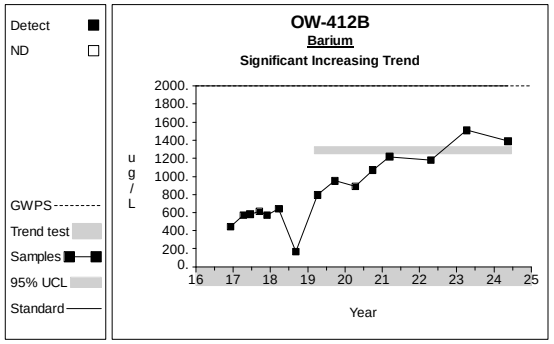

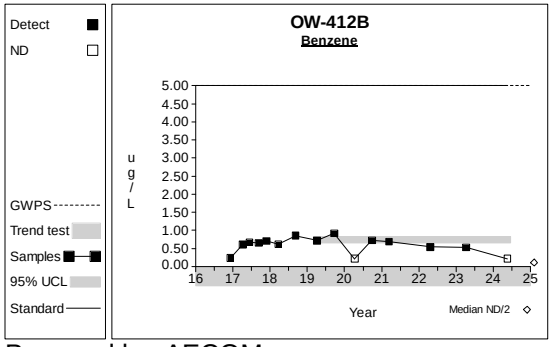

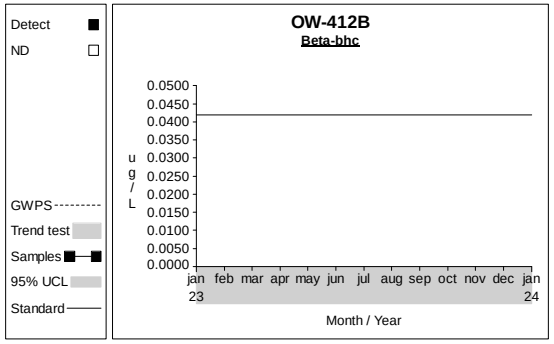

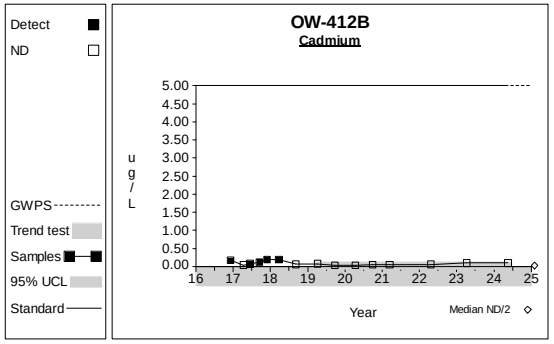

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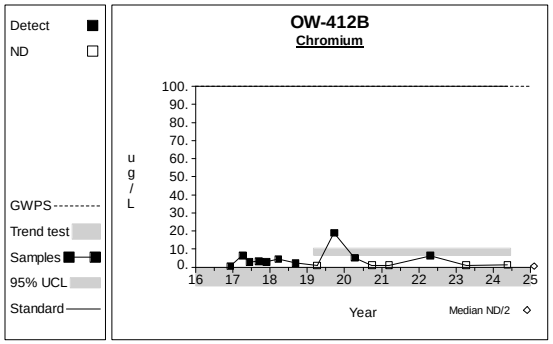
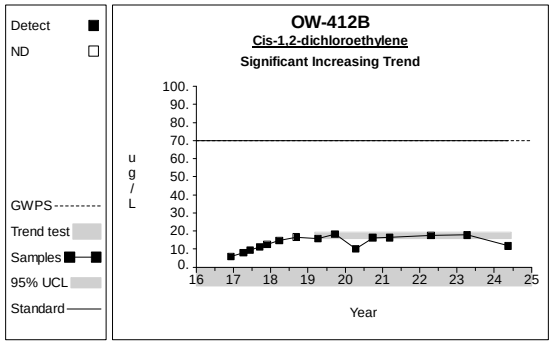
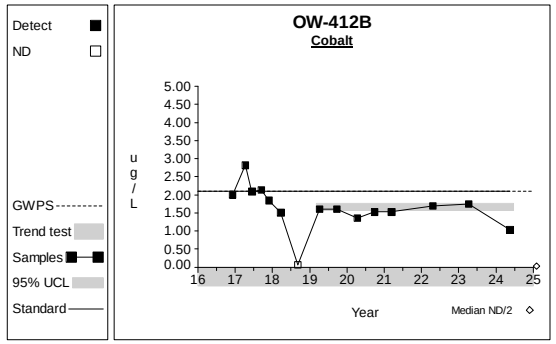
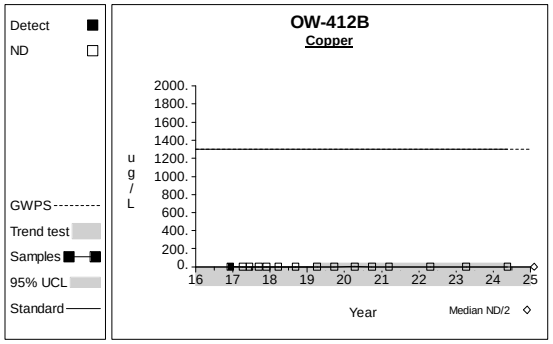
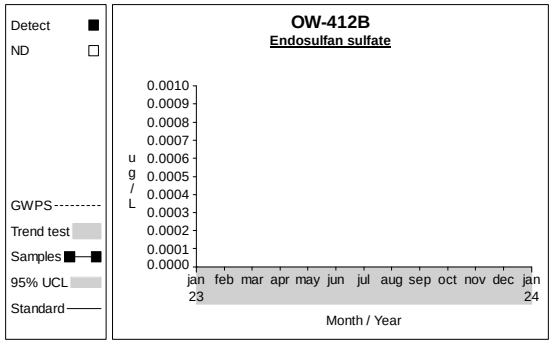
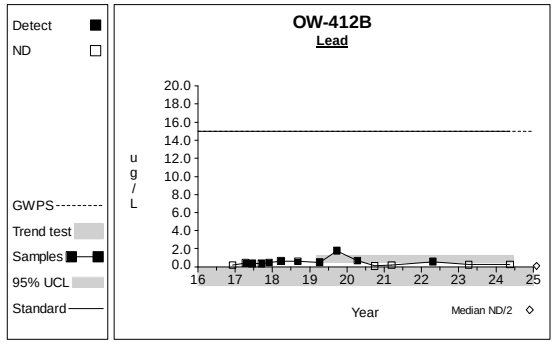


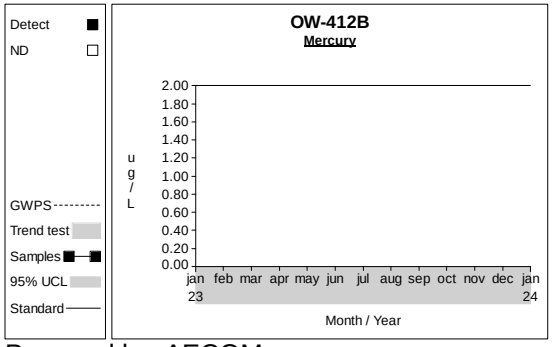


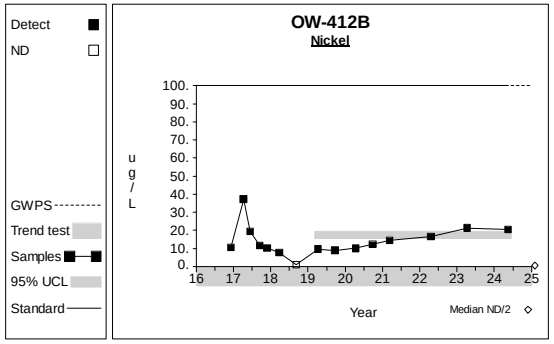


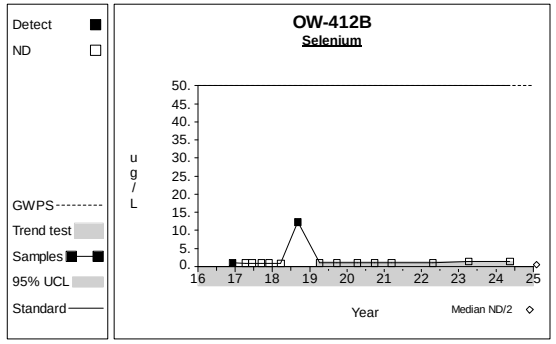




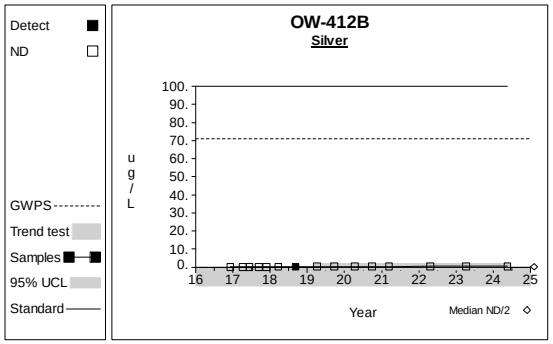


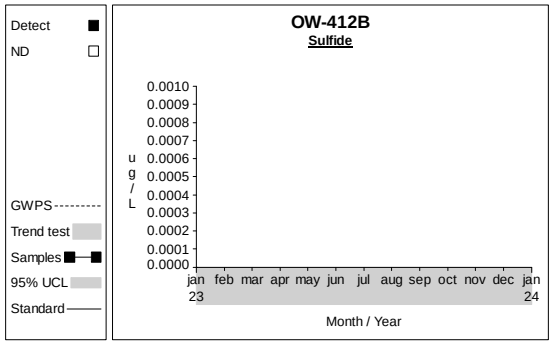


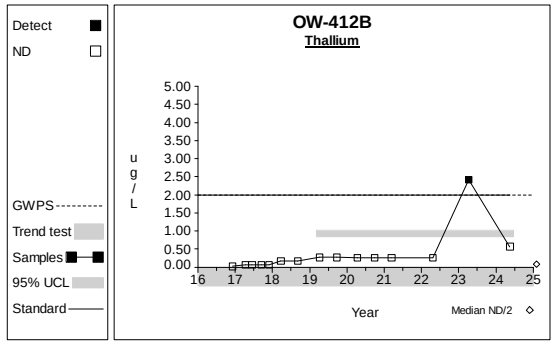


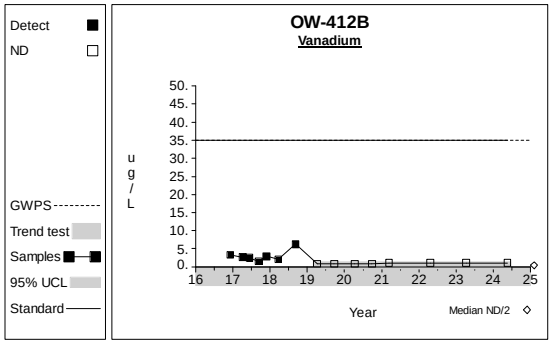


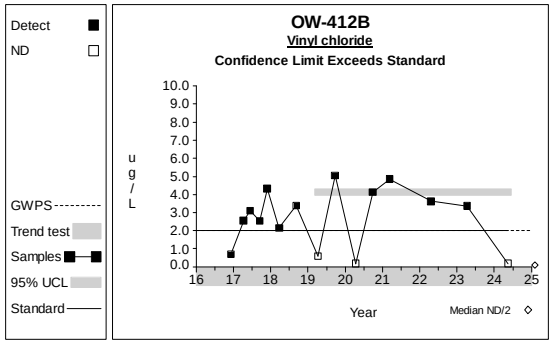
Confidence Limits (Assessment)











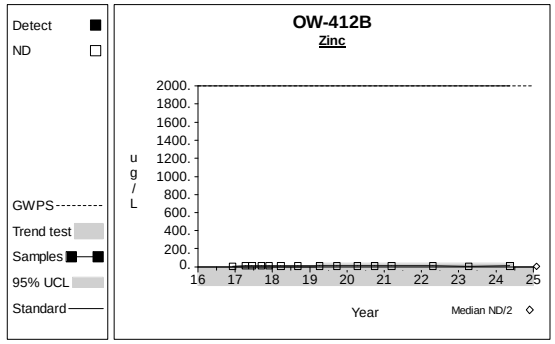


Table 1

Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Antimony	ug/L	OW-105B	8	0.500	0.000	0.670	0.500	0.500	6.000		
Arsenic	ug/L	OW-105B	8	0.375	0.000	0.670	0.375	0.375	10.000		
Barium	ug/L	OW-105B	8	86.963	4.655	0.670	83.845	90.080	2000.000		
Benzene	ug/L	OW-105B	8	0.110	0.000	0.670	0.110	0.110	5.000		
Beta-bhc	ug/L	OW-105B	0								*
Cadmium	ug/L	OW-105B	8	0.036	0.029	0.670	0.016	0.055	5.000		
Chromium	ug/L	OW-105B	8	3.134	3.700	0.670	0.656	5.612	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-105B	8	0.105	0.000	0.670	0.105	0.105	70.000		
Cobalt	ug/L	OW-105B	8	0.085	0.000	0.670	0.085	0.085	2.100		
Copper	ug/L	OW-105B	8	0.750	0.000	0.670	0.750	0.750	1300.000		
Endosulfan sulfate	ug/L	OW-105B	0								*
Lead	ug/L	OW-105B	8	0.106	0.000	0.670	0.106	0.106	15.000		
Mercury	ug/L	OW-105B	0								*
Nickel	ug/L	OW-105B	8	4.523	5.393	0.670	0.910	8.135	100.000		
Selenium	ug/L	OW-105B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-105B	8	0.210	0.000	0.670	0.210	0.210	100.000		
Sulfide	ug/L	OW-105B	0								*
Thallium	ug/L	OW-105B	8	0.130	0.000	0.670	0.130	0.130	2.000		
Vanadium	ug/L	OW-105B	8	0.550	0.000	0.670	0.550	0.550	35.000		
Vinyl chloride	ug/L	OW-105B	8	0.090	0.000	0.670	0.090	0.090	2.000		
Zinc	ug/L	OW-105B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-205B	8	0.265	0.000	0.670	0.265	0.265	6.000		
Arsenic	ug/L	OW-205B	8	11.819	4.092	0.670	9.078	14.560	10.000		**
Barium	ug/L	OW-205B	8	253.875	66.947	0.670	209.033	298.717	2000.000		
Benzene	ug/L	OW-205B	8	0.110	0.000	0.670	0.110	0.110	5.000		
Beta-bhc	ug/L	OW-205B	6	0.003	0.000	0.822	0.003	0.003	0.042		
Cadmium	ug/L	OW-205B	8	0.041	0.045	0.670	0.011	0.071	5.000		
Chromium	ug/L	OW-205B	8	0.550	0.000	0.670	0.550	0.550	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-205B	8	0.105	0.000	0.670	0.105	0.105	70.000		
Cobalt	ug/L	OW-205B	8	4.476	0.978	0.670	3.821	5.132	2.100		**
Copper	ug/L	OW-205B	8	0.900	0.000	0.670	0.900	0.900	1300.000		

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UCL = Upper Confidence Limit

Table 1

Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Endosulfan sulfate	ug/L	OW-205B	6	0.001	0.000	0.822	0.001	0.001			
Lead	ug/L	OW-205B	8	0.125	0.000	0.670	0.125	0.125	15.000		
Mercury	ug/L	OW-205B	5	0.055	0.000	0.953	0.055	0.055	2.000		
Nickel	ug/L	OW-205B	8	13.384	3.011	0.670	11.367	15.400	100.000	inc	
Selenium	ug/L	OW-205B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-205B	8	0.185	0.000	0.670	0.185	0.185	100.000		
Sulfide	ug/L	OW-205B	8	115.500	0.000	0.670	115.500	115.500			
Thallium	ug/L	OW-205B	8	0.130	0.000	0.670	0.130	0.130	2.000		
Vanadium	ug/L	OW-205B	8	0.420	0.000	0.670	0.420	0.420	35.000		
Vinyl chloride	ug/L	OW-205B	8	0.090	0.000	0.670	0.090	0.090	2.000		
Zinc	ug/L	OW-205B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-220B	8	0.500	0.000	0.670	0.500	0.500	6.000		
Arsenic	ug/L	OW-220B	8	12.725	4.660	0.670	9.604	15.846	10.000		**
Barium	ug/L	OW-220B	8	826.000	144.571	0.670	729.164	922.836	2000.000		
Benzene	ug/L	OW-220B	8	2.360	0.372	0.670	2.111	2.609	5.000	dec	
Beta-bhc	ug/L	OW-220B	3								*
Cadmium	ug/L	OW-220B	8	0.028	0.000	0.670	0.028	0.028	5.000		
Chromium	ug/L	OW-220B	8	5.507	1.471	0.670	4.522	6.493	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-220B	8	0.105	0.000	0.670	0.105	0.105	70.000		
Cobalt	ug/L	OW-220B	8	22.913	3.647	0.670	20.470	25.355	2.100	dec	**
Copper	ug/L	OW-220B	8	0.900	0.000	0.670	0.900	0.900	1300.000		
Endosulfan sulfate	ug/L	OW-220B	3								*
Lead	ug/L	OW-220B	8	0.120	0.000	0.670	0.120	0.120	15.000		
Mercury	ug/L	OW-220B	3								*
Nickel	ug/L	OW-220B	8	121.213	18.017	0.670	109.144	133.281	100.000		**
Selenium	ug/L	OW-220B	8	0.500	0.000	0.670	0.500	0.500	50.000		
Silver	ug/L	OW-220B	8	0.210	0.000	0.670	0.210	0.210	100.000		
Sulfide	ug/L	OW-220B	3								*
Thallium	ug/L	OW-220B	8	0.130	0.000	0.670	0.130	0.130	2.000		
Vanadium	ug/L	OW-220B	8	0.550	0.000	0.670	0.550	0.550	35.000		
Vinyl chloride	ug/L	OW-220B	8	0.090	0.000	0.670	0.090	0.090	2.000		

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Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Zinc	ug/L	OW-220B	8	5.000	0.000	0.670	5.000	5.000	2000.000		
Antimony	ug/L	OW-224B	6	0.500	0.000	0.822	0.500	0.500	6.000		
Arsenic	ug/L	OW-224B	6	5.002	1.473	0.822	3.791	6.213	10.000		
Barium	ug/L	OW-224B	6	2066.667	353.138	0.822	1776.252	2357.081	2000.000		**
Benzene	ug/L	OW-224B	6	2.675	1.472	0.822	1.464	3.886	5.000		
Beta-bhc	ug/L	OW-224B	1								*
Cadmium	ug/L	OW-224B	6	0.714	0.563	0.822	0.251	1.177	5.000		
Chromium	ug/L	OW-224B	6	7.345	3.384	0.822	4.562	10.128	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-224B	6	0.498	0.611	0.822	0.000	1.001	70.000		
Cobalt	ug/L	OW-224B	6	37.717	16.817	0.822	23.887	51.547	2.100		**
Copper	ug/L	OW-224B	6	4.705	6.655	0.822	0.000	10.178	1300.000		
Endosulfan sulfate	ug/L	OW-224B	1								*
Lead	ug/L	OW-224B	6	1.236	0.312	0.822	0.980	1.493	15.000		
Mercury	ug/L	OW-224B	1								*
Nickel	ug/L	OW-224B	6	182.833	75.497	0.822	120.746	244.921	100.000		**
Selenium	ug/L	OW-224B	6	0.700	0.000	0.822	0.700	0.700	50.000		
Silver	ug/L	OW-224B	6	0.250	0.000	0.822	0.250	0.250	100.000		
Sulfide	ug/L	OW-224B	1								*
Thallium	ug/L	OW-224B	6	0.345	0.527	0.822	0.000	0.778	2.000		
Vanadium	ug/L	OW-224B	6	0.550	0.000	0.822	0.550	0.550	35.000		
Vinyl chloride	ug/L	OW-224B	6	0.090	0.000	0.822	0.090	0.090	2.000		
Zinc	ug/L	OW-224B	6	4.850	0.000	0.822	4.850	4.850	2000.000		
Antimony	ug/L	OW-225B	6	0.500	0.000	0.822	0.500	0.500	6.000		
Arsenic	ug/L	OW-225B	6	2.322	2.015	0.822	0.664	3.979	10.000		
Barium	ug/L	OW-225B	6	1458.333	235.407	0.822	1264.739	1651.928	2000.000		
Benzene	ug/L	OW-225B	6	1.068	0.186	0.822	0.915	1.221	5.000		
Beta-bhc	ug/L	OW-225B	1								*
Cadmium	ug/L	OW-225B	6	0.657	0.240	0.822	0.460	0.855	5.000		
Chromium	ug/L	OW-225B	6	0.550	0.000	0.822	0.550	0.550	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-225B	6	0.458	0.547	0.822	0.008	0.908	70.000		
Cobalt	ug/L	OW-225B	6	29.600	5.014	0.822	25.476	33.724	2.100		**

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Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Copper	ug/L	OW-225B	6	4.377	2.759	0.822	2.108	6.645	1300.000		
Endosulfan sulfate	ug/L	OW-225B	1								*
Lead	ug/L	OW-225B	6	0.553	0.364	0.822	0.253	0.852	15.000		
Mercury	ug/L	OW-225B	1								*
Nickel	ug/L	OW-225B	6	117.167	20.731	0.822	100.118	134.215	100.000		**
Selenium	ug/L	OW-225B	6	0.700	0.000	0.822	0.700	0.700	50.000		
Silver	ug/L	OW-225B	6	0.250	0.000	0.822	0.250	0.250	100.000		
Sulfide	ug/L	OW-225B	1								*
Thallium	ug/L	OW-225B	6	0.130	0.000	0.822	0.130	0.130	2.000		
Vanadium	ug/L	OW-225B	6	0.550	0.000	0.822	0.550	0.550	35.000		
Vinyl chloride	ug/L	OW-225B	6	0.090	0.000	0.822	0.090	0.090	2.000		
Zinc	ug/L	OW-225B	6	3.200	0.000	0.822	3.200	3.200	2000.000		
Antimony	ug/L	OW-226B	6	0.500	0.000	0.822	0.500	0.500	6.000		
Arsenic	ug/L	OW-226B	6	5.993	2.647	0.822	3.816	8.169	10.000		
Barium	ug/L	OW-226B	6	1586.667	158.451	0.822	1456.360	1716.974	2000.000		
Benzene	ug/L	OW-226B	6	2.385	0.265	0.822	2.167	2.603	5.000		
Beta-bhc	ug/L	OW-226B	1								*
Cadmium	ug/L	OW-226B	6	0.208	0.169	0.822	0.068	0.347	5.000		
Chromium	ug/L	OW-226B	6	6.295	4.455	0.822	2.632	9.958	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-226B	6	0.105	0.000	0.822	0.105	0.105	70.000		
Cobalt	ug/L	OW-226B	6	25.383	5.844	0.822	20.578	30.189	2.100		**
Copper	ug/L	OW-226B	6	0.900	0.000	0.822	0.900	0.900	1300.000		
Endosulfan sulfate	ug/L	OW-226B	1								*
Lead	ug/L	OW-226B	6	1.460	0.732	0.822	0.858	2.061	15.000		
Mercury	ug/L	OW-226B	1								*
Nickel	ug/L	OW-226B	6	77.767	7.577	0.822	71.536	83.998	100.000		
Selenium	ug/L	OW-226B	6	0.700	0.000	0.822	0.700	0.700	50.000		
Silver	ug/L	OW-226B	6	0.250	0.000	0.822	0.250	0.250	100.000		
Sulfide	ug/L	OW-226B	3								*
Thallium	ug/L	OW-226B	6	0.130	0.000	0.822	0.130	0.130	2.000		
Vanadium	ug/L	OW-226B	6	0.550	0.000	0.822	0.550	0.550	35.000		

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Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Vinyl chloride	ug/L	OW-226B	6	0.090	0.000	0.822	0.090	0.090	2.000		
Zinc	ug/L	OW-226B	6	4.850	0.000	0.822	4.850	4.850	2000.000		
Antimony	ug/L	OW-227B	6	0.500	0.000	0.822	0.500	0.500	6.000		
Arsenic	ug/L	OW-227B	6	7.298	5.059	0.822	3.138	11.459	10.000		**
Barium	ug/L	OW-227B	6	1616.667	210.966	0.822	1443.172	1790.161	2000.000		
Benzene	ug/L	OW-227B	6	2.415	0.648	0.822	1.882	2.948	5.000	inc	
Beta-bhc	ug/L	OW-227B	1								*
Cadmium	ug/L	OW-227B	6	0.504	0.211	0.822	0.330	0.677	5.000		
Chromium	ug/L	OW-227B	6	5.165	2.316	0.822	3.261	7.069	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-227B	6	0.105	0.000	0.822	0.105	0.105	70.000		
Cobalt	ug/L	OW-227B	6	26.633	6.264	0.822	21.482	31.785	2.100		**
Copper	ug/L	OW-227B	6	3.567	4.470	0.822	0.000	7.243	1300.000		
Endosulfan sulfate	ug/L	OW-227B	1								*
Lead	ug/L	OW-227B	6	0.210	0.220	0.822	0.029	0.391	15.000		
Mercury	ug/L	OW-227B	1								*
Nickel	ug/L	OW-227B	6	83.417	9.622	0.822	75.503	91.330	100.000		
Selenium	ug/L	OW-227B	6	0.700	0.000	0.822	0.700	0.700	50.000		
Silver	ug/L	OW-227B	6	0.250	0.000	0.822	0.250	0.250	100.000		
Sulfide	ug/L	OW-227B	3								*
Thallium	ug/L	OW-227B	6	0.130	0.000	0.822	0.130	0.130	2.000		
Vanadium	ug/L	OW-227B	6	0.550	0.000	0.822	0.550	0.550	35.000		
Vinyl chloride	ug/L	OW-227B	6	0.090	0.000	0.822	0.090	0.090	2.000		
Zinc	ug/L	OW-227B	6	3.200	0.000	0.822	3.200	3.200	2000.000		
Antimony	ug/L	OW-412B	8	0.265	0.000	0.670	0.265	0.265	6.000		
Arsenic	ug/L	OW-412B	8	2.820	1.851	0.670	1.580	4.060	10.000		
Barium	ug/L	OW-412B	8	1126.000	246.867	0.670	960.645	1291.355	2000.000	inc	
Benzene	ug/L	OW-412B	8	0.543	0.294	0.670	0.346	0.740	5.000		
Beta-bhc	ug/L	OW-412B	0								*
Cadmium	ug/L	OW-412B	8	0.026	0.000	0.670	0.026	0.026	5.000		
Chromium	ug/L	OW-412B	8	4.178	6.455	0.670	0.000	8.501	100.000		
Cis-1,2-dichloroethylene	ug/L	OW-412B	8	15.525	2.952	0.670	13.547	17.503	70.000	inc	

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

Table 1

Confidence Intervals for Comparing the Mean of the Last 8 Measurements to an Assessment Monitoring Standard

Constituent	Units	Well	N	Mean	SD	Factor	95% LCL	95% UCL	Standard	Trend	
Cobalt	ug/L	OW-412B	8	1.514	0.228	0.670	1.361	1.666	2.100		
Copper	ug/L	OW-412B	8	0.900	0.000	0.670	0.900	0.900	1300.000		
Endosulfan sulfate	ug/L	OW-412B	0								*
Lead	ug/L	OW-412B	8	0.499	0.574	0.670	0.115	0.884	15.000		
Mercury	ug/L	OW-412B	0								*
Nickel	ug/L	OW-412B	8	14.240	4.841	0.670	10.998	17.482	100.000		
Selenium	ug/L	OW-412B	8	0.480	0.000	0.670	0.480	0.480	50.000		
Silver	ug/L	OW-412B	8	0.185	0.000	0.670	0.185	0.185	100.000		
Sulfide	ug/L	OW-412B	0								*
Thallium	ug/L	OW-412B	8	0.377	0.826	0.670	0.000	0.930	2.000		
Vanadium	ug/L	OW-412B	8	0.425	0.000	0.670	0.425	0.425	35.000		
Vinyl chloride	ug/L	OW-412B	8	2.666	2.206	0.670	1.189	4.144	2.000		**
Zinc	ug/L	OW-412B	8	5.000	0.000	0.670	5.000	5.000	2000.000		

* - Insufficient Data
** - Significant Exceedance
LCL = Lower Confidence Limit
UCL = Upper Confidence Limit

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.0 / 8** = **0.5**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**2.0 - 16.0/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5 - 1.895 * 0.0/8**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5 + 1.895 * 0.0/8**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **47.667**	Variance estimate for slope.
8	M(S) = (**N'** ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **47.667**^{½}) / 2 = [**24.108**, **41.892**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.0** / **8** = **0.375**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.125** - **9.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.375** - **1.895** * **0.0**/**8**^{½} = **0.375**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.375** + **1.895** * **0.0**/**8**^{½} = **0.375**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **695.7** / **8** = **86.963**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**60651.49** - **483998.49**/**8**) / (**8**-1))^{½} = **4.655**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **86.963** - **1.895** * **4.655/8**^{½} = **83.845**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **86.963** + **1.895** * **4.655/8**^{½} = **90.08**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **-0.413**	Sen's estimator of trend.
7	var(S) = **212.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **212.667**^{½}) / 2 = [**14.217**, **51.783**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-4.328**, **2.397**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.88** / **8** = **0.11**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.097** - **0.774/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.11** - **1.895** * **0.0/8**^{½} = **0.11**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.11** + **1.895** * **0.0/8**^{½} = **0.11**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.286 / 8** = **0.036**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.016** - **0.082/8**) / (**8**-1))^{½} = **0.029**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.036** - **1.895** * **0.029/8**^{½} = **0.016**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.036** + **1.895** * **0.029/8**^{½} = **0.055**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **13** * (**13**-1) / 2 = **78**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **103.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**78** ± **2.576** * **103.667**^{½}) / 2 = [**25.886**, **52.114**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **25.07 / 8** = **3.134**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**174.387** - **628.505/8**) / (**8**-1))^{½} = **3.7**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **3.134** - **1.895** * **3.7/8**^{½} = **0.656**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **3.134** + **1.895** * **3.7/8**^{½} = **5.612**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **-2.228**	Sen's estimator of trend.
7	var(S) = **184.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **184.333**^{½}) / 2 = [**15.513**, **50.487**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-3.891**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.84 / 8** = **0.105**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.088** - **0.706/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.105** - **1.895** * **0.0/8**^{½} = **0.105**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.105** + **1.895** * **0.0/8**^{½} = **0.105**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.68 / 8** = **0.085**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.058** - **0.462/8**) / (**8**-1))^{½} = **1.76x10^{-9}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.085** - **1.895** * **1.76x10^{-9}/8**^{½} = **0.085**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.085** + **1.895** * **1.76x10^{-9}/8**^{½} = **0.085**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **47.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **47.667**^{½}) / 2 = [**24.108**, **41.892**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **6.0** / **8** = **0.75**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**4.5** - **36.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.75** - **1.895** * **0.0**/**8**^{½} = **0.75**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.75** + **1.895** * **0.0**/**8**^{½} = **0.75**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.844** / **8** = **0.106**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.089** - **0.712**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.106** - **1.895** * **0.0**/**8**^{½} = **0.106**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.106** + **1.895** * **0.0**/**8**^{½} = **0.106**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **36.18** / **8** = **4.523**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**367.246** - **1308.992/8**) / (**8**-1))^{½} = **5.393**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.523** - **1.895** * **5.393/8**^{½} = **0.91**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.523** + **1.895** * **5.393/8**^{½} = **8.135**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **184.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **184.333**^{½}) / 2 = [**15.513**, **50.487**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.41**, **1.81**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.84** / **8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.68** / **8** = **0.21**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.353** - **2.822**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.21** - **1.895** * **0.0**/**8**^{½} = **0.21**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.21** + **1.895** * **0.0**/**8**^{½} = **0.21**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.04** / **8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.135** - **1.082**/**8**) / (**8**-1))^{½} = **8.76**x**10**$^{-10}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76**x**10**$^{-10}$/**8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76**x**10**$^{-10}$/**8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **47.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **47.667**^{½}) / 2 = [**24.108**, **41.892**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.72** / **8** = **0.09**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.065** - **0.518/8**) / (**8**-1))^{½} = **1.03**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **1.895** * **1.03**x**10**$^{-9}$/**8**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **1.895** * **1.03**x**10**$^{-9}$/**8**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-105B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **12** * (**12**-1) / 2 = **66**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**66** ± **2.576** * **0.0**^{½}) / 2 = [**33.0**, **33.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.12** / **8** = **0.265**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.562** - **4.494/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.265** - **1.895** * **0.0/8**^{½} = **0.265**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.265** + **1.895** * **0.0/8**^{½} = **0.265**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **133.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **133.0**^{½}) / 2 = [**80.146**, **109.854**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **94.55** / **8** = **11.819**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1234.696** - **8939.703**/**8**) / (**8**-1))^{½} = **4.092**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **11.819** - **1.895** * **4.092**/**8**^{½} = **9.078**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **11.819** + **1.895** * **4.092**/**8**^{½} = **14.56**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **-0.005**	Sen's estimator of trend.
7	var(S) = **950.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **950.0**^{½}) / 2 = [**55.301**, **134.699**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.263**, **1.315**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2031.0 / 8** = **253.875**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**546993.0** - **4.12**x**10^6/8**) / (**8**-1))^{½} = **66.947**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **253.875** - **1.895** * **66.947/8**^{½} = **209.033**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **253.875** + **1.895** * **66.947/8**^{½} = **298.717**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **16.412**	Sen's estimator of trend.
7	var(S) = **948.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **948.0**^{½}) / 2 = [**55.343**, **134.657**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.723**, **37.146**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.88** / **8** = **0.11**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.097** - **0.774/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.11** - **1.895** * **0.0/8**^{½} = **0.11**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.11** + **1.895** * **0.0/8**^{½} = **0.11**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
6	S = **-0.015**	Sen's estimator of trend.
7	var(S) = **692.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**171** ± **2.576** * **692.0**^{½}) / 2 = [**51.618**, **119.382**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.049**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Beta-bhc (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.016 / 6** = **0.003**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**4.26**x**10^{-5} - 2.56**x**10^{-4}/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.003 - 2.014** * **0.0/6**^{½} = **0.003**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.003 + 2.014** * **0.0/6**^{½} = **0.003**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.331** / **8** = **0.041**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.028** - **0.109/8**) / (**8**-1))^{½} = **0.045**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.041** - **1.895** * **0.045/8**^{½} = **0.011**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.041** + **1.895** * **0.045/8**^{½} = **0.071**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **456.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **456.667**^{½}) / 2 = [**67.476**, **122.524**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$/**8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **-0.032**	Sen's estimator of trend.
7	var(S) = **681.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **681.333**^{½}) / 2 = [**61.38**, **128.62**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.233**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.84** / **8** = **0.105**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.088** - **0.706/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.105** - **1.895** * **0.0/8**^{½} = **0.105**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.105** + **1.895** * **0.0/8**^{½} = **0.105**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
6	S = **-0.027**	Sen's estimator of trend.
7	var(S) = **725.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**171** ± **2.576** * **725.0**^{½}) / 2 = [**50.82**, **120.18**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.094**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **35.81** / **8** = **4.476**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**166.995** - **1282.356/8**) / (**8**-1))^{½} = **0.978**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.476** - **1.895** * **0.978/8**^{½} = **3.821**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.476** + **1.895** * **0.978/8**^{½} = **5.132**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.218**	Sen's estimator of trend.
7	var(S) = **950.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **950.0**^{½}) / 2 = [**55.301**, **134.699**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.034**, **0.541**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **133.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **133.0**^{½}) / 2 = [**80.146**, **109.854**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Endosulfan sulfate (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.009 / 6** = **0.001**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^{2}]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.21**x**10**$^{-5}$ - **7.26**x**10**$^{-5}$/**6**) / (**6**-1))^{½} = **1.73**x**10**$^{-11}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.001** - **2.014** * **1.73**x**10**$^{-11}$/**6**^{½} = **0.001**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.001** + **2.014** * **1.73**x**10**$^{-11}$/**6**^{½} = **0.001**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.0** / **8** = **0.125**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.125** - **1.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.125** - **1.895** * **0.0**/**8**^{½} = **0.125**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.125** + **1.895** * **0.0**/**8**^{½} = **0.125**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **253.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **253.0**^{½}) / 2 = [**74.513**, **115.487**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Mercury (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.275 / 5** = **0.055**	Compute the mean of the last 5 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.015** - **0.076/5**) / (**5**-1))^{½} = **0.0**	Compute sd of the last 5 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.055** - **2.132** * **0.0/5**^{½} = **0.055**	Compute lower confidence limit for the mean of the last 5 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.055** + **2.132** * **0.0/5**^{½} = **0.055**	Compute upper confidence limit for the mean of the last 5 measurements.
5	N' = **N** * (**N**-1) / 2 = **5** * (**5**-1) / 2 = **10**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**10** ± **2.576** * **0.0**^{½}) / 2 = [**5.0**, **5.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **107.07** / **8** = **13.384**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1496.455** - **11463.985**/**8**) / (**8**-1))^{½} = **3.011**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **13.384** - **1.895** * **3.011/8**^{½} = **11.367**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **13.384** + **1.895** * **3.011/8**^{½} = **15.4**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **1.216**	Sen's estimator of trend.
7	var(S) = **948.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **948.0**^{½}) / 2 = [**55.343**, **134.657**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.407**, **1.77**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.84** / **8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **0.0**^{½}) / 2 = [**95.0**, **95.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.48** / **8** = **0.185**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.274** - **2.19**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.185** - **1.895** * **0.0**/**8**^{½} = **0.185**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.185** + **1.895** * **0.0**/**8**^{½} = **0.185**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **253.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **253.0**^{½}) / 2 = [**74.513**, **115.487**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Sulfide (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **924.0** / **8** = **115.5**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**106722.0** - **853776.0/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **115.5** - **1.895** * **0.0/8**^{½} = **115.5**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **115.5** + **1.895** * **0.0/8**^{½} = **115.5**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **13** * (**13**-1) / 2 = **78**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **103.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**78** ± **2.576** * **103.667**^{½}) / 2 = [**25.886**, **52.114**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.04 / 8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.135** - **1.082/8**) / (**8**-1))^{½} = **8.76x10^{-10}**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76x10^{-10}/8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **0.0**^{½}) / 2 = [**95.0**, **95.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.36** / **8** = **0.42**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.411** - **11.29**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.42** - **1.895** * **0.0**/**8**^{½} = **0.42**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.42** + **1.895** * **0.0**/**8**^{½} = **0.42**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **0.0**^{½}) / 2 = [**95.0**, **95.0**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.72** / **8** = **0.09**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.065** - **0.518/8**) / (**8**-1))^{½} = **1.03**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **1.895** * **1.03**x**10**$^{-9}$/**8**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **1.895** * **1.03**x**10**$^{-9}$/**8**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **19** * (**19**-1) / 2 = **171**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**171** ± **2.576** * **0.0**^{½}) / 2 = [**85.5**, **85.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-205B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **20** * (**20**-1) / 2 = **190**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **133.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**190** ± **2.576** * **133.0**^{½}) / 2 = [**80.146**, **109.854**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **4.0** / **8** = **0.5**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.0** - **16.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5** - **1.895** * **0.0**/**8**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5** + **1.895** * **0.0**/**8**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **101.8** / **8** = **12.725**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1447.4** - **10363.24/8**) / (**8**-1))^{½} = **4.66**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **12.725** - **1.895** * **4.66/8**^{½} = **9.604**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **12.725** + **1.895** * **4.66/8**^{½} = **15.846**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.516**	Sen's estimator of trend.
7	var(S) = **161.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **161.333**^{½}) / 2 = [**11.14**, **43.86**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.677**, **2.095**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **6608.0 / 8** = **826.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**5.60**x**10^6 - 4.37**x**10^7/8**) / (**8**-1))^{½} = **144.571**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **826.0 - 1.895** * **144.571/8**^{½} = **729.164**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **826.0 + 1.895** * **144.571/8**^{½} = **922.836**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **14.85**	Sen's estimator of trend.
7	var(S) = **164.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **164.0**^{½}) / 2 = [**11.006**, **43.994**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-69.156**, **120.92**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **18.88** / **8** = **2.36**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**45.524** - **356.454**/**8**) / (**8**-1))^{½} = **0.372**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.36** - **1.895** * **0.372/8**^{½} = **2.111**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.36** + **1.895** * **0.372/8**^{½} = **2.609**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **-0.42**	Sen's estimator of trend.
7	var(S) = **165.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **165.0**^{½}) / 2 = [**10.955**, **44.045**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.016**, **-0.104**]	Two-sided confidence interval for slope.
10	UCL(S) < 0	**Significant decreasing trend.**

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.22** / **8** = **0.028**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.006** - **0.048**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.028** - **1.895** * **0.0**/**8**^{½} = **0.028**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.028** + **1.895** * **0.0**/**8**^{½} = **0.028**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **73.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **73.0**^{½}) / 2 = [**16.495**, **38.505**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.042**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **44.06** / **8** = **5.508**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**257.806** - **1941.284/8**) / (**8**-1))^{½} = **1.471**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.508** - **1.895** * **1.471/8**^{½} = **4.522**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.508** + **1.895** * **1.471/8**^{½} = **6.493**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.131**	Sen's estimator of trend.
7	var(S) = **165.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **165.0**^{½}) / 2 = [**10.955**, **44.045**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.395**, **0.645**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.84** / **8** = **0.105**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.088** - **0.706/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.105** - **1.895** * **0.0/8**^{½} = **0.105**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.105** + **1.895** * **0.0/8**^{½} = **0.105**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **40.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **40.0**^{½}) / 2 = [**19.354**, **35.646**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **183.3** / **8** = **22.913**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**4292.97** - **33598.89/8**) / (**8**-1))^{½} = **3.647**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **22.913** - **1.895** * **3.647/8**^{½} = **20.47**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **22.913** + **1.895** * **3.647/8**^{½} = **25.355**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **-2.711**	Sen's estimator of trend.
7	var(S) = **164.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **164.0**^{½}) / 2 = [**11.006**, **43.994**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-5.613**, **-0.502**]	Two-sided confidence interval for slope.
10	UCL(S) < 0	**Significant decreasing trend.**

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **40.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **40.0**^{½}) / 2 = [**19.354**, **35.646**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.96** / **8** = **0.12**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.115** - **0.922**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.12** - **1.895** * **0.0**/**8**^{½} = **0.12**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.12** + **1.895** * **0.0**/**8**^{½} = **0.12**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **969.7** / **8** = **121.213**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**119812.09** - **940318.09/8**) / (**8**-1))^{½} = **18.017**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **121.213** - **1.895** * **18.017/8**^{½} = **109.144**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **121.213** + **1.895** * **18.017/8**^{½} = **133.281**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **2.909**	Sen's estimator of trend.
7	var(S) = **163.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **163.0**^{½}) / 2 = [**11.056**, **43.944**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-8.095**, **21.584**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **4.0** / **8** = **0.5**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.0** - **16.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5** - **1.895** * **0.0**/**8**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5** + **1.895** * **0.0**/**8**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.68** / **8** = **0.21**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.353** - **2.822**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.21** - **1.895** * **0.0**/**8**^{½} = **0.21**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.21** + **1.895** * **0.0**/**8**^{½} = **0.21**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.04** / **8** = **0.13**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.135** - **1.082**/**8**) / (**8**-1))^{½} = **8.76**x**10**$^{-10}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **1.895** * **8.76**x**10**$^{-10}$/**8**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **1.895** * **8.76**x**10**$^{-10}$/**8**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.4 / 8** = **0.55**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**2.42** - **19.36/8**) / (**8**-1))^{½} = **1.17**x**10**$^{-8}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **1.895** * **1.17**x**10**$^{-8}$**/8**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.72** / **8** = **0.09**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.065** - **0.518/8**) / (**8**-1))^{½} = **1.03**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **1.895** * **1.03**x**10**$^{-9}$/**8**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **1.895** * **1.03**x**10**$^{-9}$/**8**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-220B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **11** * (**11**-1) / 2 = **55**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**55** ± **2.576** * **0.0**^{½}) / 2 = [**27.5**, **27.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.0** / **6** = **0.5**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.5** - **9.0**/**6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5** - **2.014** * **0.0/6**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5** + **2.014** * **0.0/6**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **30.01 / 6** = **5.002**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**160.943 - 900.6/6**) / (**6**-1))^{½} = **1.473**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.002 - 2.014 * 1.473/6**^{½} = **3.791**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.002 + 2.014 * 1.473/6**^{½} = **6.213**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **3.632**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.453**, **9.754**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **12400.0 / 6** = **2066.667**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**2.63**x**10^7 - 1.54**x**10^8/6**) / (**6**-1))^{½} = **353.138**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2066.667 - 2.014 * 353.138/6**^{½} = **1776.252**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2066.667 + 2.014 * 353.138/6**^{½} = **2357.081**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **708.209**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-3452.703**, **1704.829**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **16.05** / **6** = **2.675**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**53.77** - **257.603/6**) / (**6**-1))^{½} = **1.472**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.675** - **2.014** * **1.472/6**^{½} = **1.464**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.675** + **2.014** * **1.472/6**^{½} = **3.886**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-8.043**, **14.4**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.284 / 6** = **0.714**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**4.642** - **18.353/6**) / (**6**-1))^{½} = **0.563**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.714** - **2.014** * **0.563/6**^{½} = **0.251**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.714** + **2.014** * **0.563/6**^{½} = **1.177**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.92**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.569**, **0.427**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **44.07 / 6** = **7.345**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**380.961** - **1942.165/6**) / (**6**-1))^{½} = **3.384**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **7.345** - **2.014** * **3.384/6**^{½} = **4.562**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **7.345** + **2.014** * **3.384/6**^{½} = **10.128**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.514**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-35.639**, **8.9**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.99 / 6** = **0.498**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**3.355** - **8.94/6**) / (**6**-1))^{½} = **0.611**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.498** - **2.014** * **0.611/6**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.498** + **2.014** * **0.611/6**^{½} = **1.001**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.97**	Sen's estimator of trend.
7	var(S) = **19.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **19.667**^{½}) / 2 = [**1.788**, **13.212**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.519**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **226.3 / 6** = **37.717**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**9949.35 - 51211.69/6**) / (**6**-1))^{½} = **16.817**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ **- tS/N**^{½} = **37.717 - 2.014 * 16.817/6**^{½} = **23.887**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ **+ tS/N**^{½} = **37.717 + 2.014 * 16.817/6**^{½} = **51.547**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-26.872**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-87.437**, **30.656**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **28.23 / 6** = **4.705**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**354.285** - **796.933/6**) / (**6**-1))^{½} = **6.655**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.705** - **2.014** * **6.655/6**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.705** + **2.014** * **6.655/6**^{½} = **10.178**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **19.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **19.667**^{½}) / 2 = [**1.788**, **13.212**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-41.752**, **9.242**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **7.417 / 6** = **1.236**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**9.655** - **55.012/6**) / (**6**-1))^{½} = **0.312**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1.236** - **2.014** * **0.312/6**^{½} = **0.98**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1.236** + **2.014** * **0.312/6**^{½} = **1.493**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.498**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.984**, **4.023**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1097.0 / 6** = **182.833**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**229067.0 - 1.20x10^6/6**) / (**6**-1))^{½} = **75.497**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ **- tS/N**^{½} = **182.833 - 2.014 * 75.497/6**^{½} = **120.746**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ **+ tS/N**^{½} = **182.833 + 2.014 * 75.497/6**^{½} = **244.921**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-110.079**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-351.381**, **109.971**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.2** / **6** = **0.7**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.94** - **17.64/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.7** - **2.014** * **0.0/6**^{½} = **0.7**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.7** + **2.014** * **0.0/6**^{½} = **0.7**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.5 / 6** = **0.25**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.375** - **2.25/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.25** - **2.014** * **0.0/6**^{½} = **0.25**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.25** + **2.014** * **0.0/6**^{½} = **0.25**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.07 / 6** = **0.345**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**2.101 - 4.285/6**) / (**6**-1))^{½} = **0.527**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.345 - 2.014 * 0.527/6**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.345 + 2.014 * 0.527/6**^{½} = **0.778**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **11.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **11.667**^{½}) / 2 = [**3.101**, **11.899**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.588**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.3** / **6** = **0.55**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.815** - **10.89/6**) / (**6**-1))^{½} = **8.53**x**10**$^{-9}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.54 / 6** = **0.09**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.049** - **0.292/6**) / (**6**-1))^{½} = **8.97x10^{-10}**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-224B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **29.1** / **6** = **4.85**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**141.135** - **846.81/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.85** - **2.014** * **0.0/6**^{½} = **4.85**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.85** + **2.014** * **0.0/6**^{½} = **4.85**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.0** / **6** = **0.5**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.5** - **9.0**/**6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5** - **2.014** * **0.0/6**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5** + **2.014** * **0.0/6**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **13.93 / 6** = **2.322**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**52.65** - **194.045/6**) / (**6**-1))^{½} = **2.015**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.322** - **2.014** * **2.015/6**^{½} = **0.664**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.322** + **2.014** * **2.015/6**^{½} = **3.979**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **3.58**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.063**, **6.624**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **8750.0 / 6** = **1458.333**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**1.30**x**10^7 - 7.66**x**10^7/6**) / (**6**-1))^{½} = **235.407**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1458.333 - 2.014** * **235.407/6**^{½} = **1264.739**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1458.333 + 2.014** * **235.407/6**^{½} = **1651.928**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **84.231**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-4840.217**, **1270.921**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **6.409 / 6** = **1.068**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**7.019 - 41.075/6**) / (**6**-1))^{½} = **0.186**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1.068 - 2.014 * 0.186/6**^{½} = **0.915**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1.068 + 2.014 * 0.186/6**^{½} = **1.221**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.32**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.374**, **1.465**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.944 / 6** = **0.657**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.881** - **15.555/6**) / (**6**-1))^{½} = **0.24**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.657** - **2.014** * **0.24/6**^{½} = **0.46**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.657** + **2.014** * **0.24/6**^{½} = **0.855**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.325**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-4.086**, **0.457**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.3** / **6** = **0.55**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.815** - **10.89/6**) / (**6**-1))^{½} = **8.53**x**10**$^{-9}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **2.75** / **6** = **0.458**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.759** - **7.563/6**) / (**6**-1))^{½} = **0.547**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.458** - **2.014** * **0.547/6**^{½} = **0.008**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.458** + **2.014** * **0.547/6**^{½} = **0.908**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **19.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **19.667**^{½}) / 2 = [**1.788**, **13.212**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.973**, **2.332**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **177.6** / **6** = **29.6**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5382.68** - **31541.76/6**) / (**6**-1))^{½} = **5.014**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **29.6** - **2.014** * **5.014/6**^{½} = **25.476**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **29.6** + **2.014** * **5.014/6**^{½} = **33.724**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **4.117**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-110.293**, **29.817**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **26.26 / 6** = **4.377**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**152.987 - 689.588/6**) / (**6**-1))^{½} = **2.759**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ **- tS/N**^{½} = **4.377 - 2.014 * 2.759/6**^{½} = **2.108**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ **+ tS/N**^{½} = **4.377 + 2.014 * 2.759/6**^{½} = **6.645**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-4.245**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-39.198**, **5.937**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.317 / 6** = **0.553**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**2.497** - **11.002/6**) / (**6**-1))^{½} = **0.364**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.553** - **2.014** * **0.364/6**^{½} = **0.253**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.553** + **2.014** * **0.364/6**^{½} = **0.852**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.652**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.579**, **1.531**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **703.0 / 6** = **117.167**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**84517.0** - **494209.0/6**) / (**6**-1))^{½} = **20.731**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **117.167** - **2.014** * **20.731/6**^{½} = **100.118**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **117.167** + **2.014** * **20.731/6**^{½} = **134.215**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **24.822**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-325.326**, **120.31**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **4.2** / **6** = **0.7**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.94** - **17.64/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.7** - **2.014** * **0.0/6**^{½} = **0.7**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.7** + **2.014** * **0.0/6**^{½} = **0.7**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.5 / 6** = **0.25**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.375** - **2.25/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.25** - **2.014** * **0.0/6**^{½} = **0.25**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.25** + **2.014** * **0.0/6**^{½} = **0.25**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.78** / **6** = **0.13**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.101** - **0.608/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **2.014** * **0.0/6**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **2.014** * **0.0/6**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.3** / **6** = **0.55**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.815** - **10.89/6**) / (**6**-1))^{½} = **8.53**x**10**$^{-9}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.54 / 6** = **0.09**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.049** - **0.292/6**) / (**6**-1))^{½} = **8.97x10^{-10}**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-225B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **19.2** / **6** = **3.2**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**61.44** - **368.64/6**) / (**6**-1))^{½} = **5.74**x**10**$^{-8}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **3.2** - **2.014** * **5.74**x**10**$^{-8}$/**6**^{½} = **3.2**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **3.2** + **2.014** * **5.74**x**10**$^{-8}$/**6**^{½} = **3.2**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.0** / **6** = **0.5**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.5** - **9.0**/**6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5** - **2.014** * **0.0**/**6**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5** + **2.014** * **0.0**/**6**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **35.955 / 6** = **5.993**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**250.488** - **1292.762/6**) / (**6**-1))^{½} = **2.647**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.993** - **2.014** * **2.647/6**^{½} = **3.816**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.993** + **2.014** * **2.647/6**^{½} = **8.169**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **1.898**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-52.013**, **17.652**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **9520.0 / 6** = **1586.667**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**1.52**x**10^7 - 9.06**x**10^7/6**) / (**6**-1))^{½} = **158.451**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1586.667 - 2.014 * 158.451/6**^{½} = **1456.36**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1586.667 + 2.014 * 158.451/6**^{½} = **1716.974**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-176.613**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1745.652**, **1386.941**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **14.31 / 6** = **2.385**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**34.481 - 204.776/6**) / (**6**-1))^{½} = **0.265**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.385 - 2.014 * 0.265/6**^{½} = **2.167**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.385 + 2.014 * 0.265/6**^{½} = **2.603**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.206**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.222**, **1.642**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.246 / 6** = **0.208**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**0.402 - 1.553/6**) / (**6**-1))^{½} = **0.169**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.208 - 2.014 * 0.169/6**^{½} = **0.068**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.208 + 2.014 * 0.169/6**^{½} = **0.347**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.105**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-3.634**, **0.893**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **37.77 / 6** = **6.295**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**336.982** - **1426.573/6**) / (**6**-1))^{½} = **4.455**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **6.295** - **2.014** * **4.455/6**^{½} = **2.632**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **6.295** + **2.014** * **4.455/6**^{½} = **9.958**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.745**	Sen's estimator of trend.
7	var(S) = **27.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **27.333**^{½}) / 2 = [**0.766**, **14.234**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-67.287**, **14.367**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.63 / 6** = **0.105**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.066** - **0.397/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.105** - **2.014** * **0.0/6**^{½} = **0.105**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.105** + **2.014** * **0.0/6**^{½} = **0.105**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **152.3** / **6** = **25.383**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**4036.63** - **23195.29/6**) / (**6**-1))^{½} = **5.844**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **25.383** - **2.014** * **5.844/6**^{½} = **20.578**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **25.383** + **2.014** * **5.844/6**^{½} = **30.189**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-11.471**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-49.989**, **7.306**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **5.4 / 6** = **0.9**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**4.86** - **29.16/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **2.014** * **0.0/6**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **2.014** * **0.0/6**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **8.758 / 6** = **1.46**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**15.46** - **76.703/6**) / (**6**-1))^{½} = **0.732**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1.46** - **2.014** * **0.732/6**^{½} = **0.858**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1.46** + **2.014** * **0.732/6**^{½} = **2.061**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.684**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-8.734**, **3.768**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **466.6** / **6** = **77.767**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**36572.96** - **217715.56/6**) / (**6**-1))^{½} = **7.577**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **77.767** - **2.014** * **7.577/6**^{½} = **71.536**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **77.767** + **2.014** * **7.577/6**^{½} = **83.998**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-10.319**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-97.598**, **42.566**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.2** / **6** = **0.7**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.94** - **17.64/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.7** - **2.014** * **0.0/6**^{½} = **0.7**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.7** + **2.014** * **0.0/6**^{½} = **0.7**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.5 / 6** = **0.25**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.375** - **2.25/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.25** - **2.014** * **0.0/6**^{½} = **0.25**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.25** + **2.014** * **0.0/6**^{½} = **0.25**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.78 / 6** = **0.13**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**0.101 - 0.608/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13 - 2.014 * 0.0/6**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13 + 2.014 * 0.0/6**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.3** / **6** = **0.55**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.815** - **10.89/6**) / (**6**-1))^{½} = **8.53**x**10**$^{-9}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.54 / 6** = **0.09**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.049** - **0.292/6**) / (**6**-1))^{½} = **8.97x10^{-10}**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-226B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **29.1** / **6** = **4.85**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**141.135** - **846.81/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.85** - **2.014** * **0.0/6**^{½} = **4.85**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.85** + **2.014** * **0.0/6**^{½} = **4.85**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.0** / **6** = **0.5**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.5** - **9.0**/**6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.5** - **2.014** * **0.0/6**^{½} = **0.5**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.5** + **2.014** * **0.0/6**^{½} = **0.5**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **43.79 / 6** = **7.298**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**447.552 - 1917.564/6**) / (**6**-1))^{½} = **5.059**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **7.298 - 2.014 * 5.059/6**^{½} = **3.138**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **7.298 + 2.014 * 5.059/6**^{½} = **11.459**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **3.974**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-27.636**, **26.187**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **9700.0 / 6** = **1616.667**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**1.59**x**10^7 - 9.41**x**10^7/6**) / (**6**-1))^{½} = **210.966**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1616.667 - 2.014 * 210.966/6**^{½} = **1443.172**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1616.667 + 2.014 * 210.966/6**^{½} = **1790.161**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **223.767**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2129.167**, **1339.757**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **14.49** / **6** = **2.415**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**37.096** - **209.96/6**) / (**6**-1))^{½} = **0.648**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.415** - **2.014** * **0.648/6**^{½} = **1.882**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.415** + **2.014** * **0.648/6**^{½} = **2.948**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **1.165**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.047**, **3.183**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.022 / 6** = **0.504**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**1.745 - 9.132/6**) / (**6**-1))^{½} = **0.211**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.504 - 2.014 * 0.211/6**^{½} = **0.33**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.504 + 2.014 * 0.211/6**^{½} = **0.677**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.199**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.479**, **0.828**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **30.99 / 6** = **5.165**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**186.873** - **960.38/6**) / (**6**-1))^{½} = **2.316**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.165** - **2.014** * **2.316/6**^{½} = **3.261**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.165** + **2.014** * **2.316/6**^{½} = **7.069**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-0.186**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-24.886**, **7.01**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.63 / 6** = **0.105**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.066** - **0.397/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.105** - **2.014** * **0.0/6**^{½} = **0.105**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.105** + **2.014** * **0.0/6**^{½} = **0.105**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **159.8 / 6** = **26.633**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**4452.22** - **25536.04/6**) / (**6**-1))^{½} = **6.264**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **26.633** - **2.014** * **6.264/6**^{½} = **21.482**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **26.633** + **2.014** * **6.264/6**^{½} = **31.785**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **4.745**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z** $_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-36.5**, **38.933**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **21.4 / 6** = **3.567**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**176.24** - **457.96/6**) / (**6**-1))^{½} = **4.47**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **3.567** - **2.014** * **4.47/6**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **3.567** + **2.014** * **4.47/6**^{½} = **7.243**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **-7.44**	Sen's estimator of trend.
7	var(S) = **19.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **19.667**^{½}) / 2 = [**1.788**, **13.212**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-23.573**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.259 / 6** = **0.21**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.506** - **1.585/6**) / (**6**-1))^{½} = **0.22**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.21** - **2.014** * **0.22/6**^{½} = **0.029**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.21** + **2.014** * **0.22/6**^{½} = **0.391**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **11.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **11.667**^{½}) / 2 = [**3.101**, **11.899**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.454**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **500.5** / **6** = **83.417**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**42212.99** - **250500.25/6**) / (**6**-1))^{½} = **9.622**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **83.417** - **2.014** * **9.622/6**^{½} = **75.503**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **83.417** + **2.014** * **9.622/6**^{½} = **91.33**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **3.567**	Sen's estimator of trend.
7	var(S) = **28.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **28.333**^{½}) / 2 = [**0.644**, **14.356**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-174.135**, **69.771**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **4.2** / **6** = **0.7**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.94** - **17.64/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.7** - **2.014** * **0.0/6**^{½} = **0.7**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.7** + **2.014** * **0.0/6**^{½} = **0.7**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **1.5 / 6** = **0.25**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.375** - **2.25/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.25** - **2.014** * **0.0/6**^{½} = **0.25**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.25** + **2.014** * **0.0/6**^{½} = **0.25**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.78 / 6** = **0.13**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.101** - **0.608/6**) / (**6**-1))^{½} = **0.0**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.13** - **2.014** * **0.0/6**^{½} = **0.13**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.13** + **2.014** * **0.0/6**^{½} = **0.13**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.3** / **6** = **0.55**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1.815** - **10.89/6**) / (**6**-1))^{½} = **8.53**x**10**$^{-9}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.55** - **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.55** + **2.014** * **8.53**x**10**$^{-9}$/**6**^{½} = **0.55**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **0.54 / 6** = **0.09**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**0.049** - **0.292/6**) / (**6**-1))^{½} = **8.97x10^{-10}**	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.09** - **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.09** + **2.014** * **8.97x10^{-10}/6**^{½} = **0.09**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-227B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **19.2** / **6** = **3.2**	Compute the mean of the last 6 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**61.44** - **368.64/6**) / (**6**-1))^{½} = **5.74**x**10**$^{-8}$	Compute sd of the last 6 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **3.2** - **2.014** * **5.74**x**10**$^{-8}$/**6**^{½} = **3.2**	Compute lower confidence limit for the mean of the last 6 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **3.2** + **2.014** * **5.74**x**10**$^{-8}$/**6**^{½} = **3.2**	Compute upper confidence limit for the mean of the last 6 measurements.
5	N' = **N** * (**N**-1) / 2 = **6** * (**6**-1) / 2 = **15**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**15** ± **2.576** * **0.0**^{½}) / 2 = [**7.5**, **7.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Antimony (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **2.12** / **8** = **0.265**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.562** - **4.494/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.265** - **1.895** * **0.0/8**^{½} = **0.265**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.265** + **1.895** * **0.0/8**^{½} = **0.265**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **139.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **139.667**^{½}) / 2 = [**37.278**, **67.722**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Arsenic (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **22.562** / **8** = **2.82**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**87.616** - **509.044**/**8**) / (**8**-1))^{½} = **1.851**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.82** - **1.895** * **1.851/8**^{½} = **1.58**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.82** + **1.895** * **1.851/8**^{½} = **4.06**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.511**	Sen's estimator of trend.
7	var(S) = **399.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **399.667**^{½}) / 2 = [**26.751**, **78.249**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.024**, **0.956**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Barium (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **9008.0 / 8** = **1126.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2] - sum[X]^2/N**) / (**N**-1))^{½} = ((**1.06**x**10^7 - 8.11**x**10^7/8**) / (**8**-1))^{½} = **246.867**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1126.0 - 1.895 * 246.867/8**^{½} = **960.645**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1126.0 + 1.895 * 246.867/8**^{½} = **1291.355**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **142.634**	Sen's estimator of trend.
7	var(S) = **407.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **407.333**^{½}) / 2 = [**26.505**, **78.495**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**108.091**, **179.618**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Benzene (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **4.343** / **8** = **0.543**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**2.962** - **18.862**/**8**) / (**8**-1))^{½} = **0.294**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.543** - **1.895** * **0.294**/**8**^{½} = **0.346**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.543** + **1.895** * **0.294**/**8**^{½} = **0.74**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.013**	Sen's estimator of trend.
7	var(S) = **407.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **407.333**^{½}) / 2 = [**26.505**, **78.495**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.082**, **0.111**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cadmium (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **0.204** / **8** = **0.026**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.005** - **0.042**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.026** - **1.895** * **0.0**/**8**^{½} = **0.026**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.026** + **1.895** * **0.0**/**8**^{½} = **0.026**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **283.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **283.333**^{½}) / 2 = [**30.82**, **74.18**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.031**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Chromium (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **33.42** / **8** = **4.178**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**431.268** - **1116.896/8**) / (**8**-1))^{½} = **6.455**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **4.178** - **1.895** * **6.455/8**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **4.178** + **1.895** * **6.455/8**^{½} = **8.501**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.299**	Sen's estimator of trend.
7	var(S) = **391.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **391.667**^{½}) / 2 = [**27.01**, **77.99**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-1.323**, **0.849**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Cis-1,2-dichloroethylene (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **124.2** / **8** = **15.525**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1989.22** - **15425.64/8**) / (**8**-1))^{½} = **2.952**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **15.525** - **1.895** * **2.952/8**^{½} = **13.547**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **15.525** + **1.895** * **2.952/8**^{½} = **17.503**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **1.347**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.249**, **4.016**]	Two-sided confidence interval for slope.
10	LCL(S) > 0	**Significant increasing trend.**

Worksheet 6 - Assessment Monitoring
Cobalt (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **12.11** / **8** = **1.514**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**18.695** - **146.652**/**8**) / (**8**-1))^{½} = **0.228**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **1.514** - **1.895** * **0.228/8**^{½} = **1.361**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **1.514** + **1.895** * **0.228/8**^{½} = **1.666**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.123**	Sen's estimator of trend.
7	var(S) = **406.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **406.333**^{½}) / 2 = [**26.537**, **78.463**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.283**, **0.033**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Copper (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **7.2** / **8** = **0.9**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**6.48** - **51.84/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.9** - **1.895** * **0.0/8**^{½} = **0.9**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.9** + **1.895** * **0.0/8**^{½} = **0.9**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Lead (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.993** / **8** = **0.499**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**4.301** - **15.944/8**) / (**8**-1))^{½} = **0.574**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.499** - **1.895** * **0.574/8**^{½} = **0.115**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.499** + **1.895** * **0.574/8**^{½} = **0.884**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **391.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **391.667**^{½}) / 2 = [**27.01**, **77.99**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.106**, **0.158**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Nickel (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **113.92** / **8** = **14.24**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**1786.241** - **12977.766**/**8**) / (**8**-1))^{½} = **4.841**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **14.24** - **1.895** * **4.841/8**^{½} = **10.998**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **14.24** + **1.895** * **4.841/8**^{½} = **17.482**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **1.065**	Sen's estimator of trend.
7	var(S) = **408.333**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **408.333**^{½}) / 2 = [**26.473**, **78.527**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-2.524**, **2.469**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Selenium (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.84 / 8** = **0.48**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**1.843** - **14.746/8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.48** - **1.895** * **0.0/8**^{½} = **0.48**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.48** + **1.895** * **0.0/8**^{½} = **0.48**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **139.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **139.667**^{½}) / 2 = [**37.278**, **67.722**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Silver (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **1.48** / **8** = **0.185**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**0.274** - **2.19**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.185** - **1.895** * **0.0**/**8**^{½} = **0.185**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.185** + **1.895** * **0.0**/**8**^{½} = **0.185**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Thallium (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **3.015** / **8** = **0.377**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**5.907** - **9.09/8**) / (**8**-1))^{½} = **0.826**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.377** - **1.895** * **0.826/8**^{½} = **0.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.377** + **1.895** * **0.826/8**^{½} = **0.93**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **74.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **74.667**^{½}) / 2 = [**41.37**, **63.63**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vanadium (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X] / N** = **3.4 / 8** = **0.425**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}**/N**) / (**N**-1))^{½} = ((**1.445** - **11.56/8**) / (**8**-1))^{½} = **8.58**x**10**$^{-9}$	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **0.425** - **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **0.425** + **1.895** * **8.58**x**10**$^{-9}$**/8**^{½} = **0.425**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **-0.42**	Sen's estimator of trend.
7	var(S) = **343.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **343.0**^{½}) / 2 = [**28.646**, **76.354**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.876**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Vinyl chloride (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **21.33** / **8** = **2.666**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**90.921** - **454.969**/**8**) / (**8**-1))^{½} = **2.206**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **2.666** - **1.895** * **2.206/8**^{½} = **1.189**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **2.666** + **1.895** * **2.206/8**^{½} = **4.144**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.107**	Sen's estimator of trend.
7	var(S) = **404.667**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **404.667**^{½}) / 2 = [**26.59**, **78.41**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**-0.682**, **0.906**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.

Worksheet 6 - Assessment Monitoring
Zinc (ug/L) at OW-412B

Step	Equation	Description
1	$\overline{X}$ = **sum[X]** / **N** = **40.0** / **8** = **5.0**	Compute the mean of the last 8 measurements.
2	S = ((**sum[X^2]** - **sum[X]**^{2}/**N**) / (**N**-1))^{½} = ((**200.0** - **1600.0**/**8**) / (**8**-1))^{½} = **0.0**	Compute sd of the last 8 measurements.
3	LCL = $\overline{\mathbf{X}}$ - **tS/N**^{½} = **5.0** - **1.895** * **0.0**/**8**^{½} = **5.0**	Compute lower confidence limit for the mean of the last 8 measurements.
4	UCL = $\overline{\mathbf{X}}$ + **tS/N**^{½} = **5.0** + **1.895** * **0.0**/**8**^{½} = **5.0**	Compute upper confidence limit for the mean of the last 8 measurements.
5	N' = **N** * (**N**-1) / 2 = **15** * (**15**-1) / 2 = **105**	Number of sample pairs during trend detection period.
6	S = **0.0**	Sen's estimator of trend.
7	var(S) = **0.0**	Variance estimate for slope.
8	M(S) = (**N**' ± **Z**$_{.995}$ * **var(S)**^{½}) / 2 = (**105** ± **2.576** * **0.0**^{½}) / 2 = [**52.5**, **52.5**]	Ordinal positions for two-sided lower confidence limits for slope. The LCL and UCL are the Mth largest slope estimates for the values shown. When the values are not integers, interpolation is used.
9	CL(S) = [**0.0**, **0.0**]	Two-sided confidence interval for slope.
10	the interval includes 0	There is no significant trend.