2022 Annual Report
West Avenue Landfill

WDNR License No. 521
FID No. 268145680

City of Waukesha
Waukesha, Wisconsin

February 2023

Project I.D.: 22W013

Solving our clients' toughest science and engineering challenges.

2121 Innovation Court, Suite 100
De Pere, WI 54115
(920) 497-2500
foth.com

February 28, 2023

Pamela Mylotta
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Re: 2022 Annual Report for the West Avenue Landfill
License No. 521, FID No. 261845680

Dear Pamela Mylotta:

On behalf of the city of Waukesha, Foth Infrastructure & Environment, LLC (Foth) is submitting a digital copy of this 2022 Annual Report to the Wisconsin Department of Natural Resources for your review and approval. This report summarizes the continuing operation and maintenance activities, groundwater monitoring and site improvements for the West Avenue Landfill, located in Waukesha, Wisconsin.

If you have any questions or require hard copies of this report, please contact the undersigned at (920) 496-6865.

Sincerely,

Foth Infrastructure & Environment, LLC

Daniel J. Michiels, P.E.
Lead Environmental Engineer
Licensed in WI

Heather L. Hallett, PG, CPG
Lead Hydrogeologist
Licensed in WI, PA

2022 Annual Report

Distribution

No. of Copies	Sent To
Electronic	Pamela Mylotta Wisconsin Department of Natural Resources 2300 N. Dr. Martin Luther King Jr. Drive Milwaukee, WI 53212
Electronic	Gerald Demers, P.E. Wisconsin Department of Natural Resources 2300 N. Dr. Martin Luther King Jr. Drive Milwaukee, WI 53212
Electronic	Katie Jelacic, P.E. City Project Engineer City of Waukesha 130 Delafield Street Waukesha, WI 53188-3616

2022 Annual Report

Project ID: 22W013

Prepared for

City of Waukesha

201 Delafield Street
Waukesha, WI 53188-3616

Prepared by

Foth Infrastructure & Environment, LLC

February 2023

2121 Innovation Court, Ste. 100 • PO Box 5126 • De Pere, WI 54115-5126 • (920) 497-2500 • Fax: (920) 497-8516 • www.foth.com

2022 Annual Report

Table of Contents

Page

Executive Summary iv

List of Abbreviations, Acronyms, and Symbols vi

1. Introduction 1
   - 1.1 Site Contacts 1
   - 1.2 Monitoring Plan 1
   - 1.3 Regulatory Requirements 1
2. Background Information 2
   - 2.1 Location 2
   - 2.2 Site History 2
   - 2.3 Site Geology and Hydrogeology 2
3. Operation and Maintenance Summary 4
   - 3.1 Principal Landfill Cover System 4
   - 3.2 Storm Water Management System 4
   - 3.3 Landfill Gas and Condensate Management System 4
   - 3.4 Security Measures 5
   - 3.5 Perimeter Property Soil Cover System 5
   - 3.6 Perimeter Property Sub-Slab Air Venting and Monitoring System 6
   - 3.7 Landfill Gas Management System Monitoring 6
4. Groundwater Monitoring and Data Evaluation 8
   - 4.1 Groundwater Flow 8
     - 4.1.1 Hydraulic Gradients 8
     - 4.1.2 Groundwater Velocity 9
   - 4.2 Groundwater Monitoring 9
     - 4.2.1 Groundwater Monitoring Results 9
     - 4.2.2 Groundwater Analysis of Exceedances 9
     - 4.2.3 Groundwater Trend Analysis 10
     - 4.2.4 Evaluation of Groundwater Indicator Parameter Results 11
5. Anticipated 2023 Activities 13
6. References 14

Table of Contents (continued)

Tables

(Tables located after Tables tab)

Table 1	2022 Groundwater Elevation
Table 2	Vertical Hydraulic Gradients – April and September 2022
Table 3	Groundwater Analytical Results 2022
Table 4	Action Level Exceedances in Groundwater
Table 5	Maximum Chemical Concentrations Detected in Groundwater
Table 6	Summary of Akritas-Theil-Sen Nonparametric Trend Tests and Sample Sizes – Long-term Data (2003 through 2022)
Table 7	Summary of Akritas-Theil-Sen Nonparametric Trend Tests and Sample Sizes – 5-Year Data (2018 through 2022)

Figures

(Figures located after Figures tab)

Figure 1	Site Location Map
Figure 2	Landfill Gas Collection Site Features
Figure 3	Monitoring Well Location Map
Figure 4	Water Table Elevation Map, September 2022
Figure 5	Intermediate Bedrock Groundwater Piezometric Surface Map, September 2022
Figure 6	Deep Bedrock Groundwater Piezometric Surface Map, September 2022
Figure 7	Chloride Trends and 2022 Exceedances
Figure 8	Iron Trends and 2022 Exceedances
Figure 9	Manganese Trends and 2022 Exceedances
Figure 10	Vinyl Chloride Trends and 2022 Exceedances

Appendices

Appendix A	O&M Documentation Forms
Appendix B	Hydrologic Analysis and Calculations
Appendix C	Statistical and Trend Analyses
Appendix D	Historical Groundwater Data – Indicator Parameters
Appendix E	Historical Groundwater Data – Median Values for MW-7 and MW-3 Indicator Parameters

2022 Annual Report

Executive Summary

This 2022 Annual Report and groundwater evaluation presents information associated with continuing operations and maintenance activities and groundwater monitoring at the West Avenue Landfill Site (Site). The 2022 Annual Report information indicates that the environmental control systems appear to be functioning as designed.

The Wisconsin Department of Natural Resources (WDNR) document, *Understanding Chlorinated Hydrocarbon Behavior in Groundwater: Investigation, Assessment, and Limitations of Monitored Natural Attenuation* (WDNR, 2014), includes a list of case closure criteria for use when evaluating the effectiveness of monitored natural attenuation. Relevant outcomes of 2022 monitoring and corrective actions pertaining to these criteria are discussed below.

1. Source control and interim actions completed.

   Routine inspections indicate that the landfill cap is intact, and the soil cover was maintained, thus infiltration of precipitation is minimized, reducing contaminant load to the groundwater. The storm water management system continues to promote surface water drainage.

2. Demonstrated effectiveness of natural attenuation.

   Decreasing trends of chlorinated solvent parent compounds are evident. The subsurface conditions in the vicinity of the Site are favorable for continued degradation of parent compounds. In addition, other attenuation mechanisms continue to further reduce concentrations including sorption, dispersion, diffusion, and precipitation dilution. Exceedances of vinyl chloride in samples from several wells located downgradient of the Site are persistent, but trends are stable or decreasing and will continue to be monitored. Some elevated concentrations of vinyl chloride, benzene, chloride, manganese, chlorobenzene, and cis-1,2-dichloroethene have been observed in deep wells MW-3D and MW-17D on the west side of the landfill in 2021 and 2022. Semiannual groundwater sampling will continue to monitor these trends and a new monitoring well may be necessary downgradient from these wells.

   The pathways for exposure to contaminants and exposure routes are currently incomplete and are expected to remain incomplete in the future, thus preventing human and ecological exposure to the constituents.

3. Meeting standards within a reasonable period of time.

   A “reasonable period of time” is described in the WDNR document (WDNR, 2014) as the cleanup options “that will protect human health and the environment and meet cleanup standards in the most practical and economically effective way.” Natural attenuation of Site contaminants is occurring and is expected to continue, and no pathways for receptor exposure exist.

   The implemented remedy and current natural attenuation approach represents an economically effective means of remediation and is protective of human health and the environment.

4. Notification of contamination to third-party landowners.

   Deed restrictions for the Site are in place, the downgradient cemetery property is owned by the City, and other neighboring property owners were previously notified of the presence of groundwater contamination by the city of Waukesha through mailings and numerous publicly noticed hearings.

The City continues to maintain and operate the West Avenue Landfill in accordance with the *Operations and Maintenance Manual* (AECOM, 2010). Evaluation of semiannual groundwater monitoring data, routine inspection of site systems, and timely corrective actions indicate that the system is protective.

List of Abbreviations, Acronyms, and Symbols

Annual Report	2022 Annual Report
CL	chloride
City	City of Waukesha
COC	compounds of concern
COI	compounds of interest
DCE	daughter products cis-1,2-dichloroethene
DO	dissolved oxygen
Foth	Foth Infrastructure & Environment, LLC
ES	enforcement standard
ft/day	feet per day
ft msl	feet above mean sea level
KO	knockout
LEL	lower explosive limit
mg/L	milligrams per liter
MW	monitoring well
NADA	Non-detects and Data Analysis
OC	organic carbon
O&M	Operations and Maintenance
O&M Plan	Operations and Maintenance Plan
PAL	preventive action limit
pH	potential of hydrogen
SC	specific conductivity
SF	sulfate
Site	West Avenue Landfill
TCE	trichloroethene
µg/L	micrograms per liter
µmhos/cm	micro-mhos/centimeter
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
WDNR	Wisconsin Department of Natural Resources
Wis. Admin. Code	Wisconsin Administrative Code

1. Introduction

This 2022 Annual Report (Annual Report) has been prepared by Foth Infrastructure & Environment, LLC (Foth) on behalf of the city of Waukesha (City) to present the data associated with continuing Operations and Maintenance (O&M) activities and groundwater monitoring at the West Avenue Landfill (Site), located in Waukesha, Wisconsin (Landfill License #521, FID #268145680). This document was completed in general accordance with the February 2010 Operation and Maintenance Plan (O&M Plan) for the Site and describes activities conducted from January 1, 2022, through December 31, 2022.

Section 2 of this document presents a brief history of the Site and other background information. The O&M portion of this document is presented in Section 3 and includes data collected during the reporting period, including collected measurements, completed investigative activities, and the status of existing remedy components. Section 4 presents a groundwater monitoring summary, including an evaluation of groundwater characteristics, flow, and monitoring data. Section 5 presents the anticipated 2023 activities.

1.1 Site Contacts

The City's project manager is:

Katie Jelacic, P.E.
City of Waukesha
City Project Engineer
201 Delafield Street
Waukesha, WI 53188-3616
(262) 524-3587

The consultant for this project is:

Daniel Michiels, P.E.
Foth Infrastructure & Environment, LLC
Foth Project Manager
2121 Innovation Court, Suite 300
De Pere, WI 54115
(920) 496-6865

1.2 Monitoring Plan

The monitoring plan comprises the Site landfill cover system, storm water management system, security measures, perimeter property remedial systems, landfill gas management system, and groundwater quality.

1.3 Regulatory Requirements

The Site is monitored in accordance with Wisconsin Administrative Code (Wis. Admin. Code) s. NR 504. Due to the occurrence of exceedances of Wis. Admin. Code NR 140 groundwater quality standards, the Site is in assessment monitoring under NR 508.

2. Background Information

2.1 Location

The West Avenue Landfill encompasses approximately 43 acres and is located within the south-central portion of the city of Waukesha, Wisconsin (Figure 1). The general Site borders are Coolidge Avenue and Estberg Avenue to the north, West Avenue to the west, Sunset Drive to the south, and Scott Avenue and Grand Avenue to the east.

2.2 Site History

The West Avenue Landfill was used for disposal of wastes from the early 1960s until approximately the early 1970s. The landfill property was privately owned, but waste disposal operations were conducted by the City for a period of years from the mid-1960s to 1975. The landfill activity was conducted in a former gravel pit that had been excavated to the upper surface of bedrock in some areas. The City acquired title to a portion of the landfill property south of Hoover Avenue in the 1990s after the landfill was closed. The City acquired the title to several properties located on the landfill in the 1990s to gain control of certain problem areas of the landfill. In 2006, the City acquired several residential properties along the northern portion of the landfill. The apartment buildings on the properties were demolished by the City, and the landfill was properly capped in accordance with Wis. Admin. Code Chapter NR 500. In 2011, the City acquired the property located at 900 Scott Avenue adjacent to the northeast portion of the landfill and demolished the apartment building that occupied the property. The City currently utilizes the landfill as additional recreational use through the Parks Department and renamed the area as Mindiola Park.

As a city recreational use area, several soccer fields are maintained on the landfill cover. In 2020 the City and Parks Department enhanced Mindiola Park through the construction of a new collegiate level artificial turf soccer field for longer use and increased range of play during the season. The parking lot on the final cover area north of Hoover Avenue was also improved along with stormwater management features. Further development of ancillary activities which will enhance play and enjoyment of the new artificial turf field include installation of a new scoreboard and flag pole. These activities were permitted under an approved plan modification dated September 11, 2020, and were completed in 2022.

2.3 Site Geology and Hydrogeology

The geology and hydrogeology of the Site have been characterized during several investigations (e.g., Rust, 1995; Earth Tech, 2000 and 2005; AECOM, 2010 and 2016). The Site is underlain by fill and unconsolidated Quaternary-age glacial deposits ranging from 30 to 75-feet thick. Fill is distinguished from Quaternary-age deposits by color and texture. Quaternary-age soils beneath the site are typically well graded to poorly graded sand and gravel with occasional silty clay. The succession of Quaternary-age sediments beneath the site is consistent with the regional stratigraphic succession developed by the Wisconsin Geological and Natural History Survey (WGNHS). Detailed examination of the particle-size distribution, sedimentary structures and stratigraphic relationships of the Quaternary-age sediments indicates that the deposits classify as New Berlin Formation. The New Berlin Formation is a medium-grained outwash deposit that thins toward the north and thickens to the west, toward the Fox River valley. The surficial aquifer occurs in the unconsolidated glacial deposits.

Underlying the unconsolidated deposits is a series of bedrock formations. The bedrock underlying these glacial deposits is undifferentiated Silurian-age dolomite. The Silurian dolomite is the youngest bedrock formation in Waukesha County and, where hydraulically connected to the unconsolidated glacial deposits, forms the uppermost regional aquifer. Underlying this dolomite unit, from youngest to oldest, are the Maquoketa Formation (shale), Sinnepee Group (dolomite and shaley dolomite), Ancell Group (sandstone), Prairie du Chien Group (dolomite with some sandstone), Cambrian sandstones, and Precambrian basement rock (crystalline bedrock).

Groundwater flow in the shallow glacial aquifer typically follows the topography and flow is toward local bodies of water. Groundwater in the vicinity of the West Avenue Landfill flows to the west-northwest toward the Fox River. Groundwater flow in the dolomite portion of the uppermost aquifer is also generally to the north and west, toward the Fox River, which drains the uppermost aquifer and serves as a groundwater discharge zone for local and intermediate flow systems. Downward flow is inhibited by the Maquoketa Formation, which acts as a confining unit, separating the uppermost aquifer from the deep sandstone aquifer (regional flow system) below.

3. Operation and Maintenance Summary

O&M of various design features was conducted at the Site in 2022 in general conformance with the 2010 O&M Plan. This section details a summary of the routine O&M activities and any additional items that were performed in 2022.

3.1 Principal Landfill Cover System

In accordance with the O&M Plan, the city of Waukesha performs semiannual inspections of the principal landfill cover areas of the West Avenue Landfill. The areas of final cover are shown on Figure 2. The inspections include, but are not limited to, vegetation integrity, cover integrity, erosion control, surface stabilization, settlement, and animal intrusion.

The semiannual inspections of the landfill final cover system were conducted by City personnel as part of the March and September 2022 site visits. The landfill final cover system appeared to be in good condition. Field observation forms and maintenance logs are attached in Appendix A.

3.2 Storm Water Management System

In accordance with the O&M Plan, the city of Waukesha performs semiannual inspections of the storm water management system at the West Avenue Landfill. City personnel inspect swales and berms along the landfill cover system. Catch basins and manholes are inspected for damage and excessive silt buildup.

The semiannual inspections of the storm water management system were conducted by City personnel as part of the March and September 2022 site visits. The storm water management system appeared to be in good condition and no damage was observed. Field observation forms are attached in Appendix A.

3.3 Landfill Gas and Condensate Management System

The current landfill gas and condensate management system consists of the following components:

- Gas extraction blower and candlestick flare
- Seventeen vertical gas extraction wells
- Four horizontal gas extraction trenches
- Three condensate knockout risers and lift stations
- Looped gas header piping network

The layout of the landfill gas and condensate management system is shown on Figure 2. In accordance with the O&M Plan, the city of Waukesha performs quarterly inspections of the landfill gas and condensate management systems. The quarterly inspection of the landfill gas and condensate management systems were conducted by City personnel during routine monitoring events on April 13 and 14, June 7 and 9, September 6 and 7, and December 5 and 6. Each inspection event took place over two or more days. Field observation forms are provided in Appendix A. Monitoring results for the gas extraction wells and gas probes are detailed in Section 3.7.

Condensate within the gas collection system is dropped out at one of three knockout (KO) risers. Collected condensate at KO-1 and KO-3 is drained to a dedicated lift station near each KO riser and pumped to a high point in the gas header piping where it drains to KO-2. The lift station at KO-2 pumps collected condensate through a force main to a manhole at the intersection of Coolidge Avenue and Scott Avenue where it enters the city of Waukesha sanitary sewer.

The three KO sumps (KO-1, KO-2, and KO-3) were inspected as part of the June 2022 site inspection. Each of the KO lift stations were opened and the pump and level floats were manually operated. During

the 2022 reporting year, KO-1, KO-2, and KO-3 operated normally. Maintenance activities included adjustments and repairs to level floats at KO-1 and KO-3.

The gas extraction blower and flare system were assessed as part of quarterly inspections. In addition, City personnel perform more frequent weekly visits to the Site to ensure the system is operating continuously. The blower and flare system is surrounded by a security fence and the gate and entrance doors are locked. The blower is direct driven by a 10-horsepower motor and extracts landfill gas from the series of gas header piping connected to 17 vertical and 4 horizontal gas extraction wells. Extracted gas is exhausted through the candlestick flare stack. Though equipped with a solar ignitor system, the candlestick flare combustion system is unable to retain a flame due to insufficient methane content in the extracted landfill gas.

In past years, the gas extraction blower has been operated on a timer based on four hours of operation and 20 hours of downtime. An electrical issue caused the timer to become nonfunctional in 2022 and staff operated the blower in continuous operation. Planned modifications to the panel in 2023 include installation of a new timer for intermittent run schedules going forward similar to prior operations.

It was also observed in 2022 that the system vacuum at the blower inlet generally varied between 14 and 29 inches of water column. Within the gas header and collection system, a noticeable drop in available system vacuum at the nearest gas extraction wells (GW-7 and GW-8) was observed. It is believed that a sag in the gas header piping is present near the blower unit. The gas header line from KO-2 to the blower skid was televised but no indications any observable issues were noted. The potential sagged piping is planned to be dug up and re-sloped or replaced in 2023 to enhance system vacuum at wells. The impacted cover will be repaired meeting the requirements of the original cover construction.

3.4 Security Measures

In accordance with the O&M Plan, the City of Waukesha performs semiannual inspections of the security systems in place at the West Avenue Landfill. The security systems currently in place at the West Avenue Landfill include fencing, barbed wire, gates, and locks surrounding the blower and flare station. Individual landfill gas extraction well heads are also secured in a vault with a security keyed entry point. City personnel inspect these security measures and make necessary repairs or replacements of any damage components when discovered.

The inspections of the security measures were conducted by City personnel in March, June, September, and December 2022. The inspections are performed quarterly in conjunction with other on-site monitoring events. Details are provided in the Quarterly Inspection Log forms provided Appendix A.

During the reporting year, there was no damage to the systems noted during routine inspections. The security system is in good condition and no repairs were needed.

3.5 Perimeter Property Soil Cover System

As part of the 2010 O&M Plan, semiannual inspections of the perimeter property soil cover system is performed. Monitoring of the system includes a physical inspection of each property's soil cover and surface conditions. The properties surrounding the perimeter of the West Avenue Landfill where a soil cover system has been installed are as follows:

- 422 Estberg Avenue
- 810 Scott Avenue
- 900 Scott Avenue
- 333, 343, and 349 Coolidge Avenue
- 1212 South Grand Avenue
- 1201 and 1239 South West Avenue

- 1249 South West Avenue
- 1301 South West Avenue
- 901-939 Carlton Place
- 417 Estberg Avenue
- 425 Estberg Avenue
- 433 Estberg Avenue

The soil cover system was inspected for areas of sparse vegetation and potential erosion such as surface scouring, formation of rills or gullies or indications of animal or manmade intrusions. Areas of potential storm water ponding or where surface water is unable to drain are also identified. Any areas found to exhibit distress, or the previously mentioned conditions are to be restored.

The inspection of the perimeter property soil cover system was conducted by City personnel during the March and September 2022 site inspections. During the reporting year, there was no damage to the perimeter property soil cover system noted during routine inspections. Field observation forms are provided in Appendix A.

3.6 Perimeter Property Sub-Slab Air Venting and Monitoring System

As part of the 2010 O&M Plan, a perimeter property sub-slab air venting and monitoring system was installed at selected buildings on neighboring properties. Since 2010, variances for specific buildings have been granted for removal of sub-slab air venting systems due to changed building conditions. Security measures and restricted access to the sub-slab air venting systems and methane monitors has been installed.

Sub-slab air venting systems consist of an air venting blower system. The locations of currently installed air venting systems are as follows:

- 345 Coolidge Avenue building
- 810 Scott Avenue building
- 422 Estberg Avenue building
- 1111 S. West Avenue building
- 1212-1216 S. Grand Avenue (Walnut Grove) apartments

Methane monitors are installed at various properties to monitor the levels of methane gas within building structures. The locations of currently installed methane monitors are as follows:

- 810 Scott Avenue building
- 422 Estberg Avenue building
- 1345 S. West Avenue building

The quarterly inspection of the sub-slab air venting systems and methane monitors were conducted by City personnel on March 14, June 13, September 20, and December 12 of 2022. Field observation forms are provided in Appendix A.

During the reporting year, there was no damage to the systems noted during routine inspections and the air venting and methane monitoring systems were operating as intended.

3.7 Landfill Gas Management System Monitoring

As part of the 2010 O&M Plan, quarterly monitoring of the landfill gas management system is performed. Monitoring of the system includes a physical inspection of each system component. Each component is monitored according to the O&M Plan requirements.

The inspection and monitoring of the gas probes were conducted by City personnel on April 13 and 14, June 9, September 6 and December 5, 2022. Gas probes are monitored for gas composition and the presence of methane. The landfill gas composition ranges within the gas probes in 2022 across the site were as follows:

- Methane (CH4): 0 to 0.3%
- Carbon Dioxide (CO2): 0 to 12.3%
- Oxygen (O2): 0.1 to 22.0%

In 2022, gas composition at each of the gas probes was measured to be less than the lower explosive limit (LEL) for methane of 5%. Field observation forms are provided in Appendix A.

The inspection and monitoring of the gas extraction wells were conducted by City personnel on April 13, June 7, September 6, and December 6. Gas extraction wells are monitored for gas composition. Field observation forms are provided in Appendix A.

4. Groundwater Monitoring and Data Evaluation

Groundwater monitoring was conducted at the Site in 2022 in general accordance with WDNR-approved April 2014 Conditional Closure Plan Modification. In January 2015, the City requested approval to move semiannual sampling month from March to April. The second variance requested from the 2014 plan included the use of United States Environmental Protection Agency (USEPA) analysis method 200.8 rather than the SW-846 method 6020A, which was approved April 23, 2015. The letter specifically approved the use of alternate analysis method 200.8 for arsenic and thallium, the filtering for dissolved analyses of sulfate and nitrate/nitrite, and the change in routine sampling month from March to April. In 2022, monitoring wells MW-11 and MW-8 could not be sampled. The MW-11 well casing had collapsed, and MW-8 had an obstruction. A plan modification has been submitted to WDNR for approval to reinstall MW-8 and abandon the MW-11 nest along with abandoning wells that are no longer monitored (MW-2, MW-4, MW-5, MW-6, and MW-15B).

The groundwater monitoring data were used to evaluate the impact on groundwater quality from installation of the landfill cap and gas collection system remedy components. The following sections present an evaluation of current groundwater flow and quality, including extent of impact and trend analyses. Monitoring well locations are shown on Figure 3.

4.1 Groundwater Flow

Groundwater elevations were collected during each semiannual groundwater monitoring event and are presented in Table 1. Groundwater elevations collected in September 2022 were used to develop water table and piezometric surface maps and to calculate flow velocities and vertical gradients.

September groundwater elevations in water table wells ranged from a low of 804.73 feet above mean sea level (ft msl) in monitoring well MW-3 to a high of 850.04 ft msl in MW-7. Shallow well groundwater elevations vary with topography and occur within the New Berlin Formation. Groundwater elevations measured in shallow wells indicate groundwater flow to the west-northwest toward the Fox River, as shown on Figure 4.

Groundwater elevations in the intermediate piezometers ranged from a low of 807.98 ft msl in MW-17B to a high of 848.01 ft msl in MW-7B. The groundwater flow at this depth within the aquifer is controlled by bedrock topography and the slope of the regional land surface, to the north and northwest, toward the Fox River. A contour map of the uppermost aquifer's intermediate piezometric surface is shown on Figure 5.

Groundwater elevations measured in the deep piezometers ranged from a low of 811.79 ft msl in MW-16D to a high of 830.34 ft msl in MW-3D. Groundwater flow deeper within the system remains to the north toward the Fox River, as shown on Figure 6.

4.1.1 Hydraulic Gradients

Horizontal hydraulic gradients were calculated from groundwater elevation data collected in September 2022. Flow lines were drawn perpendicular to water table and piezometric contours to calculate horizontal hydraulic gradients along these flow lines. Based on flow lines depicted on Figures 4, 5, and 6, average calculated horizontal gradients in the uppermost aquifer are 0.015 (shallow sand and gravel), 0.02 (intermediate bedrock, average of the two flow lines), and 0.03 (deep bedrock) feet/foot. All four flow lines show groundwater flow is directed toward the Fox River. Calculations are presented in Appendix B. These values are consistent with previously reported horizontal hydraulic gradients at the Site.

Vertical hydraulic gradients for 2022 were also calculated. A summary of the calculated vertical gradients is presented in Table 2. Vertical hydraulic gradients between shallow and intermediate wells are typically small and upward, and in 2022 averages ranged from -0.71 to 0.26 feet/foot (negative

indicates downward gradient). A strong average downward vertical gradient of -0.71 feet/foot was measured at well nest MW-16. MW-16 is located near a topographic transition from the upland to the river valley, which may contribute to the increased vertical gradient in that area. Vertical hydraulic gradients between intermediate and deep wells are also generally small and upward with average gradients in 2022 ranging from -0.02 to 0.21 feet/foot. These values are consistent with previously reported vertical gradients at the Site.

4.1.2 Groundwater Velocity

Average linear flow velocities along flow lines depicted on Figures 4, 5, and 6 were calculated based on the geometric mean hydraulic conductivities and horizontal gradients. Flow velocities were calculated, using September 2022 measurements, based on a modification of Darcy's Law:

$$V = \frac{Kh}{n_e}$$

Where: V = average linear velocity
K = horizontal hydraulic conductivity
h = horizontal hydraulic gradient
n_e = effective porosity

Based on September 2022 measurements, the average linear flow velocity of shallow groundwater in the uppermost aquifer at the Site is 0.899 feet per day (ft/day); the average linear flow velocity of intermediate groundwater in the uppermost aquifer at the Site is 0.751 to 0.826 ft/day and the average linear flow velocity of deep groundwater in the uppermost aquifer at the Site is 0.33 ft/day. The average linear flow velocities for the three geologic units are consistent with previously reported flow velocities at the Site. Calculations and assumptions are presented in Appendix B.

4.2 Groundwater Monitoring

Groundwater monitoring was conducted in general accordance with the appropriately approved sampling plan. The groundwater monitoring data were used to evaluate the impact on groundwater quality from installation of the landfill cap (in 2002) and gas collection system remedy components (expanded in 2009, repaired in late 2015 and again in 2016). The existing Site conditions provide the context in which to evaluate the groundwater monitoring system and also influences the fate and transport of compounds of concern (COC). The following text summarizes these evaluations within the framework of groundwater flow directions (horizontal and vertical) and rates presented above.

4.2.1 Groundwater Monitoring Results

Table 3 presents a summary of the 2022 groundwater analytical results. The locations of the sampled wells are shown on Figure 4.

4.2.2 Groundwater Analysis of Exceedances

Table 4 presents preventive action limit (PAL) and enforcement standard (ES) exceedances detected during 2022 monitoring. Groundwater analyses and exceedances are identified as either COC or compounds of interest (COI).

- COCs are identified as compounds detected above the ES level in more than four wells (i.e., >20 percent of the wells) during the current monitoring year. If an analyte no longer fits within these criteria, the compound is the considered a COI.

- COIs are identified as compounds that exceeded the ES in recent historical data.

The COCs identified in 2022 include chloride, iron, manganese, and vinyl chloride. Table 5 presents the historical and 2022 maximum detected concentration in the wells installed in bedrock (deep and intermediate) and the maximum concentration associated with the wells installed in the overlying unconsolidated soils (shallow).

The following summarizes the 2022 groundwater sampling results.

- Chloride ES exceedances occur throughout shallow soil, intermediate bedrock, and deep bedrock wells, with the maximum concentration of 478 milligrams per liter (mg/L) occurring at MW-8B.

- Iron ES exceedances occur in shallow soil, intermediate bedrock wells on the west side of the landfill, and in a deep bedrock well (MW-16D) on the north side of the landfill and one ES exceedance on the east side of the landfill in MW-10B. The maximum concentration of iron, 13.8 mg/L occurred at MW-4BR.

- Vinyl chloride ES exceedances occur primarily in the intermediate and deep bedrock wells on the west side of the landfill, with the maximum concentration 230 micrograms per liter (µg/L) occurring at MW-3B. Vinyl chloride ES exceedance was also detected in shallow well MW-3.

- Manganese ES exceedances occur primarily on the west side of the landfill in all depth wells. ES exceedances were also detected in wells MW-16D and MW-10B on the north and east sides of the landfill, respectively.

Additional COIs were identified based on exceedances in recent years. Table 5 identifies the maximum chemical concentration detected in the wells installed in bedrock and the maximum concentration associated with the wells installed in the overlying unconsolidated soils (i.e., overburden) and the results for 2022 are compared to those for 2003-2021. Of the parameters not identified as COCs, the following COIs were identified in historical data.

The additional compounds of interest are:

- 1,1-Dichloroethene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Arsenic
- Benzene
- Boron
- Chlorobenzene
- cis-1,2-Dichloroethene
- Methylene chloride
- Trichloroethene

Some elevated concentrations of vinyl chloride, benzene, chloride, manganese, chlorobenzene, and cis-1,2-dichloroethene have been observed in deep wells MW-3D and MW-17D on the west side of the landfill in 2021 and 2022. Semiannual groundwater sampling will continue to monitor these trends and a new monitoring well may be necessary downgradient from these wells.

4.2.3 Groundwater Trend Analysis

This report presents trend analyses using R-Script, which uses the Akritas-Theil-Sen version of the Theil-Sen line (USEPA, 2009) to identify concentration trends in groundwater. R-Script uses the Akritas-Theil-Sen version of the Theil-Sen line (USEPA, 2009), which is a nonparametric regression line

that has an associated Kendall's tau (τ) correlation coefficient used for testing significance (p-value) (Helsel, 2012). Kendall's τ is a nonparametric correlation coefficient used in testing the significance of trends and adapted for censored data (Helsel, 2012). The p-value associated with Kendall's τ correlation coefficient represents the probability of observing a Kendall's τ correlation coefficient as extreme as, or more extreme, than the one actually observed. The null hypothesis () is that no significant upward or downward trend exists. The alternative hypothesis is that a significant trend exists. Using an alpha level (α) of 0.05 (95% upper confidence bound), a p-value of 0.05 or less rejects the null hypothesis, indicating there is a significant trend. The Akritas-Theil-Sen tests for each well and parameter were completed using script developed by Helsel (2012) and the Non-detects and Data Analysis (NADA) (Lopaka, 2012) package for R statistical software (R Core Team, 2012). Table 6 presents the statistical trends for the COCs and compounds of interest (COI) from 2003 through 2021. Table 7 presents the trends from 2017 through 2021, as the City's groundwater sampling practices underwent a quality improvement process in 2009 and analytical method detection limits also have generally improved with time. Long term and recent trends for the COCs are presented spatially on Figures 7 through 10.

Historically, trichloroethene (TCE) and daughter products cis-1,2-dichloroethene (DCE) and vinyl chloride (VC) have been a focus of the groundwater monitoring program. The delineation of the extent of these chlorinated compounds has been the driver of groundwater quality investigations conducted under Wis. Admin. Code NR 716. Recent trends (Table 7) indicate the following:

- TCE: Decreasing, no detections, or no significant trends at all wells.
- DCE: Decreasing, no detections, or no significant trends at all wells.
- VC: Decreasing, no detections, or no significant trends at all wells.

Graphs for visual trend analysis were generated for the COCs by plotting the analytical results in Microsoft Excel through time and are presented in Appendix C. Lines representing the current PAL and ES levels are shown for comparison.

4.2.4 Evaluation of Groundwater Indicator Parameter Results

Indicator parameter values at groundwater monitoring wells were evaluated with respect to change over time and proximity to the landfill (hydraulically upgradient or downgradient). The indicator parameters included potential of hydrogen (pH), specific conductivity (SC), dissolved oxygen (DO), chloride (CL), organic carbon (OC), and sulfate (SF). The decomposition process that occurs in landfills results in chemical transformations that influence leachate quality. During the early stage of landfill origin, the decomposition process is typically anaerobic and produces a leachate with low pH, high SC, and high OC content. In later years, the decomposition process is characterized by methane production and an increase in leachate pH and decreases in both SC and OC. Assessment of groundwater indicator parameter values provides a means to evaluate landfill impacts on groundwater and whether conditions favor monitored natural attenuation.

An observational trend analysis, included in Appendix C, was conducted on parameter data to define trends as increasing, decreasing, or unchanged (stable or sporadic within a range of values) over time. Most parameter values in wells were unchanged over time.

Indicator parameter values from a monitoring well located upgradient from the Site, with respect to groundwater flow (MW-7) were compared to those obtained from a monitoring well located downgradient from the Site, with respect to groundwater flow (MW-3). Data values used in the evaluation were from the period of 2003-2021. Historical groundwater data for indicator parameters is included in Appendices D and E and median values for MW-7 and MW-3 are included in Appendix E. The median pH values at the two locations were similar at 7.2, upgradient (MW-7) and 7.0 downgradient (MW-3), respectively. The median DO value was lower and the SC value was higher at MW-3 (0.5 mg/L and 2,050 micro-mhos/centimeter [µmhos/cm], respectively) [downgradient] as compared to the values from MW-7 (5.1 mg/L and

1,166 µmhos/cm) [upgradient]. Two other indicator parameter values were less upgradient at MW-7 (Cl=130 mg/L and DOC=1.7 mg/L) and one was higher (SO2=27 mg/L) as compared to the downgradient median values at MW-3 (Cl=277 mg/L, DOC=5.4 mg/L, and SO2=7.6 mg/L).

The groundwater data collected and evaluated show evidence that natural attenuation is occurring at the Site and concentrations of compounds of interest are decreasing or lack significant trends. Decreasing trends in TCE and daughter products indicate that natural attenuation is occurring. In addition, the presence of daughter products and the trends described in previous sections demonstrate the degradation of chlorinated compounds. Off-site chlorinated compounds may be contributing to the detected vinyl chloride concentrations in samples from Site wells. Overall, the 2021 concentrations of the parent and daughter products are generally lower than historical values indicating continuing decrease in source concentrations.

The sampling results also show a continuing supply of electron acceptors for biodegradation (iron III and sulfate) and donors (oxygen and nitrate-nitrite), and the presence of metabolic by-product concentrations (chloride, ethane, ethene), all strong evidence that intrinsic bioremediation is occurring. The presence of manganese is also an indication that reducing conditions are present in groundwater. Manganese dissolves from natural soil minerals under reducing conditions and is an indicator of the natural attenuation of chlorinated compounds by reductive dechlorination.

5. Anticipated 2023 Activities

A plan modification has been submitted to the WDNR for approval to reinstall MW-8 and abandon the MW-11 nest along with abandoning wells that are no longer monitored (MW-MW-2, MW-4, MW-5, MW-6, and MW-15B). Assuming the plan modification is approved, these well network modification activities will be completed in 2023.

Landfill gas management system maintenance activities planned for 2023 include repair work to the gas header system near the gas extraction blower. Additional control modifications include panel and equipment modifications to the system controls to allow timed operations of the extraction blower. These activities are planned for spring or summer 2023 completion.

The City completed a site master planning process in 2022 and evaluated additional end use plans for the closed landfill facility as Mindiola Park. The City contracted a consulting firm, JSD Professional Services, Inc., out of Appleton, Wisconsin, to work with and plan additional end use site planning. As part of this plan, site improvements were considered for final cover areas including a second synthetic turf field south of Hoover Avenue and multiple additional soccer fields and site amenities on the north side. As parts or phases of the plan are enacted, additional discussions and planning with WDNR will be made to evaluate the projects from a regulatory perspective. At this time, the second turf field is planned for construction in 2023. A plan modification will be prepared and submitted prior to the field construction.

The 2023 Annual Report will be prepared and submitted to the WDNR by March 1, 2024.

6. References

AECOM, 2010. *Operations and Maintenance Manual*, February 2010.

AECOM, 2016. *2015 West Avenue Landfill Annual Report,* February 2016.

Earth Tech, 2000. *Amended Site Investigation/Remedial Action Report*, July 2000.

Earth Tech, 2005. *West Avenue Landfill Five Year Review and 2004/2005 Annual Report*, January 2006.

Helsel, D.R., 2012. Statistics for Censored Environmental Data Using Minitab and R, Second Edition. Wiley & Sons, New York, 324 p.

Lopaka, Lee, 2012. NADA: Nondetects and Data Analysis for environmental data. R package version 1.5-4. http://CRAN.R-project.org/package=NADA

R Core Team, 2012. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL http://www.R-project.org/.

Rust, 1995. *Test Out Summary Report.* August 1995.

United States Environmental Protection Agency, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. EPA 530-R-09-007.

Wisconsin Department of Natural Resources, 2014. *Understanding Chlorinated Hydrocarbon Behavior in Groundwater: Investigation, Assessment, and Limitations of Monitored Natural Attenuation.* October 2014.

Tables

Table 1
2022 Groundwater Elevation
West Avenue Landfill
Waukesha, WI

Well ID	Groundwater Elevations (ft amsl) 4/14/2022	9/7/2022
Shallow Wells		
MW-3	812.98	804.73
MW-7	850.5	850.04
MW-8	812.58	814.68
MW-9R	812.71	814.61
MW-10	821.39	824.95
MW-11	NA	NA
MW-12	809.05	810.59
MW-14	811.6	813.45
MW-15	822.83	824.53
MW-16	819.18	821.68
MW-17	807.75	809.25
Intermediate Wells		
MW-3B	812.85	814.88
MW-4BR	812.94	814.74
MW-7B	848.71	848.01
MW-8B	813.38	815.44
MW-9B	820.24	821.39
MW-10B	821.99	826.93
MW-11B	808.93	810.64
MW-12B	810.78	812.54
MW-13B	811.65	813.6
MW-14B	812.98	814.93
MW-15B	826.35	827.18
MW-16B	808.34	809.89
MW-17B	806.75	807.98
Deep Wells		
MW-3D	828.64	830.34
MW-13D	811.97	813.69
MW-16D	802.27	811.79
MW-17D	811.85	813.66

Notes: Prepared by: KMC2
ft asml = feet above mean sea level Checked by: HLH
NA = Not Available
MW-11 was blocked in Q1 and no water was detected in Q3.

Table 2
Vertical Hydraulic Gradients - April and September 2022
West Avenue Landfill
Waukesha, WI

Well ID	Water Elevation 4/2022 (ft amsl)	Water Elevation 9/2022 (ft amsl)	Historical Depth to Bottom (ft)	Vertical Hydraulic Gradient 4/2022 (ft/ft)	Vertical Hydraulic Gradient 9/2022 (ft/ft)	Vertical Hydraulic Gradient 2022 Average (ft/ft)
Shallow-Intermediate Vertical Gradients						
MW-3	812.98	804.73	49.87	-0.01	0.42	0.21
MW-3B	812.85	814.88	74.11			
MW-7	850.50	850.04	17.41	-0.09	-0.10	-0.09
MW-7B	848.71	848.01	37.61			
MW-8	812.58	814.68	38.83	0.03	0.03	0.03
MW-8B	813.38	815.44	62.32			
MW-9R	812.71	814.61	36.40	0.27	0.24	0.26
MW-9B	820.24	821.39	64.37			
MW-10	821.39	824.95	40.62	0.03	0.08	0.05
MW-10B	821.99	826.93	64.50			
MW-11	NA	NA	41.72	NA	NA	NA
MW-11B	808.93	810.64	74.63			
MW-12	809.05	810.59	44.84	0.04	0.04	0.04
MW-12B	810.78	812.54	93.82			
MW-14	811.60	813.45	40.74	0.04	0.04	0.04
MW-14B	812.98	814.93	75.52			
MW-15	822.83	824.53	26.61	0.06	0.05	0.05
MW-15B	826.35	827.18	84.43			
MW-16	819.18	821.68	33.63	-0.68	-0.74	-0.71
MW-16B	808.34	809.89	49.52			
MW-17	807.75	809.25	44.75	-0.02	-0.02	-0.02
MW-17B	806.75	807.98	97.88			
Intermediate-Deep Vertical Gradients						
MW-3B	812.85	814.88	74.11	0.21	0.21	0.21
MW-3D	828.64	830.34	148.01			
MW-13B	811.65	813.60	84.56	0.01	0.00	0.00
MW-13D	811.97	813.69	134.63			
MW-16B	808.34	809.89	49.52	-0.07	0.02	-0.02
MW-16D	802.27	811.79	140.13			
MW-17B	806.75	807.98	97.88	0.10	0.11	0.11
MW-17D	811.85	813.66	148.62			

Notes:

Prepared by: KMC2

A negative vertical gradient indicates a downward gradient.

Checked by: HLH

ft amsl = feet above mean sea level

ft/ft = feet per foot

NA = not available

MW-11 was blocked in Q1 and no water was detected in Q3.

Table 3
2022 Groundwater Analytical Results
West Avenue Landfill
Waukesha, WI

	Well ID	MW-10		MW-10		MW-10B		MW-10B		MW-11B		MW-11B		MW-12		MW-12		MW-12B		MW-12B		MW-13B		MW-13B	
	Date	4/18/2022		9/12/2022		4/18/2022		9/12/2022		4/19/2022		9/16/2022		4/19/2022		9/14/2022		4/19/2022		9/14/2022		4/20/2022		9/15/2022	
	Sample Type	N		N		N		N		N		N		N		N		N		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
1,1,1,2-Tetrachloroethane	ug/L	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,1,1-Trichloroethane	ug/L	0.47	J	0.41	J	32		23		1.1		< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U
1,1,2,2-Tetrachloroethane	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
1,1,2-Trichloroethane	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
1,1-Dichloroethane	ug/L	< 0.41	U	< 0.41	U	42		31		5.4		1.7		< 0.41	U	< 0.41	U	2.1		4.4		< 0.41	U	< 0.41	U
1,1-Dichloroethene	ug/L	< 0.39	U	< 0.39	U	3.1		2.3		0.57	J	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,1-Dichloropropene	ug/L	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U
1,2,3-Trichlorobenzene	ug/L	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,2,3-Trichloropropane	ug/L	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
1,2,4-Trichlorobenzene	ug/L	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
1,2,4-Trimethylbenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	0.73	J	< 0.36	U	< 0.36	U
1,2-Dibromo-3-chloropropane	ug/L	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U
1,2-Dibromoethane	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichlorobenzene	ug/L	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	0.82	J	0.97	J
1,2-Dichloroethane	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichloropropane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
1,3,5-Trimethylbenzene	ug/L	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U
1,3-Dichlorobenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
1,3-Dichloropropane	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
1,4-Dichlorobenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	1.1		1.9		2.4	
2,2-Dichloropropane	ug/L	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U
2-Butanone	ug/L	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U
2-Chlorotoluene	ug/L	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U
4-Chlorotoluene	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
4-Methyl-2-pentanone	ug/L	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U
Acetone	ug/L	7.9	J	2.4	J	14		1.8	J	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U
Arsenic	ug/L	0.44	J	0.46	J	1.4		1.0		1.1		0.69	J	4.7		1.6		4.3		3.3		6.4		6.0	
Barium	ug/L	133		137	B	139		169	B	176		102		302		286		319		301		443		458	
Benzene	ug/L	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	1.5		1.8		0.56		1.1	
Beryllium	ug/L	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.060	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U
Boron	ug/L	44.2	J	55.3		68.2		68.9		53.2		68.3		274		239		623		598		465		491	
Bromobenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Bromochloromethane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Bromodichloromethane	ug/L	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Bromoform	ug/L	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U
Bromomethane	ug/L	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U
Cadmium	ug/L	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	2.4		< 0.15	U	< 0.15	U	0.29	J	< 0.15	U	< 0.15	U	< 0.15	U
Carbon Disulfide	ug/L	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Carbon Tetrachloride	ug/L	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U
Chloride	mg/L	429		351		220		270		288		149		375		327		310		289		338		286	
Chlorobenzene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	1.1		< 0.39	U	14		19		29		49	
Chlorodibromomethane	ug/L	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U
Chloroethane	ug/L	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	2.4		3.1		2.7		4.5	
Chloroform	ug/L	0.45	JB	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Chloromethane	ug/L	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U
cis-1,2-Dichloroethene	ug/L	< 0.41	U	< 0.41	U	24		18		6.2		1.7		< 0.41	U	< 0.41	U	3.6		7.1		< 0.41	U	< 0.41	U
cis-1,3-Dichloropropene	ug/L	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U
Dibromomethane	ug/L	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U
Dichlorodifluoromethane	ug/L	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U
Diisopropyl Ether	ug/L	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U
Dissolved Organic Carbon	mg/L	1.3		1.4		2.3		1.6		0.83	J	2.9		4.8		4.0		7.3		8.0		8.3		9.5	
Dissolved Oxygen	mg/L	5.4		7.0		1		1.7		1.5		5.4		1		3.1		0.6		18		0		18	

Table 3 (continued)

Well ID	MW-10		MW-10		MW-10B		MW-10B		MW-11B		MW-11B		MW-12		MW-12		MW-12B		MW-12B		MW-13B		MW-13B	
Date	4/18/2022		9/12/2022		4/18/2022		9/12/2022		4/19/2022		9/16/2022		4/19/2022		9/14/2022		4/19/2022		9/14/2022		4/20/2022		9/15/2022	
Sample Type	N		N		N		N		N		N		N		N		N		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
Ethane	mg/L	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.017	U	0.022		< 0.033	U	< 0.017	U
Ethene	mg/L	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.017	U	< 0.0015	U	< 0.033	U	< 0.017	U
Ethylbenzene	ug/L	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U
Fluorotrichloromethane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Hexachlorobutadiene	ug/L	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Iron	ug/L	41.3	J	< 37.7	U	1560		769	B	< 37.7	U	< 37.7	U	2790		810		6170		4150		10900		10800	
Isopropylbenzene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Lead	ug/L	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U
Manganese	ug/L	< 1.1	U	3.2		402		227		< 1.1	U	1.2	J	134		139		69.3		31.9		98.4		95.4	
Methane	mg/L	< 0.001	U	< 0.0010	U	0.34		0.21		< 0.001	U	< 0.0010	U	0.46		0.27		1.3		0.91		5.8		4.8	
Methylene Chloride	ug/L	< 1.6	U	< 1.6	U	1.6	J	< 1.6	U	2.5	JB	< 1.6	U	2.4	JB	< 1.6	U	2.4	JB	< 1.6	U	< 1.6	U	< 1.6	U
Methyl-tert-butyl-ether	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Naphthalene	ug/L	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
n-Butylbenzene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Nickel	ug/L	3.2		1.2	J	2.2		< 0.92	U	2.8		4.9		4.2		2.6		7.2		5.0		2.5		1.7	J
Nitrogen, Nitrate	mg/L	4.4		4.6		0.25		1.1		2.8		2.5		< 0.068	U	0.91		< 0.068	U	< 0.068	U	< 0.068	U	< 0.068	U
n-Propylbenzene	ug/L	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
pH	s.u.	7.1		7.1		7.1		7.1		7.2		7.9		7		7.1		6.9		7.0		6.9		6.8	
p-Isopropyltoluene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Redox Potential	mV	-8		53		-17		-108		-9		36.9		-13		38		-12		-22		-13		-20	
sec-Butylbenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
Specific Conductance	umhos/cm	1980		1812		805		1540		1512		1006		2009		1922		1714		1728		1981		1991	
Styrene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Sulfate	mg/L	48.9		48.9		45.1		69.6		64.1		35.6		4.8		9.9		6.1		5.8		< 0.095	U	1.2	
Temperature	deg c	12.3		13.0		11		15.3		12.3		15.4		14.5		15.2		13		14.6		13		14.7	
tert-Butylbenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	0.75	J	< 0.4	U	0.67	J
Tetrachloroethene	ug/L	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Tetrahydrofuran	ug/L	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	4.9	J	2.9	J	< 1.9	U	< 1.9	U
Thallium	ug/L	0.037	J	0.055	J	< 0.019	U	< 0.019	U	0.031	J	< 0.019	U	< 0.019	U	< 0.038	U	0.08	J	0.029	J	< 0.019	U	< 0.019	U
Toluene	ug/L	< 0.15	U	< 0.15	U	0.17	J	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	0.25	J	0.34	J	< 0.15	U	0.28	J
trans-1,2-Dichloroethene	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
trans-1,3-Dichloropropene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Trichloroethene	ug/L	< 0.16	U	< 0.16	U	2.9		3.0		1.1		0.36	J	< 0.16	U	< 0.16	U*	< 0.16	U	< 0.16	U*	< 0.16	U	< 0.16	U
Vinyl Chloride	ug/L	< 0.2	U	< 0.20	U	< 0.2	U	< 0.20	U	< 0.2	U	< 0.20	U	< 0.2	U	< 0.20	U	1.1		2.0		< 0.2	U	< 0.20	U
Xylene, m & p	ug/L	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U
Xylene, o	ug/L	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U
Xylenes, Total	ug/L	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U

Table 3 (continued)

Well ID		MW-13D		MW-13D		MW-14		MW-14		MW-14B		MW-14B		MW-15		MW-16		MW-16B		MW-16B		MW-16B		MW-16D		MW-17	
Date		4/20/2022		9/15/2022		4/20/2022		9/15/2022		4/20/2022		9/15/2022		9/8/2022		9/14/2022		4/19/2022		4/19/2022		9/14/2022		9/14/2022		4/20/2022	
Sample Type		N		N		N		N		N		N		N		N		N		FD		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
1,1,1,2-Tetrachloroethane	ug/L	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,1,1-Trichloroethane	ug/L	< 0.38	U	0.59	J	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	3.5		3.4		0.85	J	< 0.38	U	< 0.38	U
1,1,2,2-Tetrachloroethane	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.4	U
1,1,2-Trichloroethane	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
1,1-Dichloroethane	ug/L	6.7		20		< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	3.2		3.2		0.96	J	< 0.41	U	< 0.41	U
1,1-Dichloroethene	ug/L	< 0.39	U	1.3		< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,1-Dichloropropene	ug/L	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.30	U	< 0.30	U	< 0.3	U	< 0.3	U	< 0.30	U	< 0.30	U	< 0.3	U
1,2,3-Trichlorobenzene	ug/L	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,2,3-Trichloropropane	ug/L	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
1,2,4-Trichlorobenzene	ug/L	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
1,2,4-Trimethylbenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	0.74	J	< 0.36	U	< 0.36	U
1,2-Dibromo-3-chloropropane	ug/L	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	< 2	U	< 2.0	U	< 2.0	U	< 2	U
1,2-Dibromoethane	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichlorobenzene	ug/L	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	0.35	J	0.65	J	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U
1,2-Dichloroethane	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichloropropane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
1,3,5-Trimethylbenzene	ug/L	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U
1,3-Dichlorobenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.4	U
1,3-Dichloropropane	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
1,4-Dichlorobenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	1.5		2.3		< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
2,2-Dichloropropane	ug/L	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U
2-Butanone	ug/L	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U
2-Chlorotoluene	ug/L	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U
4-Chlorotoluene	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
4-Methyl-2-pentanone	ug/L	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U
Acetone	ug/L	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	3.6	J	2.8	J	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U
Arsenic	ug/L	0.63	J	1.1		0.62	J	0.88	J	6.2		4.1		16.1		0.26	J	1.1				0.40	J	1.0		0.79	J
Barium	ug/L	166		227		250		312		386		415		76.6		68.2		109				113		88.3		346	
Benzene	ug/L	0.16	J	2.4		< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U
Beryllium	ug/L	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.030	U	< 0.030	U	< 0.03	U			< 0.030	U	< 0.030	U	< 0.03	U
Boron	ug/L	83		168		145		160		338		412		119		58.7		38.5	J			44.4	J	677		434	
Bromobenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Bromochloromethane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Bromodichloromethane	ug/L	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	1.0		< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Bromoform	ug/L	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U
Bromomethane	ug/L	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.80	U	< 0.80	U	< 0.8	U	< 0.8	U	< 0.80	U	< 0.80	U	< 0.8	U
Cadmium	ug/L	0.41	J	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U			< 0.15	U	< 0.15	U	< 0.15	U
Carbon Disulfide	ug/L	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Carbon Tetrachloride	ug/L	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U
Chloride	mg/L	292		303		411		386		419		290		293		127		304				333		225		331	
Chlorobenzene	ug/L	1		24		1.3		0.84	J	11		26		0.71	J	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Chlorodibromomethane	ug/L	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U
Chloroethane	ug/L	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	1.3		3.4		< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U
Chloroform	ug/L	0.86	J	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	1.5	J	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Chloromethane	ug/L	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U
cis-1,2-Dichloroethene	ug/L	41		49		< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	1.7		1.7		0.48	J	< 0.41	U	< 0.41	U
cis-1,3-Dichloropropene	ug/L	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U
Dibromomethane	ug/L	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U
Dichlorodifluoromethane	ug/L	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U
Diisopropyl Ether	ug/L	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U
Dissolved Organic Carbon	mg/L	1.2		3.3		2.2		2.1		5.1		6.9		4.2		1.0		0.95	J			1.1		1.1		4.6	
Dissolved Oxygen	mg/L	0.1		1.8		0		1.6		0.1		1.6		3.2		8.4		5.6				6.8		1.8		0	

Table 3 (continued)

Well ID	MW-13D		MW-13D		MW-14		MW-14		MW-14B		MW-14B		MW-15		MW-16		MW-16B		MW-16B		MW-16B		MW-16D		MW-17	
Date	4/20/2022		9/15/2022		4/20/2022		9/15/2022		4/20/2022		9/15/2022		9/8/2022		9/14/2022		4/19/2022		4/19/2022		9/14/2022		9/14/2022		4/20/2022	
Sample Type	N		N		N		N		N		N		N		N		N		FD		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
Ethane	mg/L	< 0.0015	U	0.011		< 0.017	U	< 0.0015	U	< 0.033	U	< 0.017	U	< 0.0015	U	< 0.0015	U	< 0.0015	U			< 0.0015	U	< 0.0015	U	< 0.0015	U
Ethene	mg/L	< 0.0015	U	< 0.0015	U	< 0.017	U	< 0.0015	U	< 0.033	U	< 0.017	U	< 0.0015	U	< 0.0015	U	< 0.0015	U			< 0.0015	U	< 0.0015	U	< 0.0015	U
Ethylbenzene	ug/L	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U
Fluorotrichloromethane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Hexachlorobutadiene	ug/L	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Iron	ug/L	< 37.7	U	< 37.7	U	4600		4400		8090		8640		< 37.7	U	< 37.7	U	< 37.7	U			< 37.7	U	669		213	
Isopropylbenzene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Lead	ug/L	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U			< 0.16	U	< 0.16	U	< 0.16	U
Manganese	ug/L	151		199		153		156		70.3		74.4		1.7	J	7.0		< 1.1	U			2.0	J	383		142	
Methane	mg/L	0.0076		0.94		0.38		0.37		3.2		4.1		0.32		< 0.0010	U	< 0.001	U			< 0.0010	U	0.24		0.059	
Methylene Chloride	ug/L	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	2.7	JB	2.5	JB	< 1.6	U	< 1.6	U	< 1.6	U
Methyl-tert-butyl-ether	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Naphthalene	ug/L	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
n-Butylbenzene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Nickel	ug/L	10.5		9.1		9.3		9.1		1.7	J	2.9		3.8		3.0		1.9	J			< 0.92	U	0.99	J	8.8	
Nitrogen, Nitrate	mg/L	2.2		0.73		< 0.068	U	< 0.068	U	< 0.068	U	< 0.068	U	2.8		2.9		5.3	H			5.9		< 0.068	U	< 0.068	U
n-Propylbenzene	ug/L	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
pH	s.u.	7.1		7.0		7		77.2		6.8		6.9		7.4		7.1		7.2				7.2		7.4		6.7	
p-Isopropyltoluene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Redox Potential	mV	-12		40.5		-12		-4		-14		-27		23		49		-9				53		-86		-6	
sec-Butylbenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.4	U
Specific Conductance	umhos/cm	1487		1808		1832		2020		2022		1958		1768		1006		1492				1715		1164		1878	
Styrene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Sulfate	mg/L	65.2		41.9		36.9		39.3		0.12	J	1.1		41.1		62.3		41				43.3		70.8		9.8	
Temperature	deg c	12.7		14.1		11.8		13.3		11.7		13.0		17.8		15.0		12.9				14.6		14.3		12.7	
tert-Butylbenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	0.61	J	< 0.40	U	< 0.40	U	< 0.4	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.4	U
Tetrachloroethene	ug/L	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Tetrahydrofuran	ug/L	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U
Thallium	ug/L	< 0.019	U	0.053	J	< 0.019	U	< 0.019	U	< 0.019	U	< 0.019	U	< 0.019	U	0.019	J	0.033	J			0.030	J	< 0.019	U	0.22	
Toluene	ug/L	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U
trans-1,2-Dichloroethene	ug/L	< 0.35	U	2.0		< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
trans-1,3-Dichloropropene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Trichloroethene	ug/L	< 0.16	U	0.70		< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	3.2		< 0.16	U*	0.33	J	0.27	J	< 0.16	U*	< 0.16	U*	< 0.16	U
Vinyl Chloride	ug/L	4.8		130		< 0.2	U	< 0.20	U	< 0.2	U	< 0.20	U	< 0.20	U	< 0.20	U	< 0.2	U	< 0.2	U	< 0.20	U	< 0.20	U	< 0.2	U
Xylene, m & p	ug/L	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U
Xylene, o	ug/L	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U
Xylenes, Total	ug/L	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U

Table 3 (continued)

Well ID		MW-17		MW-17		MW-17B		MW-17B		MW-17B		MW-17D		MW-17D		MW-3		MW-3		MW-3B		MW-3B		MW-3D		MW-3D	
Date		4/20/2022		9/14/2022		4/20/2022		9/15/2022		9/15/2022		4/20/2022		9/15/2022		4/21/2022		9/15/2022		4/21/2022		9/16/2022		4/21/2022		9/16/2022	
Sample Type		FD		N		N		N		FD		N		N		N		N		N		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
1,1,1,2-Tetrachloroethane	ug/L	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,1,1-Trichloroethane	ug/L	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	1.1		< 0.38	U	< 0.38	UF1	1		< 0.38	U	< 0.38	U	0.68	J
1,1,2,2-Tetrachloroethane	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
1,1,2-Trichloroethane	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
1,1-Dichloroethane	ug/L	< 0.41	U	< 0.41	U	< 0.41	U	15		12		22		31		0.93	J	2.8	F1	37		9.8		11		24	
1,1-Dichloroethene	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	1.2		2.1		< 0.39	U	< 0.39	UF1	2		0.70	J	0.82	J	1.3	
1,1-Dichloropropene	ug/L	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U
1,2,3-Trichlorobenzene	ug/L	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,2,3-Trichloropropane	ug/L	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
1,2,4-Trichlorobenzene	ug/L	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
1,2,4-Trimethylbenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	0.73	JB	< 0.36	U	0.78	JB
1,2-Dibromo-3-chloropropane	ug/L	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U
1,2-Dibromoethane	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichlorobenzene	ug/L	< 0.33	U	< 0.33	U	< 0.33	U	0.33	J	0.47	J	< 0.33	U	< 0.33	U	< 0.33	U	0.46	J	< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U
1,2-Dichloroethane	ug/L	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	UF1	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichloropropane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
1,3,5-Trimethylbenzene	ug/L	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	0.79	JB
1,3-Dichlorobenzene	ug/L	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
1,3-Dichloropropane	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
1,4-Dichlorobenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	0.89	J	1.2		< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
2,2-Dichloropropane	ug/L	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U
2-Butanone	ug/L	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	UF2	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U
2-Chlorotoluene	ug/L	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U
4-Chlorotoluene	ug/L	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
4-Methyl-2-pentanone	ug/L	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	UF2	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U
Acetone	ug/L	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	UF2	< 1.7	U	< 1.7	U	< 1.7	U	< 1.7	U
Arsenic	ug/L			0.56	J	2		3.1				0.55	J	0.85	J	2.9		2.7		1.7		1.0		1.3		1.2	
Barium	ug/L			270		428		443				248		244		319		380		233		181		188		210	
Benzene	ug/L	< 0.15	U	< 0.15	U	2.3		3.5		3.1		2.3		3.9		< 0.15	U	< 0.15	UF1	4.9		0.30	J	0.35	J	2.4	
Beryllium	ug/L			< 0.030	U	< 0.03	U	< 0.030	U			< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U
Boron	ug/L			439		401		411				146		179		199		322		165		158		134		160	
Bromobenzene	ug/L	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U*	< 0.36	U	< 0.36	U*
Bromochloromethane	ug/L	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	UF1	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Bromodichloromethane	ug/L	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	UF1	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Bromoform	ug/L	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	UF1F2	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U
Bromomethane	ug/L	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U
Cadmium	ug/L			< 0.15	U	< 0.15	U	< 0.15	U			< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U
Carbon Disulfide	ug/L	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	UF1	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Carbon Tetrachloride	ug/L	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U
Chloride	mg/L			237		283		233				345		276		354		353		353		133		149		298	
Chlorobenzene	ug/L	< 0.39	U	< 0.39	U	15		23		24		19		42		3.2		4.8		42		< 0.39	U	< 0.39	U	26	
Chlorodibromomethane	ug/L	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	UF1	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U
Chloroethane	ug/L	< 0.51	U	< 0.51	U	9.1		6.5		7.1		< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	UF1	< 0.51	U	4.6		3.7		< 0.51	U
Chloroform	ug/L	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	UF1	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Chloromethane	ug/L	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	UF1	< 0.32	U	< 0.32	U
cis-1,2-Dichloroethene	ug/L	< 0.41	U	< 0.41	U	4.9		3.0		2.5		460		650		< 0.41	U	18	F1	830		19		23		550	
cis-1,3-Dichloropropene	ug/L	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U
Dibromomethane	ug/L	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	UF1	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U
Dichlorodifluoromethane	ug/L	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U
Diisopropyl Ether	ug/L	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U
Dissolved Organic Carbon	mg/L			5.9		4.7		6.5				2.2		3.6		4.9		7.5		4.3		1.5		1.5		2.8	
Dissolved Oxygen	mg/L			1.6		0.3		1.9		1.9		0		1.9		1.5		1.5		1.7		0		1.5		0	

Table 3 (continued)

Well ID	MW-17	MW-17	MW-17B	MW-17B	MW-17B	MW-17D	MW-17D	MW-3	MW-3	MW-3B	MW-3B	MW-3D	MW-3D
Date	4/20/2022	9/14/2022	4/20/2022	9/15/2022	9/15/2022	4/20/2022	9/15/2022	4/21/2022	9/15/2022	4/21/2022	9/16/2022	4/21/2022	9/16/2022
Sample Type	FD	N	N	N	FD	N	N	N	N	N	N	N	N
Parameter	**Unit**	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*	*Result* *Qual*
Ethane	mg/L		< 0.0015 U	< 0.033 U	0.015		0.015	0.019	< 0.0015 U	0.0031 J	0.044	< 0.0015 U	< 0.0015 U	0.014	
Ethene	mg/L		< 0.0015 U	< 0.033 U	< 0.0015 U		< 0.0015 U	0.0051 J	< 0.0015 U	< 0.0015 U	0.018	< 0.0015 U	< 0.0015 U	< 0.0015 U	
Ethylbenzene	ug/L	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U
Fluorotrichloromethane	ug/L	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U	< 0.43 U
Hexachlorobutadiene	ug/L	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U	< 0.45 U
Iron	ug/L		< 37.7 U	1480	1580		< 37.7 U	78.7 J	8900	9490	246	132	148	137	
Isopropylbenzene	ug/L	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U
Lead	ug/L		< 0.16 U	< 0.16 U	< 0.16 U		< 0.16 U	< 0.16 U	< 0.16 U	< 0.16 U	< 0.16 U	< 0.16 U	< 0.16 U	< 0.16 U	< 0.16 U
Manganese	ug/L		52.3	15	14.6		281	292	91.3	136	439	7.2	5.8	401	
Methane	mg/L		< 0.0010 U	2.8	2.9		0.58	1.8	2	2.1	2.9	0.28	0.35	0.51	
Methylene Chloride	ug/L	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 UF1	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U	< 1.6 U
Methyl-tert-butyl-ether	ug/L	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 UF1	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U
Naphthalene	ug/L	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	< 0.34 U	0.74	JB
n-Butylbenzene	ug/L	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U
Nickel	ug/L		7.0	3.3	3.3		7.2	7.2	< 0.92 U	1.1 J	15.6	1.0 J	< 0.92 U	16.0	
Nitrogen, Nitrate	mg/L		0.92	< 0.068 U	< 0.068 U		< 0.068 U	< 0.068 U	< 0.068 U	< 0.068 U	< 0.068 U	< 0.068 U	< 0.068 U	0.092	J
n-Propylbenzene	ug/L	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U	< 0.41 U
pH	s.u.		7.1	6.8	6.8	6.8	6.9	7.0	6.8	6.9	6.9	7.4	7	7.6	
p-Isopropyltoluene	ug/L	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U
Redox Potential	mV		43	-25	-3	-3	-12	42	-22	3.4	-13	31.0	-12	-10	
sec-Butylbenzene	ug/L	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.40 U
Specific Conductance	umhos/cm		1783	1645	1657	1657	1718	1745	1927	2256	1755	1927	987	1036	
Styrene	ug/L	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 UF1	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U	< 0.39 U
Sulfate	mg/L		10.8	14.8	12.1		36.8	35.2	4.2	7.1	31.1	23.6	24.9	40.5	
Temperature	deg c		13.8	12	13.4	13.4	11.9	13.1	16.4	16.7	14.7	15.8	14.8	15.0	
tert-Butylbenzene	ug/L	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	< 0.40 U	< 0.4 U	0.68	J
Tetrachloroethene	ug/L	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U	< 0.37 U
Tetrahydrofuran	ug/L	< 1.9 U	< 1.9 U	3.6 J	4.2 J	3.5 J	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 UF2	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U
Thallium	ug/L		0.16 J	< 0.019 U	< 0.019 U		0.24	0.25	< 0.019 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.019 U	0.093	J
Toluene	ug/L	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U	0.15 J	< 0.15 U	< 0.15 U	< 0.15 U	< 0.15 U
trans-1,2-Dichloroethene	ug/L	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	2.3	3.3	< 0.35 U	< 0.35 U	4.4	< 0.35 U	< 0.35 U	2.6	
trans-1,3-Dichloropropene	ug/L	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U	< 0.36 U
Trichloroethene	ug/L	< 0.16 U	< 0.16 U*	< 0.16 U	< 0.16 U	< 0.16 U	1.4	1.4	< 0.16 U	< 0.16 U	1.7	< 0.16 U	< 0.16 U	1.3	
Vinyl Chloride	ug/L	< 0.2 U	< 0.20 U	4.4	2.9	2.4	93	180	< 0.2 U	15	230	10	8.3	150	
Xylene, m & p	ug/L	< 0.18 U	< 0.18 U	< 0.18 U	0.64 J	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	< 0.18 U	0.33 J	< 0.18 U	0.44	J
Xylene, o	ug/L	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U
Xylenes, Total	ug/L	< 0.22 U	< 0.22 U	< 0.22 U	0.78 J	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	< 0.22 U	0.33 J	< 0.22 U	0.44	J

Table 3 (continued)

	Well ID	MW-4BR		MW-4BR		MW-7		MW-7B		MW-7B		MW-8B		MW-8B		MW-9B		MW-9B		MW-9R		MW-9R	
	Date	4/21/2022		9/16/2022		9/8/2022		9/8/2022		9/8/2022		4/21/2022		9/15/2022		4/18/2022		9/8/2022		4/18/2022		9/8/2022	
	Sample Type	N		N		N		N		FD		N		N		N		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
1,1,1,2-Tetrachloroethane	ug/L	< 0.92	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,1,1-Trichloroethane	ug/L	< 0.76	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U
1,1,2,2-Tetrachloroethane	ug/L	< 0.8	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
1,1,2-Trichloroethane	ug/L	< 0.7	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
1,1-Dichloroethane	ug/L	9.8		0.48	J	< 0.41	U	< 0.41	U	< 0.41	U	8.5		8.1		< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
1,1-Dichloroethene	ug/L	< 0.78	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,1-Dichloropropene	ug/L	< 0.59	U	< 0.30	U	< 0.30	U	< 0.30	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U	< 0.3	U	< 0.30	U
1,2,3-Trichlorobenzene	ug/L	< 0.92	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U	< 0.46	U
1,2,3-Trichloropropane	ug/L	< 0.83	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
1,2,4-Trichlorobenzene	ug/L	< 0.68	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
1,2,4-Trimethylbenzene	ug/L	880		4.7	B	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
1,2-Dibromo-3-chloropropane	ug/L	< 4	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U	< 2	U	< 2.0	U
1,2-Dibromoethane	ug/L	< 0.77	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichlorobenzene	ug/L	9.1		2.3		< 0.33	U	< 0.33	U	< 0.33	U	3.7		3.2		< 0.33	U	< 0.33	U	< 0.33	U	< 0.33	U
1,2-Dichloroethane	ug/L	< 0.78	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
1,2-Dichloropropane	ug/L	< 0.86	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
1,3,5-Trimethylbenzene	ug/L	130		< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U	< 0.25	U
1,3-Dichlorobenzene	ug/L	< 0.8	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
1,3-Dichloropropane	ug/L	< 0.72	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
1,4-Dichlorobenzene	ug/L	1.9	J	1.8		< 0.36	U	< 0.36	U	< 0.36	U	2.8		2.6		< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
2,2-Dichloropropane	ug/L	< 0.89	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U	< 0.44	U
2-Butanone	ug/L	< 4.2	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U	< 2.1	U
2-Chlorotoluene	ug/L	< 0.63	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U	< 0.31	U
4-Chlorotoluene	ug/L	< 0.7	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
4-Methyl-2-pentanone	ug/L	< 4.3	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U	< 2.2	U
Acetone	ug/L	< 3.5	U	< 1.7	U	1.9	J	2.3	J	< 1.7	U	< 1.7	U	< 1.7	U	12		3.4	J	< 1.7	U	3.4	J
Arsenic	ug/L	9.9		3.5		0.44	J	0.48	J			7.7		8.0		5.8		8.5		1.4		0.67	J
Barium	ug/L	377		401		60.4		91.7				372		396		91.6		180		186		164	
Benzene	ug/L	19		5.1		< 0.15	U	< 0.15	U	< 0.15	U	2.4		2.6		< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U
Beryllium	ug/L	< 0.03	U	< 0.030	U	< 0.030	U	< 0.030	U			< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U	< 0.03	U	< 0.030	U
Boron	ug/L	624		545		< 37.4	U	46.6	J			591		676		60		46.5	J	157		104	
Bromobenzene	ug/L	< 0.71	U	< 0.36	U*	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Bromochloromethane	ug/L	< 0.86	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Bromodichloromethane	ug/L	< 0.74	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Bromoform	ug/L	< 0.97	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U	< 0.48	U
Bromomethane	ug/L	< 1.6	U	< 0.80	U	< 0.80	U	< 0.80	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U	< 0.8	U	< 0.80	U
Cadmium	ug/L	< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U			0.33	J	0.24	J	< 0.15	U	< 0.15	U	0.59		0.44	J
Carbon Disulfide	ug/L	< 0.9	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Carbon Tetrachloride	ug/L	< 0.77	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U	< 0.38	U
Chloride	mg/L	315		246	F1	196		215				478		264		239		187		196		163	
Chlorobenzene	ug/L	59		49		< 0.39	U	< 0.39	U	< 0.39	U	64		71		< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Chlorodibromomethane	ug/L	< 0.98	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U	< 0.49	U
Chloroethane	ug/L	24		14		< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U	< 0.51	U
Chloroform	ug/L	< 0.74	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	0.43	JB	< 0.37	U	0.65	JB	< 0.37	U
Chloromethane	ug/L	< 0.64	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U	< 0.32	U
cis-1,2-Dichloroethene	ug/L	12		1.9		< 0.41	U	< 0.41	U	< 0.41	U	26		29		< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
cis-1,3-Dichloropropene	ug/L	< 0.83	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U	< 0.42	U
Dibromomethane	ug/L	< 0.54	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U	< 0.27	U
Dichlorodifluoromethane	ug/L	< 1.3	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U	< 0.67	U
Diisopropyl Ether	ug/L	< 0.55	U	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U	0.28	J	0.33	J	< 0.28	U	< 0.28	U	< 0.28	U	< 0.28	U
Dissolved Organic Carbon	mg/L	16.2		13.8		1.4		0.89	J			7.2		8.7		2		1.7		2.8		2.3	
Dissolved Oxygen	mg/L	1.6		0		7.2		2.0		2.0		1.6		1.5		2.6		2.0		8.6		2.8	

Table 3 (continued)

Well ID	MW-4BR		MW-4BR		MW-7		MW-7B		MW-7B		MW-8B		MW-8B		MW-9B		MW-9B		MW-9R		MW-9R	
Date	4/21/2022		9/16/2022		9/8/2022		9/8/2022		9/8/2022		4/21/2022		9/15/2022		4/18/2022		9/8/2022		4/18/2022		9/8/2022	
Sample Type	N		N		N		N		FD		N		N		N		N		N		N	
Parameter	**Unit**	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*	*Result*	*Qual*
Ethane	mg/L	< 0.33	U	0.082		< 0.0015	U	< 0.0015	U			0.051		0.037		< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U
Ethene	mg/L	< 0.33	U	< 0.0015	U	< 0.0015	U	< 0.0015	U			0.0036	J	0.0015	J	< 0.0015	U	< 0.0015	U	< 0.0015	U	< 0.0015	U
Ethylbenzene	ug/L	590		7.9		< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U
Fluorotrichloromethane	ug/L	< 0.85	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U	< 0.43	U
Hexachlorobutadiene	ug/L	< 0.89	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U	< 0.45	U
Iron	ug/L	13800		11900		< 37.7	U	< 37.7	U			4860		4950		< 37.7	U	362		1010		259	
Isopropylbenzene	ug/L	52		11		< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Lead	ug/L	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U			< 0.16	U	< 0.16	U	0.32	J	< 0.16	U	0.23	J	< 0.16	U
Manganese	ug/L	90.7		130		< 1.1	U	4.0				258		210		55.7		39.8		239		153	
Methane	mg/L	15		12		< 0.0010	U	< 0.0010	U			0.49		0.57		0.39		0.16		0.023		< 0.0010	U
Methylene Chloride	ug/L	< 3.3	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U	< 1.6	U
Methyl-tert-butyl-ether	ug/L	< 0.79	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Naphthalene	ug/L	390		1.8	B	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U	< 0.34	U
n-Butylbenzene	ug/L	< 0.78	U	10	B	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Nickel	ug/L	2.5		2.1		< 0.92	U	< 0.92	U			9.7		14.2		2.6		< 0.92	U	10.3		4.1	
Nitrogen, Nitrate	mg/L	< 0.068	U	< 0.068	U	1.4		< 0.068	U			< 0.068	U	< 0.068	U	0.12	J	0.24		1.9		3.4	
n-Propylbenzene	ug/L	160		14	B	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U	< 0.41	U
pH	s.u.	6.8		7.1		7.2		7.2		7.2		6.7		7.0		8.2		7.4		6.9		6.8	
p-Isopropyltoluene	ug/L	16		0.98	J	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Redox Potential	mV	-14		-38.9		38		40		40		-11		18.8		-8		13		-14		35	
sec-Butylbenzene	ug/L	27		5.5		< 0.40	U	< 0.40	U	< 0.40	U	0.7	J	0.74	J	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
Specific Conductance	umhos/cm	2139		2218		1215		1317		1317		2315		1822		980		1068		1800		1268	
Styrene	ug/L	< 0.77	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U	< 0.39	U
Sulfate	mg/L	< 0.095	U	0.31		17.7		77.4				16.1		12.4		17.4		17.5		23.9		21.6	
Temperature	deg c	14.8		15.2		18.8		15.2		15.2		13.7		15.6		12.1		14.6		10.1		14.6	
tert-Butylbenzene	ug/L	2		1.3		< 0.40	U	< 0.40	U	< 0.40	U	< 0.4	U	0.44	J	< 0.4	U	< 0.40	U	< 0.4	U	< 0.40	U
Tetrachloroethene	ug/L	< 0.74	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U	< 0.37	U
Tetrahydrofuran	ug/L	< 3.8	U	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U	6.1	J	5.3	J	< 1.9	U	< 1.9	U	< 1.9	U	< 1.9	U
Thallium	ug/L	< 0.019	U	< 0.019	U	< 0.019	U	< 0.019	U			0.44		0.43		< 0.019	U	< 0.019	U	< 0.019	U	0.031	J
Toluene	ug/L	160		1.5		< 0.15	U	< 0.15	U	< 0.15	U	0.44	J	0.61		< 0.15	U	< 0.15	U	< 0.15	U	< 0.15	U
trans-1,2-Dichloroethene	ug/L	4.3		1.3		< 0.35	U	< 0.35	U	< 0.35	U	3.9		4.7		< 0.35	U	< 0.35	U	< 0.35	U	< 0.35	U
trans-1,3-Dichloropropene	ug/L	< 0.72	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U	< 0.36	U
Trichloroethene	ug/L	< 0.33	U	0.19	J	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U	< 0.16	U
Vinyl Chloride	ug/L	8.2		1.1		< 0.20	U	< 0.20	U	< 0.20	U	16		15		< 0.2	U	< 0.20	U	< 0.2	U	< 0.20	U
Xylene, m & p	ug/L	650		9.4		< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U	< 0.18	U
Xylene, o	ug/L	180		2.3		< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U
Xylenes, Total	ug/L	830		12		< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U	< 0.22	U

Notes :

< = Non detects shown as less than the method detection limit
N = Normal sample
FD = Field Duplicate sample
N/A = Not Applicable
µg/L = micrograms per liter
deg c = degrees celsius
mg/L = miligrams per liter
µmhos/cm = micromhos per centimeter
s.u. = standard units
MW-13 was abandoned on August 7, 2017

Qualifier Notes:

J = Reported value was between the limit of detection and the limit of quantitation
B = Compound was found in the blank and sample
F1 = Matrix spike and/or matrix spike duplicate recovery exceeds control limits
H = Sample was prepped or analyzed beyond the specific holding time
U = Non-detects shown as less than the method detection limit
* = laboratory control sample or laboratory control sample duplicate is outside acceptance limits
F2 = Matrix spike/matrix spike duplicate relative percent difference exceeds control limits

Prepared by: KMC2
Checked by: HLH

Table 4
Action Level Exceedances in Groundwater
West Avenue Landfill
Waukesha, WI

Chemical Name		1,1-Dichloroethene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Benzene (µg/L)	Boron (µg/L)	Bromodichloromethane (µg/L)	Cadmium (µg/L)	Chloride (mg/L)	Chlorobenzene (µg/L)	Chloroform (µg/L)	cis-1,2-Dichloroethene (µg/L)	Ethylbenzene (µg/L)	Iron (µg/L)	Manganese (µg/L)	Methylene Chloride (µg/L)	Naphthalene (µg/L)	Nitrogen, Nitrate (mg/L)	Thallium (µg/L)	Trichloroethene (µg/L)	Vinyl Chloride (µg/L)	Xylene, m & p (µg/L)	Xylenes, Total (µg/L)
	ES	**7**	**480[1]**	**480[1]**	**10**	**2,000**	**5**	**1,000**	**0.6**	**5**	**250**	**100**	**6**	**70**	**700**	**300**	**50**	**5**	**100**	**10**	**2**	**5**	**0.2**	**2,000**	**2,000**
	PAL	*0.7*	*96[1]*	*96[1]*	*1*	*400*	*0.5*	*200*	*0.06*	*0.5*	*125*	*20*	*0.6*	*7*	*140*	*150*	*25*	*0.5*	*10*	*2*	*0.4*	*0.5*	*0.02*	*400*	*400*
Well ID	**Sample Type**																								
April 2022 Analytical Results																									
MW-10	N										**429**									*4.4*					
MW-10B	N	*3.1*			*1.4*						*220*			*24*		**1560**	**402**	*1.6*				*2.9*			
MW-9B	N				*5.8*						*239*						**55.7**								
MW-9R	N				*1.4*					*0.59*	*196*		*0.65*			**1010**	**239**								
MW-11B	N				*1.1*						**288**							*2.5*		*2.8*		*1.1*				
MW-12	N				*4.7*			*274*			**375**					**2790**	**134**	*2.4*								
MW-12B	N				*4.3*		*1.5*	*623*			**310**					**6170**	**69.3**	*2.4*					**1.1**		
MW-16B	FD																	*2.5*							
MW-16B	N				*1.1*						**304**							*2.7*		*5.3*					
MW-13B	N				*6.4*	*443*	*0.56*	*465*			**338**	*29*				**10900**	**98.4**								
MW-13D	N										**292**		*0.86*	41			**151**			*2.2*			**4.8**		
MW-14	N										**411**					**4600**	**153**								
MW-14B	N				*6.2*			*338*			**419**					**8090**	**70.3**								
MW-17	N							*434*			**331**					*213*	**142**								
MW-17B	N				*2*	*428*	*2.3*	*401*			**283**					**1480**							**4.4**		
MW-17D	N	*1.2*					*2.3*				**345**			**460**			**281**					*1.4*	**93**		
MW-3	N				*2.9*						**354**					**8900**	**91.3**								
MW-3B	N	*2*			*1.7*		*4.9*				**353**	*42*		***830***		*246*	**439**					*1.7*	**230**		
MW-3D	N	*0.82*			*1.3*						*149*			*23*									**8.3**		
MW-4BR	N		**880**	**130**	*9.9*		**19**	*624*			**315**	*59*		*12*	*590*	**13800**	**90.7**		**390**				**8.2**	*650*	*830*
MW-8B	N				*7.7*		*2.4*	*591*			**478**	*64*		*26*		**4860**	**258**				*0.44*		**16**		
September 2022 Analytical Results																									
MW-15	N				**16.1**						**293**									*2.8*		*3.2*			
MW-7	N										*196*														
MW-7B	N										*215*														
MW-9B	N				*8.5*						*187*					**362**	*39.8*								
MW-9R	N										*163*					*259*	**153**			*3.4*					
MW-10	N										**351**									*4.6*					
MW-10B	N	*2.3*									**270**			18		**769**	**227**					*3.0*			
MW-12	N				*1.6*			*239*			**327**					**810**	**139**								
MW-12B	N				*3.3*		*1.8*	*598*			**289**			7.1		**4150**	*31.9*						**2.0**		
MW-16	N								*1.0*		*127*		*1.5*							*2.9*					
MW-16B	N										**333**									*5.9*					
MW-16D	N							*677*			*225*					**669**	**383**								
MW-17	N							*439*			*237*						**52.3**								
MW-13B	N				*6*	*458*	*1.1*	*491*			**286**	*49*				**10800**	**95.4**								
MW-13D	N	*1.3*			*1.1*		*2.4*				**303**	*24*		49			**199**					*0.7*	**130**		
MW-14	N										**386**					**4400**	**156**								
MW-14B	N				*4.1*	*415*		*412*			**290**	*26*				**8640**	**74.4**								
MW-17B	FD						*3.1*					*24*											**2.4**		
MW-17B	N				*3.1*	*443*	*3.5*	*411*			*233*	*23*				**1580**							**2.9**		
MW-17D	N	*2.1*					*3.9*				**276**	*42*		***650***			**292**					*1.4*	**180**		
MW-3	N				*2.7*			*322*			**353**			*18*		**9490**	**136**						**15**		
MW-8B	N				*8*		*2.6*	*676*			**264**	*71*		*29*		**4950**	**210**				*0.43*		**15**		
MW-11B	N									*2.4*	*149*									*2.5*					
MW-3B	N										*133*			*19*									**10**		
MW-3D	N	*1.3*			*1.2*		*2.4*				**298**	*26*		**550**			**401**					*1.3*	**150**		
MW-4BR	N				*3.5*	*401*	**5.1**	*545*			*246*	*49*				**11900**	**130**						**1.1**		

Notes:
ES = Enforcement Standard (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, June 2021).
PAL = Preventative Action Limit (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, June 2021).
mg/L = milligrams per liter
µg/L = micrograms per liter
N = Normal sample
FD = Field duplicate sample
[1]NR 140 has one standard for total trimethylbenzenes (1,2,4- and 1,3,5- combined).
Bold text = Exceeds ES
Italic text = Exceeds PAL

Prepared by: KMC2
Checked by: HLH

Table 5

Maximum Chemical Concentrations Detected in Groundwater
West Avenue Landfill
Waukesha, WI

	Units	PAL	ES	Deep Bedrock Wells[1]		Intermediate Bedrock Wells[2]		Shallow Wells[3]	
				2003-2021	2022	2003-2021	2022	2003-2021	2022
COCs									
Chloride	mg/L	125	250	**770**	**345**	**3,100**	**478**	**1190**	**429**
Iron	mg/L	0.15	0.3	**0.74**	**0.67**	**14.4**	**13.8**	**25.8**	**9.49**
Manganese	µg/L	25	50	**670**	**401**	**540**	**439**	**920**	**239**
Vinyl Chloride	µg/L	0.02	0.2	**350**	**180**	**480**	**230**	**75**	**15**
COIs									
1,1-Dichloroethene	µg/L	0.7	7	*4.1*	*2.1*	**28**	*3.1*	*1.1*	U
1,2,4-Trimethylbenzene	µg/L	96[4]	480[4]	0.62	0.78	**1,700**	**880**	68	U
1,3,5-Trimethylbenzene	µg/L	96[4]	480[4]	U	0.79	*260*	*130*	1.8	U
Arsenic	µg/L	1	10	*7.9*	*1.3*	**59**	*9.9*	**40**	**16.1**
Benzene	µg/L	0.5	5	**22**	*3.9*	**49**	**19**	**31**	U
Boron	µg/L	200	1000	*840*	*677*	**2,500**	*676*	**1200**	*439*
Chlorobenzene	µg/L	20	100	*58*	*42*	**150**	*71*	**350**	4.8
cis-1,2-Dichloroethene	µg/L	7	70	**1,300**	**650**	**897**	**830**	**130**	*18*
Methylene Chloride	µg/L	0.5	5	**57**	U	**19**	*2.7*	*3.3*	*2.4*
Trichloroethene	µg/L	0.5	5	**6.9**	*1.4*	**23**	*3*	**14**	*3.2*

Notes:

Prepared by: KMC2
Checked by: HLH

COC = Compounds of Concern
COI = Compounds of Interest
ES = Enforcement Standard (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, June 2021)
PAL = Preventative Action Limit (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, June 2021)
U = Undetected
µg/L = micrograms per liter
mg/L = miligrams per liter
Bold text = Exceeds ES
Italic text = Exceeds PAL
Pattern Fill = Increased maximum value due to 2021 results

[1] Deep bedrock wells include: MW-13D, MW-16D, MW-17D, MW-3D.

[2] Intermediate bedrock wells include: MW-10B, MW-11B, MW-12B, MW-13B, MW-14B, MW-15B, MW-16B, MW-17B, MW-3B, MW-4BR, MW-7B, MW-8B, MW-9B.

[3] Shallow wells include: MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-17, MW-2, MW-3, MW-4, MW-7, MW-8, MW-9R.

[4] NR 140 has one standard for total trimethylbenzenes (1,2,4- and 1,3,5- combined).

Table 6
Summary of Akritas-Theil-Sen Nonparametric Trend Tests and Sample Sizes
Long-Term Data (2003 Through 2022)
West Aveue Landfill
Waukesha, WI

	MW-3	MW-3B	MW-3D	MW-4BR	MW-7	MW-7B	MW-8	MW-8B	MW-9B	MW-9R	MW-10	MW-10B	MW-11B	MW-12	MW-12B	MW-13B	MW-13D	MW-14	MW-14B	MW-15	MW-16	MW-16B	MW-16D	MW-17	MW-17B	MW-17D
COCs																										
Chloride	Increasing (44)	Increasing (44)	No Sig. Trend (32)	No Sig. Trend (44)	No Sig. Trend (18)	Increasing (22)	Increasing (37)	No Sig. Trend (44)	No Sig. Trend (44)	No Sig. Trend (44)	Increasing (43)	Increasing (43)	Increasing (43)	No Sig. Trend (44)	Increasing (44)	Increasing (44)	Increasing (32)	Increasing (44)	Increasing (44)	No Sig. Trend (15)	No Sig. Trend (17)	No Sig. Trend (32)	No Sig. Trend (24)	No Sig. Trend (15)	No Sig. Trend (15)	No Sig. Trend (15)
Iron	Increasing (44)	Decreasing (44)	No Sig. Trend (32)	Increasing (44)	No Sig. Trend (19)	No Sig. Trend (22)	No Sig. Trend (37)	No Sig. Trend (44)	Decreasing (44)	Decreasing (44)	No Sig. Trend (43)	No Sig. Trend (43)	No Sig. Trend (43)	Increasing (44)	Increasing (44)	No Sig. Trend (44)	Decreasing (32)	Decreasing (44)	No Sig. Trend (44)	No Sig. Trend (15)	No Sig. Trend (17)	No Sig. Trend (32)	Increasing (24)	No Sig. Trend (15)	Increasing (15)	No Sig. Trend (15)
Manganese	Decreasing (44)	Increasing (44)	Decreasing (32)	No Sig. Trend (44)	No Sig. Trend (19)	Decreasing (22)	No Sig. Trend (37)	Increasing (44)	Decreasing (44)	Decreasing (44)	No Sig. Trend (43)	No Sig. Trend (43)	Decreasing (43)	Decreasing (44)	No Sig. Trend (44)	Increasing (44)	Decreasing (32)	Decreasing (44)	Increasing (44)	No Sig. Trend (15)	No Sig. Trend (17)	No Sig. Trend (32)	No Sig. Trend (24)	No Sig. Trend (15)	Decreasing (15)	No Sig. Trend (15)
Vinyl Chloride	Decreasing (48)	Decreasing (48)	No Sig. Trend (32)	Decreasing (48)	No Detects (21)	No Detects (22)	No Sig. Trend (37)	No Sig. Trend (44)	No Detects (48)	No Detects (49)	No Detects (47)	Decreasing (47)	No Detects (47)	Decreasing (47)	Increasing (48)	Decreasing (47)	Decreasing (32)	No Sig. Trend (48)	No Detects (48)	No Detects (32)	No Detects (17)	No Detects (32)	No Detects (24)	No Detects (15)	Decreasing (15)	No Sig. Trend (15)
COIs																										
1,1-Dichloroethene	No Detects (48)	No Sig. Trend (48)	Decreasing (32)	No Detects (48)	No Detects (21)	No Detects (22)	No Detects (37)	No Detects (44)	No Detects (48)	No Detects (49)	No Sig. Trend (47)	Decreasing (47)	Decreasing (47)	No Detects (47)	No Detects (48)	No Detects (47)	No Sig. Trend (32)	No Detects (48)	No Detects (48)	No Detects (32)	No Detects (17)	No Sig. Trend (32)	No Detects (24)	No Detects (15)	No Detects (15)	No Sig. Trend (15)
1,2,4-Trimethylbenzene	No Sig. Trend (48)	No Sig. Trend (48)	No Sig. Trend (32)	Decreasing (48)	No Sig. Trend (21)	No Detects (22)	No Sig. Trend (37)	No Sig. Trend (44)	No Sig. Trend (48)	No Detects (49)	No Detects (47)	No Sig. Trend (47)	No Sig. Trend (47)	No Sig. Trend (47)	No Sig. Trend (48)	No Sig. Trend (47)	No Sig. Trend (32)	No Sig. Trend (48)	No Sig. Trend (48)	No Detects (32)	No Detects (17)	No Sig. Trend (32)	No Detects (24)	No Detects (15)	No Detects (15)	No Detects (15)
1,3,5-Trimethylbenzene	No Detects (48)	No Sig. Trend (48)	No Sig. Trend (32)	Decreasing (48)	No Detects (21)	No Detects (22)	No Sig. Trend (37)	No Detects (44)	No Detects (48)	No Detects (49)	No Detects (47)	No Detects (47)	No Detects (47)	No Detects (47)	No Detects (48)	No Sig. Trend (47)	No Detects (32)	No Detects (48)	No Detects (48)	No Detects (32)	No Detects (17)	No Detects (32)	No Detects (24)	No Detects (15)	No Detects (15)	No Detects (15)
Arsenic	No Sig. Trend (44)	No Sig. Trend (44)	No Sig. Trend (32)	No Sig. Trend (44)	No Sig. Trend (19)	No Sig. Trend (22)	No Sig. Trend (37)	Decreasing (44)	No Sig. Trend (44)	No Sig. Trend (44)	No Sig. Trend (43)	No Sig. Trend (43)	No Sig. Trend (43)	Increasing (44)	No Sig. Trend (44)	No Sig. Trend (44)	No Sig. Trend (32)	No Sig. Trend (44)	No Sig. Trend (44)	Increasing (15)	No Sig. Trend (17)	Increasing (32)	No Sig. Trend (24)	Increasing (15)	No Sig. Trend (15)	Increasing (15)
Benzene	Decreasing (48)	Decreasing (48)	Decreasing (32)	Decreasing (48)	No Sig. Trend (21)	No Detects (22)	Decreasing (37)	Decreasing (44)	No Detects (48)	No Detects (49)	No Detects (47)	Decreasing (47)	No Detects (47)	No Sig. Trend (47)	Increasing (48)	Decreasing (47)	Decreasing (32)	Decreasing (48)	Decreasing (48)	No Sig. Trend (32)	No Detects (17)	No Detects (32)	No Sig. Trend (24)	No Detects (15)	Decreasing (15)	No Sig. Trend (15)
Boron	Decreasing (44)	Decreasing (44)	No Sig. Trend (32)	No Sig. Trend (44)	No Sig. Trend (19)	Decreasing (22)	Decreasing (37)	Decreasing (44)	Decreasing (44)	No Sig. Trend (44)	No Sig. Trend (43)	No Sig. Trend (43)	Increasing (43)	Decreasing (44)	No Sig. Trend (44)	No Sig. Trend (44)	Decreasing (32)	No Sig. Trend (44)	No Sig. Trend (44)	No Sig. Trend (15)	Increasing (17)	Increasing (32)	No Sig. Trend (24)	No Sig. Trend (15)	Increasing (15)	No Sig. Trend (15)
Chlorobenzene	Decreasing (48)	Decreasing (48)	No Sig. Trend (32)	No Sig. Trend (48)	No Detects (21)	No Detects (22)	Decreasing (37)	Decreasing (44)	Decreasing (48)	No Detects (49)	No Detects (47)	No Sig. Trend (47)	No Sig. Trend (47)	Decreasing (47)	No Sig. Trend (48)	Decreasing (47)	Decreasing (32)	No Sig. Trend (48)	Decreasing (48)	Decreasing (32)	No Detects (17)	No Detects (32)	No Detects (24)	No Sig. Trend (15)	Increasing (15)	No Sig. Trend (15)
cis-1,2-Dichloroethene	Decreasing (48)	No Sig. Trend (48)	Decreasing (32)	No Sig. Trend (48)	No Sig. Trend (21)	No Detects (22)	No Sig. Trend (37)	Decreasing (44)	No Sig. Trend (48)	No Sig. Trend (49)	Decreasing (47)	Decreasing (47)	Decreasing (47)	No Sig. Trend (47)	Increasing (48)	No Sig. Trend (47)	Decreasing (32)	No Sig. Trend (48)	No Detects (48)	No Sig. Trend (32)	No Detects (17)	Decreasing (32)	No Detects (24)	No Detects (15)	Decreasing (15)	No Sig. Trend (15)
Methylene Chloride	No Sig. Trend (48)	No Sig. Trend (48)	No Sig. Trend (32)	No Sig. Trend (48)	No Detects (21)	No Detects (22)	No Sig. Trend (37)	No Sig. Trend (44)	No Detects (48)	No Detects (49)	No Detects (47)	No Sig. Trend (47)	No Sig. Trend (47)	No Sig. Trend (47)	No Sig. Trend (48)	No Detects (47)	No Sig. Trend (32)	No Detects (48)	No Sig. Trend (48)	No Detects (32)	No Detects (17)	No Sig. Trend (32)	No Sig. Trend (24)	No Detects (15)	No Sig. Trend (15)	No Detects (15)
Trichloroethene	No Sig. Trend (48)	No Sig. Trend (48)	Decreasing (32)	No Sig. Trend (48)	No Sig. Trend (21)	No Detects (22)	No Detects (37)	Decreasing (44)	No Sig. Trend (48)	No Sig. Trend (49)	Decreasing (47)	Decreasing (47)	Decreasing (47)	No Detects (47)	No Sig. Trend (48)	No Detects (47)	Decreasing (32)	No Detects (48)	No Detects (48)	No Sig. Trend (32)	No Detects (17)	No Sig. Trend (32)	No Detects (24)	No Detects (15)	No Sig. Trend (15)	No Sig. Trend (15)

Increasing or Decreasing – Trend analysis resulted in a p-value less than 0.05
No Significant Trend – Trend analysis resulted in a p-value greater than 0.05
() Value in parenthesis indicates sample size
COC = Contaminant of Concern
COI = Contaminant of Interest

Prepared by: SGL
Checked by: KMC2

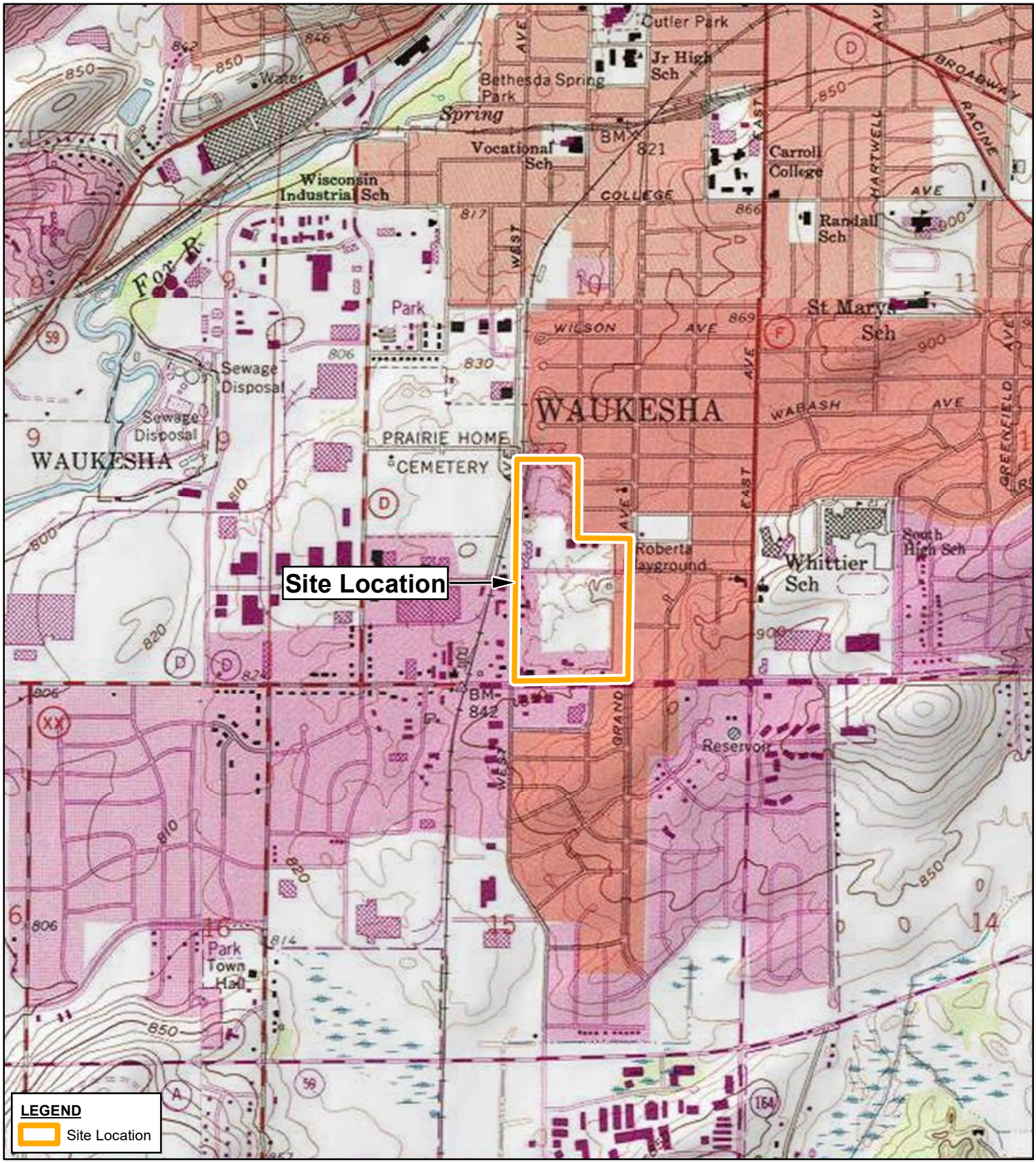
Table 7
Summary of Akritas-Theil-Sen Nonparametric Trend Tests and Sample Sizes
5-Year Data (2018 Through 2022)
West Avenue Landfill
Waukesha, WI

	MW-3	MW-3B	MW-3D	MW-4BR	MW-7	MW-7B	MW-8	MW-8B	MW-9B	MW-9R	MW-10	MW-10B	MW-11B	MW-12	MW-12B	MW-13B	MW-13D	MW-14	MW-14B	MW-15	MW-16	MW-16B	MW-16D	MW-17	MW-17B	MW-17D
COCs																										
Chloride	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (5)	Decreasing (7)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (4)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)
Iron	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (4)	No Detects (10)	No Sig. Trend (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)
Manganese	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Increasing (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (4)	Increasing (10)	No Sig. Trend (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)
Vinyl Chloride	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (4)	No Detects (10)	No Detects (5)	No Detects (10)	Decreasing (10)	No Sig. Trend (10)
COIs																										
1,1-Dichloroethene	No Detects (10)	Increasing (10)	No Sig. Trend (10)	No Detects (10)	No Detects (5)	No Detects (5)	No Detects (7)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	Decreasing (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (4)	No Sig. Trend (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Sig. Trend (10)
1,2,4-Trimethylbenzene	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (4)	No Sig. Trend (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (10)
1,3,5-Trimethylbenzene	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (7)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (4)	No Detects (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (10)
Arsenic	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (5)	No Sig. Trend (7)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (4)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)
Benzene	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (5)	Decreasing (7)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (4)	No Detects (10)	No Detects (5)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)
Boron	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Sig. Trend (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Sig. Trend (4)	No Sig. Trend (10)	No Sig. Trend (5)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (10)
Chlorobenzene	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	Decreasing (10)	No Sig. Trend (5)	No Detects (4)	No Detects (10)	No Detects (5)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)
cis-1,2-Dichloroethene	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	Decreasing (10)	No Sig. Trend (10)	No Detects (10)	Decreasing (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Sig. Trend (5)	No Detects (4)	No Sig. Trend (10)	No Detects (5)	No Detects (10)	Decreasing (10)	No Sig. Trend (10)
Methylene Chloride	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (7)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (4)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (10)	No Sig. Trend (10)	No Detects (10)
Trichloroethene	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	No Detects (5)	No Detects (7)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Sig. Trend (5)	No Detects (4)	No Sig. Trend (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Sig. Trend (10)

Increasing or Decreasing – Trend analysis resulted in a p-value less than 0.05.
No Significant Trend – Trend analysis resulted in a p-value greater than 0.05.
() Value in parenthesis indicates sample size.
COC = Contaminant of Concern
COI = Contaminant of Interest

Prepared by: SGL
Checked by: KMC2

Figures



NOTES:
1. Basemap from esri and its data suppliers.

Foth

N

0 1,000 2,000 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

CITY OF WAUKESHA

FIGURE 1

WAUKESHA WEST AVENUE LANDFILL
SITE LOCATION MAP

Date: MARCH 2022	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 22W013

Path: \\pw-aps1\clients\Waukesha WI C\21W013\GIS\mxd\2021 Report\Figure 1 - Waukesha West Ave LF Site Location Map.mxd Date: 3/30/2022

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
WEST AVE.
PROGRESS AVE.

GP-1 GP-2R GP-3 GP-4 GP-5 GP-6 GP-7 GP-10 GP-11 GP-13 GP-14 GP-15 GP-16 GP-20 GP-21 GP-22

GW-1 GW-2 GW-3 GW-4 GW-5 GW-6 GW-7 GW-8 GW-9 GW-10 GW-11 GW-12 GW-13 GW-14 GW-15 GW-16 GW-17 GW-18 GW-19 GW-21

KO-1 KO-2 KO-3

V-1 V-2 V-3 V-4

GAS COLLECTION SYSTEM

LEGEND

- GW-10 EXISTING GAS EXTRACTION WELL AND WELLHEAD
- GP-10 EXISTING GAS PROBE
- EXISTING REMOTE GAS EXTRACTION WELL
- GW-16 EXISTING GAS COLLECTION TRENCH WELLHEAD
- KO-1 EXISTING CONDENSATE KNOCKOUT SUMP
- EXISTING GAS HEADER PIPING HIGH POINT
- (M) CONDENSATE LIFT STATION MANHOLE
- EXISTING GAS HEADER PIPING
- EXISTING GAS COLLECTION TRENCH
- LIMITS OF WASTE PLACEMENT
- V-2 EXISTING GAS HEADER CONTROL VALVE

Foth

0 100' 200'

SCALE

WEST AVENUE LANDFILL

FIGURE 2

LANDFILL GAS COLLECTION SITE FEATURES CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: DJM4	Project No: 23W013.00

Sunday, February 19, 2023 12:09:53 PM
DWG Filename: 22w013 figure 2 - landfill gas collection system site features.dwg Layout: layout 1
DWG Folder Location: Waukesha WI C/22w013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION
- MW-5 — MONITORING WELL LOCATION

Foth

0 100' 200'

SCALE

WEST AVENUE LANDFILL

FIGURE 3

MONITORING WELL LOCATION MAP
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: DJM4	Project No: 23W013.00

Sunday, February 19, 2023 12:17:02 PM
DWG Filename: 22x013 figure 3 - monitoring well locations map.dwg Layout: layout 1
DWG Folder Location: Waukesha WI C/22x013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
PROGRESS AVE.
WEST AVE.

850.04
MW-7
MW-7B

824.95
MW-10
MW-10B

821.68
MW-16
MW-16B
MW-16D

MW-11
MW-11B

MW-2

MW-3
MW-3B
MW-3D

MW-4BR

MW-8 814.68
MW-8B

MW-4

810.59
MW-12
MW-12B

MW-13B
MW-13D

809.25
MW-17
MW-17B
MW-17D

813.45
MW-14
MW-14B

814.61
MW-9R
MW-9B

MW-5

MW-15 824.53
MW-15B

MW-6

845
835
825
815

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION AND GROUNDWATER ELEVATION
- 810 — WATER TABLE CONTOUR (2' INTERVAL)
- GROUNDWATER FLOW LINE

NOTES:
1. GROUNDWATER ELEVATION DATA READINGS TAKEN ON SEPTEMBER 13, 2022.

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 4

WATER TABLE ELEVATION MAP - SEPTEMBER 2022
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: DJM4	Project No: 22W013.00

Sunday, February 19, 2023 6:26:47 PM
DWG Filename: 22w013 figure 4 - shallow groundwater sept 2023.dwg Layout: figure 4
DWG Folder Location: Waukesha WI C/22w013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
PROGRESS AVE.
WEST AVE.

MW-7
MW-7B
848.01

MW-10
MW-10B
825.93

MW-16
MW-16B
MW-16D
809.69

MW-11
MW-11B
810.64

MW-2

MW-3
MW-3B
MW-3D
814.88

MW-4

MW-12
MW-12B
812.54

MW-13B
MW-13D
813.60

MW-17
MW-17B
MW-17D
807.98

MW-14
MW-14B
814.28

MW-4BR
814.74

MW-8
MW-8B
815.44

MW-5

MW-6

MW-15
MW-15B
827.18

MW-9R
MW-9B
821.39

845
835
825
815
810

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION AND GROUNDWATER ELEVATION
- 810 — WATER TABLE CONTOUR (2' INTERVAL)
- GROUNDWATER FLOW LINE

NOTES:
1. GROUNDWATER ELEVATION DATA READINGS TAKEN ON SEPTEMBER 13, 2022.

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 5

INTERMEDIATE BEDROCK GROUNDWATER PIEZOMETRIC SURFACE MAP - SEPTEMBER 2022
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:		
Drawn By: JOW	Checked By: DJM4	Project No: 23W013.00	

Wednesday, February 22, 2023 10:21:00 AM
DWG Filename: 23w013 figure 5 - intermediate groundwater sept 2022.dwg Layout: figure 5
DWG Folder Location: Waukesha WI C/23w013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
WEST AVE.
PROGRESS AVE.

MW-7
MW-7B
MW-10
MW-10B
MW-16
MW-16B
MW-16D
811.79
MW-11
MW-11B
MW-2
MW-3
MW-3B
MW-3D
830.34
MW-4BR
MW-8
MW-8B
MW-4
MW-12
MW-12B
MW-13B
MW-13D
813.69
MW-17
MW-17B
MW-17D
813.66
MW-14
MW-14B
MW-5
MW-6
MW-15
MW-15B
MW-9R
MW-9B

820
825
815

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION AND GROUNDWATER ELEVATION
- 810 — WATER TABLE CONTOUR (1' INTERVAL)
- GROUNDWATER FLOW LINE

NOTES:
1. GROUNDWATER ELEVATION DATA READINGS TAKEN ON SEPTEMBER 13, 2022.

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 6

DEEP BEDROCK GROUNDWATER PIEZOMETERIC SURFACE MAP - SEPTEMBER 2022
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: DJM4	Project No: 23W013.00

Wednesday, February 22, 2023 10:09:28 AM
DWG Filename: 22w013 figure 6 - deep groundwater sept 2022.dwg Layout: figure 6
DWG Folder Location: Waukesha WI C/23w013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
WEST AVE.
PROGRESS AVE.

MW-7	0	0	PAL
MW-7B	+	0	PAL
MW-10	+	0	ES
MW-10B	+	0	ES
MW-16	0	0	PAL
MW-16B	0	0	ES
MW-16D	0	0	PAL
MW-11	+	0	ES
MW-11B			
MW-2			
MW-3	+	0	ES
MW-3B	+	0	ES
MW-3D	0	0	ES
MW-4BR	0	0	ES
MW-8	+	-	NONE
MW-8B	0	0	ES
MW-4	0	+	ES
	+	0	ES
MW-12			
MW-12B			
MW-13B	+	0	ES
MW-13D	+	-	ES
MW-17	0	0	ES
MW-17B	0	0	ES
MW-17D	0	0	ES
MW-14	+	-	ES
MW-14B	+	0	ES
MW-5			
MW-9R	0	-	PAL
MW-9B	0	0	PAL
MW-6			
MW-15	0	0	ES
MW-15B			

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-5 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

	LONG TERM	5-YEAR TREND	2021 EXCEEDENCE
WELL LABEL	+	+	ES or PAL

N/A = Not Applicable
mg/L = milligrams per liter
+ = increasing trend
- = decreasing trend
0 = No significant trend
ES = Enforcement Standard (250 mg/L)
PAL = Preventative Action Limit (125 mg/L)

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 7

CHLORIDE TRENDS AND 2022 EXCEEDENCES
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: HLH	Project No: 23W013.00

Wednesday, February 22, 2023 9:17:42 AM
DWG Filename: 22x013 figure 7 - chloride trends and exceedences.dwg Layout: layout 1
DWG Folder Location: Waukesha WI C/23w013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
WEST AVE.
PROGRESS AVE.

MW-7, MW-7B: 0 | 0 | NONE; 0 | | NONE
MW-10, MW-10B: 0 | 0 | NONE; 0 | 0 | ES
MW-16, MW-16B, MW-16D: 0 | | NONE; 0 | | NONE; + | 0 | ES
MW-11, MW-11B: 0 | 0 | NONE
MW-2
MW-3, MW-3B, MW-3D: + | 0 | ES; - | 0 | PAL; 0 | 0 | NONE
MW-4BR: + | 0 | ES
MW-8, MW-8B: 0 | 0 | NONE; 0 | 0 | ES
MW-4: + | 0 | ES; + | 0 | ES
MW-12, MW-12B
MW-13B, MW-13D: 0 | 0 | ES; - | - | NONE
MW-17, MW-17B, MW-17D: 0 | 0 | PAL; + | 0 | ES; 0 | 0 | NONE
MW-14, MW-14B: - | 0 | ES; 0 | 0 | ES
MW-5
MW-6
MW-15, MW-15B: 0 | 0 | ES
MW-9R, MW-9B: - | 0 | ES; - | 0 | ES

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R, MW-9B — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-5 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

	LONG TERM	5-YEAR TREND	2021 EXCEEDENCE
WELL LABEL	+	+	ES or PAL

N/A = Not Applicable
mg/L = milligrams per liter
+ = increasing trend
- = decreasing trend
0 = No significant trend
ES = Enforcement Standard (250 mg/L)
PAL = Preventative Action Limit (125 mg/L)

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 8
IRON TRENDS AND 2021 EXCEEDENCES
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: HLH	Project No: 23W013.00

Wednesday, February 22, 2023 8:44:41 AM
DWG Filename: 22x013 figure 8 - iron trends and exceedences.dwg Layout: layout 1
DWG Folder Location: Waukesha WI C/23x013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
WEST AVE.
PROGRESS AVE.

MW-7	0	0	NONE
MW-7B	-	0	NONE
MW-10	0	0	NONE
MW-10B	0	+	ES
MW-16	0	0	NONE
MW-16B	0	+	NONE
MW-16D	0	0	ES
MW-11	-	-	NONE
MW-11B			
MW-2	-	-	ES
MW-3	+	0	ES
MW-3B	-	0	ES
MW-3D			
MW-4BR	0	0	ES
MW-8	0	0	NONE
MW-8B	+	0	ES
MW-4	-	0	ES
MW-12	0	0	ES
MW-12B			
MW-13B	+	0	ES
MW-13D	-	0	ES
MW-17	0	0	ES
MW-17B	-	0	NONE
MW-17D	0	0	ES
MW-14	-	-	ES
MW-14B	+	0	ES
MW-6			
MW-5			
MW-15	0	0	NONE
MW-15B			
MW-9R	-	0	ES
MW-9B	-	0	ES

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-5 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

	LONG TERM	5-YEAR TREND	2021 EXCEEDENCE
WELL LABEL	+	+	ES or PAL

N/A = Not Applicable
mg/L = milligrams per liter
+ = increasing trend
- = decreasing trend
0 = No significant trend
ES = Enforcement Standard (250 mg/L)
PAL = Preventative Action Limit (125 mg/L)

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 9

MANGANESE TRENDS AND 2022 EXCEEDENCES
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: HLH	Project No: 23W013.00

Wednesday, February 22, 2023 9:26:01 AM
DWG Filename: 22x013 figure 9 - manganese trends and exceedences.dwg Layout: layout 1
DWG Folder Location: Waukesha WI C/23x013/CAD/Figures

NOTES

1. LIMITS OF WASTE PROVIDED BY THE CITY OF WAUKESHA.
2. GRAVEL PITS LIMITS BASED ON TOPOGRAHIC MAP PROVIDED BY ABRAMS AERIAL, 1955.
3. LANDFILL GAS SYSTEM AND MONITORING POINTS PROVIDED BY CITY OF WAUKESHA, (EARTHTECH, 2002).
4. ORTHO PHOTO IS FROM THE LATEST BING MAP IMAGERY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

N

GRAND AVE.
WABASH AVE.
ESTBERG AVE.
DOUGLASS AVE.
ROBERTA AVE.
COOLIDGE AVE.
HOOVER AVE.
SUNSET AVE.
SCOTT AVE.
CARLTON PL.
WEST AVE.
PROGRESS AVE.

MW-7, MW-7B: NONE, NONE
MW-10, MW-10B: 0 NONE; - 0 NONE
MW-16, MW-16B, MW-16D: NONE, NONE, NONE
MW-11, MW-11B: NONE
MW-2
MW-3, MW-3B, MW-3D: - 0 ES; - 0 ES; 0 0 ES
MW-4BR: - 0 ES
MW-8, MW-8B: 0 0 NONE; 0 0 ES
MW-4: - NONE; + 0 ES
MW-12, MW-12B
MW-13B, MW-13D: - 0 NONE; - 0 ES
MW-17, MW-17B, MW-17D: NONE; - - ES; 0 0 ES
MW-14, MW-14B: 0 NONE; NONE
MW-6
MW-5
MW-15, MW-15B: NONE
MW-9R, MW-9B: 0 NONE; 0 NONE

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-9R / MW-9B — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-5 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

WELL LABEL	LONG TERM	5-YEAR TREND	2021 EXCEEDENCE
	+	+	ES or PAL

N/A = Not Applicable
mg/L = milligrams per liter
+ = increasing trend
- = decreasing trend
0 = No significant trend
ES = Enforcement Standard (250 mg/L)
PAL = Preventative Action Limit (125 mg/L)

Foth

0 100' 200'
SCALE

WEST AVENUE LANDFILL

FIGURE 10

VINYL CHLORIDE TRENDS AND 2022 EXCEEDENCES
CITY OF WAUKESHA

Date Completed: MARCH 2023	Revision Date:	
Drawn By: JOW	Checked By: HLH	Project No: 23W013.00

Wednesday, February 22, 2023 10:07:14 AM
DWG Filename: 22x013 figure 10 - vc trends and exceedences.dwg Layout: layout 1
DWG Folder Location: Waukesha WI C:\23w013\CAD\Figures

Appendix A
O&M Documentation Forms

FORM 1

SEMI-ANNUAL INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Inspection Date: March 14, 2022 Inspector: Katie Jelacic, P.E.

	Acceptable?		Comments/Action
	Yes	No	
PRINCIPAL LANDFILL AREA FINAL COVER SYSTEM			
Areas of landfill cover erosion	x		
Areas of inadequate vegetation	x		
Locations of significant animal intrusion	x		
Areas of weathered asphalt and/or significant cracks in the asphalt	x		
STORMWATER MANAGEMENT SYSTEM			
Exterior damage to catch basins/manholes that could significantly impede flow	x		
Siltation that could significantly impede flow within catch basins	x		
Siltation that could significantly impede flow within swales	x		
PERIMETER PROPERTIES COVER SYSTEM			
Areas of topsoil cover erosion	x		
Areas of inadequate vegetation	x		
Areas of significant animal intrusion	x		
Areas of significant topsoil settlement	x		
Areas of weathered asphalt and/or significant cracks in the asphalt	x		

Comments: A few small areas were reseeded near the soccer fields on the south side of Hoover, as well as, near the sink hole near the sewer grate/

FORM 1

SEMI-ANNUAL INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Inspection Date: Sept 20, 2022 Inspectror: Katie Jelacic, P.E.

	Acceptable?		Comments/Action
	Yes	No	
PRINCIPAL LANDFILL AREA FINAL COVER SYSTEM			
Areas of landfill cover erosion	x		
Areas of inadequate vegetation	x		
Locations of significant animal intrusion	x		
Areas of weathered asphalt and/or significant cracks in the asphalt	x		
STORMWATER MANAGEMENT SYSTEM			
Exterior damage to catch basins/manholes that could significantly impede flow	x		
Siltation that could significantly impede flow within catch basins	x		
Siltation that could significantly impede flow within swales	x		
PERIMETER PROPERTIES COVER SYSTEM			
Areas of topsoil cover erosion	x		
Areas of inadequate vegetation	x		
Areas of significant animal intrusion	x		
Areas of significant topsoil settlement	x		
Areas of weathered asphalt and/or significant cracks in the asphalt	x		

Comments:

L:\work\35997\Environm\AECOM documents - reports, memos\2010 O&M Manual\...\Form 1.doc

FORM 2

QUARTERLY INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Quarter: (1st), 2nd, 3rd, 4th
(Circle one)

Inspection Date: 4/13/22 **Inspector:** BD/VW

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	X		
Lubrication needed	X		
Flare stack appears in good condition	X		
Flare operating	X		(NOT OPERATING)
Flare drain plug operational	X		
Flame arrestor appears in good condition	X		
Control panel status lights □ok□		X	DISPLAY BLANK - NOT POWERED.
Electrically actuated valve operating	X		
Record blower operating hours for quarter		X	NO DISPLAY
Inspect fence for disrepair that could allow access	X		
Inspect lock to ensure that the area is secure	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-1			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			_____ **Position of valve ~~from~~ Opening** [x] **~~Closing~~**□
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-2			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			50 **Position of valve from Opening** □ **Closing** [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			50 **Position of valve from Opening** [x] **Closing**□
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-4 (Point No.-26 and Remote Wellhead GW-4 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			25 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-5			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			72.5 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-6			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			75 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			Position of valve from Opening ☐ ~~Closing~~ X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			22.5 Position of valve from Opening ☐ ~~Closing~~ X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-9			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			52.5 ~~50.~~ Position of valve from Opening ☐ ~~Closing~~ X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-10			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			25 Position of valve from Opening [x] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-11			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			(50+) Position of valve from Opening [x] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-12			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			25 Position of valve from Opening [x] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-13			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			52.5 Position of valve from Opening x Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-14 (Point No.-17 and Remote Wellhead GW-14 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			67.5 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-16			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			95 % Position of valve from Opening x Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-17			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			25 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-18			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			25 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4/13/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-19			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position			50 Position of valve from Opening [x] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-20			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts			
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present			
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)			_____ Position of valve from Opening [ ] Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage			
GW-21			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)			25 Position of valve from Opening [ ] Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: March 14,2022 Inspector: Katie Jelacic, P.E.

Gas System Component	Acceptable? Yes	No	Comments/Action
VENTING SYSTEM/METHANE MONITORS			
Air venting system blowers operating properly			
422 Estberg Ave.	x		
333, 343, and 345 Coolidge Ave.	NA		343 Demolished, 333 Vacant
810 Scott Ave.	x		
1111 S. West Ave. (Darrel's)	x		
Methane monitors operating properly			
422 Estberg Ave.	x		
810 Scott Ave.			
900 Scott Ave.	NA		Building Demolished in 2011
SECURITY SYSTEM			
Inspect fence for disrepair that could allow access	x		
Inspect lock to ensure that the area is secure	x		
OTHER			

General Comments:

FORM 2

QUARTERLY INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Quarter: 1st, (2nd), 3rd, 4th
(Circle one)

Inspection Date: 6/7/22 **Inspector:** BD/VW

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	X		
Lubrication needed	X		
Flare stack appears in good condition	X		
Flare operating	X		
Flare drain plug operational	X		
Flame arrestor appears in good condition	X		
Control panel status lights □ok□			NO DISPLAY * BLOWER SWITCH IN MANUAL MODE
Electrically actuated valve operating	X		
Record blower operating hours for quarter			NO DISPLAY
Inspect fence for disrepair that could allow access	X		
Inspect lock to ensure that the area is secure	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/9/22 Inspector: BD/VW

KO & Condensate Pump Stations			
Gas System Component	Acceptable? Yes	No	Comments/Action
KO-1, KO Tank			
Inspect for damage to aboveground flange structure and sounding cable	✓		
KO-1, Condensate Pump Station			
Inspect for damage to aboveground flange structure	✓		SEAL IS TORN BUT FUNCTIONAL
2" Ball Valve – inspect for damage, operate valve & return to position	✓		
6" Butterfly Valve – inspect for damage, operate valve & return to position	✓		
Open cover – inspect interior component parts for damage		✓	PIPE AT TOP VALVE LEAKS WHEN PUMP IS RUNNING
Open cover – inspect liquid level, should be below elevation of High Level Alarm switch	✓		
Open cover – operate sump pump using manual override switch on control panel & float switches, listen to ensure operational		✓	HIGH LEVEL FLOAT NON-RESPONSIVE, SHOULD BE REPLACED
KO-1, Control Panel			
Inspect for structural damage	✓		
Inspect for power - test all functions and alarms	✓		

Notes:

✓ WILL REPLACE TOP HIGH LEVEL BULB

✓ NOTIFIED TILLIS OF PIPE & FLOAT

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/9/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
KO-2, KO Tank			
Inspect for damage to aboveground flange structure and sounding cable	X		
KO-2, Condensate Pump Station			
Inspect for damage to aboveground flange structure		X	REPLACE LID SEAL - TORN.
2" Ball Valve – inspect for damage, operate valve & return to position	X		
6" Butterfly Valve – inspect for damage, operate valve & return to position	X		
Open cover – inspect interior component parts for damage	X		
Open cover – inspect liquid level, should be below elevation of High Level Alarm switch	X		
Open cover – operate sump pump using manual override switch on control panel & float switches, listen to ensure operational	X		
KO-2, Control Panel			
Inspect for structural damage	X		
Inspect for power - test all functions and alarms	X		

Notes:

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/7/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
KO-3, KO Tank			
Inspect for damage to aboveground flange structure and sounding cable	X		
KO-3, Condensate Pump Station			
Inspect for damage to aboveground flange structure	X		
2" Ball Valve – inspect for damage, operate valve & return to position	X		
6" Butterfly Valve – inspect for damage, operate valve & return to position	X		
Open cover – inspect interior component parts for damage	X		
Open cover – inspect liquid level, should be below elevation of High Level Alarm switch	X		
Open cover – operate sump pump using manual override switch on control panel & float switches, listen to ensure operational	X		HI ALARM WAS SAME DEPTH AS LOW LEVEL FLOAT - RAISED TO BE HI ALARM - HIGHER THAN HIGH LEVEL.
KO-3, Control Panel			
Inspect for structural damage	X		
Inspect for power - test all functions and alarms	X	☆	HIGH ALARM -TOP BULB NOT LIT.

Notes:

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: _____ Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
Header Control Valves			
Point No. 9 – inspect for damage, operate valve & return to position			
Point No. 18 – inspect for damage, operate valve & return to position			
Point No. 23 – inspect for damage, operate valve & return to position			
Point No. 27 – inspect for damage, operate valve& return to position			
Force Main Clean-out Risers			
High Point, Point No. 21 – inspect for damage to riser			
High Point, Point No. 4, inspect for damage to riser	**NA**	**NA**	**DOES NOT EXIST**
Sanitary Sewer Connection			
Open San MH on corner of Coolidge and Scott Streets – inspect to make sure 6" PVC drop pipe drain is clear			

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: _____ Inspector: BD/VW

System Component	Acceptable? Yes	No	Comments/Action
VENTING SYSTEM/METHANE MONITORS			
Air venting system blowers operating properly			
422 Estberg Ave.			
333, 343, and 345 Coolidge Ave.			
810 Scott Ave.			
1111 S. West Ave. (Darrel's)			
1212 & 1216 Walnut Grove			
Methane monitors operating properly			
422 Estberg Ave.			
810 Scott Ave.			
SECURITY SYSTEM			
OTHER			
General Comments:			

Form 2 Template Corrected2 8-26-16

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/7/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-1			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		48 **Position of valve from Opening** [x] **Closing** □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-2			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		51 **Position of valve from Opening** □ **Closing** [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts		X	ADD BOLTS
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		51 **Position of valve from Opening** [x] **Closing** □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/7/ Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-4 (Point No.-26 and Remote Wellhead GW-4 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		23 Position of valve from Opening ☐ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-5			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		72 Position of valve from Opening ☐ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-6			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		75 Position of valve from Opening ☐ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: _____ Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		23 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-9			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		53 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: _____ Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-10			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-11			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts		X	Damaged Cover
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		70 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-12			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: _____ Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-13			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		52.5 Position of valve from Opening X Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-14 (Point No.-17 and Remote Wellhead GW-14 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X	☆	Remove south bolt head - damaged, won't accept wrench
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		50 Position of valve ~~from Opening □ Closing~~ X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		67 Position of valve ~~from Opening □ Closing~~ X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/7/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-16			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		92.5 Position of valve from Opening [X] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-17			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		~~24~~ 20.4 25 Position of valve from ~~Opening~~ [ ] Closing [X]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-18			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening [ ] Closing [X]
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 6/7/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-19			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		50 Position of valve ~~from Opening~~ X ~~Closing~~ □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-20			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)	X		23 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage			
GW-21			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)	X		26 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage		X	THERMO. PORT UNDER CHIMNEY, CAN'T FIT THERMOMETER INTO PORT.

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: June 13, 2022 Inspector: Katie Jelacic, P.E.

Gas System Component	Acceptable? Yes	No	Comments/Action
VENTING SYSTEM/METHANE MONITORS			
Air venting system blowers operating properly	x		
422 Estberg Ave.	x		
333, 343, and 345 Coolidge Ave.	NA		343 Demolished, 333 Vacant
810 Scott Ave.	x		
1111 S. West Ave. (Darrel's)	x		
Methane monitors operating properly			
422 Estberg Ave.	x		
810 Scott Ave.	x		
900 Scott Ave.	NA		Building Demolished in 2011
SECURITY SYSTEM			
Inspect fence for disrepair that could allow access	x		
Inspect lock to ensure that the area is secure	x		
OTHER			

General Comments:

FORM 2

QUARTERLY INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Quarter: 1st, 2nd, 3rd, 4th
(Circle one)

Inspection Date: 9-6-22 **Inspector:** BD/~~VW~~NH

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing			~~Display is off~~ N/A
Lubrication needed			N/A
Flare stack appears in good condition	X		
Flare operating			NO
Flare drain plug operational	X		
Flame arrestor appears in good condition	X		
Control panel status lights □ok□			No display
Electrically actuated valve operating	X		
Record blower operating hours for quarter			No display
Inspect fence for disrepair that could allow access	X		
Inspect lock to ensure that the area is secure	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 9/6/22 Inspector: BD/~~AA~~NH

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-1			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		43 **Position of valve from Opening x Closing□**
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-2			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		50 **Position of valve from Opening □ Closing x**
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts		X	
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		50 **Position of valve from Opening x Closing□**
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 9/6/22 Inspector: BD/~~NW~~ NH

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-4 (Point No.-26 and Remote Wellhead GW-4 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening ☐ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-5			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		72 Position of valve from Opening ☐ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-6			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		75 Position of valve from Opening ☐ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 9-6-22 Inspector: BD/~~NW~~ NH

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-7			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		22.5 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-9			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		53 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 9-6-22 Inspector: BD/~~AW~~ NH

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-10			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		22 Position of valve from ~~Opening~~ X ~~Closing~~ ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-11			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		May need a new cover / some edges sticking up
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		71 ~~Position of valve from Opening~~ X ~~Closing~~ ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-12			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		23 ~~Position of valve from Opening~~ X ~~Closing~~ ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 9-6-22 Inspector: BD/~~VW~~ NH

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-13			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		52 Position of valve from Opening x Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-14 (Point No.-17 and Remote Wellhead GW-14 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		50 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		70 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 4-6-22 Inspector: BD/NH

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-16			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X	N/A	93 ~~Position of valve from Opening x Closing~~
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-17			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		26 ~~Position of valve from Opening~~ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-18			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		25 Position of valve from Opening Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 9-6-22 Inspector: BD/~~NW~~ NJF

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-19			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		50 Position of valve from Opening x Closing ~~Closing~~
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-20			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)	X		23 Position of valve from Opening ~~Closing~~ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-21			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)	X		26 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: September 20,2022 Inspector: Katie Jelacic

Gas System Component	Acceptable? Yes	No	Comments/Action
VENTING SYSTEM/METHANE MONITORS			
Air venting system blowers operating properly			
422 Estberg Ave.	x		
333, 343, and 345 Coolidge Ave.	NA		343 Demolished, 333 Vacant
810 Scott Ave.	x		
1111 S. West Ave. (Darrel's)	x		
Methane monitors operating properly			
422 Estberg Ave.	x		
810 Scott Ave.	x		
900 Scott Ave.	NA		Building Demolished in 2011
SECURITY SYSTEM			
Inspect fence for disrepair that could allow access	x		
Inspect lock to ensure that the area is secure	x		
OTHER			
General Comments:			

FORM 2

QUARTERLY INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Quarter: 1st, 2nd, 3rd, (4th)
(Circle one)

Inspection Date: 12/5/22 **Inspector:** BD/VW

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	X		
Lubrication needed	X		
Flare stack appears in good condition	X		
Flare operating	X		(NOT OP.)
Flare drain plug operational	X		
Flame arrestor appears in good condition	X		
Control panel status lights □ok□		X	NOT DISPLAYING.
Electrically actuated valve operating			N/A
Record blower operating hours for quarter		X	NOT DISPLAYING.
Inspect fence for disrepair that could allow access	X		
Inspect lock to ensure that the area is secure	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-1			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 45
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-2			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 50
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 50
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-4 (Point No.-26 and Remote Wellhead GW-4 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-5			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 72
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-6			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 75
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 23
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-9			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 53
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-10			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-11			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 70
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-12			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-13			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 52
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-14 (Point No.-17 and Remote Wellhead GW-14 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 50
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 70 ~~45~~ NO ADJUSTMENT TODAY. BP VERIFY
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-16			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 95
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-17			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 20
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-18			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)
QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: 12/6/22 Inspector: BD/VW

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-19			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position	X		**Opening** ~~95~~ 47
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-20			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		
GW-21			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		
Open cover – inspect interior component parts for damage – listen for air leaks, pump out water if present	X		
Open cover - 4" Butterfly Valve – operate valve & return to position (7 notches total)	X		**Opening** 25
Open cover – inspect thermometer & gas sample tubing/ports for damage	X		

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: December 12 2022 Inspector: Katie Jelacic

Gas System Component	Acceptable? Yes	No	Comments/Action
VENTING SYSTEM/METHANE MONITORS			
Air venting system blowers operating properly	x		
422 Estberg Ave.	x		
333, 343, and 345 Coolidge Ave.	NA		343 Demolished, 333 Vacant
810 Scott Ave.	x		
1111 S. West Ave. (Darrel's)	x		
Methane monitors operating properly			
422 Estberg Ave.	x		
810 Scott Ave.	x		
900 Scott Ave.	NA		Building Demolished in 2011
SECURITY SYSTEM			
Inspect fence for disrepair that could allow access	x		
Inspect lock to ensure that the area is secure	x		
OTHER			

General Comments:

Water Elevations for City of Waukesha West Ave. Landfill

Rev. 10-21-20

FID Number 268145680

Date Elevations Measured: 4/19/22 Weather Conditions: 30° WINDY. (RAINED YESTERDAY)

Measured By: BD / VW ~~BW~~

FIELD SHEET ONLY

Well No.	Date	Time	Elevation of Top of Pipe	Depth to Water	Water Elevation	Measured Depth to Bottom (September)	Historical Depth to Bottom	Well Integrity: Locked	Capped	Obstruct	Comments
MW-9R	4/19/22	7:53	845.31	~~36.60~~ 32.60	NA		36.40	ok	ok	none	
MW-9B		7:55	844.39	24.15	NA		64.37	ok	ok	none	
MW-15		8:58	845.63	22.80	NA		26.61	ok	ok	none	
MW-15B		8:59	845.50	19.15	NA		84.43	ok	ok	none	
MW-7		9:37	858.95	8.45	NA		17.41	ok	ok	none	
MW-7B		9:40	859.06	10.35	NA		37.61	ok	ok	none	
MW-10		9:59	854.00	32.61	NA		40.62	ok	ok	none	
MW-10B		9:59	853.89	31.90	NA		64.50	ok	ok	none	
MW-16		10:24	851.88	32.70	NA		33.63	ok	ok	none	
MW-16B		10:25	851.84	43.50	NA		49.52	ok	ok	none	
MW-16D		10:26	851.87	49.60	NA		140.13	ok	ok	none	
MW-11		10:39	851.16		NA		41.72	ok	ok	none	- 37.05 BLOCKED. DRY
MW-11B		10:42	851.09	42.16	NA		74.63	ok	ok	none	
MW-12		11:20	848.50	37.70	NA		44.84	ok	ok	none	
MW-12B		11:22	848.48	39.45	NA		93.82	ok	ok	none	
MW-17		11:28	847.05	39.30	NA		44.75	ok	ok	none	
MW-17B		11:29	847.18	40.43	NA		97.88	ok	ok	none	
MW-17D		11:30	847.26	35.41	NA		148.62	ok	ok	none	
MW-14		11:36	846.60	35.00	NA		40.74	ok	ok	none	
MW-14B		11:39	846.58	33.60	NA		75.52	ok	ok	none	
13B MW-13~~B~~/B		11:49	847.75	36.10	NA		84.56	ok	ok	none	
13D ~~MW-13D~~	11:54	11:—	847.50	35.53	NA		134.63	ok	ok	none	
MW-8B		13:14	849.16	35.78	NA		62.32	ok	ok	none	
MW-8		13:16	849.48	36.90	NA		38.83	ok	ok	none	
MW-3		15:11	851.66	38.68	NA		49.87	ok	ok	none	
MW-3D		15:13	851.64	23.0	NA		148.01	ok	ok	none	
MW-3B		15:15	852.20	39.35	NA		74.11	ok	ok	none	
MW-4BR		15:38	852.14	39.20	NA		54.50	ok	ok	none	

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/KW Weather: Cold, 36

Well No.	MW-9R	Parameter Stabilization Readings every 2 minutes						
DNR No.	035	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	32.53	0907		7.0	~~-14~~ 8.8	~~-18~~ 8.8	18.0	14.0
Date Sampled	4-18-22	0909	32.62	6.9	-14.0	8.8	17.0	13.0
Purge Start Time	0906	0911		6.9	-14.1	8.7	17.0	12.0
Purge Stop Time	0916	0913	32.70	6.9	-14.0	8.7	18.0	11.0
Volume Purged (gal)	5.50	0915		6.9	-14.0	8.6	18.0	10.8
Sample Removal Time	0917							
Duplicate Sample Time								
Sample Readings		0917	32.75	6.9	-14.0	8.6	18.0*	10.1

Color: Clear Odor: None Turbidity: None

Comments, Well Condition: ok * Calibration for conductivity off

Well No.	MW-9B	Parameter Stabilization Readings every 2 minutes						
DNR No.	039	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	24.00	0942		9.6	-275	4.7	2.00	8.6
Date Sampled	4-18-22	0944						
Purge Start Time	~~0941~~ 1228	1230		8.1	-5	1.8	1149	11.9
Purge Stop Time	12.42	1232	26.45	8.0	-10	2.7	862	11.7
Volume Purged (gal)	2.00	1234		8.0	-10	2.8	834	11.7
Sample Removal Time	1242	1236	27.00	8.2	-9	2.7	918	11.7
Duplicate Sample Time		1238		8.2	-8	2.7	970	11.8
		1240	28.82	8.2	-8	2.6	976	12.0
Sample Readings	1247		28.98	8.2	-8	2.6	980	12.1

Color: Cloudy Odor: None Turbidity: Yes

Comments, Well Condition: ok

Well No.	MW-10	Parameter Stabilization Readings every 2 minutes						
DNR No.	041	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	32.45	1324		7.7	-7	10.4	1952	12.2
Date Sampled	4-18-22	1326		7.2	-8	5.2	1958	12.1
Purge Start Time	1323	1238	32.60	7.2	-8	5.4	1972	12.0
Purge Stop Time	1342	1240	3	7.1	-9	5.3	~~1976~~ 1976	12.1
Volume Purged (gal)	~~1343~~ 2.50							
Sample Removal Time	1243							
Duplicate Sample Time								
Sample Readings	1242		32.62	7.1	-8	5.4	1980	12.3

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: ok

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BJ / VW Weather: Cold, 36°F

Well No.	MW-10B	Parameter Stabilization Readings every 2 minutes						
DNR No.	043	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	30.61	1411		7.1	-19	1.0	1126	10.4
Date Sampled	4-18-22	1414		7.1	-20	1.0	1072	10.6
Purge Start Time	1410	1415	32.68	7.1	-22	1.0	775	10.7
Purge Stop Time	1423	1417		7.1	-20	1.0	780	11.0
Volume Purged (gal)	1.30	1419	32.72	7.1	-19	1.0	795	11.2
Sample Removal Time	1424	1421		7.1	-18	1.0	800	11.2
Duplicate Sample Time								
Sample Readings	1423		32.75	7.1	-17	1.0	805	11.0

Color: clear Odor: None Turbidity: None

Comments, Well Condition: ok

Well No.	MW-16B	Parameter Stabilization Readings every 2 minutes						
DNR No.	072	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled								
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								

Color: Odor: Turbidity:

Comments, Well Condition:

Well No.	MW-11B	Parameter Stabilization Readings every 2 minutes						
DNR No.	047	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled								
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								

Color: Odor: Turbidity:

Comments, Well Condition:

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BV / VW Weather: Cold, 36°F

Well No.	MW-10B	Parameter Stabilization Readings every 2 minutes						
DNR No.	043	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	30.61	1411		7.1	-19	1.0	1126	10.4
Date Sampled	4-18-22	~~1414~~ 1413		7.1	-20	1.0	1072	10.6
Purge Start Time	1410	1415	32.68	7.1	-22	1.0	775	10.7
Purge Stop Time	1423	1417		7.1	-20	1.0	780	11.0
Volume Purged (gal)	1.30	1419	32.72	7.1	-19	1.0	795	11.2
Sample Removal Time	1424	1421		7.1	-18	1.0	800	11.2
Duplicate Sample Time								
		Sent on		4/18/22				
Sample Readings	1423		32.75	7.1	-17	1.0	805	11.0
Color: Clear	Odor: None				Turbidity: None			
Comments, Well Condition: OK								

Well No.	MW-16B	Parameter Stabilization Readings every 2 minutes						
DNR No.	072	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	43.55	0815		7.3	-5	5.8	1491	12.1
Date Sampled	4-19-22	0817		6.9	-6	5.3	1498	12.3
Purge Start Time	0814	0819	43.60	7.0	-7	5.3	1497	12.8
Purge Stop Time	0825	0821		7.1	-9	5.6	1493	13.0
Volume Purged (gal)	2.50	0823	43.62	7.2	-9	5.6	1493	12.9
Sample Removal Time	0827							
Duplicate Sample Time	0830							
Sample Readings	0825		43.63	7.2	-9	5.6	1492	12.9
Color: Clear	Odor: None				Turbidity: None			
Comments, Well Condition: OK								

Well No.	MW-11B	Parameter Stabilization Readings every 2 minutes						
DNR No.	047	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	~~0920~~ 42.61	0921		7.5	-11	5.9	1072	11.0
Date Sampled	4-19-22	0923		7.2	-9	2.1	1571	10.7
Purge Start Time	0920	0925	45.00	7.2	-9	1.6	1579	12.4
Purge Stop Time	0929	0927		7.2	-9	1.5	1575	12.2
Volume Purged (gal)	1.00							
Sample Removal Time	0930							
Duplicate Sample Time								
Sample Readings	0929		47.80	7.2	-9	1.5	1512	12.3
Color: Clear	Odor: None				Turbidity: None			
Comments, Well Condition: OK								

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: 4-19-22 Weather: Cold, 37°F

Well No.	MW-12	Parameter Stabilization Readings every 2 minutes						
DNR No.	049	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	39.44	1131		7.0	-11	1.7	1957	14.4
Date Sampled	4-19-22	1132		7.0	-11	0.9	2000	14.1
Purge Start Time	1130	1134	40.50	7.1	-11	0.8	2002	14.2
Purge Stop Time	1136							
Volume Purged (gal)	2.50							
Sample Removal Time	1455							
Duplicate Sample Time								
Sample Readings		1136	41.61	7.0	-13	1.0	2009	14.5

Color: very Brown/Rust Odor: none Turbidity: very Turbid

Comments, Well Condition:

Well No.	MW-12B	Parameter Stabilization Readings every 2 minutes						
DNR No.	051	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	37.65	1437		7.1	-15	1.9	1421	13.5
Date Sampled	4-19-22	1439		7.0	-15	1.1	1526	13.6
Purge Start Time	1436	1441	38.80	6.9	-14	0.4	1685	13.0
Purge Stop Time	1447	1443		6.9	-13	0.5	1706	13.0
Volume Purged (gal)	1.00	1445		6.9	-12	0.6	1710	13.0
Sample Removal Time	1448							
Duplicate Sample Time								
Sample Readings		1447	39.10	6.9	-12	0.6	1714	13.0

Color: clear Odor: none Turbidity: none

Comments, Well Condition: ~~1447~~ OK

Well No.	MW-17	Parameter Stabilization Readings every 2 minutes						
DNR No.	076	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled	~~4-19-22~~							
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								

Color: Odor: Turbidity:

Comments, Well Condition:

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: _____ Weather: _____

Well No.	MW-12	Parameter Stabilization Readings every 2 minutes						
DNR No.	049	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled								
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								
Color:		Odor:				Turbidity:		
Comments, Well Condition:								

Well No.	MW-12B	Parameter Stabilization Readings every 2 minutes						
DNR No.	051	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled								
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								
Color:		Odor:				Turbidity:		
Comments, Well Condition:								

Sent on 4/19/22

Well No.	MW-17	Parameter Stabilization Readings every 2 minutes						
DNR No.	076	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	39.25	0751		6.5	-1	0.1	1885	12.3
Date Sampled	4-20-22	0753		6.6	-4	0.0	1884	12.4
Purge Start Time	0750	0755	39.50	6.7	-5	0.0	1881	12.7
Purge Stop Time	0757			~~6.7~~				~~12.7~~
Volume Purged (gal)	1.30							
Sample Removal Time	0758							
Duplicate Sample Time								
Sample Readings		0757	39.52	6.7	-6	0.0	1878	12.7
Color:	clear	Odor:		none		Turbidity:	none	
Comments, Well Condition:	OK						Weather is 40F°	

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/VW Weather: 40°F

Well No.	MW-17B	Parameter Stabilization Readings every 2 minutes						
DNR No.	078	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	40.35	0811		6.9	-16	1.8	1609	11.8
Date Sampled	4-20-22	0813		6.9	-23	0.3	1627	11.7
Purge Start Time	0810	0815	41.30	6.8	-30	0.2	1640	11.8
Purge Stop Time	0819	0817		6.8	-24	0.3	1642	11.9
Volume Purged (gal)	1.20							
Sample Removal Time	0820							
Duplicate Sample Time								
Sample Readings	0819		41.40	6.8	-25	0.3	1645	12.0

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-17D	Parameter Stabilization Readings every 2 minutes						
DNR No.	080	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	35.22	1041		7.0	-12	1.2	1717	12.0
Date Sampled	4-20-22	1043		7.0	-13	0.0	1716	12.0
Purge Start Time	10:40	1045	35.80	6.9	-12	0.0	1716	11.9
Purge Stop Time	1047							
Volume Purged (gal)	1.30							
Sample Removal Time	1048							
Duplicate Sample Time								
Sample Readings	1047		35.85	6.9	-12	0.0	1718	11.9

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-14	Parameter Stabilization Readings every 2 minutes						
DNR No.	057	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	35.00	1122		7.0	-13	0.6	1856	11.7
Date Sampled	4-20-22	1124	35.00	7.0	-13	0.2	1908	11.7
Purge Start Time	1121	1126		7.0	-12	0.0	1935	11.9
Purge Stop Time	1128			7.0	-12	0.0	1931	11.8
Volume Purged (gal)	1.00							
Sample Removal Time	1129							
Duplicate Sample Time								
Sample Readings	1128		35.05	7.0	-12	0.0	1832	11.8

Color: Clear Odor: Strong Sulfur Turbidity: Slight

Comments, Well Condition: OK

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/VW Weather: 45° F

Well No.	MW-14B	Parameter Stabilization Readings every 2 minutes						
DNR No.	059	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	33.60	1145		6.7	-12	0.4	1982	11.7
Date Sampled	4.20.22	1147	33.70	6.8	-13	0.1	2017	11.7
Purge Start Time	1144	1149		6.8	-13	0.1	2020	11.7
Purge Stop Time	1151							
Volume Purged (gal)	1.0							
Sample Removal Time	1152							
Duplicate Sample Time								
Sample Readings	1151		33.75	6.8	-14	0.1	2022	11.7
Color: clear	Odor: Strong Sulfur				Turbidity: Slight			
Comments, Well Condition: OK								

Well No.	MW-13B	Parameter Stabilization Readings every 2 minutes						
DNR No.	055	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft) 35.96	35.91	1408		7.2	-15	1.0	1972	13.5
Date Sampled 4.20.22	4.20.22	1410		7.0	-14	0.3	1972	13.4
Purge Start Time 1407	4/20/22	1412	35.98	6.9	-14	0.0	1971	13.0
Purge Stop Time	1416	1414		6.8	-13	0.0	1980	13.0
Volume Purged (gal)	1418 1.00							
Sample Removal Time	1418							
Duplicate Sample Time								
Sample Readings	1416		36.00	6.9	-13	0.0	1981	13.0
Color: Clear @ 60'	Odor: Light				Turbidity: None @ 60'			
Comments, Well Condition: Water was full sand @ 80'. Reworked pump. Sampled @ 60'								

Well No.	MW-13D	Parameter Stabilization Readings every 2 minutes						
DNR No.	068	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	35.31	1431		7.2	-12	0.8	1470	12.6
Date Sampled	4.20.22	1433		7.1	-11	0.4	1477	12.4
Purge Start Time	1430	1435	35.40	7.1	-11	0.0	1479	12.2
Purge Stop Time	1439	1437		7.1	-12	0.1	1485	12.7
Volume Purged (gal)	1.30							
Sample Removal Time	1442							
Duplicate Sample Time								
Sample Readings	1439		35.45	7.1	-12	0.1	1487	12.7
Color: clear	Odor: none				Turbidity: clear			
Comments, Well Condition: ok								

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BO/VW Weather: 45°F

Well No.	MW-8B	Parameter Stabilization Readings every 2 minutes						
DNR No.	032	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	35.49	0748		6.8	-4	1.86	3127	14.0
Date Sampled	4-21-22	0750		6.8	-5	1.6	3130	14.1
Purge Start Time	0747	0752	36.51	6.7	-5	1.7	3141	13.5
Purge Stop Time	0806	0754		6.7	-6	1.7	3120	13.5
Volume Purged (gal)	2.20	0756	36.85	6.7	-6	1.7	2950	13.6
Sample Removal Time	0807	0758		6.7	-8	1.6	2600	13.9
Duplicate Sample Time		0800	36.85	6.7	-9	1.6	2400	13.9
		0802		6.8	-10	1.6	2310	13.8
		0804	36.90	6.7	-11	1.6	2308	13.8
Sample Readings		0806	36.90	6.7	-11	1.6	2315	13.7

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-8	Parameter Stabilization Readings every 2 minutes						
DNR No.	031	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	36.80							
Date Sampled	4-21-22							
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								

Roots and algae growth inside blocked pumping. Verified with camera.

Color: Odor: Turbidity:

Comments, Well Condition: Needs

Well No.	MW-3	Parameter Stabilization Readings every 2 minutes						
DNR No.	003	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	38.60	0937		7.6	-18	3.6	1896	15.5
Date Sampled	4-21-22	0939		7.3	-21	1.6	1915	16.0
Purge Start Time	0936	0941		6.8	-22	1.5	1924	15.8
Purge Stop Time	0946	0943	38.80	6.8	-13	1.5	1925	16.3
Volume Purged (gal)	1.40							
Sample Removal Time	0947							
Duplicate Sample Time								
Sample Readings		0945	38.82	6.8	-22	1.5	1927	16.4

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: OK

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/VW Weather: 52°F

Well No.	MW-3D	Parameter Stabilization Readings every 2 minutes						
DNR No.	066	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	22.70	1005		7.3	-12	3.5	935	15.7
Date Sampled	4-21-22	1007		7.1	-14	2.2	981	~~15.0~~ 15.0
Purge Start Time	1004	1009	23.90	7.0	-13	1.6	983	14.8
Purge Stop Time	1013	1011		7.0	-12	1.5	984	14.8
Volume Purged (gal)	2.50							
Sample Removal Time	1014							
Duplicate Sample Time								
Sample Readings		1013	24.12	7.0	-12	1.5	987	14.8

Color: clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-3B	Parameter Stabilization Readings every 2 minutes						
DNR No.	005	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	39.22	~~0835~~ 1035		7.0	-16	2.0	1726	15.2
Date Sampled	4-21-22	1037	39.58	6.9	-17	1.6	1758	15.0
Purge Start Time	~~0~~ 1034	1039		6.9	-17	1.6	1749	14.8
Purge Stop Time	1043	1041		6.9	-16	1.6	1747	14.8
Volume Purged (gal)	~~0~~ 1.00							
Sample Removal Time	1044							
Duplicate Sample Time								
Sample Readings	1043		39.72	6.9	-13	1.7	1755	~~15.~~ 14.7

Color: clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-4BR	Parameter Stabilization Readings every 2 minutes						
DNR No.	064	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	38.84	1126		6.6	-14	1.8	2178	14.7
Date Sampled	4-21-22	1128		6.7	-14	1.6	2167	14.8
Purge Start Time	1125	1130	38.90	6.8	-14	1.6	2147	14.6
Purge Stop Time	1134	1132		6.8	-14	1.6	2139	14.8
Volume Purged (gal)	1.20							
Sample Removal Time	1135							
Duplicate Sample Time								
Sample Readings		1134						

Color: clear Odor: Gasoline Turbidity: none

Comments, Well Condition:

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD | VW

Weather: Windy, 64°F

Field Blank	
Date Sampled	4-21-22
Sample Time	1430

Sampling Order: 9R, 9B, 10, 10B, 16B, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR
Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C
Purge at <1 Liter per minute. Sample at <300 mL/min.
Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Water Elevations for City of Waukesha West Ave. Landfill

Rev. 10-21-20

FID Number 268145680

Date Elevations Measured: 9/7/22 Weather Conditions: Sunny

Measured By: BD/NH

FIELD SHEET ONLY

Well No.	Date	Time	Elevation of Top of Pipe	Depth to Water	Water Elevation	Measured Depth to Bottom (September)	Historical Depth to Bottom	Well Integrity: Locked	Capped	Obstruct	Comments
MW-9R	9/7/22	9:46	845.31	30.70	NA	37.10	36.40	ok	ok	none	
MW-9B		9:51	844.39	23.00	NA	66.10	64.37	ok	ok	none	
MW-15		9:58	845.63	21.10	NA	27.25	26.61	ok	ok	none	
MW-15B		10:02	845.50	18.32	NA	84.31	84.43	ok	ok	none	
MW-7		10:19	858.95	8.91	NA	17.43	17.41	ok	ok	none	1209 N. Grand Ave
MW-7B		10:21	859.06	11.05	NA	37.80	37.61	ok	ok	none	
MW-10		10:34	854.00	29.05	NA	40.50	40.62	ok	ok	none	
MW-10B		10:38	853.89	26.96	NA	64.10	64.50	ok	ok	none	
MW-16		10:58	851.88	30.20	NA	32.25	33.63	ok	ok	none	
MW-16B		11:04	851.84	41.95	NA	50.30	49.52	ok	ok	none	
MW-16D		11:08	851.87	40.08	NA	141.76	140.13	ok	ok	none	
MW-11		11:23	851.16	—	NA	37.35	41.72	ok	ok	none	water not detected
MW-11B		11:27	851.09	40.45	NA	75.40	74.63	ok	ok	none	
MW-12		11:40	848.50	37.91	NA	45.20	44.84	ok	ok	none	
MW-12B		11:45	848.48	35.94	NA	94.25	93.82	ok	ok	none	
MW-17		13:34	847.05	37.80	NA	45.00	44.75	ok	ok	none	
MW-17B		13:39	847.18	39.20	NA	97.35	97.88	ok	ok	none	
MW-17D		13:41	847.26	33.60	NA	148.90	148.62	ok	ok	none	
MW-14		13:52	846.60	33.15	NA	[illegible] 41.45	40.74	ok	ok	none	
MW-14B		13:54	846.58	31.65	NA	76.80	75.52	ok	ok	none	
MW-13B		14:04	847.75	34.15	NA	83.52	84.56	ok	ok	none	
MW-13D		14:06	847.50	33.81	NA	135.82	134.63	ok	ok	none	
MW-8B		14:15	849.16	33.72	NA	61.60	62.32	ok	ok	none	
MW-8		14:16	849.48	34.80	NA	39.00	38.83	ok	ok	none	
MW-3		14:29	851.66	46.93	NA	49.56	49.87	ok	ok	none	
MW-3D		14:32	851.64	21.30	NA	149.15	148.01	ok	ok	none	
MW-3B		14:36	852.20	37.32	NA	75.38	74.11	ok	ok	none	
MW-4BR	↓	14:45	852.14	37.40	NA	53.70	54.50	ok	ok	none	

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: RD / NH Weather: Sunny, 70°F

Well No.	MW-9R	Parameter Stabilization Readings every 2 minutes						
DNR No.	035	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	29.75	0951		6.8	30.7	1.9	1423	15.4
Date Sampled	9.8.22	0953		6.8	31	2.1	1378	14.9
Purge Start Time	0950	0955		6.8	33	2.4	1330	14.6
Purge Stop Time	1001	0957	30.80	6.8	35	2.6	1275	14.6
Volume Purged (gal)	2.5	0959		6.8	25	2.7	1271	14.8
Sample Removal Time	1002	1001						
Duplicate Sample Time								
Sample Readings	1001			6.8	35	2.8	1268	14.6
Color: Clear	Odor: None					Turbidity: None		
Comments, Well Condition: OK								

Well No.	MW-9B	Parameter Stabilization Readings every 2 minutes						
DNR No.	039	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	22.90	1043		8.4	11	2.8	11690	15.4
Date Sampled	9-8-22	1045	23.00	7.3	11	2.1	1329	15.8
Purge Start Time	1042	1047		7.3	13	2.1	1075	15.2
Purge Stop Time	1051	1049	25.67	7.4	12	2.0	1070	14.9
Volume Purged (gal)	1.75	105						
Sample Removal Time	1053							
Duplicate Sample Time								
Sample Readings	1051		26.26	7.4	13	2.0	1068	14.6
Color: Dark	Odor: None					Turbidity: Turbid		
Comments, Well Condition: OK								

Well No.	MW-15	Parameter Stabilization Readings every 2 minutes						
DNR No.	061	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	21.22	1133		9.0	21	4.3	1820	18.5
Date Sampled	9.8.22	1135		7.8	22	4.2	1820	18.0
Purge Start Time	1132	1137	21.90	7.6	22	4.1	1815	18.0
Purge Stop Time	1143	1139		7.4	23	3.3	1775	17.8
Volume Purged (gal)	1.25	1141		7.4	23	3.2	1768	17.8
Sample Removal Time	1144							
Duplicate Sample Time								
Sample Readings	1143		22.0					
Color: Clear	Odor: None					Turbidity: None		
Comments, Well Condition: OK								

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR
Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C
Purge at <1 Liter per minute. Sample at <300 mL/min.
Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BO / NH Weather: Sunny, 82°F

Well No.	MW-7	Parameter Stabilization Readings every 2 minutes						
DNR No.	029	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	9.65	1331		7.6	33.4	2.3	1227	19.6
Date Sampled	9-8-22	1333		7.5	34	7.3	1216	19.4
Purge Start Time	1330	1335	11.88	7.3	36	7.1	1183	19.0
Purge Stop Time	1343	1337		7.3	36	7.3	1190	19.0
Volume Purged (gal)	1.0	1339	12.25	7.2	37	7.1	1205	19.0
Sample Removal Time	1345	1341		7.2	38	7.2	1210	18.9
Duplicate Sample Time		1343						
Sample Readings		1343	12.76	7.2	38	7.2	1215	18.8

Color: clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-7B	Parameter Stabilization Readings every 2 minutes						
DNR No.	030	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	11.60	1403		7.3	40	2.4	1314	15.8
Date Sampled	9-8-22	1404	11.70	7.2	35	2.2	1316	15.7
Purge Start Time	1401	1406		7.2	39	2.1	1326	15.4
Purge Stop Time	1410	1408		7.2	40	2.10	1320	15.2
Volume Purged (gal)	2.00							
Sample Removal Time	1411							
Duplicate Sample Time	1412							
Sample Readings	1410		11.90	7.2	40	2.0	1317	15.2

Color: clear Odor: none Turbidity: none

Comments, Well Condition: OK

Well No.	MW-10	Parameter Stabilization Readings every 2 minutes						
DNR No.	041	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	30.20	0844		7.4	56	6.5	1819	12.9
Date Sampled	9-12-22	0846		7.1	58	6.9	1824	12.9
Purge Start Time	0843	0848	30.22	7.1	53	6.9	1811	13.0
Purge Stop Time	0852	0850	"	7.1	53	7.0	1811	13.0
Volume Purged (gal)	2.5							
Sample Removal Time	0854							
Duplicate Sample Time								
Sample Readings	0852		30.23	7.1	53	7.0	1812	13.0

Color: Brown Odor: none Turbidity: @ slight

Comments, Well Condition:

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/VW Weather: 55°F, Light Rain

Well No.	MW-10B	Parameter Stabilization Readings every 2 minutes						
DNR No.	043	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	26.90	0908		7.9	-13	4.1	500	14.2
Date Sampled	9-12-22	0910		7.0	-150	1.9	1460	13.1
Purge Start Time	0907	0912	29.30	7.0	-152	1.8	1420	13.0
Purge Stop Time	0925	0914		7.0	-142	1.8	1439	13.1
Volume Purged (gal)	2.80	0916	29.70	7.0	-138	1.7	1477	13.2
Sample Removal Time	0927	0918		7.1	-133	1.7	1533	13.3
Duplicate Sample Time		0920		7.1	-119	1.7	1535	13.3
Sample Readings	0923		30.00	7.1	-108	1.7	1540	15.3

Color: clear Odor: none Turbidity: none

Comments, Well Condition: Pipe has to be Cut to fit new cap & Re-surveyed

Well No.	MW-16	Parameter Stabilization Readings every 2 minutes						
DNR No.	070	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	30.10	1011		7.1	50	8.6	1000	15.9
Date Sampled	9-14-22	1013	30.50	7.1	50	8.6	996	15.5
Purge Start Time	1010	1015		7.1	49	8.4	1010	15.5
Purge Stop Time	1018							
Volume Purged (gal)	0.75							
Sample Removal Time	1020							
Duplicate Sample Time								
Sample Readings	1017		30.80	7.1	49	8.4	1006	15.0

Color: Muddy Odor: none Turbidity: Very Turbid

Comments, Well Condition: OK

Well No.	MW-16B	Parameter Stabilization Readings every 2 minutes						
DNR No.	072	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	41.42	~~1057~~ 0957		7.3	51	7.7	1709	14.1
Date Sampled	9-14-22	BD 0953 1053		7.2	54	7.4	1711	14.5
Purge Start Time	0950 1050	BD 0955	41.62	7.2	53	6.9	1713	14.6
Purge Stop Time	1400	BD 0957 1057		7.2	53	6.9	1710	14.8
Volume Purged (gal)	1.52	BD 0959 1059 BD		7.2				
Sample Removal Time	1402							
Duplicate Sample Time								
Sample Readings	~~1059~~ 0959 BD		41.73	7.2	53	6.8	1715	14.6

Color: clear Odor: none Turbidity: slight

Comments, Well Condition: OK

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BO | NH Weather: Clear 66°F

Well No.	MW-16D	Parameter Stabilization Readings every 2 minutes						
DNR No.	074	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	38.81	1128		7.5	-162	2.3	1186	16.5
Date Sampled	9-14-22	1130		7.4	-103	1.8	1168	15.0
Purge Start Time	1127	1132	41.00	7.4	-87	1.7	1164	14.9
Purge Stop Time	1136							
Volume Purged (gal)	1.00							
Sample Removal Time	1138							
Duplicate Sample Time								
Sample Readings	1134		41.80	7.4	-86	1.8	1164	14.3
Color: Clear	Odor: none				Turbidity: none			
Comments, Well Condition: OK	16D cap for pipe is 17/8", bolt be retrieved.							

Well No.	MW-11	Parameter Stabilization Readings every 2 minutes						
DNR No.	045	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled								
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								
Color:	Odor:				Turbidity:			
Comments, Well Condition:								

No Water

Well No.	MW-11B	Parameter Stabilization Readings every 2 minutes						
DNR No.	047	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	38.81	1028	~~38.79~~	7.9	37.4	1.8	1451	14.3
Date Sampled	9-16-22	1030	~~38.78~~	7.8	37.0	1.3	1386	14.4
Purge Start Time	10:27	1033	47.32	7.8	36.8	2.4	1278	14.6
Purge Stop Time	1047	~~1035~~		7.8	36.9	3.2	1208	15.1
Volume Purged (gal)	2.90	1037	48.55	7.8	37.4	4.0	1166	15.4
Sample Removal Time	1048	1039		7.9	37.7	4.4	1147	15.9
Duplicate Sample Time		1041	50.0	7.9	37.4	5.2	1120	14.9
		1043		7.9	36.6	5.8	1010	15.5
		1045	54.51	7.9	36.8	5.3	1010	15.5
Sample Readings	1047		55.60	7.9	36.9	5.4	1006	15.4
Color: Clear	Odor: none				Turbidity: none			
Comments, Well Condition:	OK							

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR
Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C
Purge at <1 Liter per minute. Sample at <300 mL/min.
Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/~~KW~~NH Weather: Sunny 72°F

Well No.	MW-12	Parameter Stabilization Readings every 2 minutes						
DNR No.	049	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	37.82	1330		7.2	40	4.3	1887	15.8
Date Sampled	9.14.22	1332		7.1	40	2.8	1925	15.1
Purge Start Time	1329	1335		7.1	38	3.0	1922	15.1
Purge Stop Time	1339	1337	37.9	7.1	38	3.0	1921	15.1
Volume Purged (gal)	1.40							
Sample Removal Time	1340							
Duplicate Sample Time								
Sample Readings	1339		37.92	7.1	38	3.1	1922	15.2
Color: Slight orange	Odor: none				Turbidity: Slight			
Comments, Well Condition: OK								

Well No.	MW-12B	Parameter Stabilization Readings every 2 minutes						
DNR No.	051	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	~~37.42~~ 37.61	1352		7.8	32	5.4	1135	16.9
Date Sampled	9-14-22	1354		7.1	-31	1.9	1671	15.3
Purge Start Time	1351	1356		7.1	-36	1.9	1921	14.5
Purge Stop Time	1400	1358	38.00	7.1	-29	1.8	1726	14.4
Volume Purged (gal)	2.00	1400						
Sample Removal Time	1401							
Duplicate Sample Time								
Sample Readings	1400		38.15	7.0	-22	1.8	1728	14.6
Color: Clear	Odor: ~~Clear~~ none				Turbidity: None			
Comments, Well Condition: OK								

Well No.	MW-17	Parameter Stabilization Readings every 2 minutes						
DNR No.	076	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	37.71	1429		7.2	42	1.6	1794	14.7
Date Sampled	9-14-22	1431	37.80	7.1	41	1.6	1781	13.6
Purge Start Time	1428	1433		7.1	42	1.6	1781	13.6
Purge Stop Time	1435							
Volume Purged (gal)	1.25							
Sample Removal Time	~~1355~~ 1437							
Duplicate Sample Time								
Sample Readings	@ 1435		37.85	7.1	43	1.6	1783	13.8
Color: ~~Clear~~ clear	Odor: none				Turbidity: none			
Comments, Well Condition: OK								

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/NH Weather: Sunny, 68°F

Well No.	MW-17B	Parameter Stabilization Readings every 2 minutes						
DNR No.	078	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	38.40	0816		6.6	49	3.9	1561	14.6
Date Sampled	9-15-22	0818		6.7	6.5	2.1	1619	14.0
Purge Start Time	0815 ~~9-15-22~~	~~0818~~ 0820	40.51	6.8	5	2.0	1652	13.3
Purge Stop Time	0824	0822		6.8	-4	1.9	1654	13.4
Volume Purged (gal)	~~1.25~~							
Sample Removal Time	0825							
Duplicate Sample Time	0832							
Sample Readings		0824	40.52	6.8	-3	1.9	1657	13.4
Color: Clear	Odor: none				Turbidity: None			
Comments, Well Condition: OK								

Well No.	MW-17D	Parameter Stabilization Readings every 2 minutes						
DNR No.	080	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	~~33.81~~ 33.80	0849		7.3	43	3.4	1744	14.0
Date Sampled	9-15-22	0851		7.1	39	1.9	1735	13.1
Purge Start Time	0848	0853	33.86	7.0	38	1.9	1741	13.0
Purge Stop Time	0855							
Volume Purged (gal)	1.5							
Sample Removal Time	0856							
Duplicate Sample Time								
Sample Readings	0855		33.87	7.0	42	1.9	1745	13.1
Color: Clear	Odor: none				Turbidity: none			
Comments, Well Condition: OK								

Well No.	MW-14	Parameter Stabilization Readings every 2 minutes						
DNR No.	057	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	33.00	0939		7.2	47	1.8	2013	14.1
Date Sampled	9-15-22	0941		7.2	-3	1.6	2021	13.4
Purge Start Time	0938	0943	33.10	7.2	-4	1.6	2021	13.4
Purge Stop Time	0945							
Volume Purged (gal)	1.40							
Sample Removal Time	0947							
Duplicate Sample Time								
Sample Readings	0945			7.2	-4	1.6	2020	13.9
Color: Clear	Odor: ~~none~~ gasoline				Turbidity: Slight			
Comments, Well Condition: OK								

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR
Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C
Purge at <1 Liter per minute. Sample at <300 mL/min.
Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD / NH Weather: 68°F, Sunny

Well No.	MW-14B	Parameter Stabilization Readings every 2 minutes						
DNR No.	059	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	30.89	1005		8.0	17	4.8	1380	14.2
Date Sampled	9-15-22	1007		7.0	-39	1.8	1968	13.4
Purge Start Time	1004	1009	30.90	7.0	-37	1.7	1997	13.2
Purge Stop Time	1017	1011		7.0	-34	1.7	2000	13.3
Volume Purged (gal)	2.5	1013	31.00	6.9	-31	1.6	1963	13.1
Sample Removal Time	1018	1015		6.9	-27	1.6	1960	13.0
Duplicate Sample Time								
Sample Readings		1017	31.02	6.9	-27	1.6	1958	13.0

Color: clear Odor: slight gasoline Turbidity: slight

Comments, Well Condition: OK

Well No.	MW-13B	Parameter Stabilization Readings every 2 minutes						
DNR No.	055	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	33.41	1044		7.1	19	2.6	1842	15.9
Date Sampled	9.15.22	1046	33.50	6.8	-24	1.8	1985	14.7
Purge Start Time	1043	1048		6.8	-23	1.8	1986	14.6
Purge Stop Time	1050							
Volume Purged (gal)	1.50							
Sample Removal Time	1051							
Duplicate Sample Time								
Sample Readings	1050		33.78	6.8	-20	1.8	1991	14.7

Color: clear Odor: ~~slight~~ Slight odor Turbidity: Slight turbid

Comments, Well Condition: OK

Well No.	MW-13D	Parameter Stabilization Readings every 2 minutes						
DNR No.	068	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	32.87	1108		7.5	16.3	5.9	1150	16.3
Date Sampled	9.15.22	1110		7.2	31.2	2.0	1700	14.5
Purge Start Time	1107	1112	32.91	7.1	40.6	1.9	1781	14.2
Purge Stop Time	1118	1114		7.0	40.4	1.8	1800	14.0
Volume Purged (gal)	2.30	1116	32.95	7.0	40.3	1.8	1806	14.1
Sample Removal Time	1119							
Duplicate Sample Time								
Sample Readings	1118		32.98	7.0	40.5	1.8	1808	14.1

Color: clear ~~clear~~ Odor: none Turbidity: none

Comments, Well Condition: OK New pipe collar required for 1 7/8" needed

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD / NH Weather: Sunny, 75°F

Well No.	MW-8B	Parameter Stabilization Readings every 2 minutes						
DNR No.	032	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	33.15	1257		7.4	44.0	3.5	2240	17.5
Date Sampled	9-15-22	1259		7.1	29.8	1.8	2176	15.8
Purge Start Time	1256	1301	35.00	7.1	27.5	1.7	2140	16.0
Purge Stop Time	1314	1303		7.0	20.4	1.7	2006	15.6
Volume Purged (gal)	2.6	1305		7.0	17.1	1.7	1933	15.7
Sample Removal Time	1315	1307	35.10	7.0	16.4	1.6	1864	15.8
Duplicate Sample Time		1309		7.0	16.1	1.6	1824	15.3
		1311		7.0	16.7	1.5	1822	15.3
		~~1313~~						
Sample Readings	1313		3525	7.0	18.8	1.5	1822	15.6

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: ok

Well No.	MW-8	Parameter Stabilization Readings every 2 minutes						
DNR No.	031	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)								
Date Sampled								
Purge Start Time								
Purge Stop Time								
Volume Purged (gal)								
Sample Removal Time								
Duplicate Sample Time								
Sample Readings								

Not Enough Water

Color: Odor: Turbidity:

Comments, Well Condition: Very sludge dark Water

Well No.	MW-3	Parameter Stabilization Readings every 2 minutes						
DNR No.	003	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	36.55	1406		7.1	8.2	3.2	2028	19.0
Date Sampled	9-15-22	1408		7.0	4.7	2.1	2088	18.3
Purge Start Time	1405	1410	36.60	7.0	2.1	1.7	2160	17.4
Purge Stop Time	1424	1412		6.9	0.8	1.6	2201	17.5
Volume Purged (gal)	4.25	1414	36.75	6.9	0.3	1.5	2218	17.2
Sample Removal Time	1425	1416		6.9	1.1	1.5	2231	16.9
Duplicate Sample Time		1418		6.9	2.0	1.5	2239	16.9
		1420		6.9	2.6	1.5	2250	16.8
		1422		6.9	3.4	1.5	2257	16.7
		~~1424~~						
Sample Readings	1424			6.9	3.4	1.5	2256	16.7

Color: Clear Odor: none Turbidity: none

Comments, Well Condition: ok

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR

Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C

Purge at <1 Liter per minute. Sample at <300 mL/min.

Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD / NH Weather: Sunny 61°F

Well No.	MW-3D	Parameter Stabilization Readings every 2 minutes						
DNR No.	066	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	20.05	0752		7.9	25.0	3.0	1005	15.5
Date Sampled	9-16-22	0754	20.10	7.7	-8.3	0.0	1033	15.1
Purge Start Time	0751	0756		7.6	-9	0.0	1036	15.0
Purge Stop Time	0758							
Volume Purged (gal)	2.00							
Sample Removal Time	0759							
Duplicate Sample Time								
Sample Readings	0758		20.15	7.6	-10	0.0	1036	15.0
Color: Clear	Odor: none				Turbidity: none			
Comments, Well Condition: OK								

Well No.	MW-3B	Parameter Stabilization Readings every 2 minutes						
DNR No.	005	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	36.35	0824		7.9	-40.8	4.75	1647	16.9
Date Sampled	9.16.22	0826		7.4	23.0	0.0	1922	16.6
Purge Start Time	0823	0828	37.16	7.4	30.4	0.0	1925	15.7
Purge Stop Time	0830							
Volume Purged (gal)	2.25							
Sample Removal Time	0832							
Duplicate Sample Time								
Sample Readings	0830		37.62	7.4	31.0	0.0	1927	15.8
Color: Clear	Odor: none				Turbidity: none			
Comments, Well Condition: OK								

Well No.	MW-4BR	Parameter Stabilization Readings every 2 minutes						
DNR No.	064	Time	DTW (ft)	pH	ORP (mV)	DO (mg/L)	Conduct. (uS)	Temp (oC)
DTW (ft)	36.00	0933		7.3	-3.7	1.8	2000	16.5
Date Sampled	9-16-22	0935		7.1	-24	0.9	2167	16.15.3
Purge Start Time	0932	0937	36.10	7.1	-35.5	0.0	2214	15.1
Purge Stop Time	0941	0939		7.1	-38.1	0.0	2216	15.1
Volume Purged (gal)	2.00							
Sample Removal Time	0942							
Duplicate Sample Time								
Sample Readings		0941	36.15	7.1	-38.9	0.0	2218	15.2
Color: Clear	Odor: Slight gasoline				Turbidity: none			
Comments, Well Condition: OK								

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR
Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C
Purge at <1 Liter per minute. Sample at <300 mL/min.
Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

Routine Groundwater Monitoring Log
City of Waukesha West Ave. Landfill FID #268145680

Sampled By: BD/NH Weather: Sunny 75°F

Field Blank	
Date Sampled	9-16-22
Sample Time	1100

Sampling Order: 9R, 9B, 15, 7, 7B, 10, 10B, 16, 16B, 16D, 11, 11B, 12, 12B, 17, 17B, 17D, 14, 14B, 13B, 13D, 8B, 8, 3, 3D, 3B, 4BR
Stabilization Conditions: Conductivity +/- 10 ohms/cm, DO +/- 0.2 mg/l, pH +/- 0.1 s.u., Temperature +/- 1 degree C
Purge at <1 Liter per minute. Sample at <300 mL/min.
Unless mentioned, Proactive Stainless Steel Mega Monsoon 12V submersible pump is used for purging and pumping samples.

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD/VW Ambient Air Temp: 30° Date: 4/13 & 14

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	4/14	14:31	0.0	0.1	20.8	60		
WALFGP2R	4/14	15:06	0.0	0.9	18.5	60		
WALFGP3.	4/14	13:21	0.0	3.9	17.0	60		PVC NOT SECURED, lifts off with rubber cover.
WALFGP4.	4/14	13:47	0.0	0.6	20.5	60		
WALFGP5.	4/14	14:03	0.0	2.0	18.7	60		
WALFGP6.	4/14	15:23	0.0	0.0	20.6	60		
WALFGP7	4/14	13:36	0.10	3.6	15.1	60		~~Depth to water: 36.90~~ NEEDS NEW AL COVER.
WALFGP10	4/14	13:26	0.0	0.0	21.3	60		
WALFGP11	4/14	9:17	0.2	4.3	0.1	60		
WALFGP12	4/14	13:54	0.0	3.1	17.0	60		
WALFGP13	4/14	15:28	0.0	0.0	21.7	60		
WALFGP14	4/14	15:33	0.1	0.3	21.1	60		
WALFGP15	4/14/14	14:23	0.0	0.0	21.0	60		
WALFGP16	4/14	14:27	0.0	1.0	20.3	60		
WALFGP20	4/14	14:35	0.0	2.2	19.1	60		
WALFGP21	4/14	14:52	0.0	2.3	18.9	~~60~~ → 120		seconds, Static Pressure: -0.1
WALFGP22	4/14	14:40	0.0	1.3	19.5	60		

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Vacuum (in.) (existing gauge)	Vacuum (in.)	Pressure (in.) (existing gauge)	Pressure (in.)	Comments
Blower IN	4/13	7:57	0.4	6.1	13.5	60	50	14	-14.1			
Flame Arrestor IN		8:01								18.5	+30.4	
Flame Arrestor OUT		8:02									+3.5	

A difference of 7 is normal over the flame arrestor. WALFGP21 needs static pressure

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD/VW Date: 4-13-22

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Static Pressure (in.)	Differential Pressure (in.)	Manifold (in.)	Barometric Pressure (Hg)	Comments
WALFGW01	4/13	11:01	0.4	6.2	13.5	60	64.9	-1.4	+0.3	-2.5	X	
WALFGW02		11:10	0.3	5.8	14.4	60	76.1	-1.0	+0.3	-0.3		
WALFGW03		11:17	0.5	10.7	7.9	60	59.1	-3.6	+0.2	-3.1		
WALFGW04		1:21	0.0	9.2	9.0	60	54.8	-1.9	+0.1	-2.8		
WALFGW05		9:46	0.2	10.9	7.9	60	81.5	~~-0.7~~ -0.4	+0.2	-0.7		
WALFGW06		10:03	0.8	13.0	5.6	60	59.3	-0.8	+0.3	-0.9		
WALFGW07		8:12	0.0	4.3	15.9	60	63	-0.3	+0.1	-7.6	29.56	
WALFGW08	8:19	~~8:08~~	0.1	8.7	11.1	60	53	-5.6	+0.1	-7.2		
WALFGW09	4/13	9:28	1.9	15.6	2.2	60	64.9	-0.7	+0.3	-0.4		
WALFGW10		9:21	1.0	13.1	4.8	60	55.2	-0.5	+0.01	-0.7		
WALFGW11		8:31	4.2	16.6	0.8	60	51	-6.9	+0.03	-7.4		
WALFGW12		8:41	0.4	6.2	13.1	60	60.8	-0.0	+0.03	~~-0.0~~ -1.0		WATER PRESENT (STICKER)
WALFGW13		9:11	0.3	10.2	9.1	60	67.1	-0.1	+0.08	-0.4		
WALFGW14		8:58	0.0	3.0	18.4	60	51.3	-2.4	+0.2	-1.9		
WALFGW15		8:48	0.1	9.1	10.2	60	48.5	-0.6	+0.00	-0.8		
WALFGW16		1:40	0.7	4.9	14.5	60	50.9	-1.1	+0.3	-2.3		
WALFGW17		1:47	0.8	6.0	12.0	60	51.0	-0.3	+0.1	-2.9		
WALFGW18		1:56	0.0	0.5	20.6	60	53.6	-0.2	+0.1	-3.1		
WALFGW19		2:03	0.3	4.6	13.7	60	48.7	-0.6	+0.2	-2.9		
WALFGW20		2:27	0.0	0.3	21.0	60	N/A	-0.0	+0.2	-0.0		MOVE PORT ACCESS. 64°F?
WALFGW21		2:13	0.0	7.4	12.2	60	57.3	-0.2	+0.1	-6.8		

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD/VW Ambient Air Temp: _____ Date: 6/9

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	6/9	9:07	0.1	0.8	20.1	60		TAP CASTING, ADD 1 BOLT, TRIM PIPE 1"
WALFGP2R	6/9	9:31	0.1	1.5	19.6	60		~~NEEDS NEW LID~~ ✓
WALFGP3.	6/9	9:02	0.1	2.5	17.4	60	-0.2	LID OK
WALFGP4.	6/9	8:28	0.1	1.6	18.4	"		✓
WALFGP5.	6/9	8:49	0.1	0.9	20.3	"		✓
~~#13~~ WALFGP6.	6/9	10:02	0.1	1.6	19.5	"		NEEDS NEW LID
WALFGP7	6/9	8:19	0.1	2.8	17.6	"		NEEDS LID WITHOUT TABS. –
WALFGP10	6/9	8:09	0.1	0.0	21.2	"		✓
WALFGP11	6/9	8:35	0.1	6.7	0.3	"		TAP CASTING –
WALFGP12	6/9	8:42	0.1	8.2	10.0	"		TAP CASTING –
~~#6~~ WALFGP13	6/9	10:04	0.1	0.5	20.6	"		✓
WALFGP14	6/9	10:16	0.1	0.6	19.5	"		✓
WALFGP15	6/9	8:58	0.1	1.0	20.2	"		TAP CASTING –
WALFGP16	6/9	9:02	0.1	0.1	21.2	"		TAP CASTING –
WALFGP20	6/9	9:15	0.1	1.8	18.5	"		TAP
WALFGP21	6/9	9:25	0.1	4.2	15.5	~~0~~ 180	-0.1	TAP.
WALFGP22	6/9	9:19	0.1	2.9	16.4	60		TAP ✓

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Vacuum (in.) (existing gauge)	Vacuum (in.)	Pressure (in.) (existing gauge)	Pressure (in.)	Comments
Blower IN	6/7	11:25	0.2	4.3	15.4	60	64	27	-26.6			
Flame Arrestor IN	6/7	11:30								12	-14.3	
Flame Arrestor OUT	6/7	11:30									+7.4	

A difference of 7 is normal over the flame arrestor. WALFGP21 needs static pressure

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD/VW Date: 6/7/22

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Static Pressure (in.)	Differential Pressure (in.)	Manifold (in.)	Barometric Pressure (Hg)	Comments
WALFGW01	6/7	9:46	0.2	5.2	14.7	60	65.8	-2.2	+0.3	-4.1	29.91	
WALFGW02	6/7	9:54	0.1	4.1	15.5	"	71.1	-1.5	+0.3	-4.2	"	
WALFGW03	6/7	10:00	4.7	11.4	4.9	"	67.2	-4.7	+0.1	-5.5	"	* ADD BOLTS & WASHERS @ LID
WALFGW04	6/7	10:12	0.1	7.4	11.2	"	70.5	-3.4	+0.3	-4.2	"	
WALFGW05	6/7	10:21	0.1	7.9	11.3	"	82.4	-0.2	+0.2	-0.3	"	
WALFGW06	6/7	10:29	0.6	11.1	7.3	"	69.6	-0.9	+0.3	-0.5	"	
WALFGW07	6/7	10:38	0.1	2.3	18.1	"	62.7	-0.4	+0.4	-12.5	"	
WALFGW08	6/7	10:46	0.1	7.4	11.7	"	65.6	-8.5	+0.2	-11.7	"	
WALFGW09	6/7	10:55	1.5	12.8	4.0	"	65.1	-11.5	-0.2	-12.4	"	* BOTH NEG. / BAD COVER
WALFGW10	6/7	11:12	0.5	9.7	8.2	"	68.1	-0.4	+0.1	-0.6	"	
WALFGW11	6/7	11:35	1.0	13.9	3.3	"	75.2	-0.5	+0.1	-1.8	"	
WALFGW12	6/7	13:08	0.4	4.5	15.7	"	67.1	-0.2	+0.1	-1.2	"	WET. WATER CONDENSING UNDER CAP. LGI RISER CAP - ~~WATER~~
WALFGW13	6/7	11:43	0.1	7.9	10.5	"	69.9	-0.2	+0.1	-0.6	"	
WALFGW14	6/7	13:21	0.1	4.1	16.1	"	76.8	-3.2	+0.1	-2.9	"	REPAIR BOLTS (GRIND OFF SOUTH BOLT HEAD)
WALFGW15	6/7	13:02	0.1	7.5	11.3	"	65.3	-1.0	+0.2	-0.9	"	
WALFGW16	6/7	9:00	0.2	3.6	17.1	"	53.4	-1.1	-0.6	-4.2	"	* BOTH NEG.
WALFGW17	6/7/22	8:40	0.3	5.8	12.6	60	53.7	-0.4	-0.14	-4.3	29.91	* BOTH NEGATIVE PRESSURES
WALFGW18	6/7	9:11	0.1	1.1	20.1	"	61.0	-0.3	+0.1	-5.0	"	~~* BOTH NEG.~~
WALFGW19	6/7	9:34	0.3	4.8	13.7	"	56.0	-1.1	+0.5	-5.1	"	
WALFGW20	6/7	14:29	0.1	1.5	18.7			-0.1	+0.0	-0.8	"	
WALFGW21	6/7	14:19	0.1	6.2	12.7	"	X	-0.5	+0.0	-0.7	"	THERMOMETER WON'T FIT

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD~~AA~~ NH Ambient Air Temp: 75° F Date: 9/6/22

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	↑	13:59	0.2	1.2	17.5	↑		
WALFGP2R	9/6/22	13:23	0.2	0.5	20.2	60		
WALFGP3.	↓	14:34	0.2	4.1	16.1	↓		
WALFGP4.	↓	14:44	0.3	1.8	18.3	↓		
WALFGP5.	↓	15:00	0.3	1.0	19.7	↓		
WALFGP6.	9/6/22	14:18	0.2	0.3	19.9	↓		
WALFGP7	↓	14:37	0.0	3.6	15.9	↓		
WALFGP10	9/6/22	14:31	0.0	0.0	20.1	↓		
WALFGP11	↓	14:50	0.3	9.9	0.1	↓		
WALFGP12	↓	14:56	0.3	12.3	7.4	↓		
WALFGP13	9/6	14:14	0.0	0.0	19.2	↓		
WALFGP14	↓9/7	13:27	0.0	4.3	14.1	↓		
WALFGP15	9/6	14:03	0.2	0.0	18.8	↓		
WALFGP16	9/6	14:07	0.2	0.3	15.8	↓		
WALFGP20	9/6/22	13:14	0.3	3.6	16.1	60		
WALFGP21	↓	13:51	0.3	7.8	12.4	180	-0.0	
WALFGP22	↓	13:45	0.3	5.6	3.9	60		

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Vacuum (in.) (existing gauge)	Vacuum (in.)	Pressure (in.) (existing gauge)	Pressure (in.)	Comments
Blower IN	9/6/22	10:37	0.5	6.4	13.0	60	70	26	-26.7			
Flame Arrestor IN	9/6/22	10:43								12	+14.6	
Flame Arrestor OUT	9/6/22	10:44									+7.1	

A difference of 7 is normal over the flame arrestor.WALFGP21 needs static pressure

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD/VW Date: 9/6/22

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Static Pressure (in.)	Differential Pressure (in.)	Manifold (in.)	Barometric Pressure (Hg)	Comments
WALFGW01		0943	0.5	7.3	12.1	60	71.6°	-1.7	-0.2	-3.6	30.14	
WALFGW02		0954	0.4	4.1	15.4		75.2°	-1.5	+0.5	-4.0		
WALFGW03		1002	6.7	11.9	6.0		77.3°	-3.9	+0.4	-5.6		
WALFGW04		1021	0.4	10.1	9.0		78.6°	-1.8	+0.4	-4.6		
WALFGW05		1108	0.3	9.1	10.0		84.7°	-0.4	-0.1	-1.2		
WALFGW06		1101	0.8	13.7	4.8		77.5°	-1.2	-0.4	-1.3		
WALFGW07		1054	0.2	2.4	17.4		66.1°	-0.2	-0.1	-13.4		
WALFGW08		1046	0.3	7.8	11.5		71.7°	-7.7	+0.1	-12.2		
WALFGW09		1117	0.8	13.5	4.8		75.7°	-1.2	+0.5	-1.5		
WALFGW10		1121	6.5	7.0	12.8		72.5°	-0.5	-0.1	-1.2		
WALFGW11		1125	1.0	14.2	4.5		71.4°	-12.8	+0.9	-12.2		
WALFGW12		1135	0.5	6.6	13.1		73.2°	-0.1	+0.1	-0.0		
WALFGW13		1304	0.4	11.4	7.2		75.3°	-0.2	-0.1	-1.0		
WALFGW14		1258	0.3	5.8	13.5		82.5°	-1.2	+0.1	-1.0		
WALFGW15		1143	0.3	10.0	8.5		74.1°	-0.3	-0.4	-0.5		
WALFGW16	9/6/22	0847	0.6	5.2	14.9		66.5°	-1.1	+0.4	-3.9		
WALFGW17		0902	0.6	9.4	9.2		68.5°	-0.4	-0.1	-4.4		
WALFGW18		0924	0.2	2.3	18.3		74.3°	-0.3	-0.2	-4.8		
WALFGW19		0932	0.6	8.1	10.1		69.7°	-0.6	-0.2	-4.1		
WALFGW20		1339	0.3	2.4	18.3		77.5	-0.0	-0.5	-1.1		
WALFGW21		1328	0.3	7.8	10.9		77.5	-0.3	-0.03	-0.5		

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O Manual

Personnel Conducting Monitoring BD/VW Ambient Air Temp: 30° f Date: 12/5/22

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	12/5	1:55	0.0	0.4	21.9	60		
WALFGP2R	12/5	2:37	0.0	5.6	13.0			
WALFGP3.	12/5	10:39	0.0	4.4	17.1			
WALFGP4.	12/5	11:13	0.0	3.8	15.0			
WALFGP5.	12/5	1:16	0.0	1.0	20.7			
WALFGP6.	12/5	1:30	0.0	0.0	20.7			
WALFGP7	12/5	11:20	0.0	0.5	20.1			
WALFGP10	12/5	10:45	0.0	0.0	22.0			
WALFGP11	12/5	11:26	0.0	6.6	1.2			
WALFGP12	12/5	11:31	0.0	9.1	12.9			
WALFGP13	12/5	1:23	0.0	0.5	20.8			
WALFGP14	12/5	2:57	0.0	0.1	21.7			
WALFGP15	12/5	1:45	0.0	1.0	20.4			
WALFGP16	12/5	1:49	0.0	0.0	22.0			
WALFGP20	12/5	1:59	0.0	5.3	16.4	60		
WALFGP21	12/5	2:42	0.0	4.8	16.6	180	-0.2	
WALFGP22	12/5	2:50	0.0	2.3	18.9	60		

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Vacuum (in.) (existing gauge)	Vacuum (in.)	Pressure (in.) (existing gauge)	Pressure (in.)	Comments
Blower IN	12/5	10:50	0.3	6.3	14.6	60	55°	28	-29.3			
Flame Arrestor IN	"	10:52								10	12.9	
Flame Arrestor OUT	"	10:53									+7.5	

A difference of 7 is normal over the flame arrestor. WALFGP21 needs static pressure

FORM 4

QUARTERLY LANDFILL GAS SYSTEM MONITORING LOG
WEST AVENUE LANDFILL
CITY OF WAUKESHA AMBIENT 35.2°f
2010 O Manual

Personnel Conducting Monitoring BD/VW Date: 12/6/22

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Temp. (Deg. F.)	Static Pressure (in.)	Differential Pressure (in.)	Manifold (in.)	Barometric Pressure (Hg)	Comments
WALFGW01	12/6	8:33	0.2	6.0	15.7	60	71	-2.2	+0.3	-5.0	30.04	
WALFGW02		9:04	0.2	5.3	15.7		71	-0.3	+0.3	-5.8		
WALFGW03		9:16	8.8	13.3	6.4		49	-6.0	+0.5	-5.2		
WALFGW04		9:26	0.0	10.9	9.5		55	-5.9	+0.1	-5.0		
WALFGW05		11:35	0.1	9.8	11.4		82	-0.9	-0.5	-1.4		
WALFGW06		11:43	0.2	13.2	7.6		60	-0.7	+0.2	-0.9		
WALFGW07		10:20	0.0	3.6	17.8		64	-0.7	+0.5	-17.3		
WALFGW08		10:28	0.0	8.6	12.5		58	-11.0	+0.2	-16.2		
WALFGW09		11:28	1.3	17.0	2.8		62	-1.2	+0.1	-1.8		
WALFGW10		10:42	0.4	13.8	6.7		59	-0.5	-0.1	-1.2		
WALFGW11		10:35	~~3.2~~ 2.1	16.4	3.5		55	-16.4	+0.1	-16.0		CH4 = 2.1
WALFGW12		10:50	0.0	7.0	14.0		60	-0.0	-6.0	-0.6		
WALFGW13		11:16	0.0	11.8	8.6		69	-0.3	-0.1	-1.0		
WALFGW14		11:10	0.0	5.4	15.5		41	-2.3	+0.10	-1.8		
WALFGW15		11:03	0.1	9.4	11.2		57	-0.2	-0.0	-0.4		
WALFGW16	12/6	7:53	0.5	4.1	16.8		60	-2.0	+0.8	-3.8	30.04	
WALFGW17		8:04	0.4	7.4	12.3		58	-0.5	+0.1	-5.3		
WALFGW18		8:17	0.0	1.1	21.0		60	-0.5	+0.2	-6.3		
WALFGW19		8:24	0.2	5.5	14.5		55	-1.2	+0.5	-4.6		
~~WALFGW20~~	~~x~~	~~9:04~~	~~0.2~~	~~5.3~~	~~15.7~~	~~x~~		~~-0.3~~	~~+0.3~~	~~-5.8~~	~~x~~	
GW20 ~~WALFGW21~~		2:35	0.0	1.7	19.8		N/A	-0.1	+0.2	-0.7		NO TEMP. SAME
GW21		2:24	0.0	9.1	11.5		N/A	-0.3	-0.1	-0.6		

Thermometer too tall to fit into port & under concrete manhole chimney.

FORM 5

PRINCIPAL LANDFILL COVER MAINTENANCE LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

March 14, 2022

Activity	Date Conducted	Comments
CAP MOWING (MINIMUM OF TWICE PER YEAR)		
	March 2022- Sept 2022	Site is mowed on a 2 week cycle by the Parks during growing season
CAP REPAIR (AS NEEDED)		
	Spring 2022	all restoration near the soccer fields look good
ASPHALT REPAIR (AS NEEDED)		
	Summer 2022	Parking lot on Hoover will be patched
STORMWATER SYSTEM CLEANOUT / REPAIR (AS NEEDED)		
OTHER		

Appendix B
Hydrologic Analysis and Calculations

Groundwater Flow Rate Calculation Worksheet
Deep Bedrock

This worksheet is to calculate the flow of groundwater through a uniform porous media using Darcy's law. The required inputs are: (1) hydraulic conductivity, a site-specific measurement; (2) hydraulic gradient which is commonly measured from scaled maps showing the water table (for unconfined groundwater systems) or the potentiometric surface (for confined groundwater systems); and (3) porosity which may be measured from geotechnical samples or taken from reference texts.

Darcy's Law: Q=KA dh/dl
- Q - Discharge (volume/time)
- K - Hydraulic Conductivity (length/time)
- A - Cross-sectional area through which groundwater flows (length x length)
- dh=h2-h1 - change in head along the groundwater flow path (length)
- dl=l2-l1 - distance between points where head is measured (length)
- dh/dl - hydraulic gradient (length/length, dimensionless)

Since the cross-sectional area through which groundwater flows cannot be easily determined, discharge (Q) in Darcy's Law is revised to reflect specific discharge, the discharge per unit area. This greatly simplifies the calculation, as follows:

Darcy's Law: q=Q/A=K dh/dl
- q - specific discharge (length/time)

Specific discharge reflects the rate of flow of water through a "pipe" having a specific slope and cross-sectional area. Aquifers, however, are made of minerals and pores and groundwater moves only through the pores. Therefore we adjust for porosity, as follows:

Darcy's Law: v=q/n=(K dh/dl)/n
- n - porosity (dimensionless decimal)
- v - seepage velocity (length/time)

The following calculation uses September 2022 groundwater elevation measurements from piezometer MW-3D to the 815' groundwater contour to calculate horizontal hydraulic gradient and seepage velocity in the deep bedrock zone of the uppermost aquifer.

$K := 0.000741\ \frac{cm}{s}$
$h2 := 830.34\ ft$
$h1 := 815\ ft$
$l2 := 488.3\ ft$
$l1 := 0\ ft$
$n := .2$

Output:

Horizontal Hydraulic Gradient $\frac{((h2-h1))}{(l2-l1)} = 0.031$

Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2-h1))}{(l2-l1)}}{n} = 0.33\ \frac{ft}{day}$

Groundwater Flow Rate Calculation Worksheet
Intermediate Bedrock1

This worksheet is to calculate the flow of groundwater through a uniform porous media using Darcy's law. The required inputs are: (1) hydraulic conductivity, a site-specific measurement; (2) hydraulic gradient which is commonly measured from scaled maps showing the water table (for unconfined groundwater systems) or the potentiometric surface (for confined groundwater systems); and (3) porosity which may be measured from geotechnical samples or taken from reference texts.

Darcy's Law: Q=KA dh/dl
- Q - Discharge (volume/time)
- K - Hydraulic Conductivity (length/time)
- A - Cross-sectional area through which groundwater flows (length x length)
- dh=h2-h1 - change in head along the groundwater flow path (length)
- dl=l2-l1 - distance between points where head is measured (length)
- dh/dl - hydraulic gradient (length/length, dimensionless)

Since the cross-sectional area through which groundwater flows cannot be easily determined, discharge (Q) in Darcy's Law is revised to reflect specific discharge, the discharge per unit area. This greatly simplifies the calculation, as follows:

Darcy's Law: q=Q/A=K dh/dl
- q - specific discharge (length/time)

Specific discharge reflects the rate of flow of water through a "pipe" having a specific slope and cross-sectional area. Aquifers, however, are made of minerals and pores and groundwater moves only through the pores. Therefore we adjust for porosity, as follows:

Darcy's Law: v=q/n=(K dh/dl)/n
- n - porosity (dimensionless decimal)
- v - seepage velocity (length/time)

The following calculation uses September 2022 groundwater elevation measurements from piezometers MW-7B and MW-4BR to calculate horizontal hydraulic gradient and seepage velocity in the intermediate bedrock zone of the uppermost aquifer on the southern portion of the site.

$K := 0.0025\ \frac{cm}{s}$
$h2 := 848.01\ ft$
$h1 := 814.74\ ft$
$l2 := 1427\ ft$
$l1 := 0\ ft$
$n := .2$

Output:

Horizontal Hydraulic Gradient $\frac{\left(\left(h2 - h1\right)\right)}{\left(l2 - l1\right)} = 0.023$

Seepage Velocity (Average Linear Flow Velocity) $\left(K\right) \cdot \frac{\frac{\left(\left(h2 - h1\right)\right)}{\left(l2 - l1\right)}}{n} = 0.826\ \frac{ft}{day}$

Groundwater Flow Rate Calculation Worksheet
Intermediate Bedrock1

This worksheet is to calculate the flow of groundwater through a uniform porous media using Darcy's law. The required inputs are: (1) hydraulic conductivity, a site-specific measurement; (2) hydraulic gradient which is commonly measured from scaled maps showing the water table (for unconfined groundwater systems) or the potentiometric surface (for confined groundwater systems); and (3) porosity which may be measured from geotechnical samples or taken from reference texts.

Darcy's Law: Q=KA dh/dl
- Q - Discharge (volume/time)
- K - Hydraulic Conductivity (length/time)
- A - Cross-sectional area through which groundwater flows (length x length)
- dh=h2-h1 - change in head along the groundwater flow path (length)
- dl=l2-l1 - distance between points where head is measured (length)
- dh/dl - hydraulic gradient (length/length, dimensionless)

Since the cross-sectional area through which groundwater flows cannot be easily determined, discharge (Q) in Darcy's Law is revised to reflect specific discharge, the discharge per unit area. This greatly simplifies the calculation, as follows:

Darcy's Law: q=Q/A=K dh/dl
- q - specific discharge (length/time)

Specific discharge reflects the rate of flow of water through a "pipe" having a specific slope and cross-sectional area. Aquifers, however, are made of minerals and pores and groundwater moves only through the pores. Therefore we adjust for porosity, as follows:

Darcy's Law: v=q/n=(K dh/dl)/n
- n - porosity (dimensionless decimal)
- v - seepage velocity (length/time)

The following calculation uses September 2022 groundwater elevation measurements from piezometers MW-10B and MW-11B to calculate horizontal hydraulic gradient and seepage velocity in the intermediate bedrock zone of the uppermost aquifer, on the northern part of the site.

$K := 0.0025\ \frac{cm}{s}$
$h2 := 825.93\ ft$
$h1 := 810.64\ ft$
$l2 := 721.3\ ft$
$l1 := 0\ ft$
$n := .2$

Output:

Horizontal Hydraulic Gradient $\frac{((h2-h1))}{(l2-l1)} = 0.021$

Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2-h1))}{(l2-l1)}}{n} = 0.751\ \frac{ft}{day}$

Groundwater Flow Rate Calculation Worksheet
Shallow

This worksheet is to calculate the flow of groundwater through a uniform porous media using Darcy's law. The required inputs are: (1) hydraulic conductivity, a site-specific measurement; (2) hydraulic gradient which is commonly measured from scaled maps showing the water table (for unconfined groundwater systems) or the potentiometric surface (for confined groundwater systems); and (3) porosity which may be measured from geotechnical samples or taken from reference texts.

Darcy's Law: Q=KA dh/dl
- Q - Discharge (volume/time)
- K - Hydraulic Conductivity (length/time)
- A - Cross-sectional area through which groundwater flows (length x length)
- dh=h2-h1 - change in head along the groundwater flow path (length)
- dl=l2-l1 - distance between points where head is measured (length)
- dh/dl - hydraulic gradient (length/length, dimensionless)

Since the cross-sectional area through which groundwater flows cannot be easily determined, discharge (Q) in Darcy's Law is revised to reflect specific discharge, the discharge per unit area. This greatly simplifies the calculation, as follows:

Darcy's Law: q=Q/A=K dh/dl
- q - specific discharge (length/time)

Specific discharge reflects the rate of flow of water through a "pipe" having a specific slope and cross-sectional area. Aquifers, however, are made of minerals and pores and groundwater moves only through the pores. Therefore we adjust for porosity, as follows:

Darcy's Law: v=q/n=(K dh/dl)/n
- n - porosity (dimensionless decimal)
- v - seepage velocity (length/time)

The following calculation uses September 2022 groundwater elevation measurements from water table wells MW-10 and MW-12 to calculate horizontal hydraulic gradient and seepage velocity in the shallow sand and gravel of the uppermost aquifer.

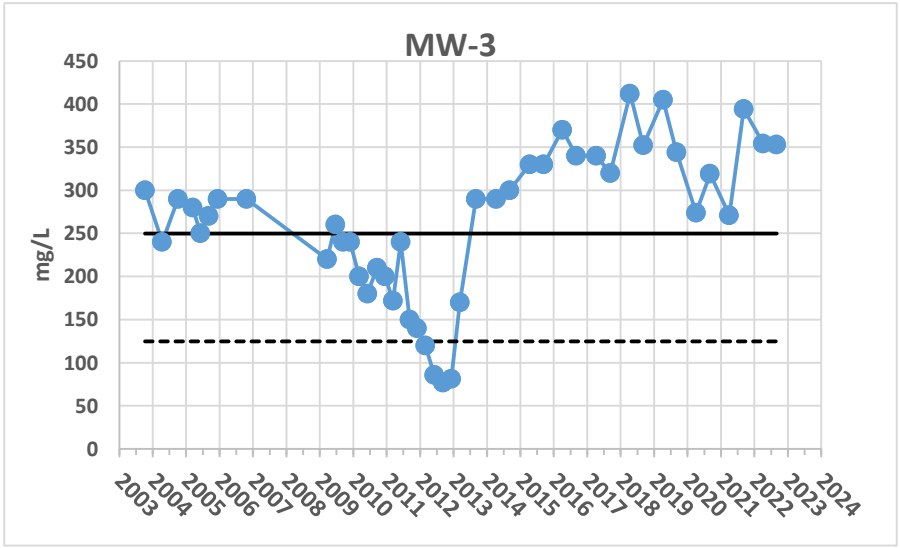
$K := 0.006315 \ \frac{cm}{s}$
$h2 := 824.95 \ ft$
$h1 := 810.59 \ ft$
$l2 := 953 \ ft$
$l1 := 0 \ ft$
$n := .3$

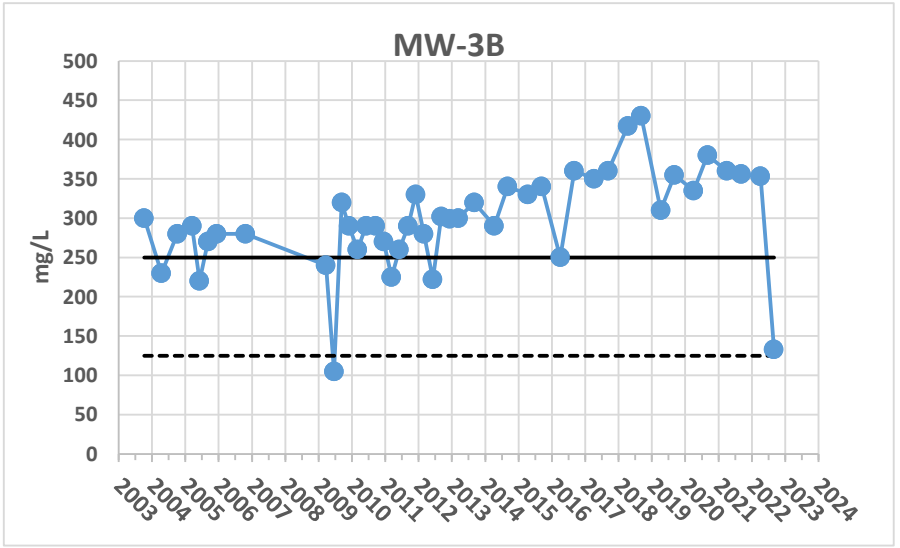
Output:

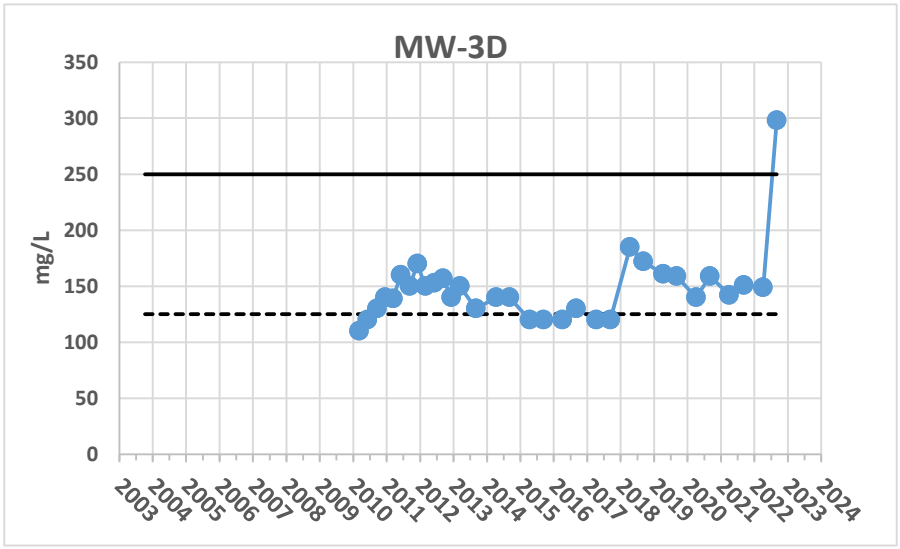
Horizontal Hydraulic Gradient $\frac{((h2-h1))}{(l2-l1)} = 0.015$

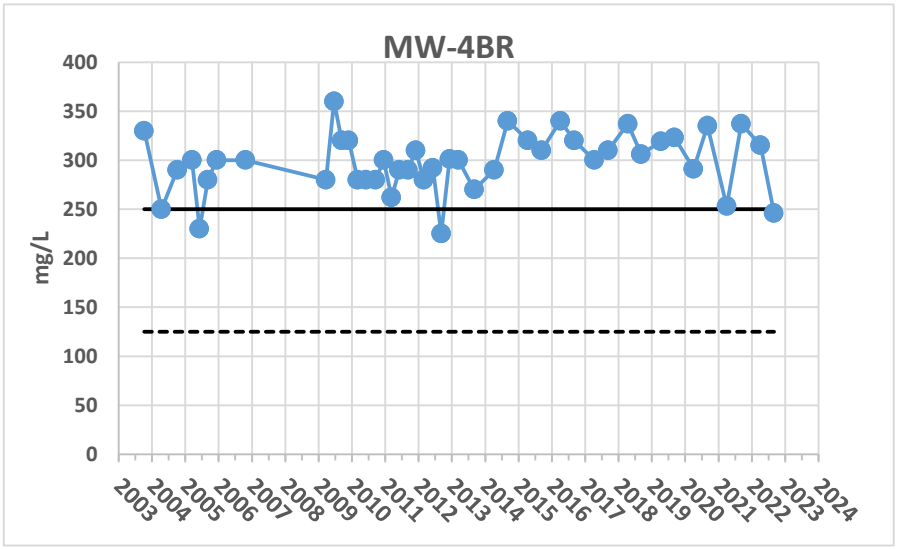
Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2-h1))}{(l2-l1)}}{n} = 0.899 \ \frac{ft}{day}$

Appendix C
Statistical and Trend Analyses









Legend

Nondetects — Detects

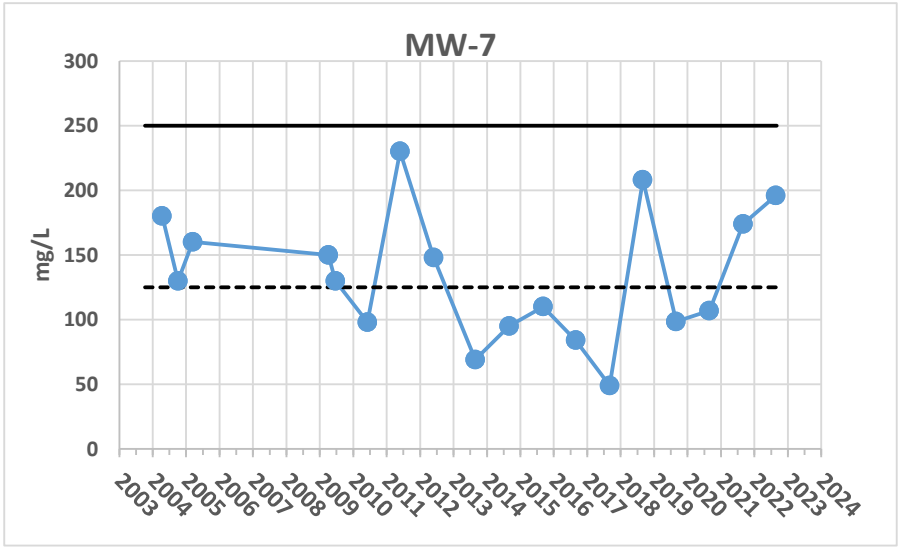
NR140 PAL — NR140 ES

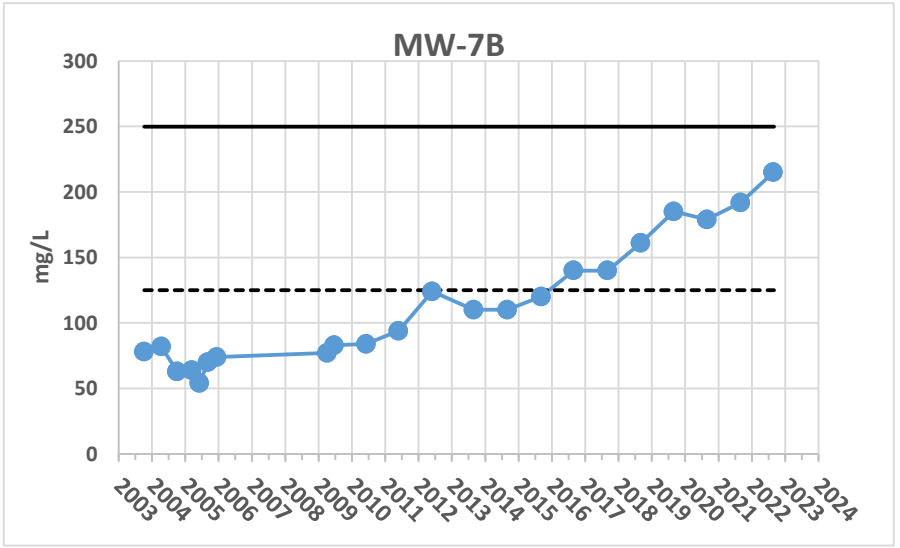
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

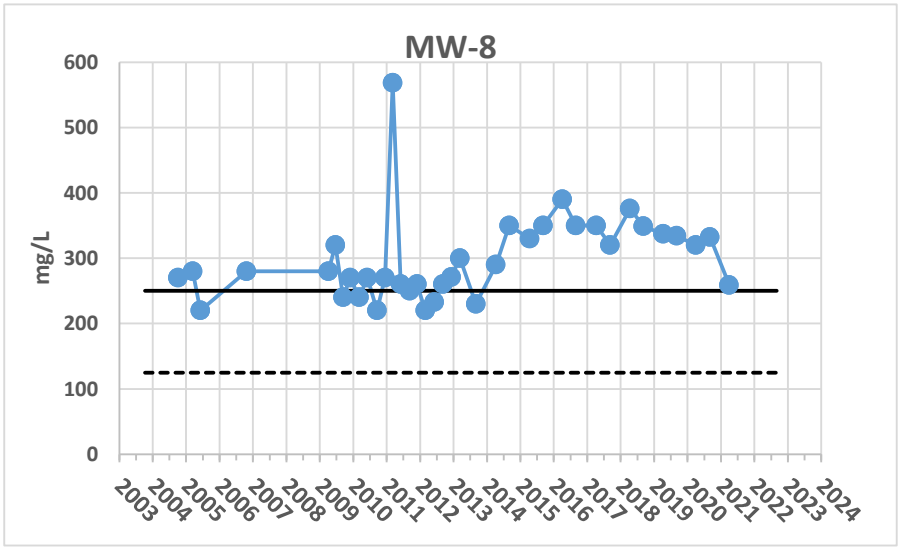
Foth

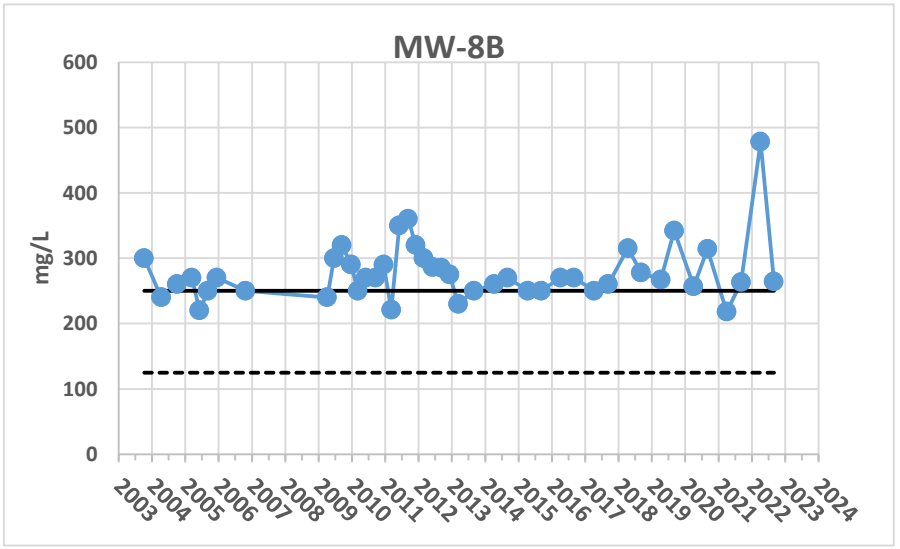
WEST AVENUE LANDFILL		
FIGURE 1A HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

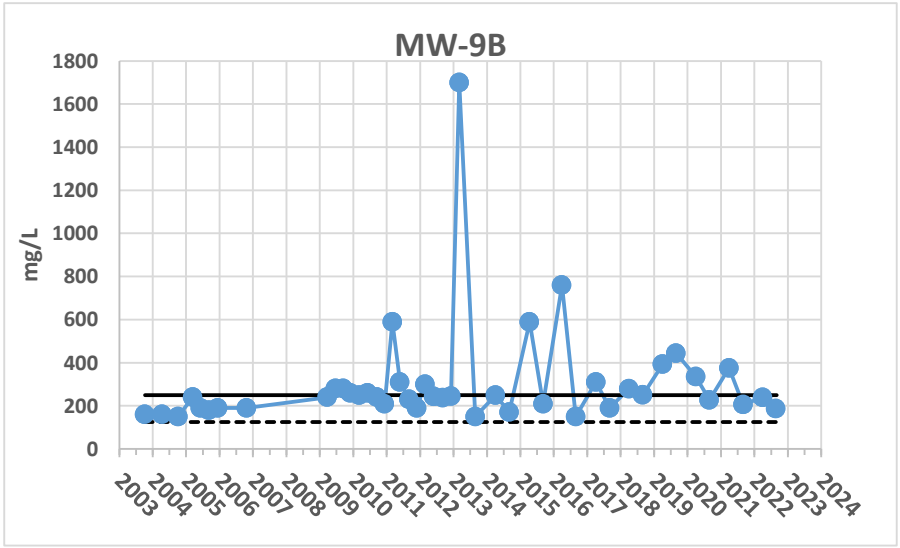
NR140 PAL — NR140 ES

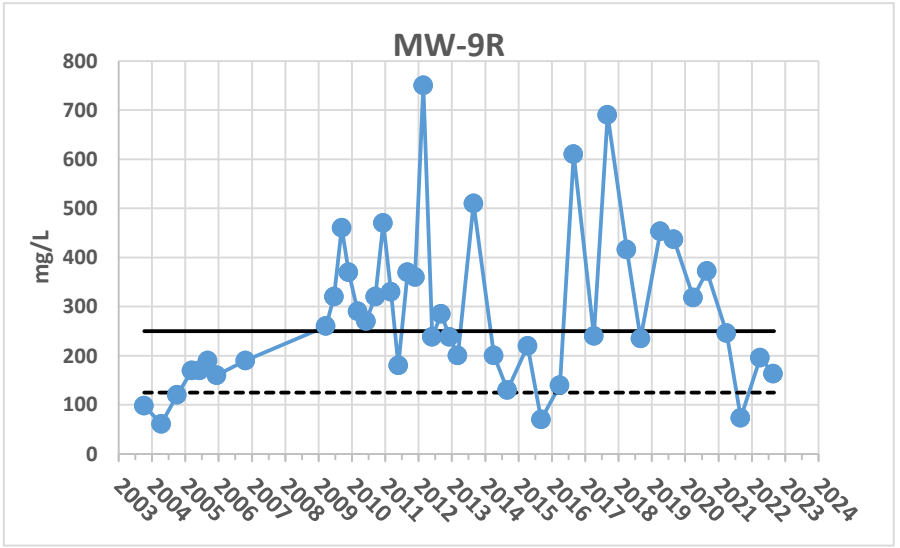
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

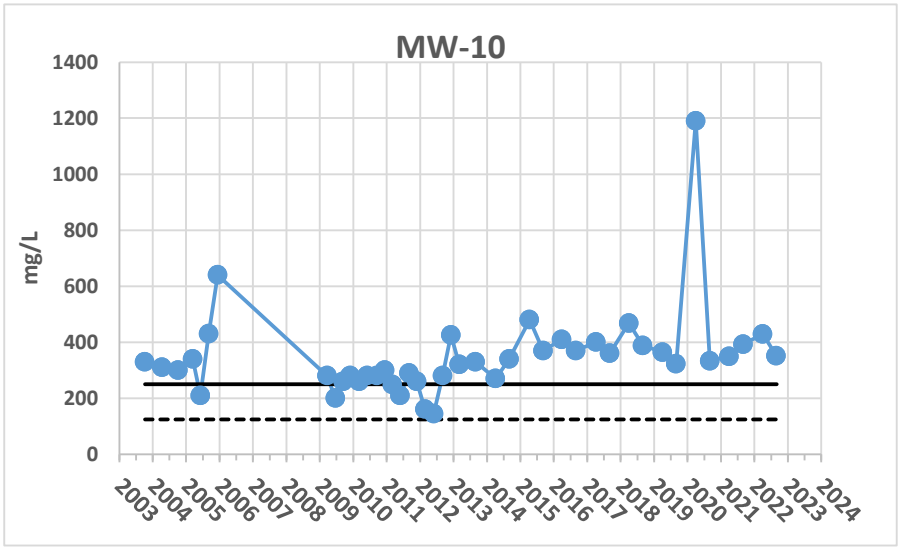
Foth

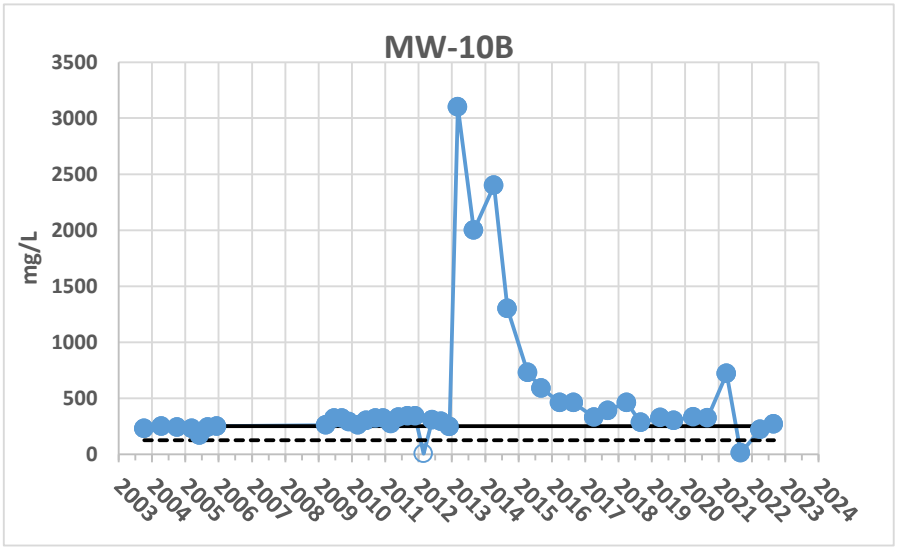
WEST AVENUE LANDFILL		
FIGURE 1B HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

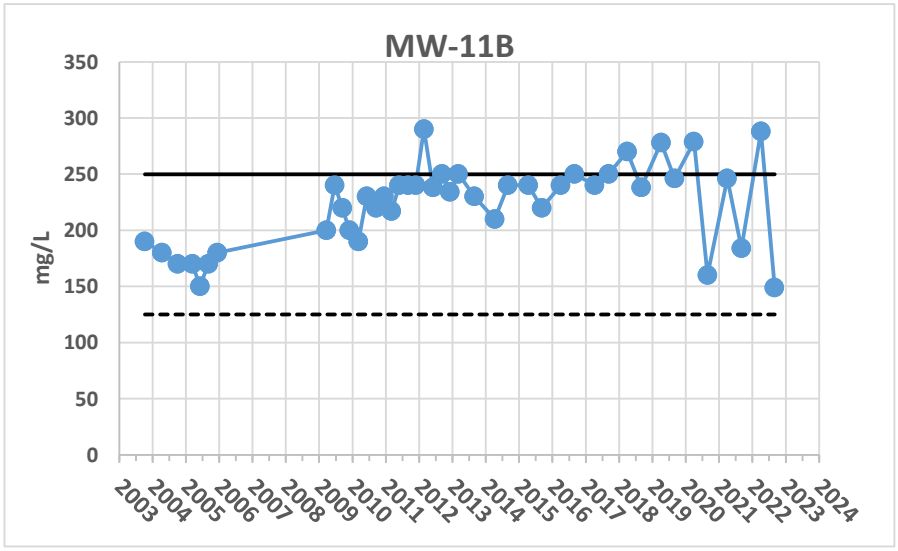
NR140 PAL — NR140 ES

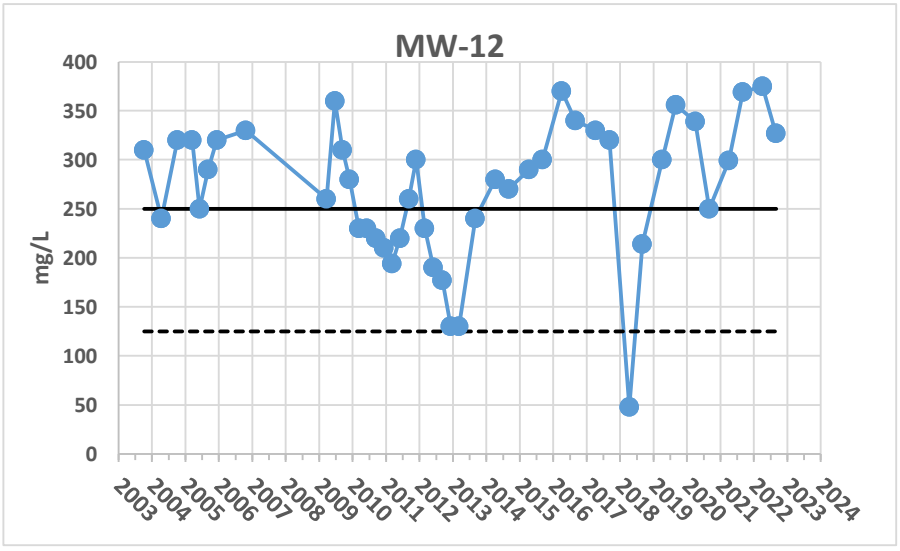
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

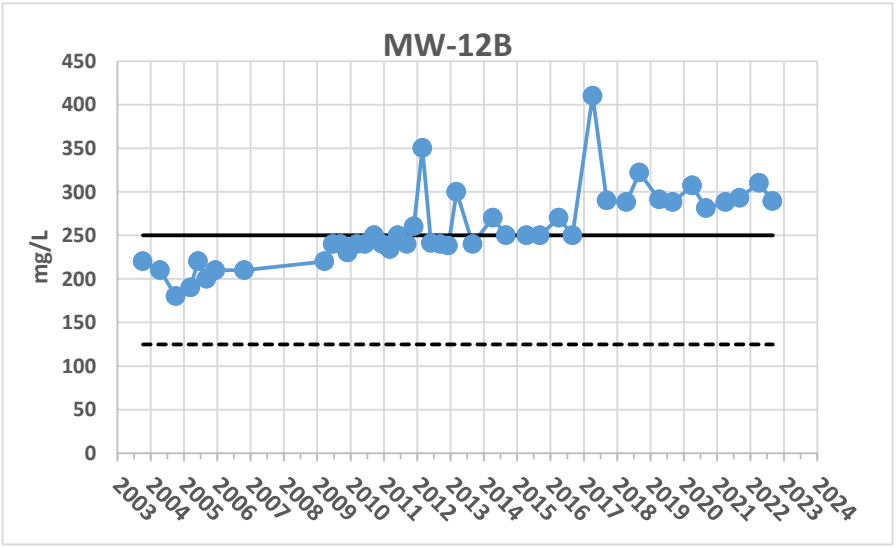
Foth

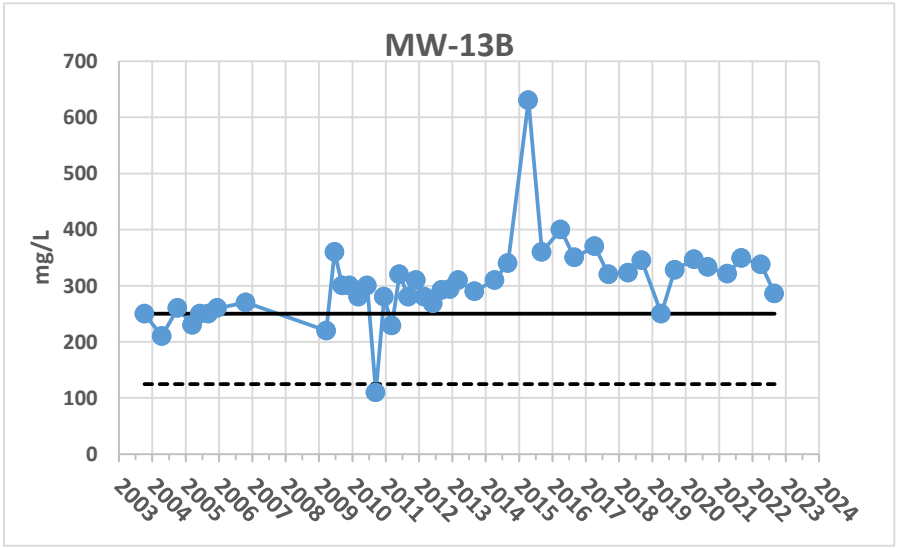
WEST AVENUE LANDFILL		
FIGURE 1C HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

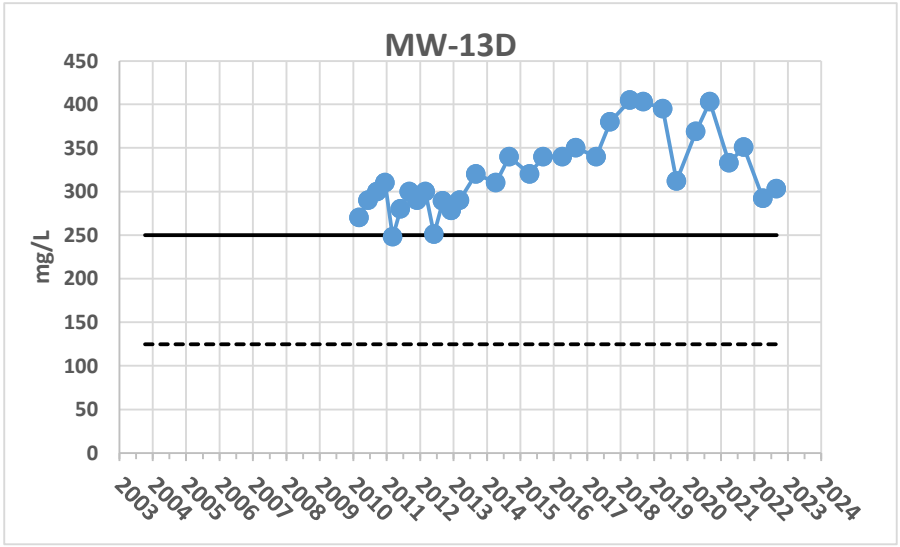
NR140 PAL — NR140 ES

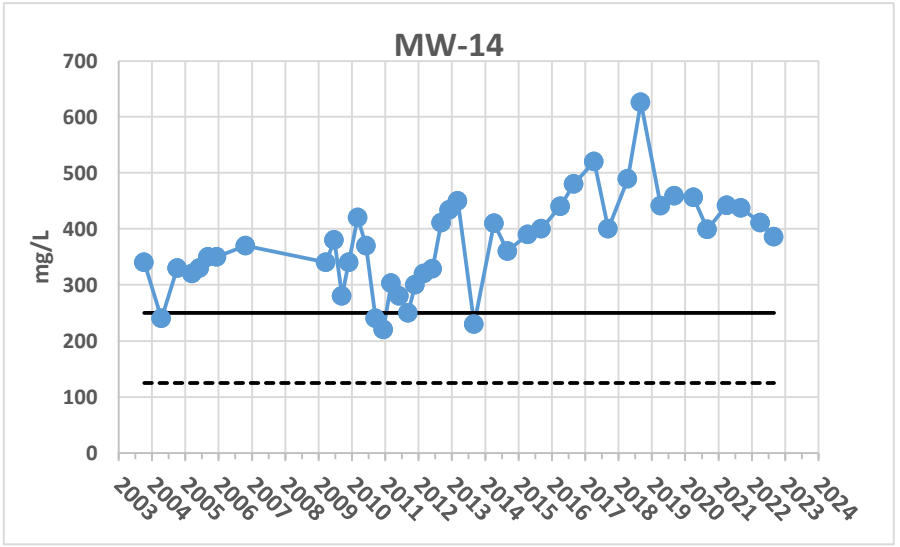
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

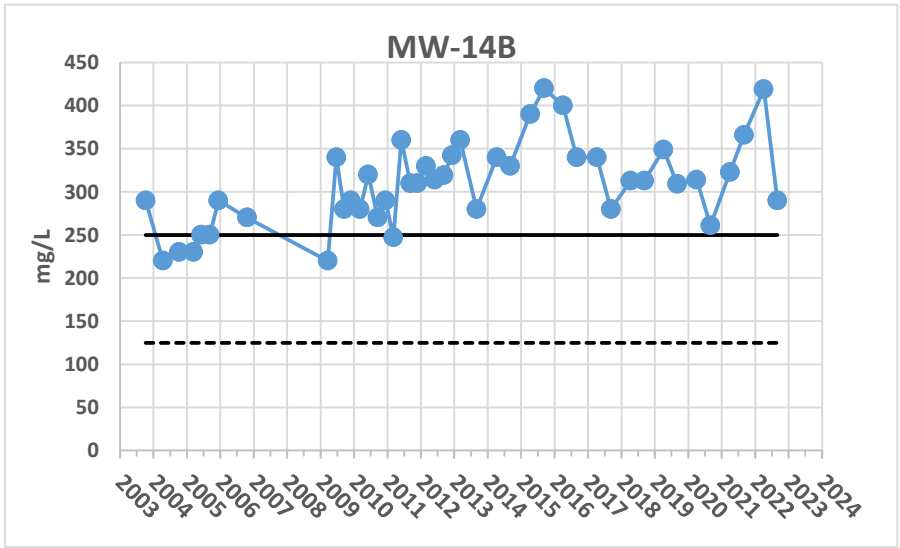
Foth

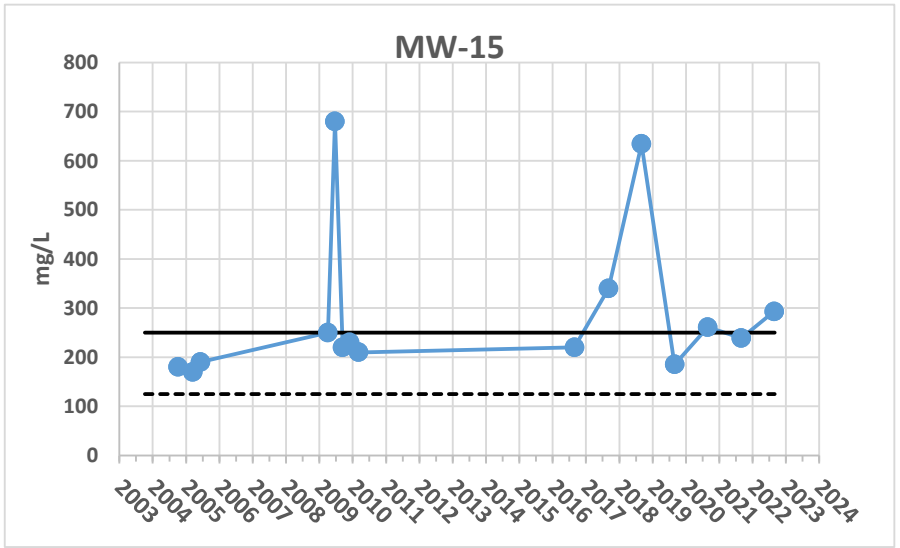
WEST AVENUE LANDFILL		
FIGURE 1D HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

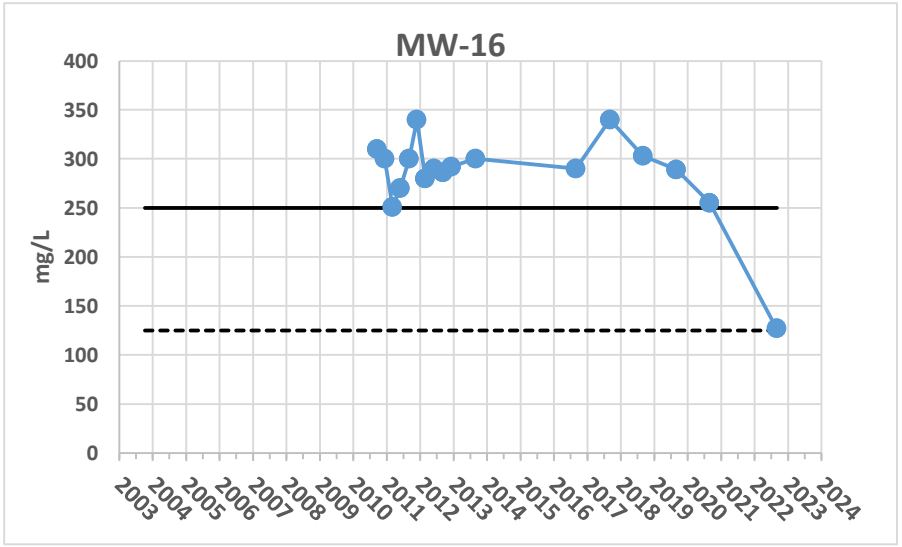
NR140 PAL — NR140 ES

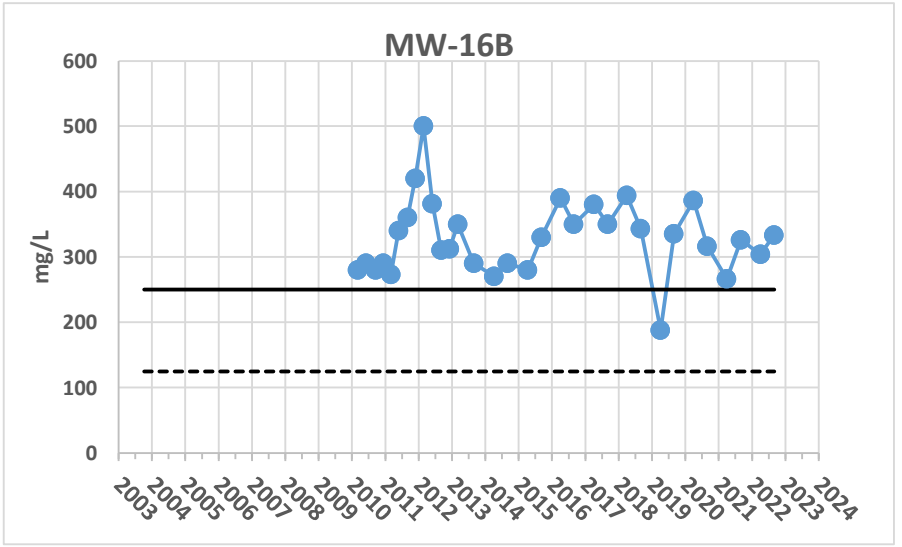
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

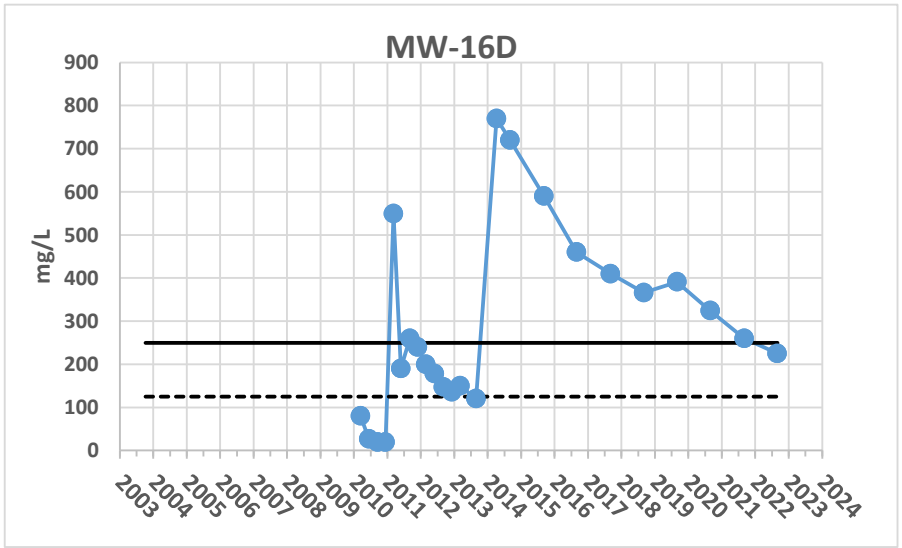
Foth

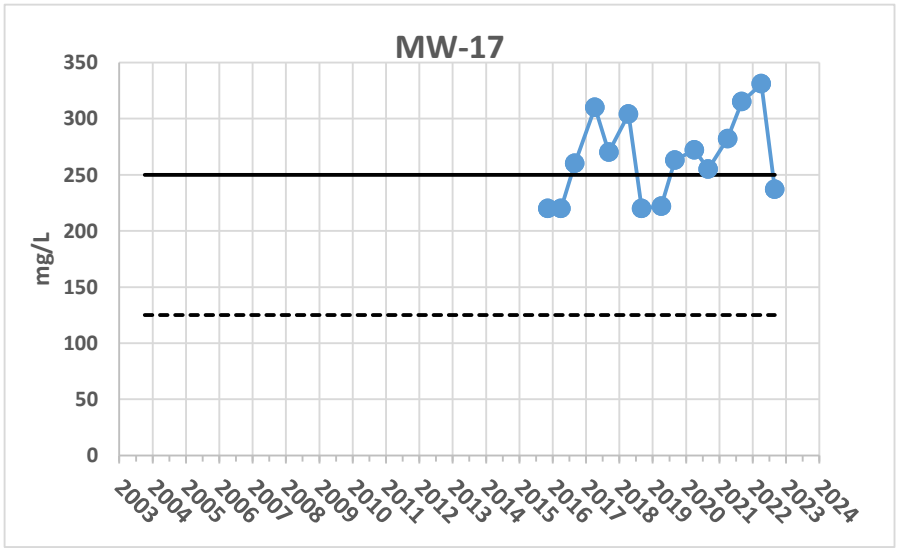
WEST AVENUE LANDFILL		
FIGURE 1E HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

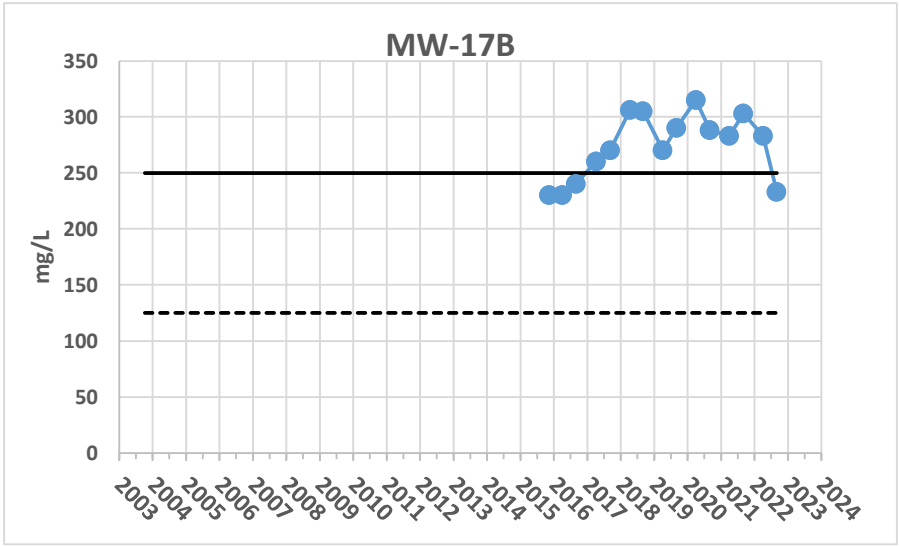
NR140 PAL — NR140 ES

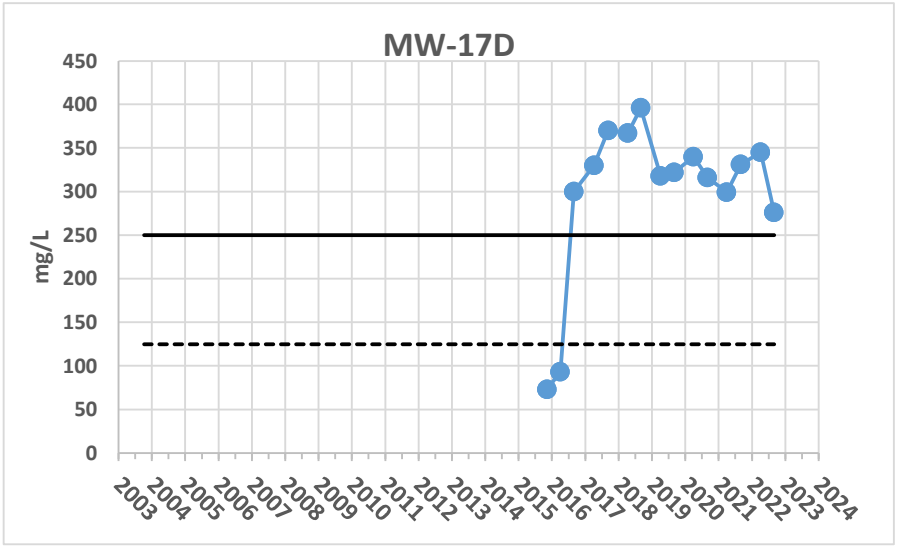
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

Foth

WEST AVENUE LANDFILL		
FIGURE 1F HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm





Legend

Nondetects — Detects

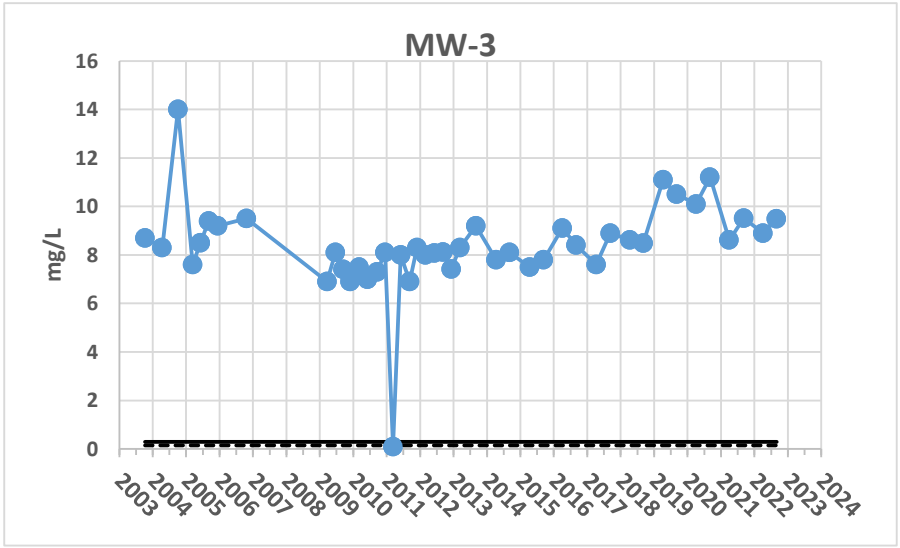
NR140 PAL — NR140 ES

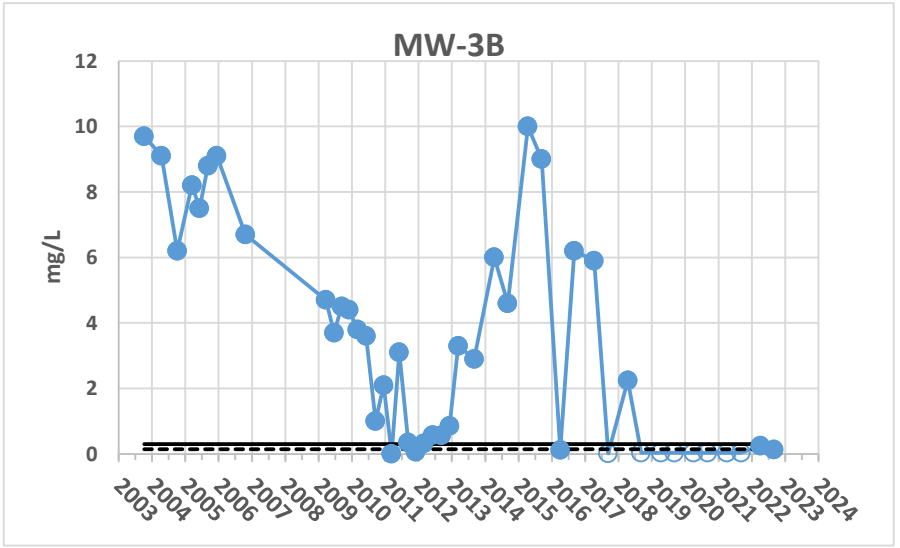
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

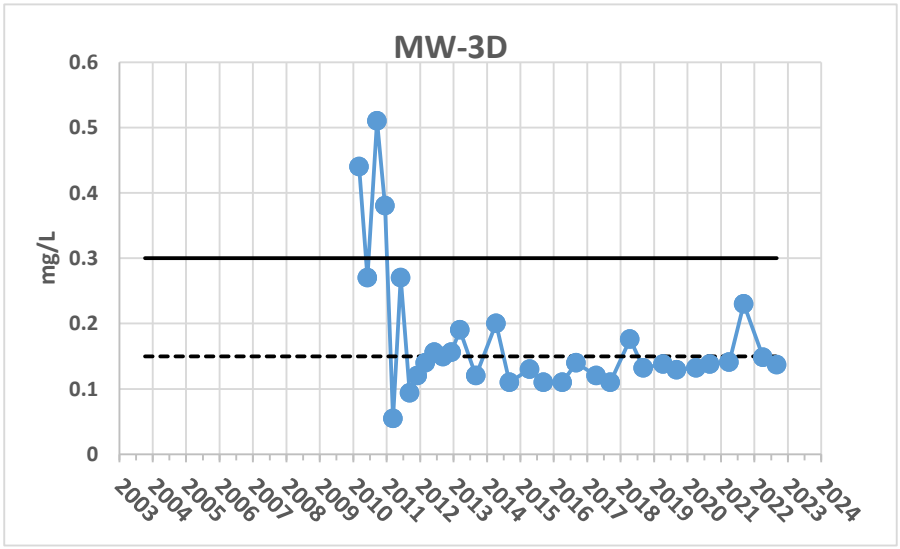
Foth

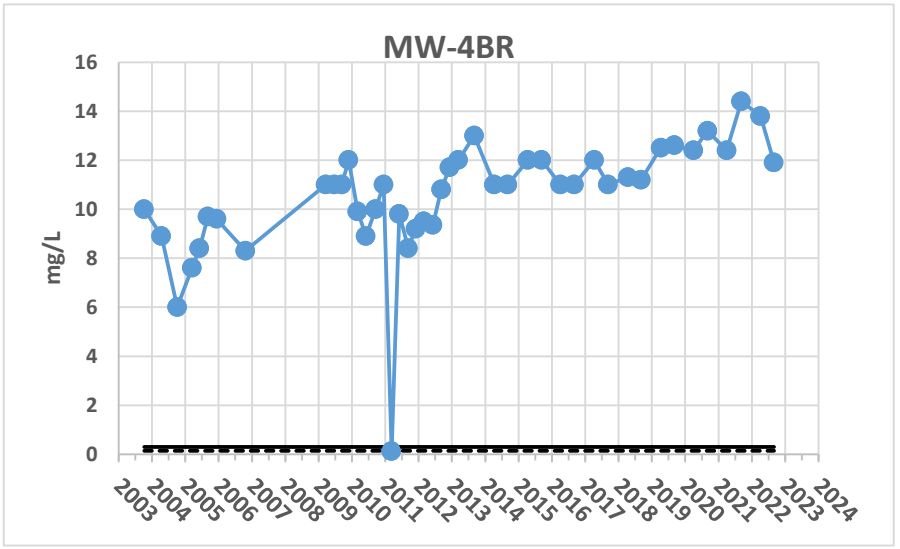
WEST AVENUE LANDFILL		
FIGURE 1G HISTORICAL TREND GRAPHS CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

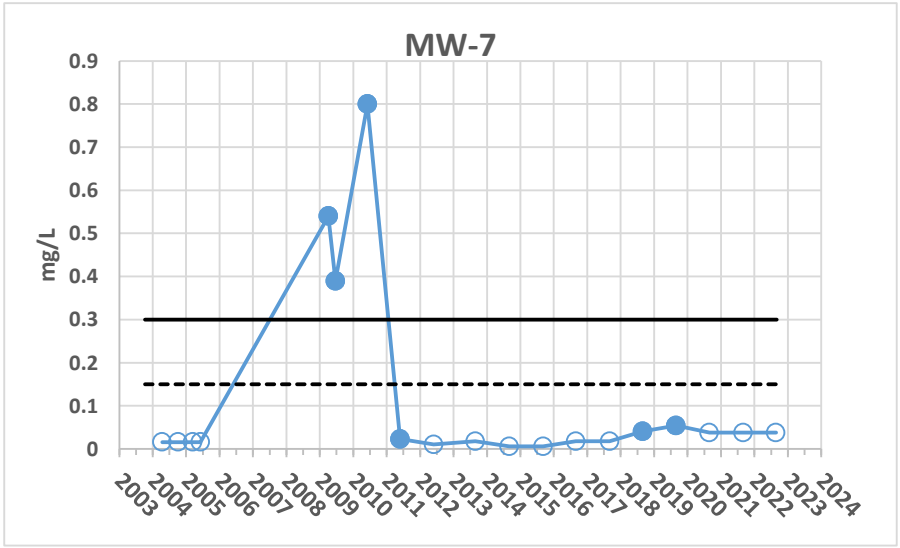
NR140 PAL — NR140 ES

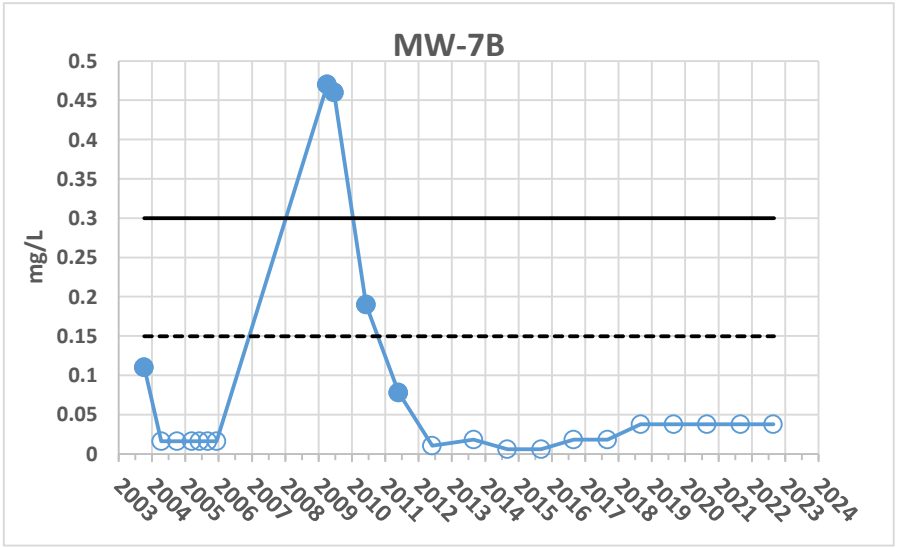
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

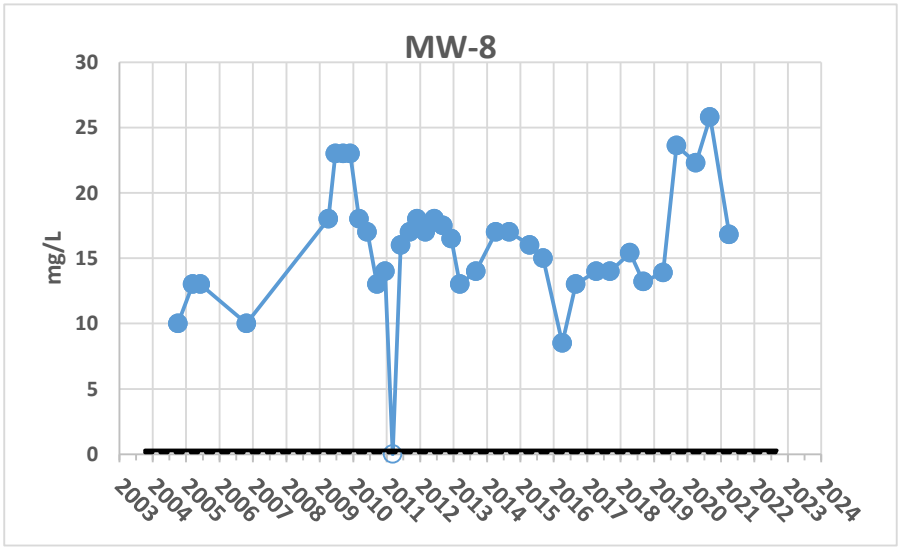
Foth

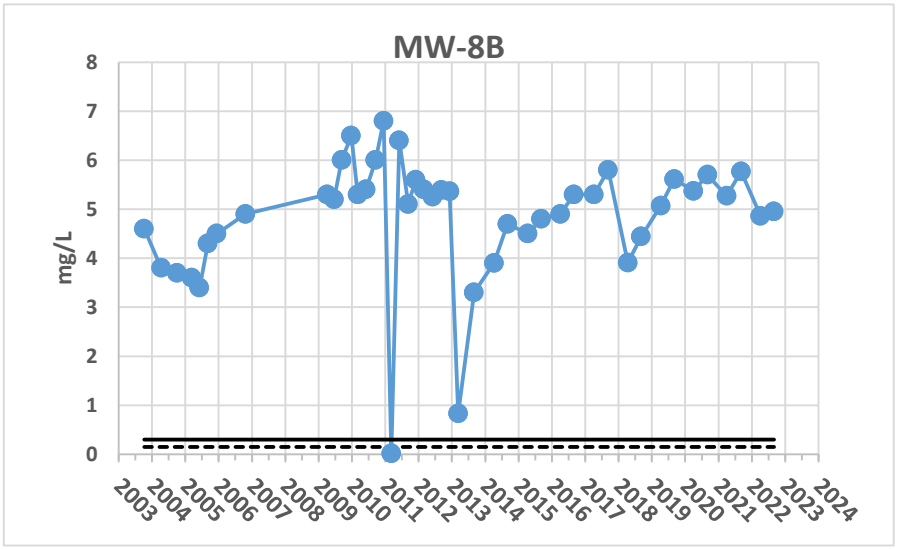
WEST AVENUE LANDFILL		
FIGURE 2A HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

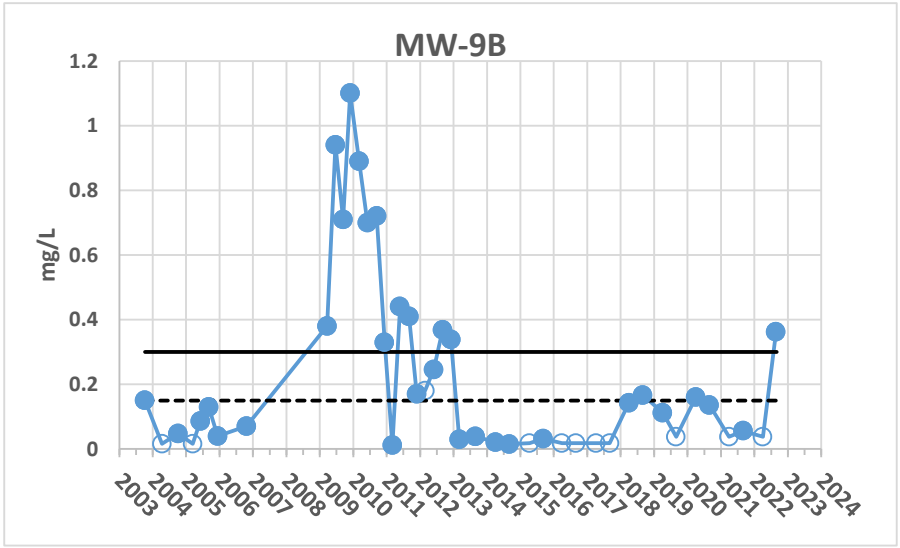
NR140 PAL — NR140 ES

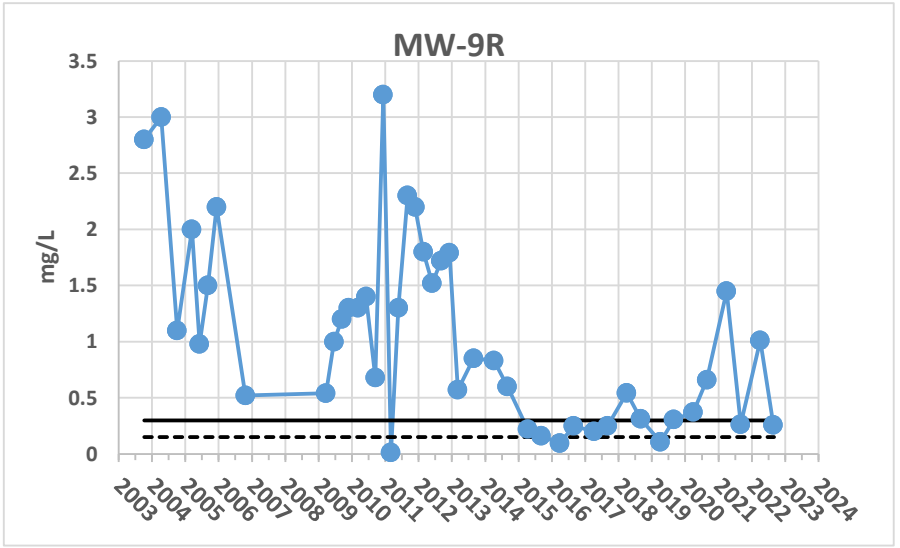
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

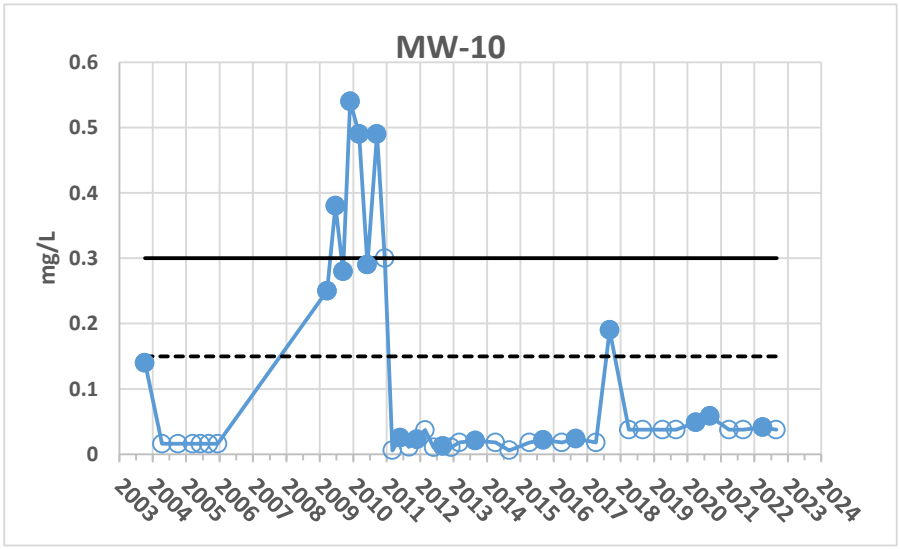
Foth

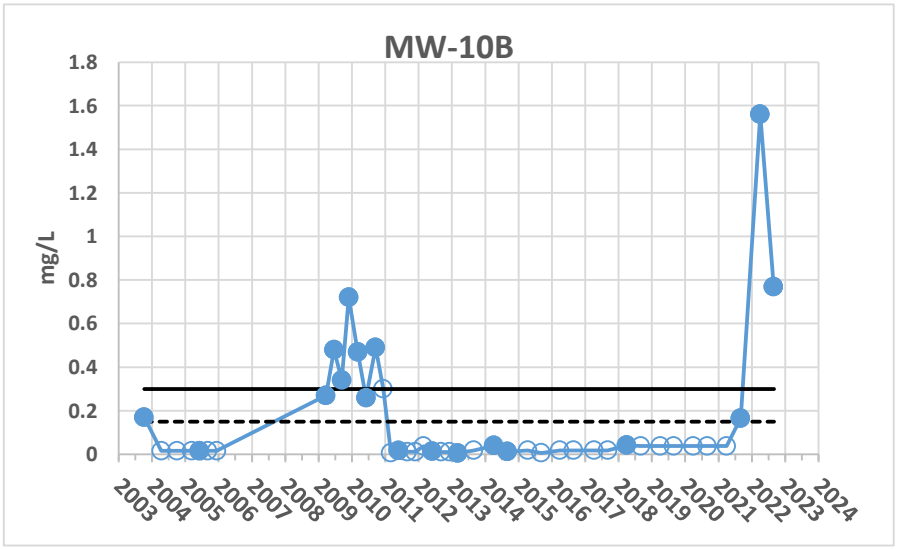
WEST AVENUE LANDFILL		
FIGURE 2B HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

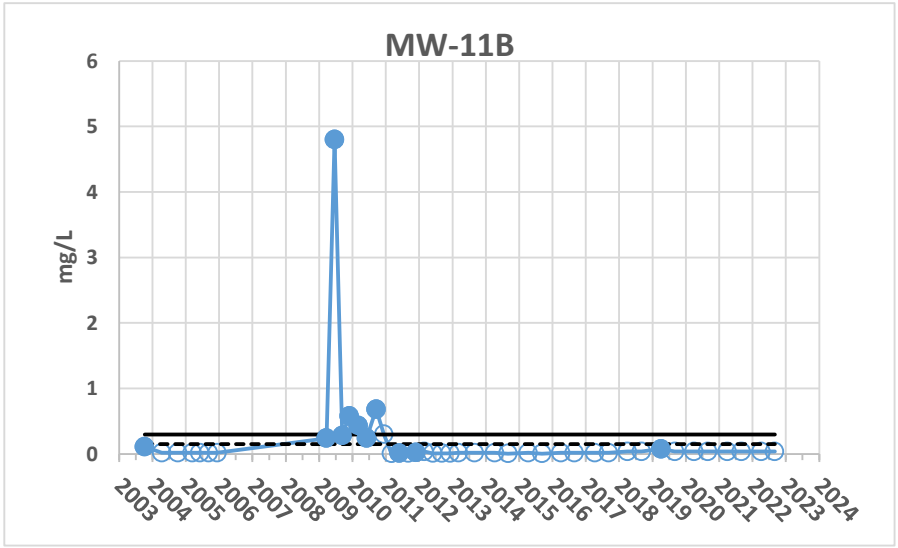
NR140 PAL — NR140 ES

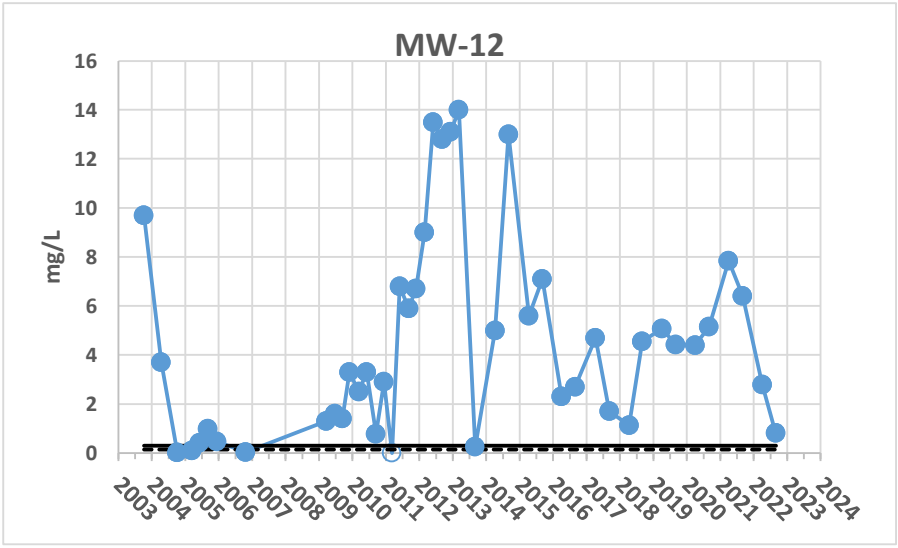
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

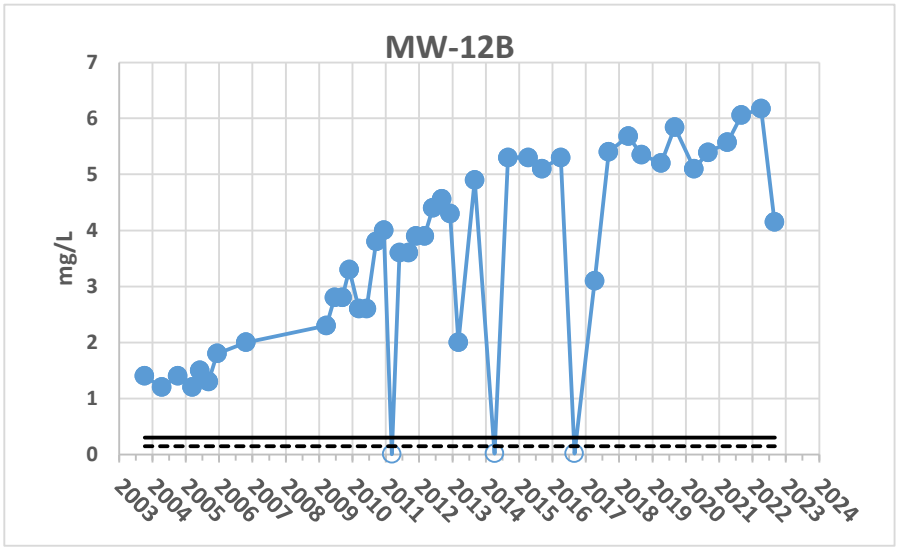
Foth

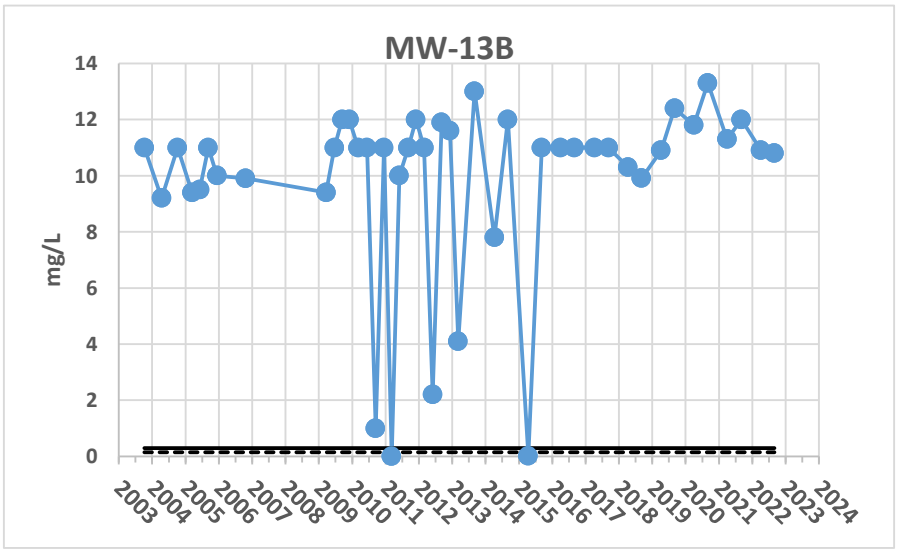
WEST AVENUE LANDFILL		
FIGURE 2C HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

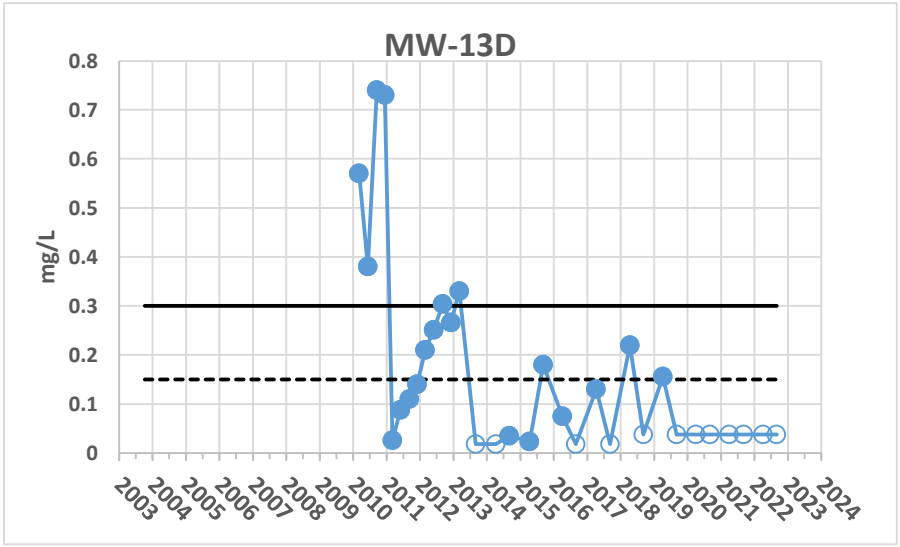
NR140 PAL — NR140 ES

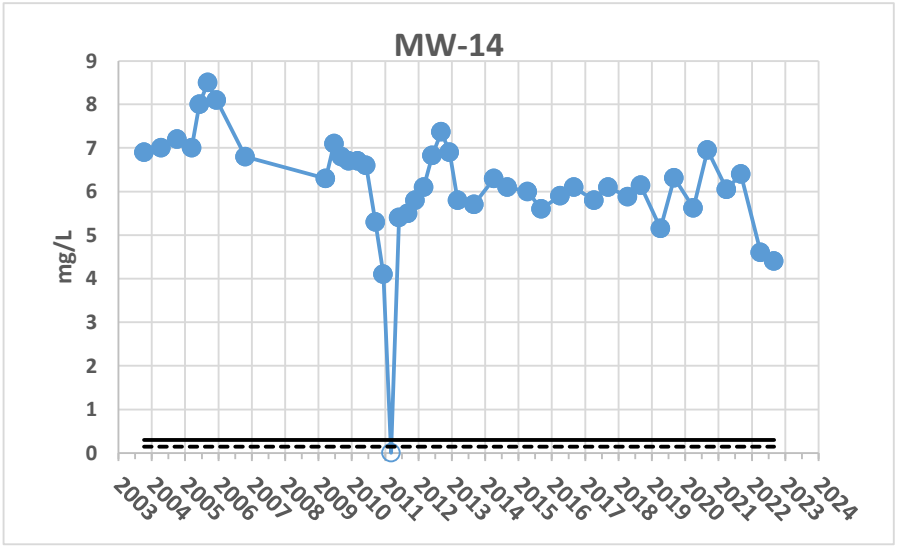
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

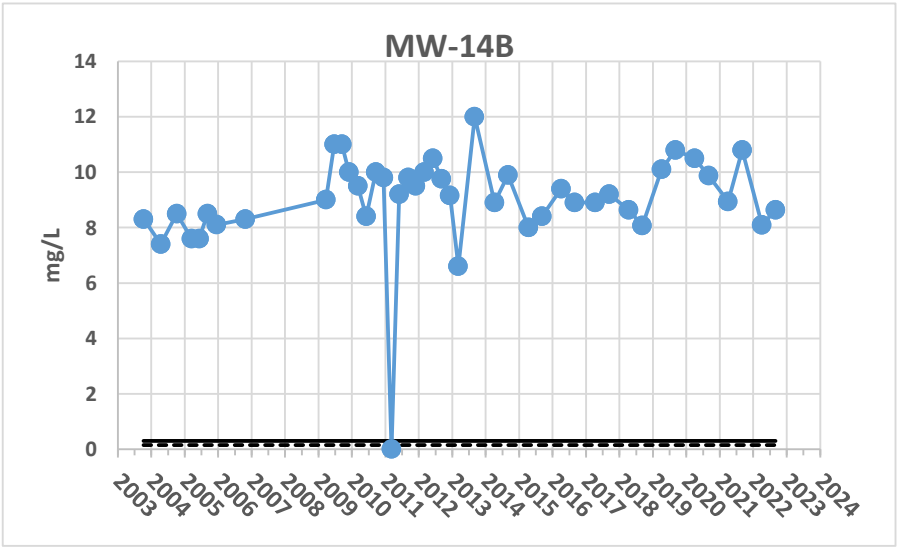
Foth

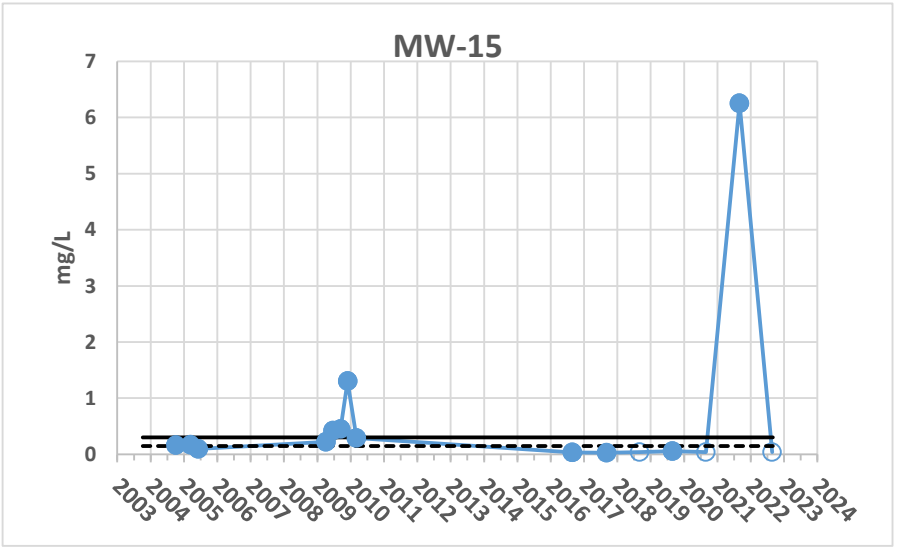
WEST AVENUE LANDFILL		
FIGURE 2D HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

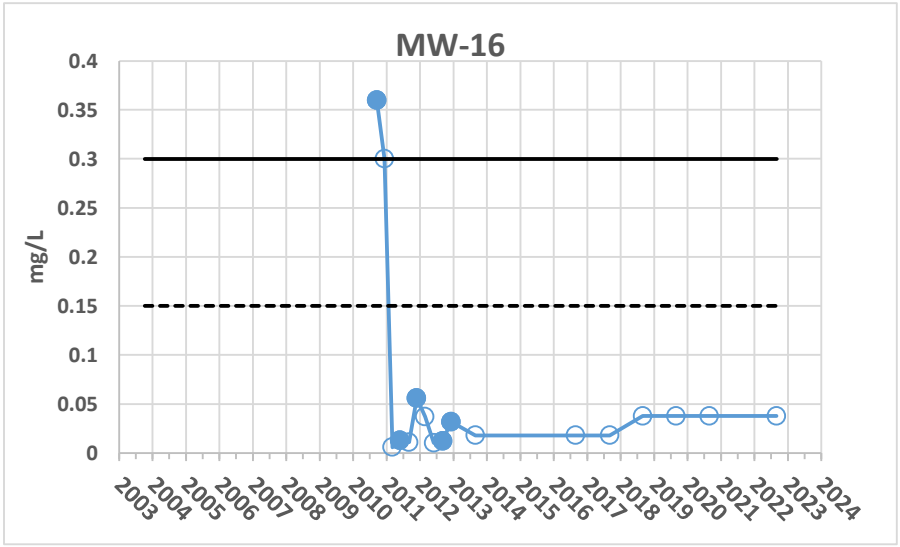
NR140 PAL — NR140 ES

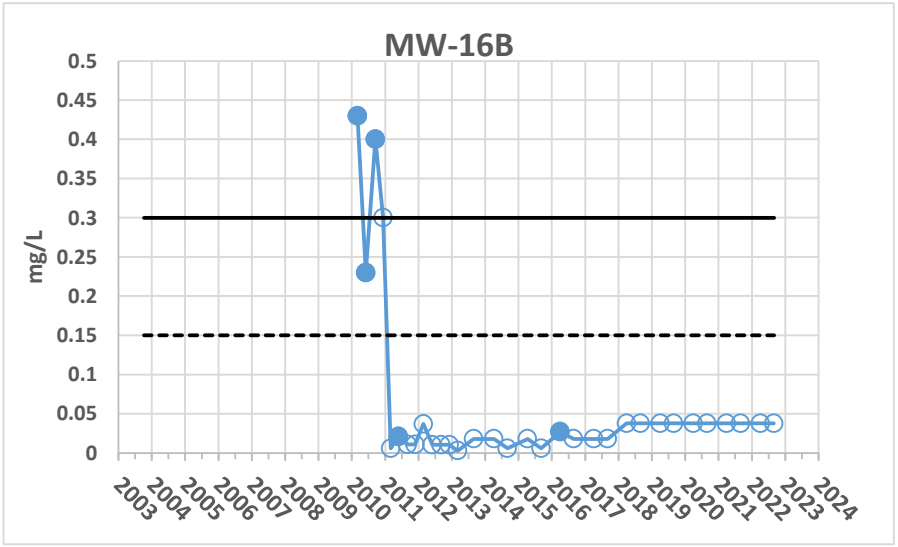
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

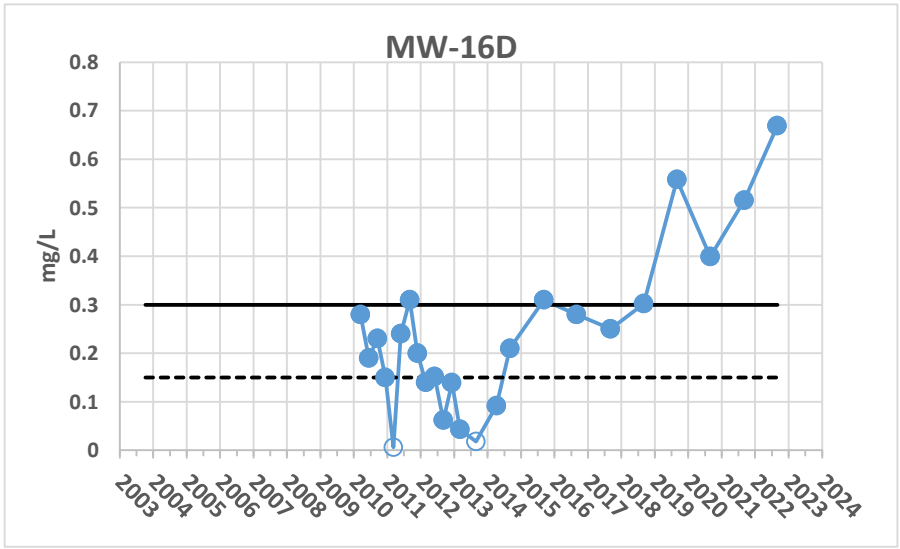
Foth

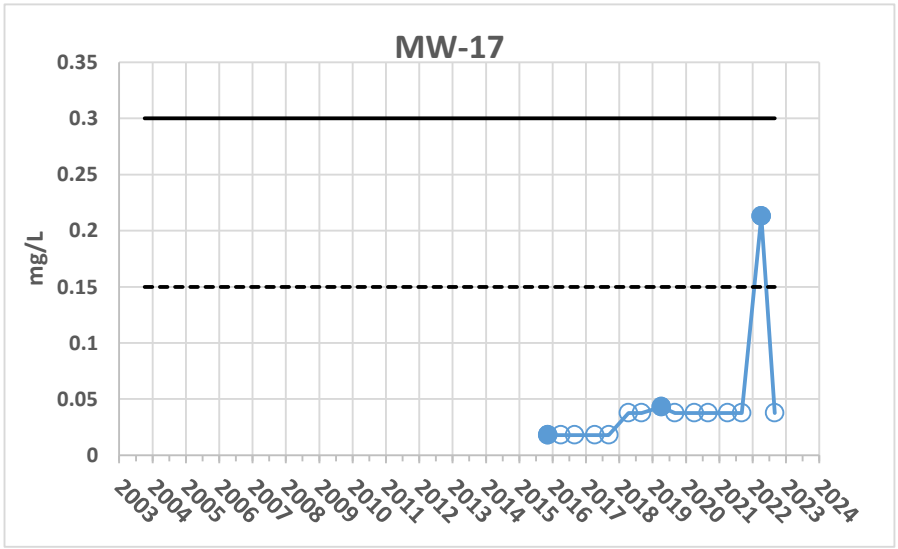
WEST AVENUE LANDFILL		
FIGURE 2E HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

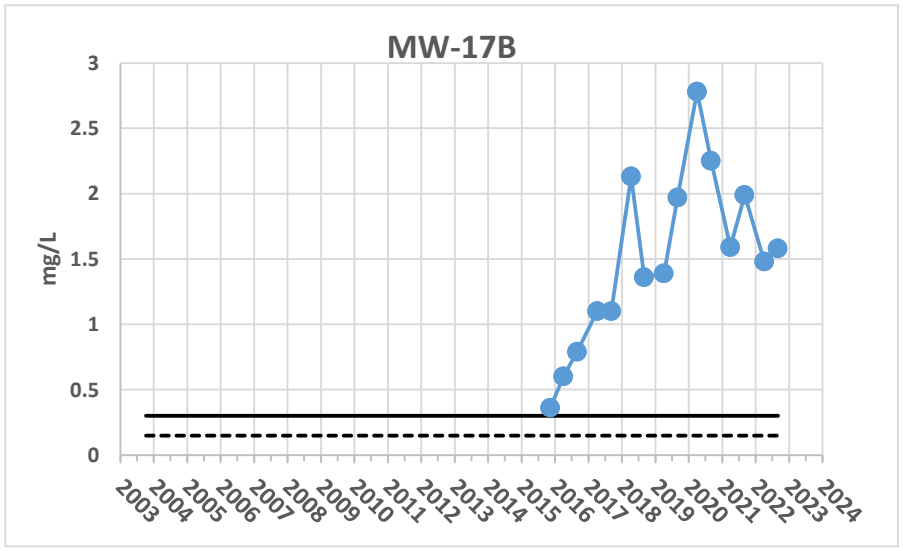
NR140 PAL — NR140 ES

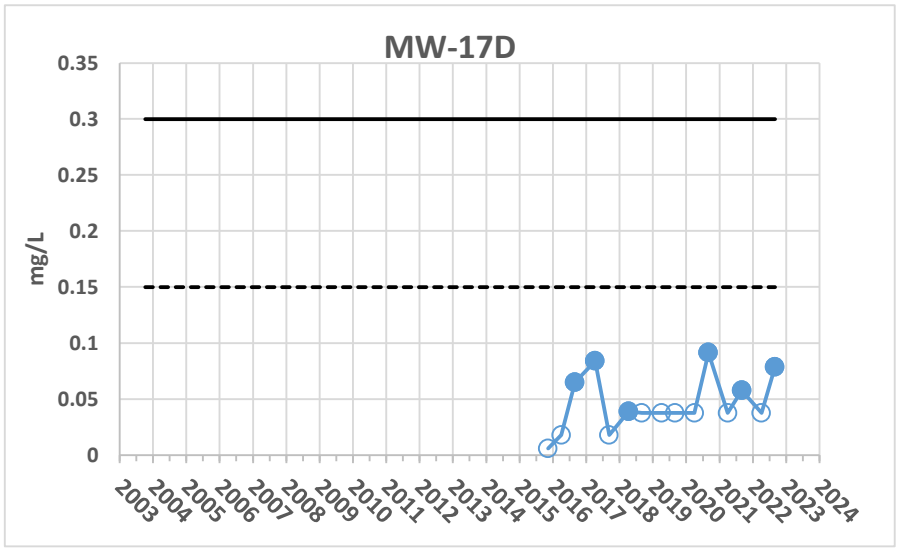
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

Foth

WEST AVENUE LANDFILL		
FIGURE 2F HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm





Legend

Nondetects — Detects

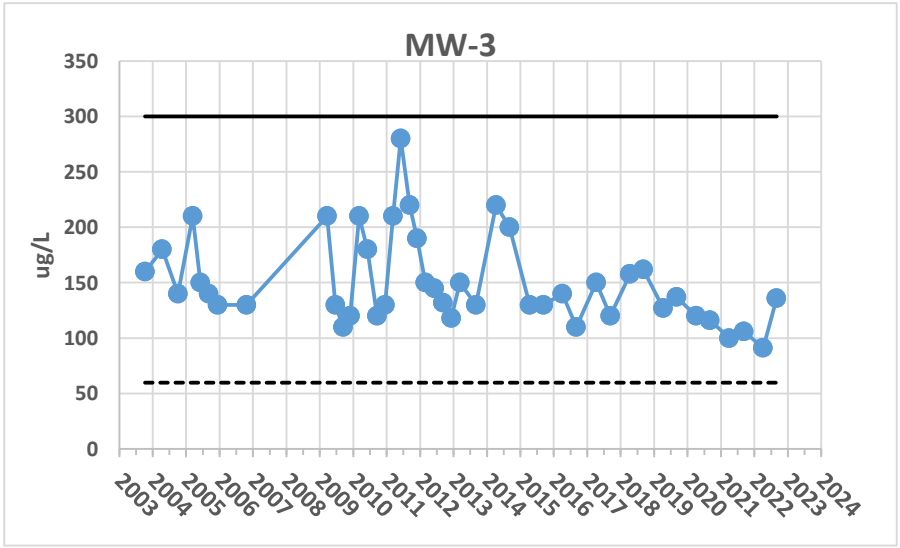
NR140 PAL — NR140 ES

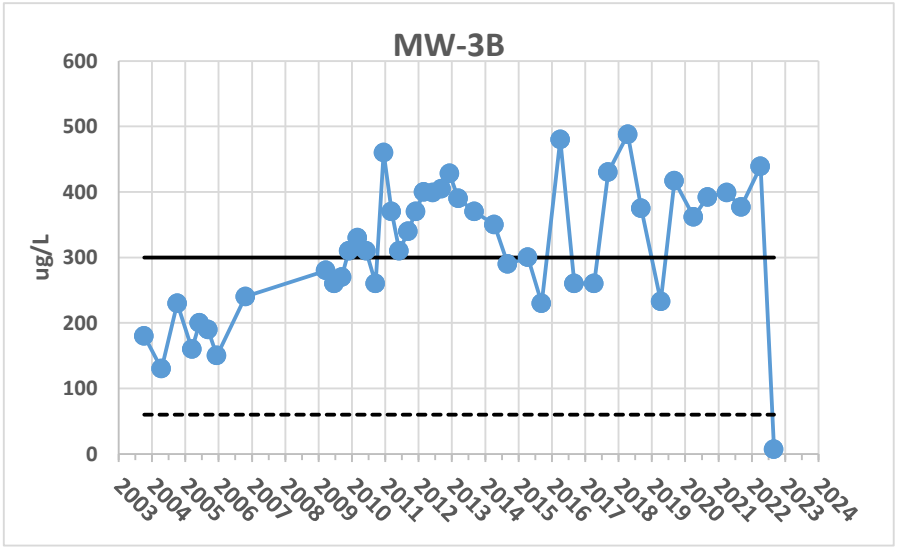
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

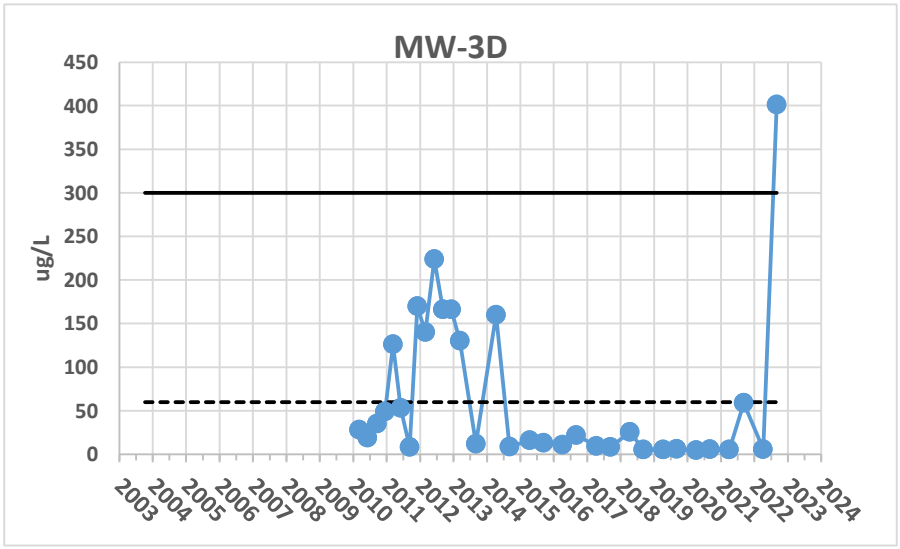
Foth

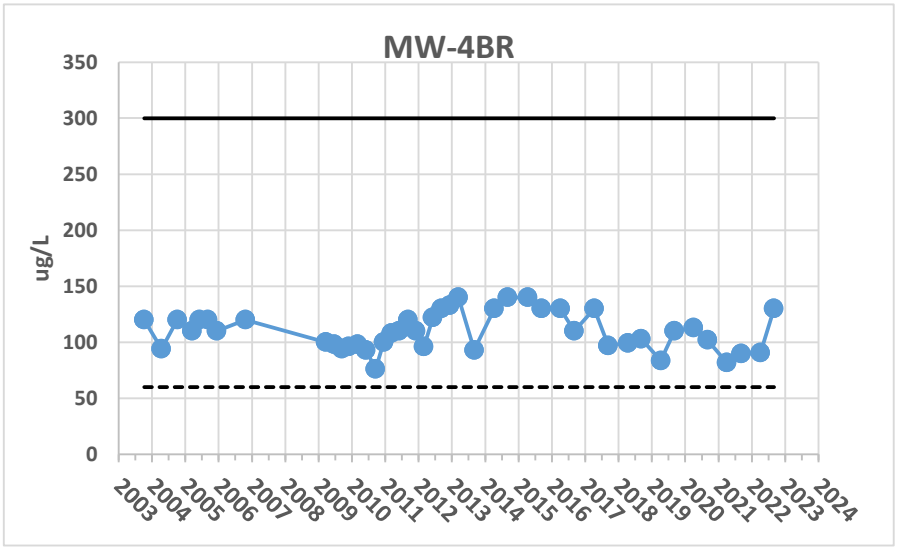
WEST AVENUE LANDFILL		
FIGURE 2G HISTORICAL TREND GRAPHS IRON		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

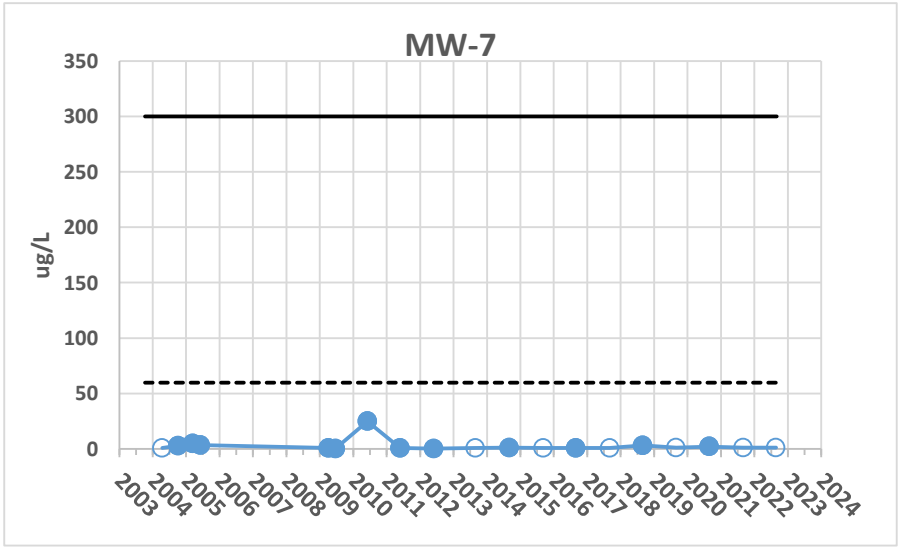
NR140 PAL — NR140 ES

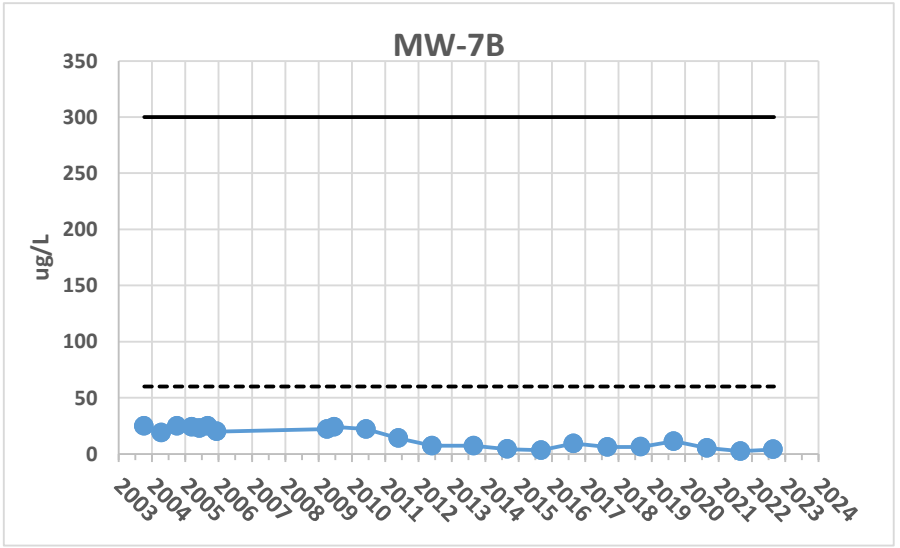
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

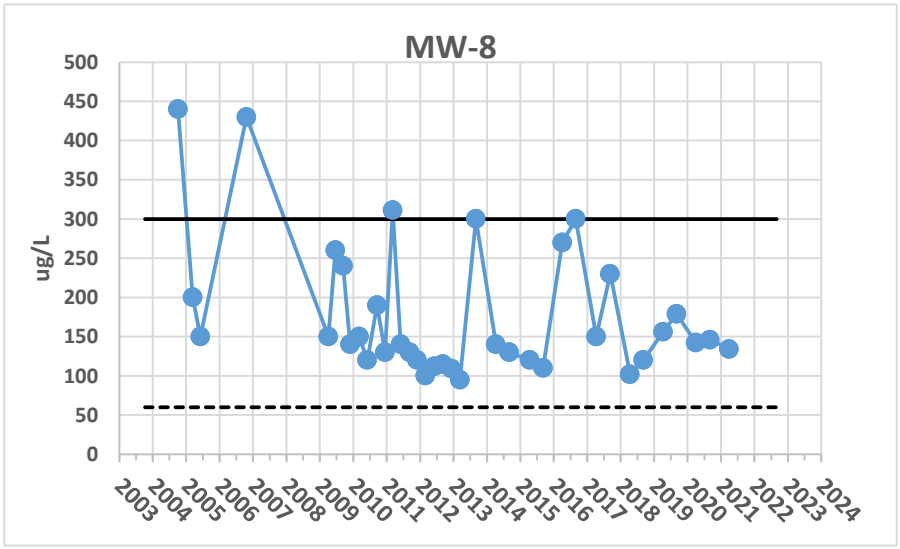
Foth

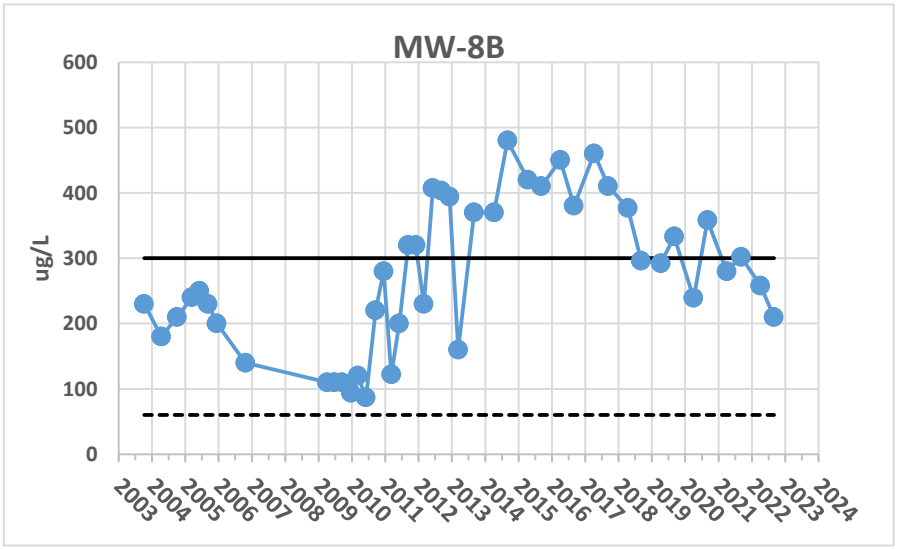
WEST AVENUE LANDFILL		
FIGURE 3A HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

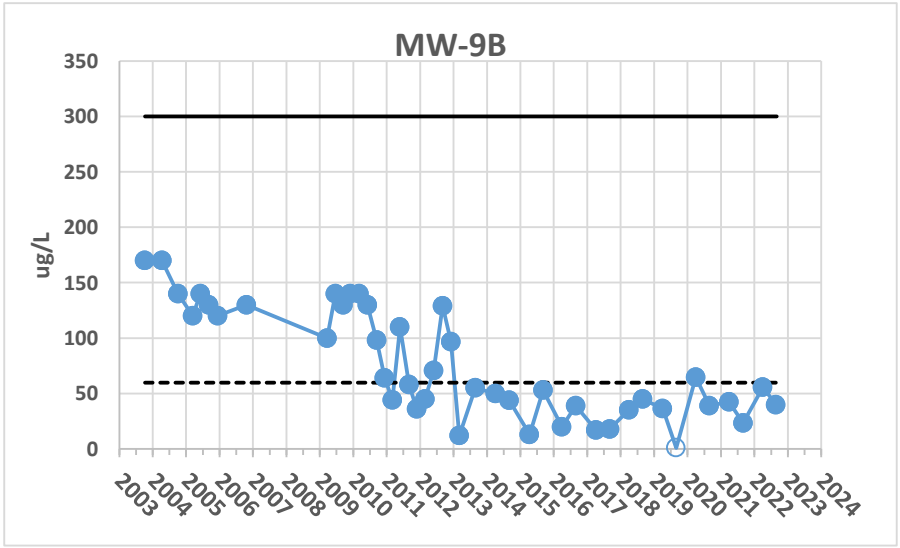
NR140 PAL — NR140 ES

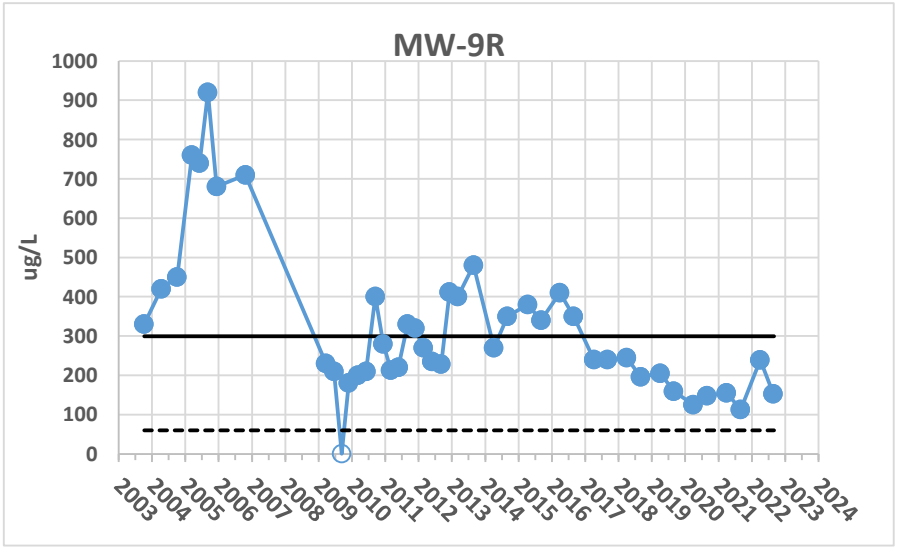
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

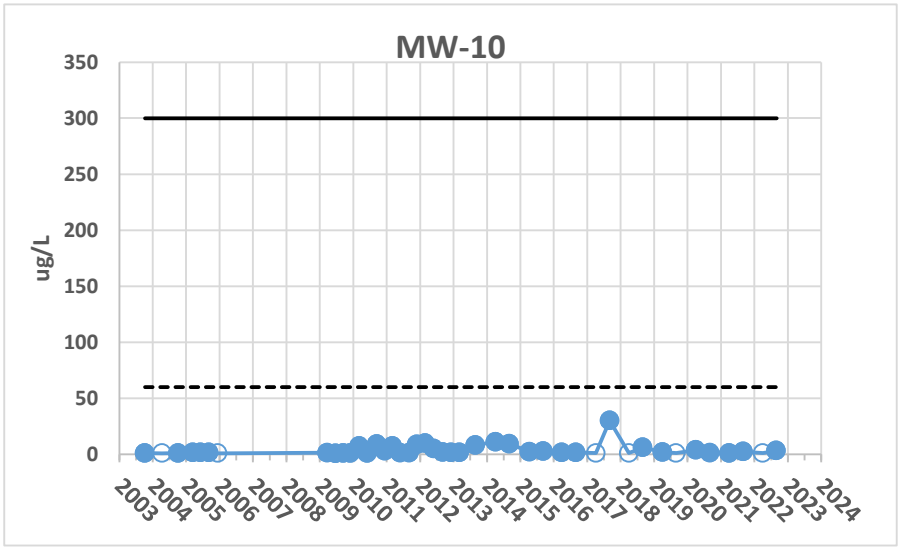
Foth

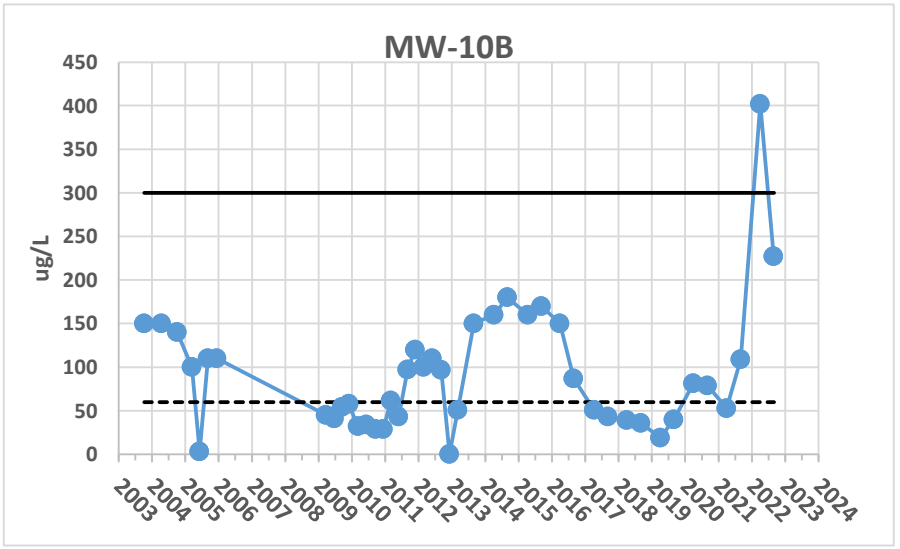
WEST AVENUE LANDFILL		
FIGURE 3B HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

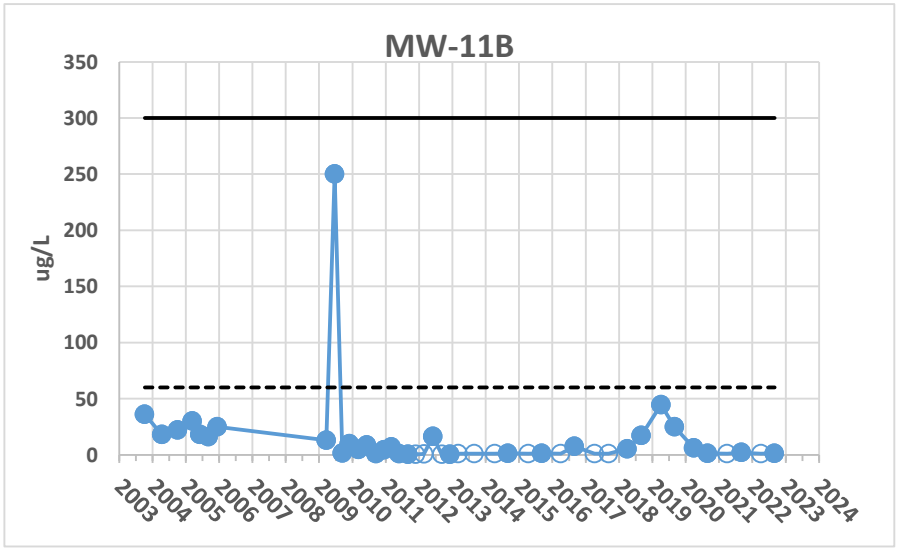
NR140 PAL — NR140 ES

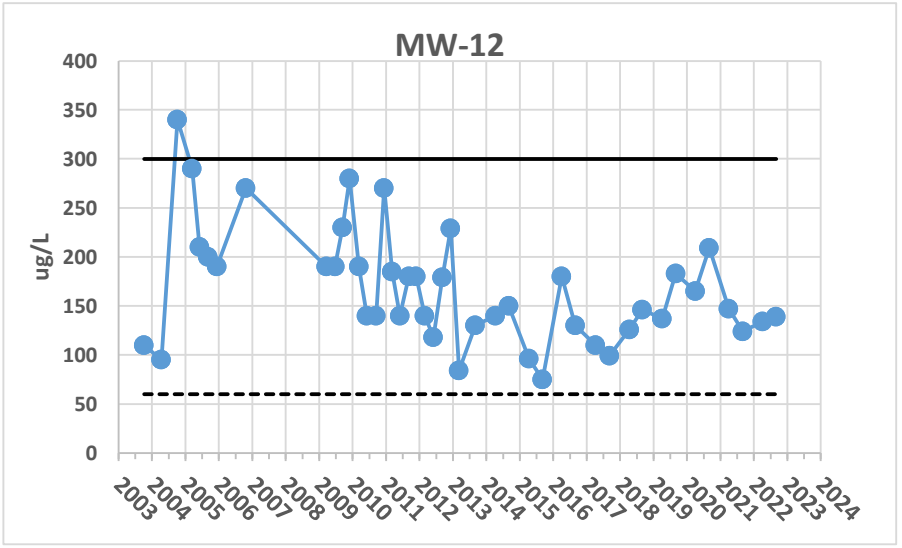
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

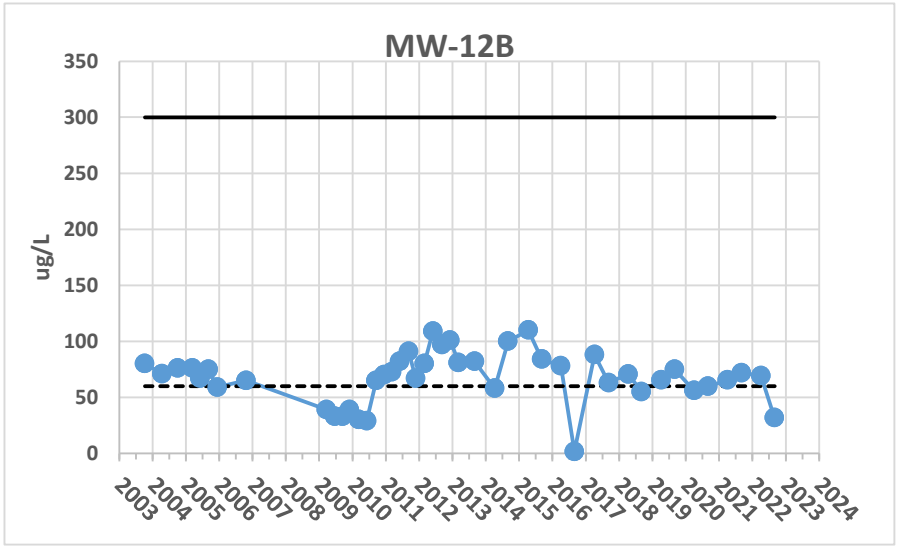
Foth

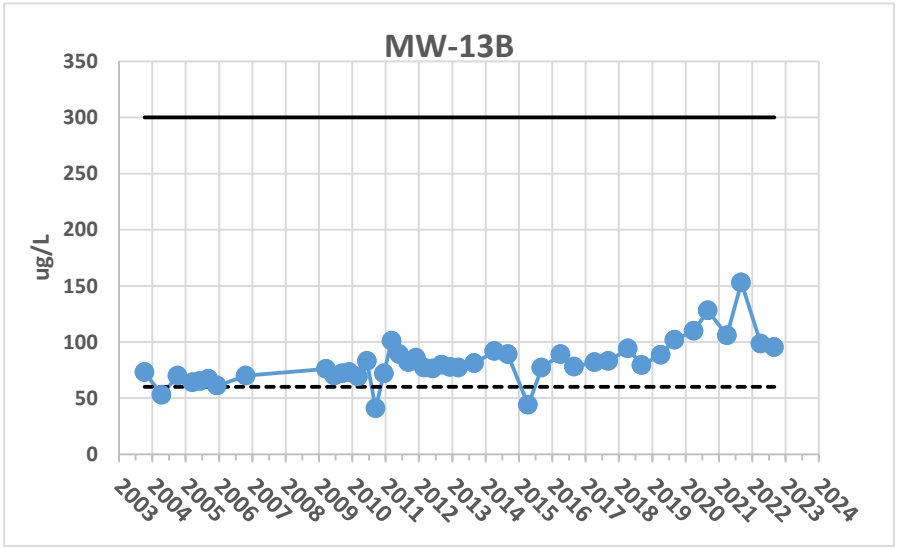
WEST AVENUE LANDFILL		
FIGURE 3C HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

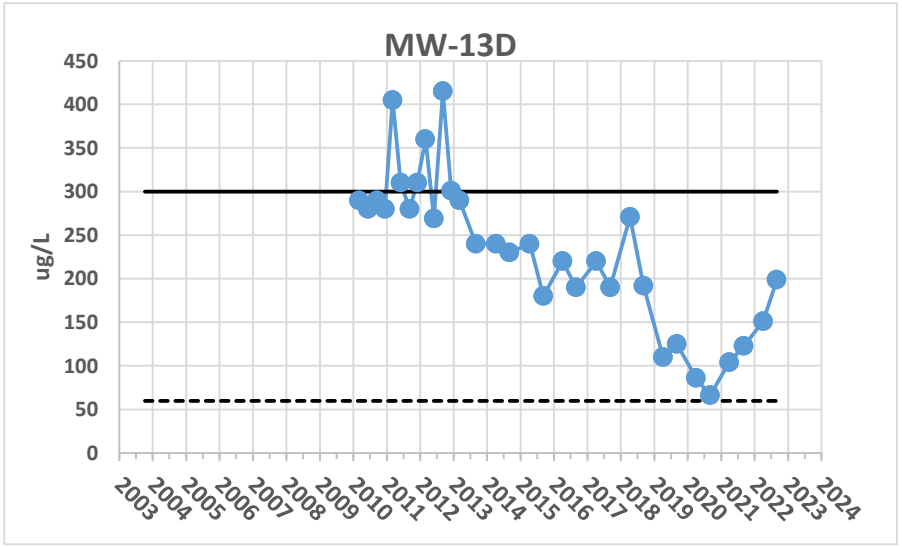
NR140 PAL — NR140 ES

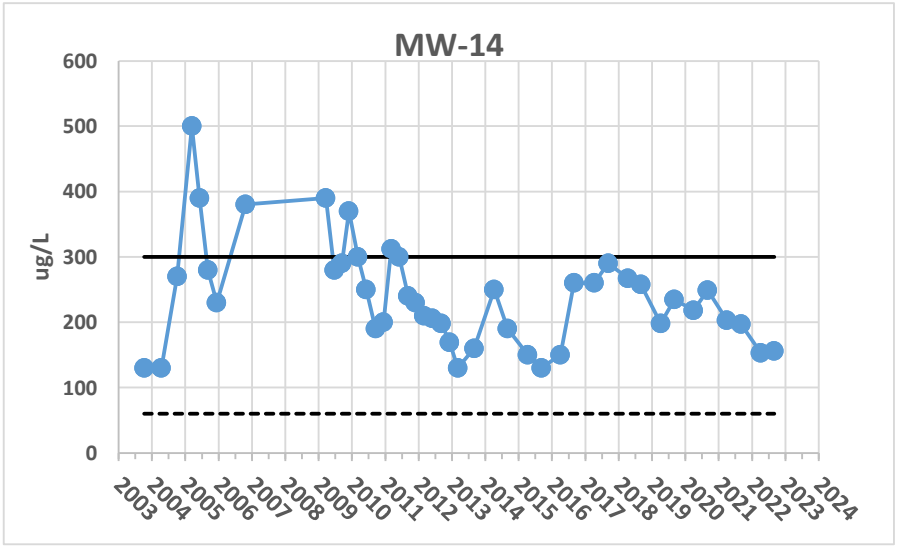
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

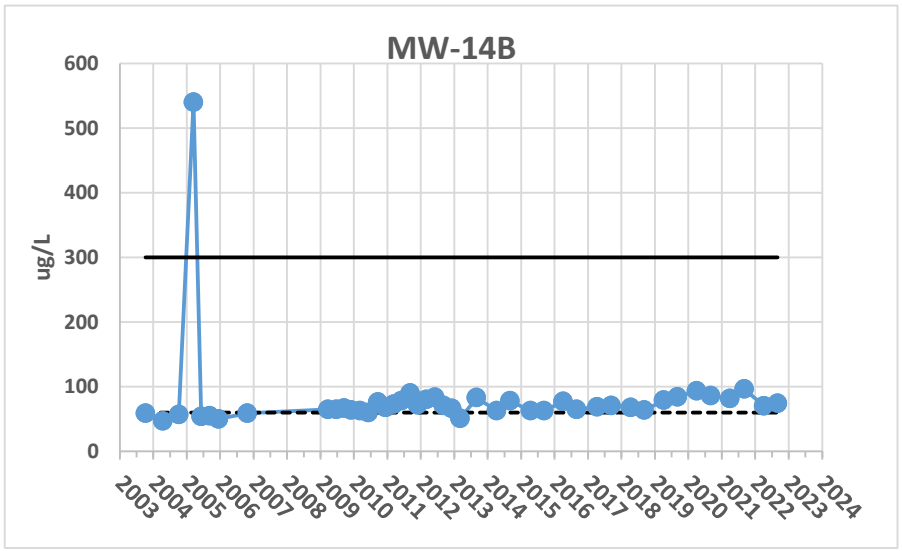
Foth

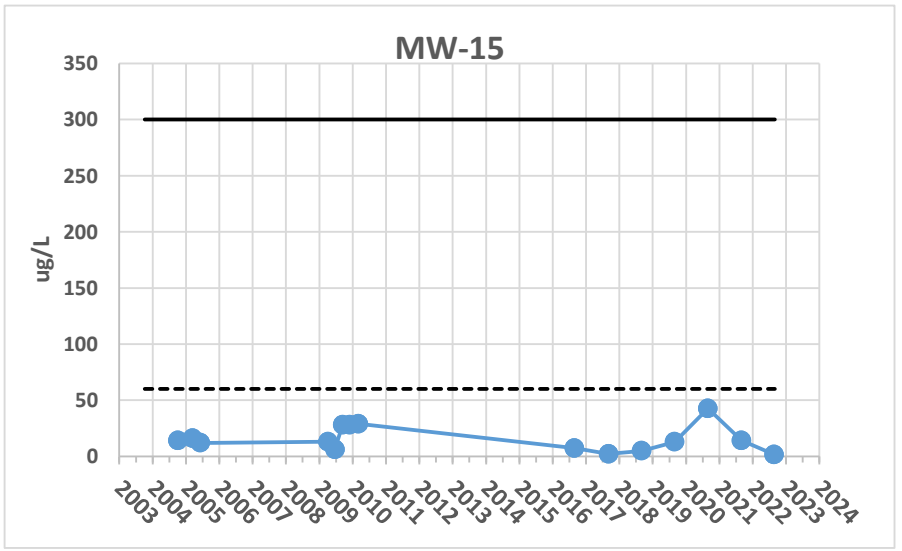
WEST AVENUE LANDFILL		
FIGURE 3D HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

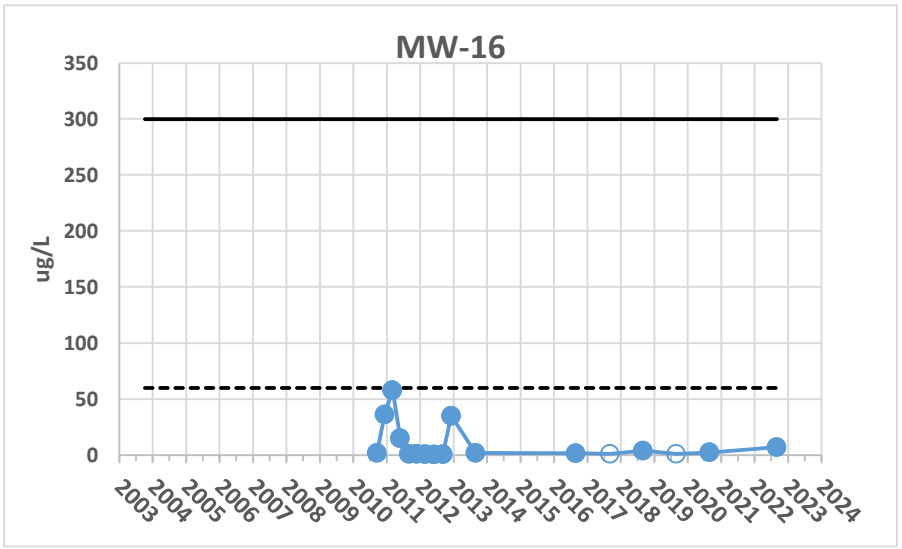
NR140 PAL — NR140 ES

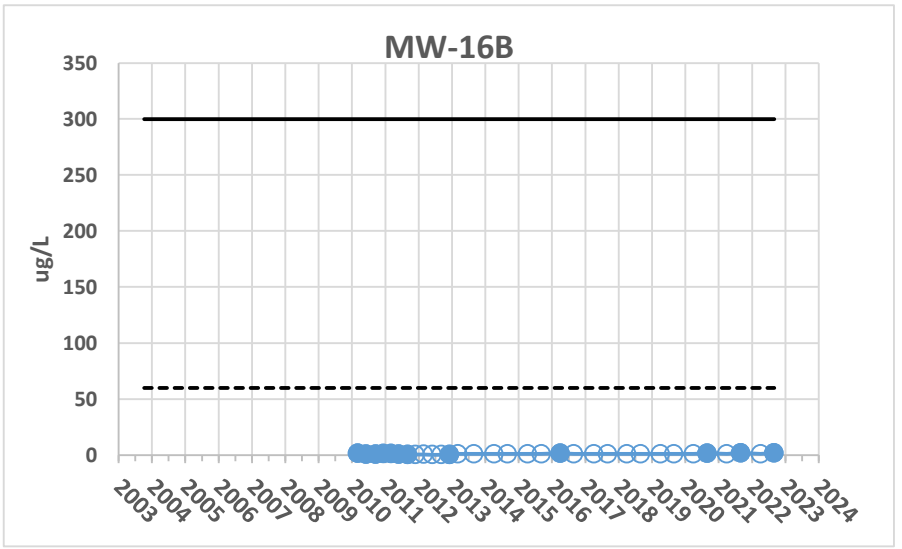
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

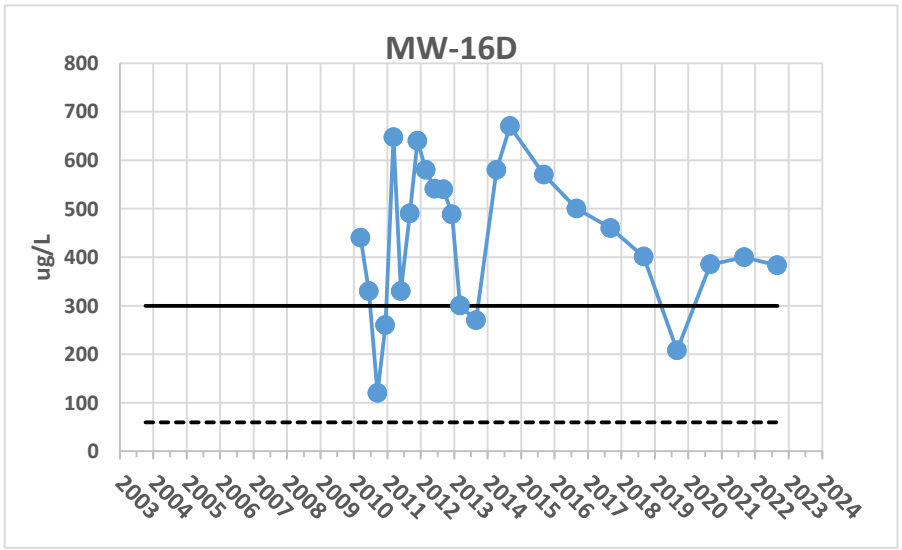
Foth

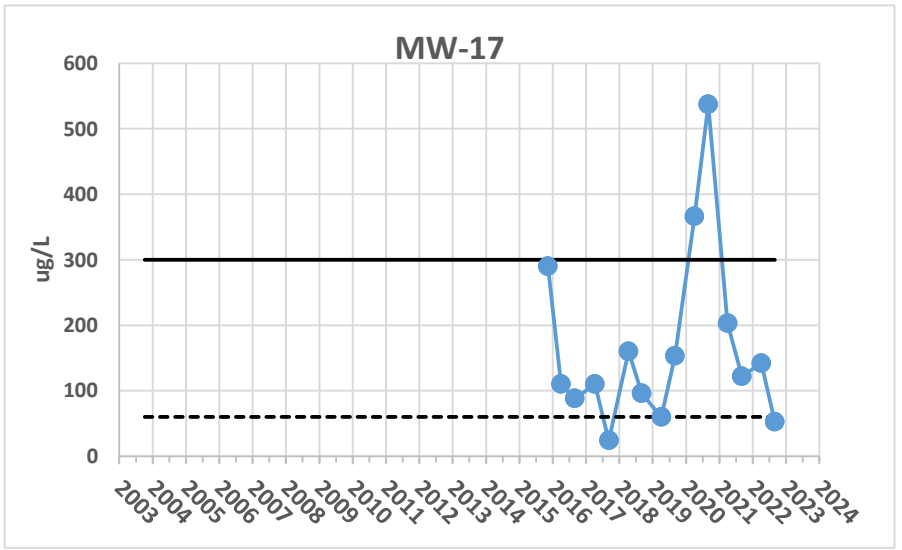
WEST AVENUE LANDFILL		
FIGURE 3E HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

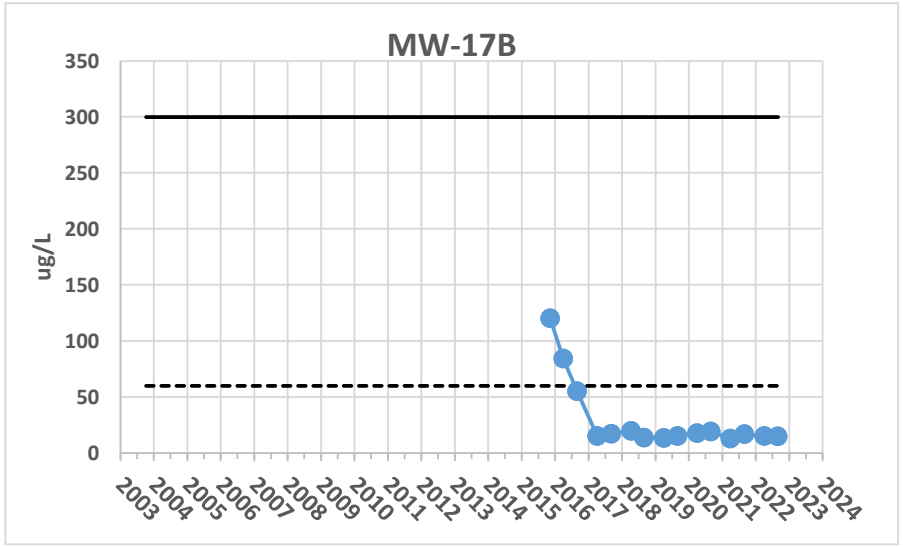
NR140 PAL — NR140 ES

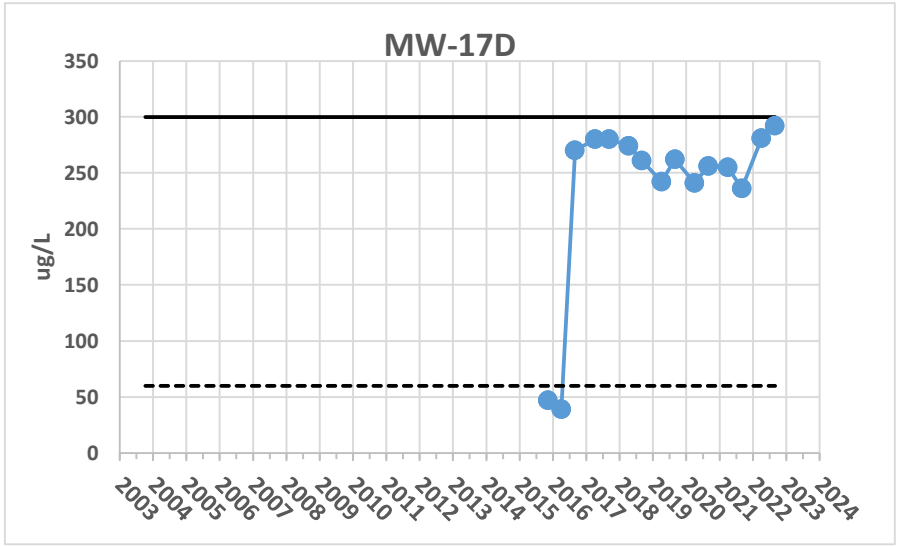
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

Foth

WEST AVENUE LANDFILL		
FIGURE 3F HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm





Legend

Nondetects — Detects

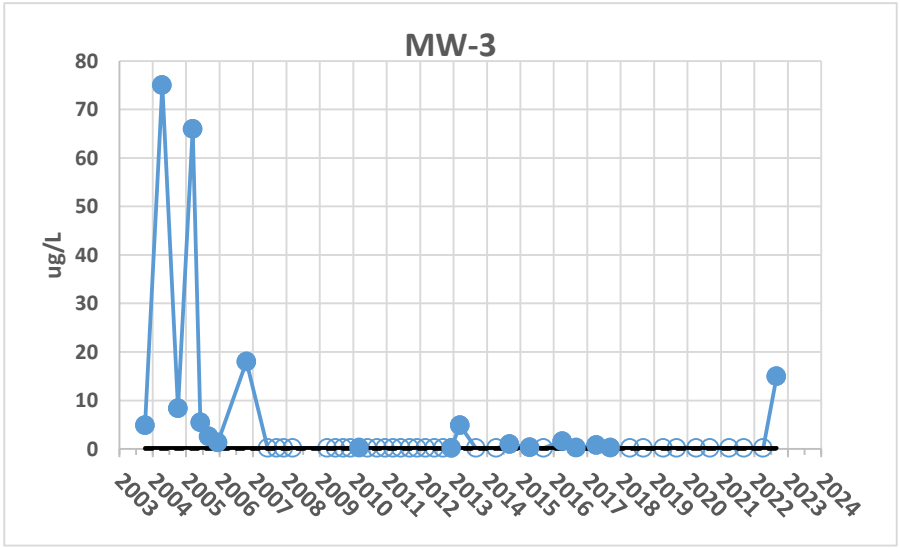
NR140 PAL — NR140 ES

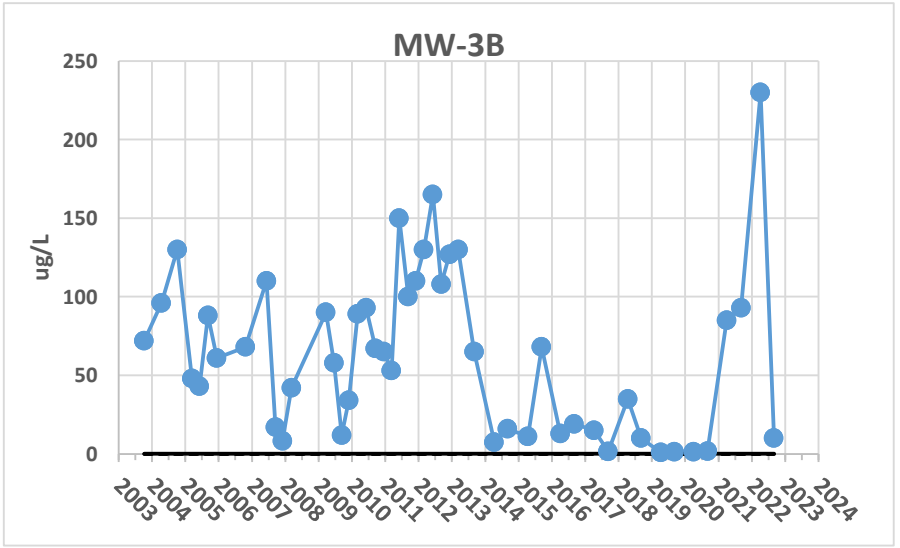
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

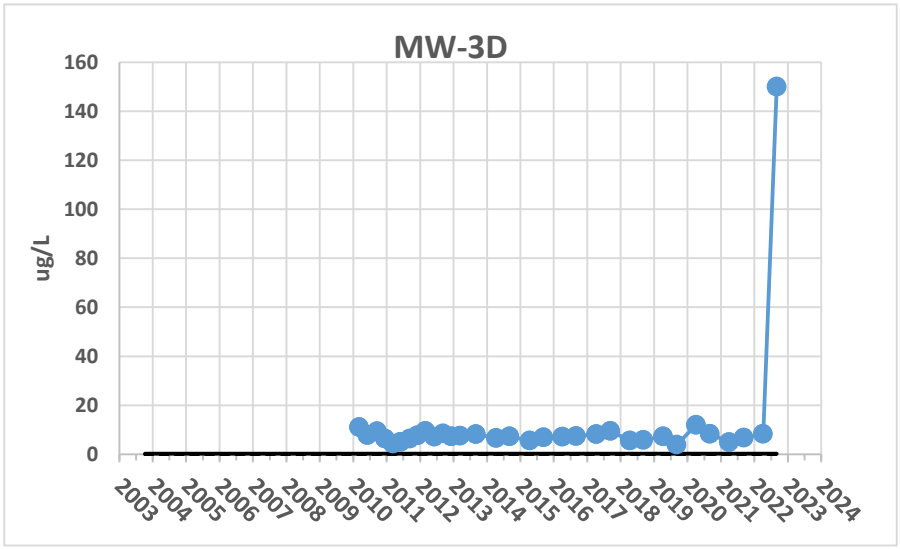
Foth

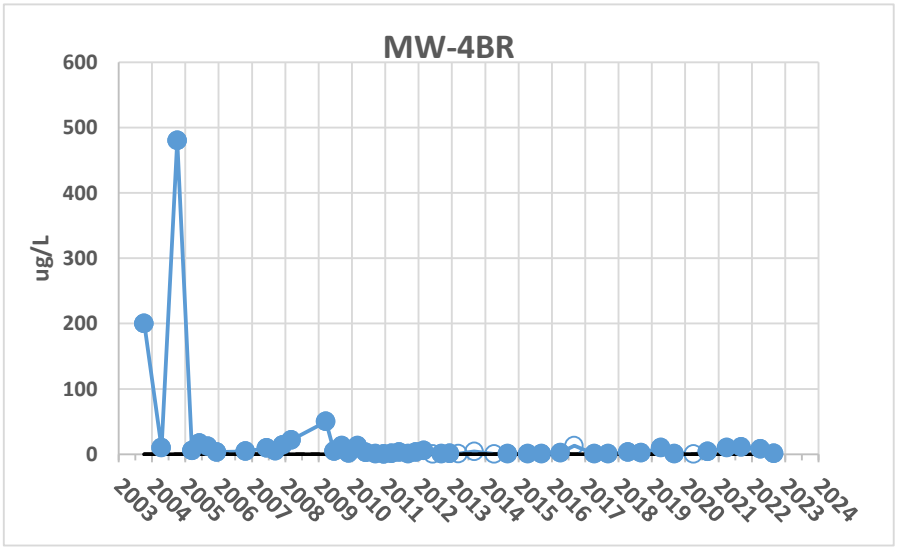
WEST AVENUE LANDFILL		
FIGURE 3G HISTORICAL TREND GRAPHS MANGANESE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

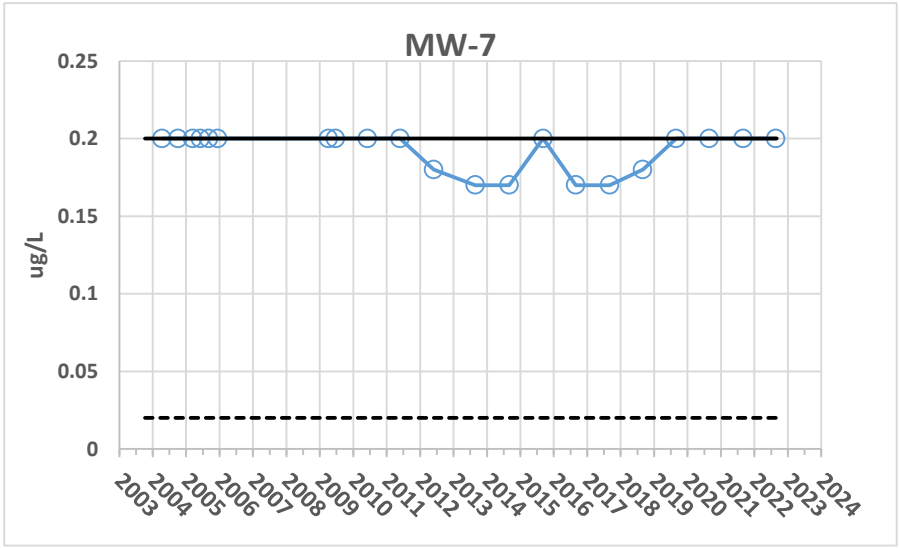
NR140 PAL — NR140 ES

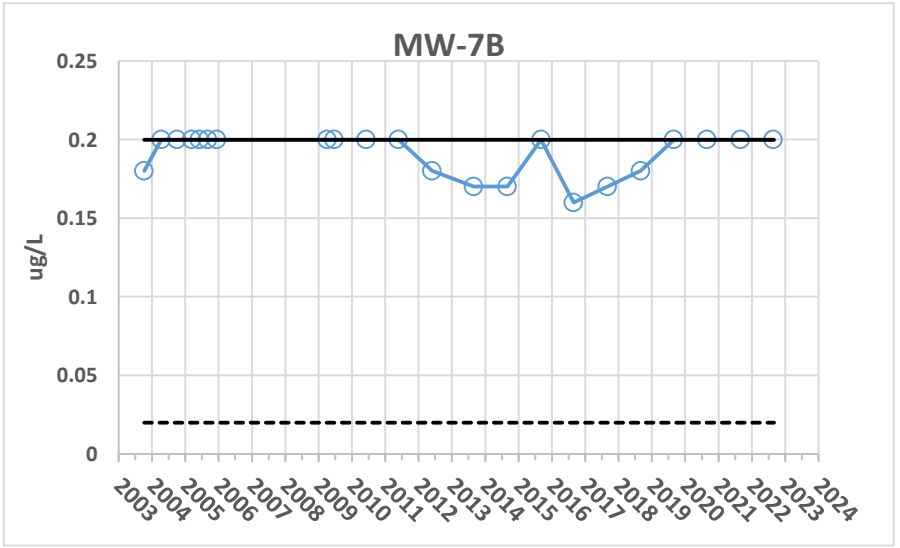
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

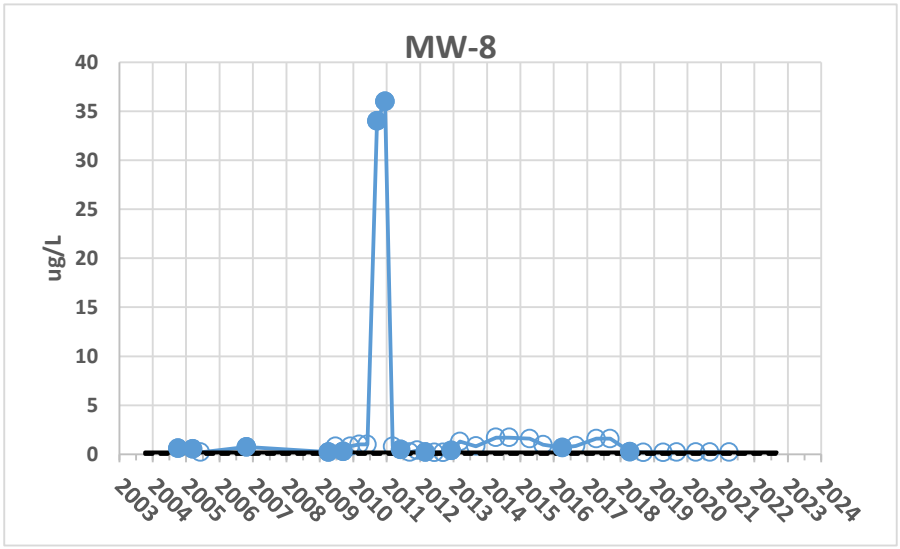
Foth

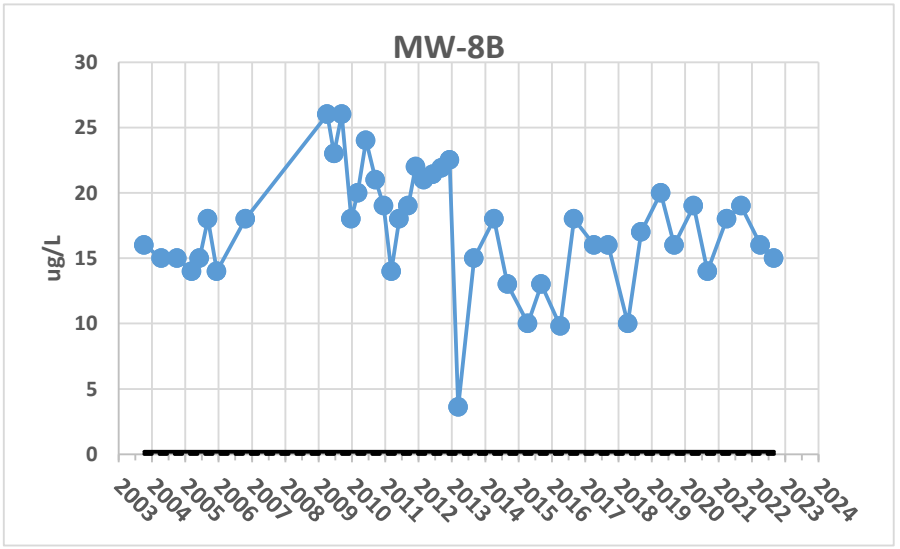
WEST AVENUE LANDFILL		
FIGURE 3A HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

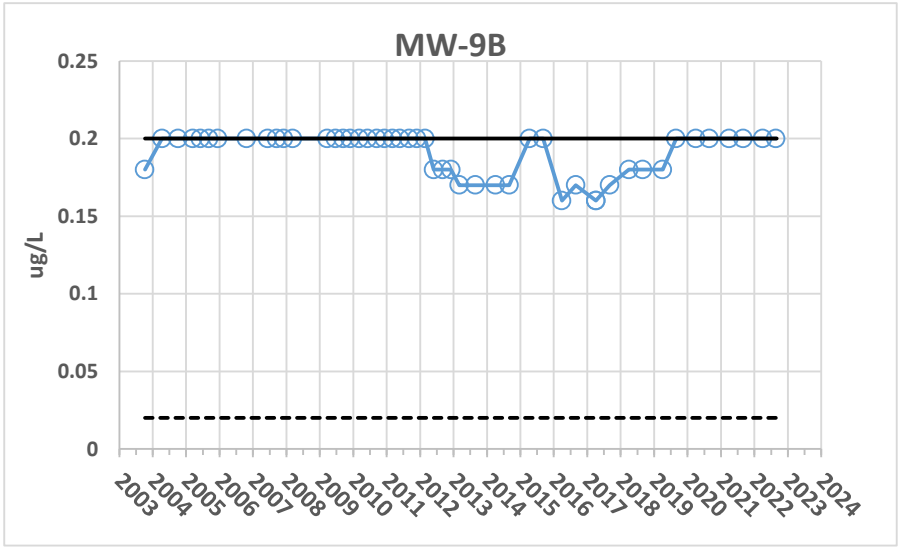
NR140 PAL — NR140 ES

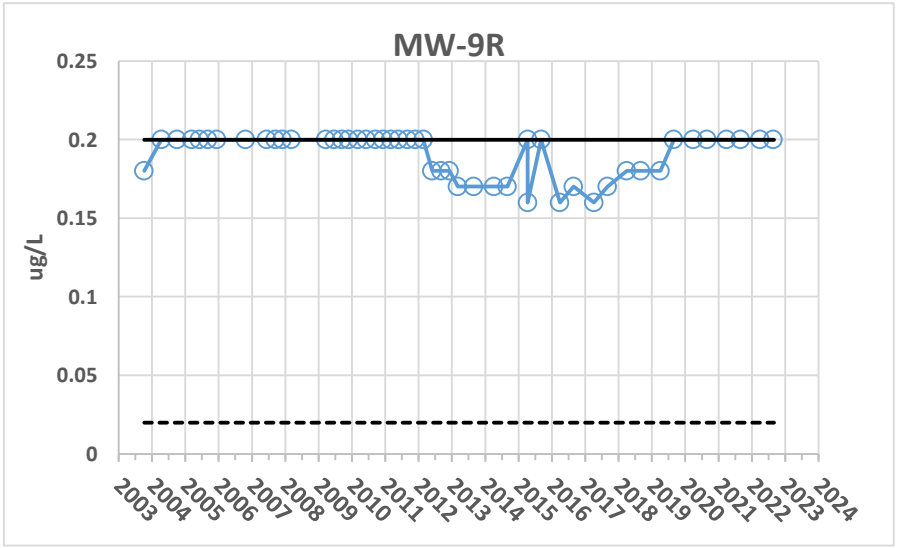
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

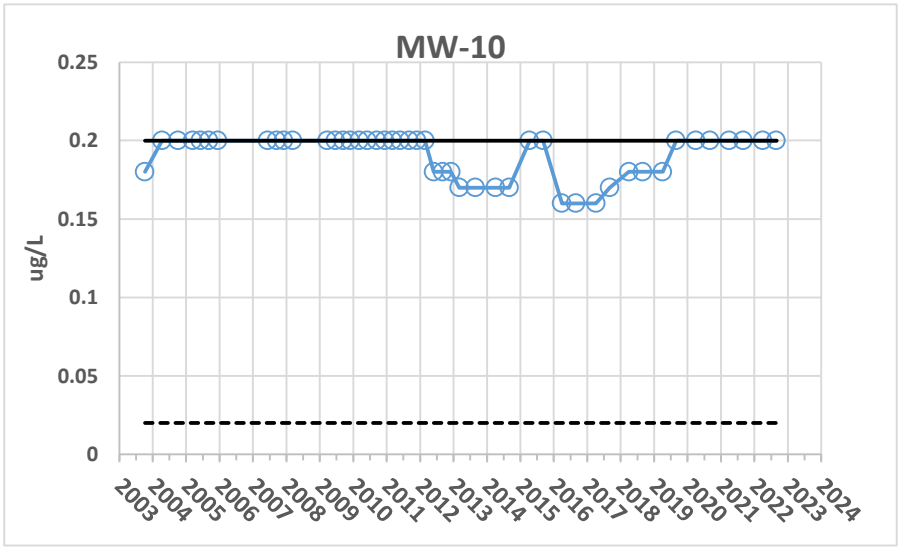
Foth

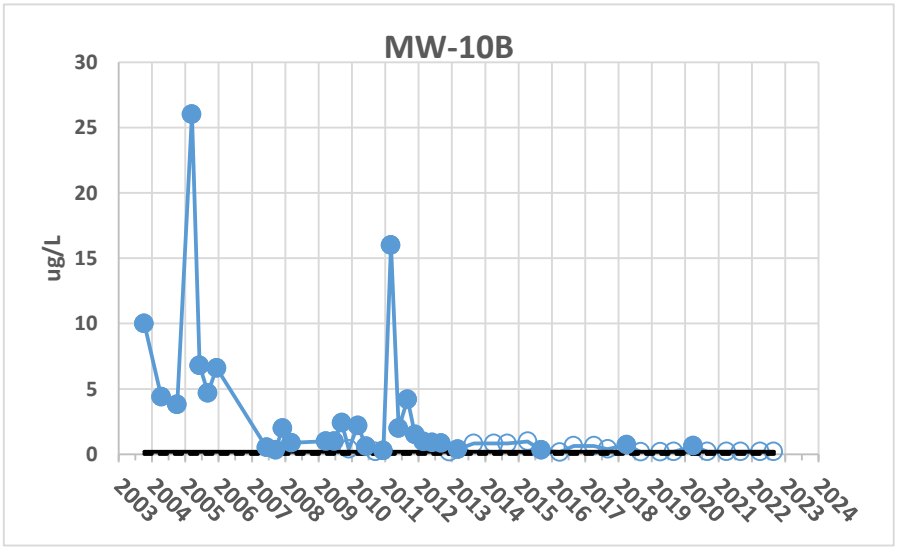
WEST AVENUE LANDFILL		
FIGURE 3B HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

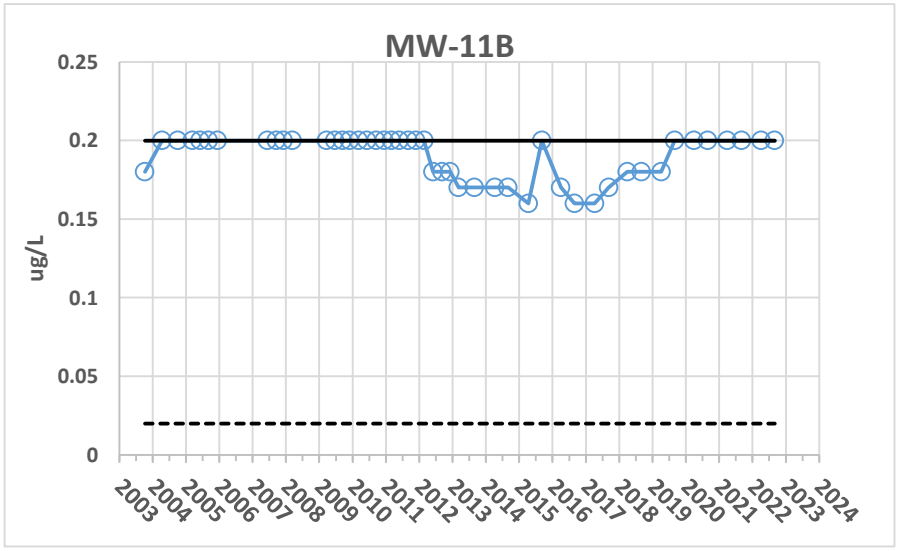
NR140 PAL — NR140 ES

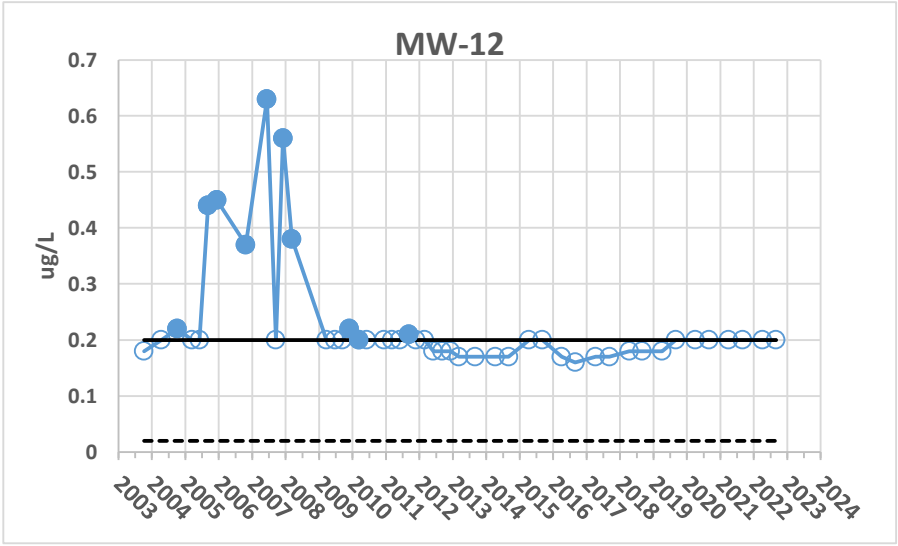
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

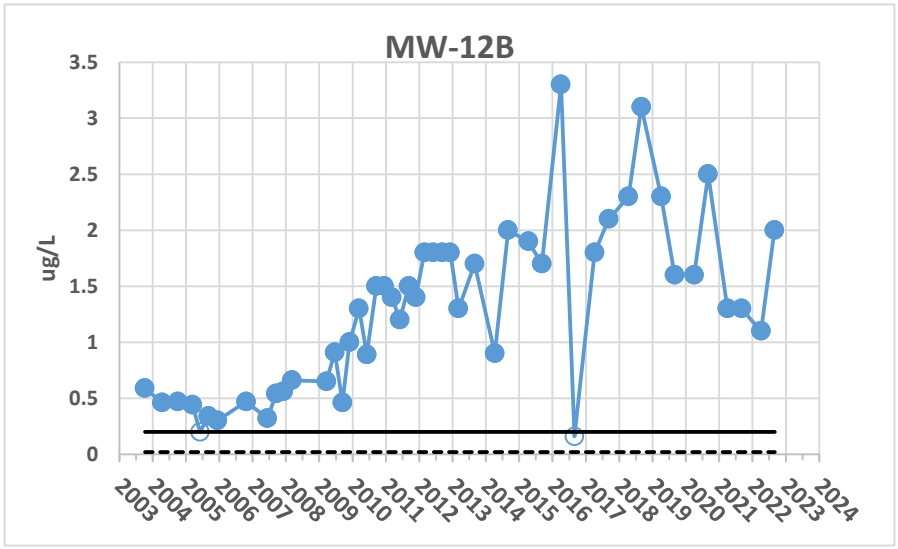
Foth

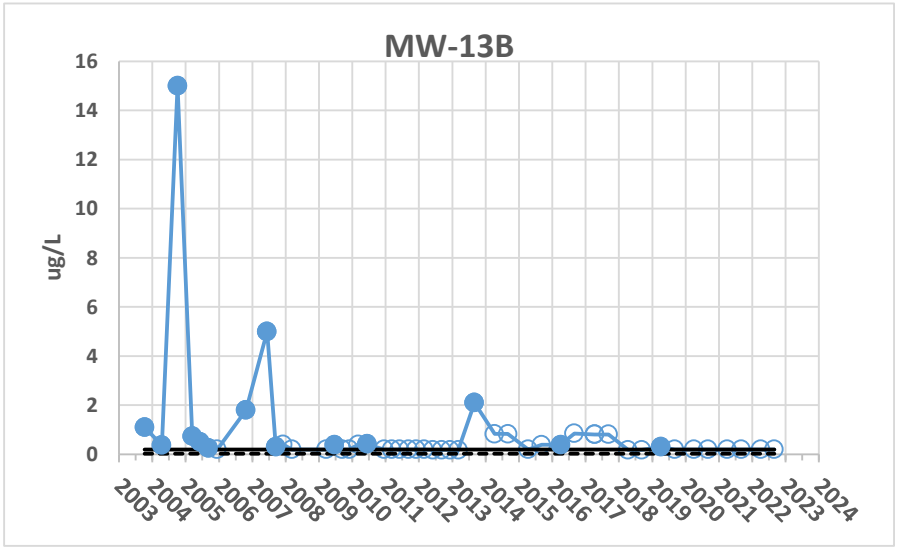
WEST AVENUE LANDFILL		
FIGURE 3C HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

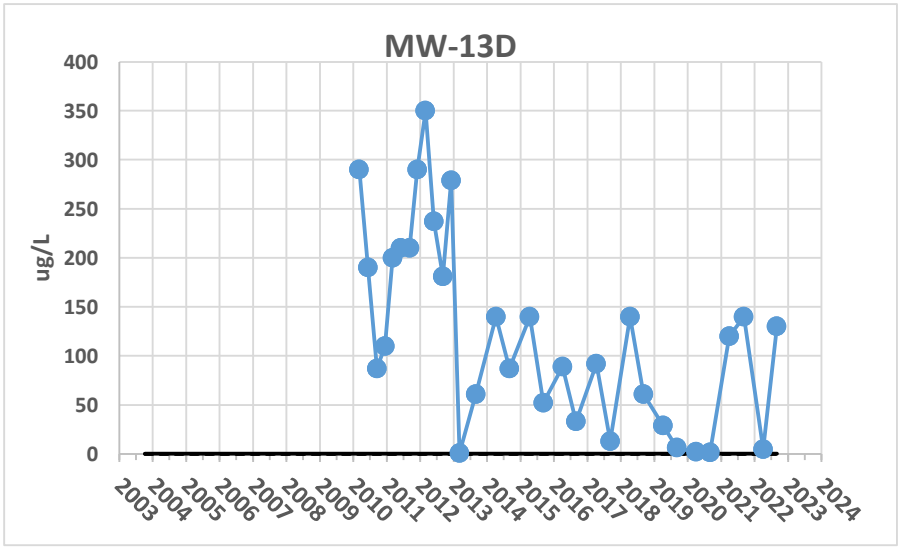
NR140 PAL — NR140 ES

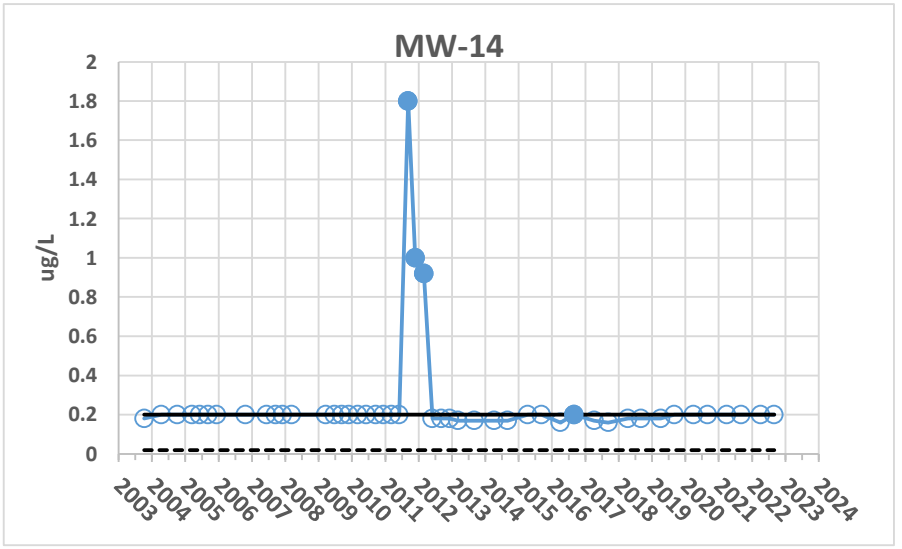
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

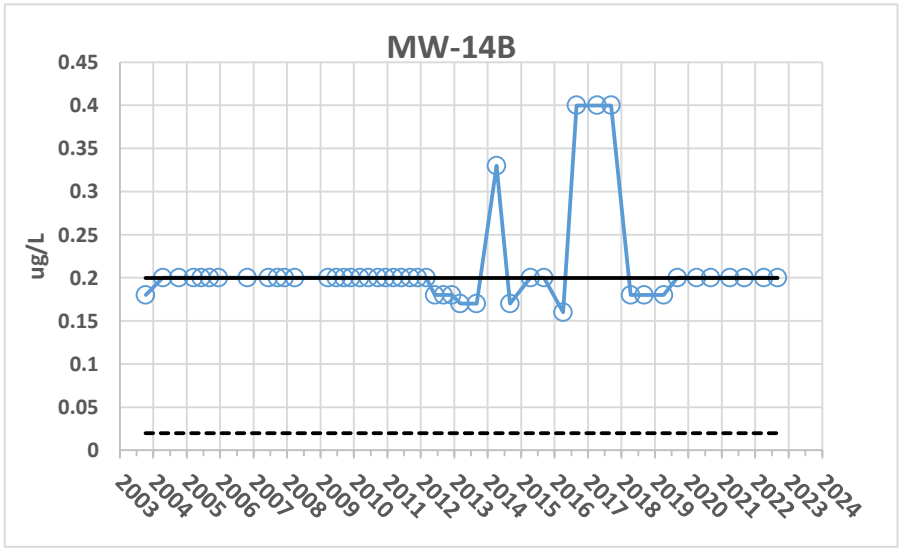
Foth

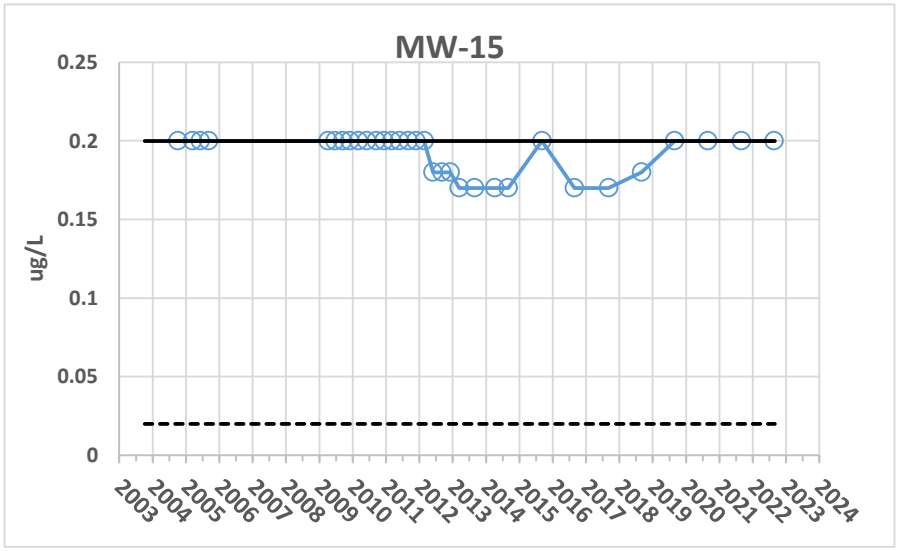
WEST AVENUE LANDFILL		
FIGURE 3D HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

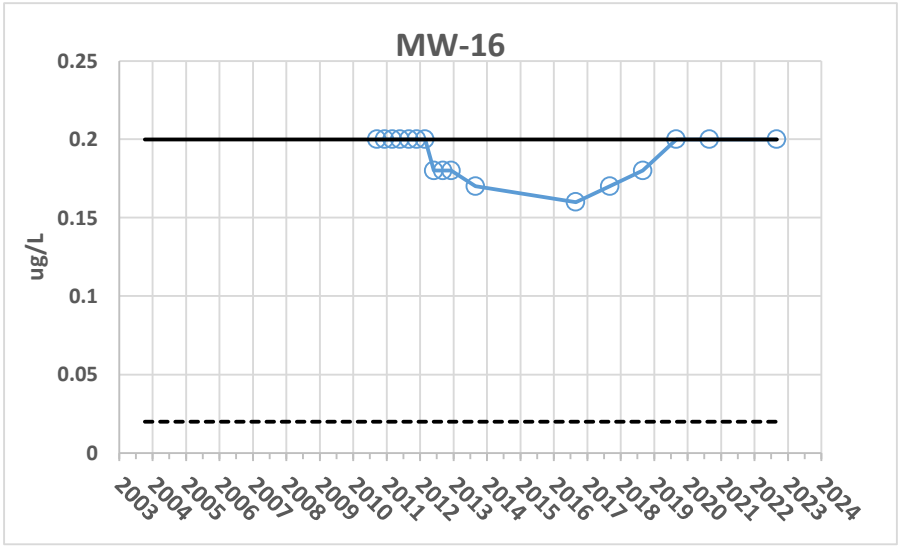
NR140 PAL — NR140 ES

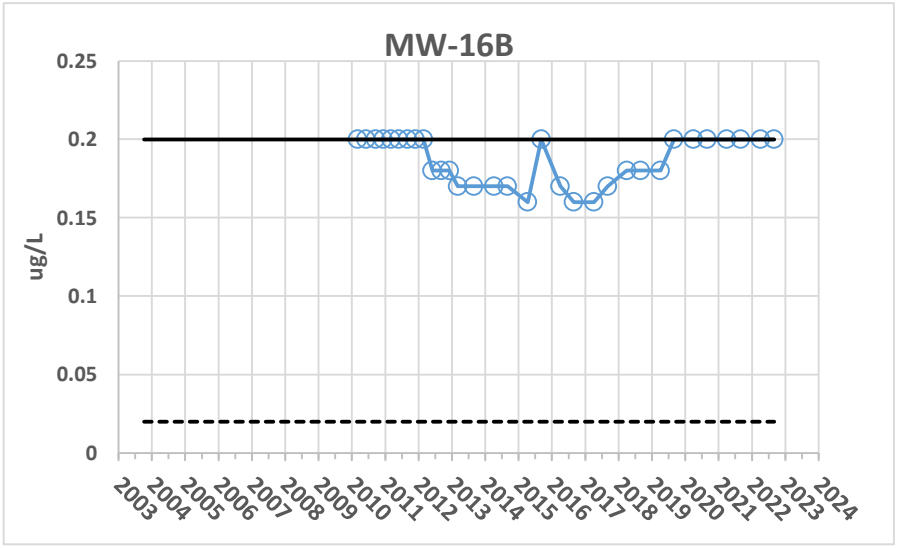
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

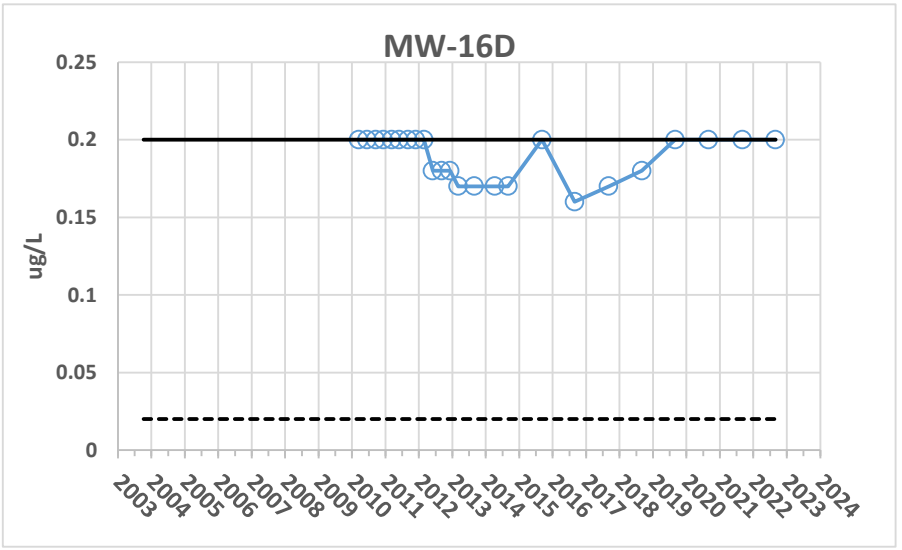
Foth

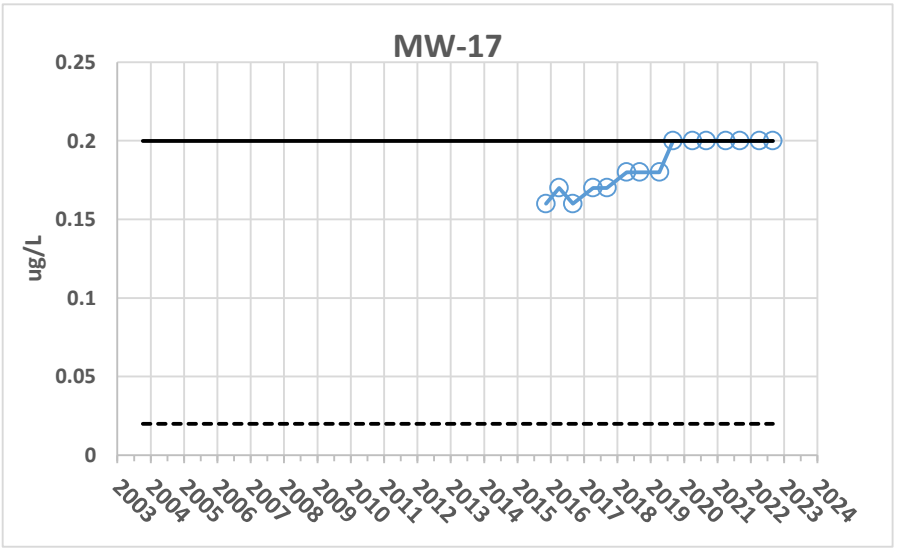
WEST AVENUE LANDFILL		
FIGURE 3E HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm









Legend

Nondetects — Detects

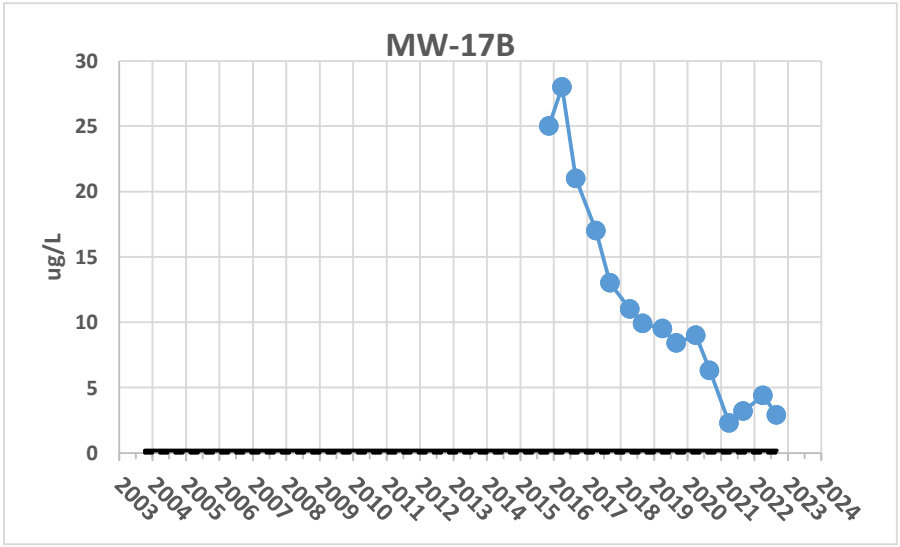
NR140 PAL — NR140 ES

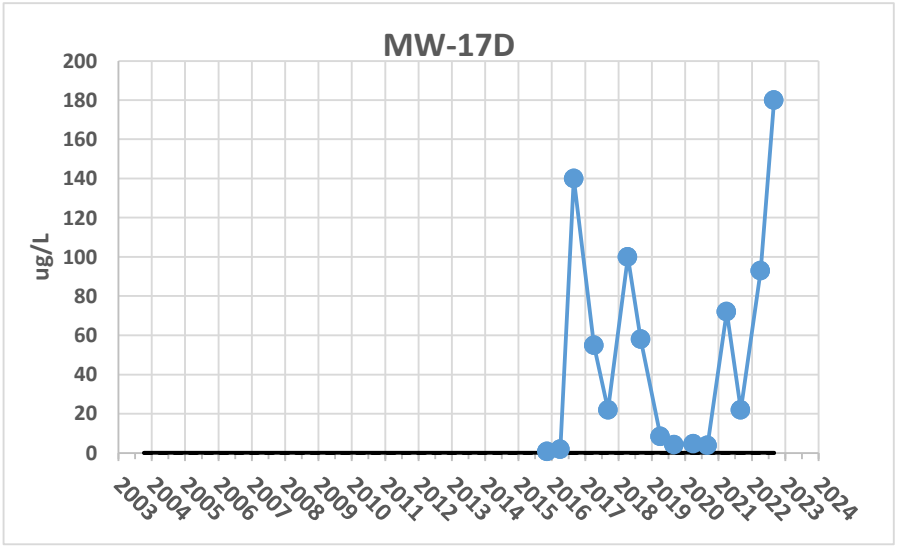
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

Foth

WEST AVENUE LANDFILL		
FIGURE 3F HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm





Legend

Nondetects — Detects

NR140 PAL — NR140 ES

Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

Foth

WEST AVENUE LANDFILL		
FIGURE 3G HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: JANUARY 2023	Revision Date:	
Drawn By: SGL	Checked By: KMC2	Scope: 23W013.00

pw:\\Clients\Waukesha WI C\0023W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsm

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COC	MW-3	Chloride		0.0168	-407	0.28	0.01	44	Inc.		-0.0220	1307	-0.24	0.37	10	None
COC	MW-3B	Chloride		0.0170	-398	0.48	0.00	44	Inc.		-0.0524	2683	-0.38	0.15	10	None
COC	MW-3D	Chloride		0.0032	7	0.19	0.13	32	None		-0.0135	753	-0.31	0.24	10	None
COC	MW-4BR	Chloride		0.0046	108.7	0.20	0.05	44	None		-0.0260	1454	-0.27	0.32	10	None
COC	MW-7	Chloride		-0.0058	361	-0.12	0.52	18	None		0.0458	-1862	0.20	0.81	5	None
COC	MW-7B	Chloride		0.0197	-692	0.84	0.00	22	Inc.		0.0325	-1247	0.80	0.09	5	None
COC	MW-8	Chloride		0.0175	-433	0.31	0.01	37	Inc.		-0.0660	3221	-0.90	0.01	7	Dec.
COC	MW-8B	Chloride		0.0002	260	0.05	0.61	44	None		-0.0096	694	-0.16	0.59	10	None
COC	MW-9B	Chloride		0.0121	-256	0.21	0.05	44	None		-0.0571	2748	-0.42	0.11	10	None
COC	MW-9R	Chloride		0.0157	-409	0.15	0.15	44	None		-0.1660	7601	-0.56	0.03	10	Dec.
COC	MW-10	Chloride		0.0220	-594	0.32	0.00	43	Inc.		-0.0206	1276	-0.07	0.86	10	None
COC	MW-10B	Chloride		0.0184	-453	0.28	0.01	43	Inc.		-0.0714	3439	-0.29	0.28	10	None
COC	MW-11B	Chloride		0.0124	-283	0.42	0.00	43	Inc.		-0.0463	2269	-0.18	0.53	10	None
COC	MW-12	Chloride		0.0053	65	0.10	0.33	44	None		0.0901	-3690	0.51	0.05	10	Inc.
COC	MW-12B	Chloride		0.0151	-371	0.68	0.00	44	Inc.		0.0000	289	0.04	0.93	10	None
COC	MW-13B	Chloride		0.0153	-336	0.49	0.00	44	Inc.		0.0037	168	0.07	0.86	10	None
COC	MW-13D	Chloride		0.0232	-656	0.50	0.00	32	Inc.		-0.0635	3151	-0.62	0.02	10	Dec.
COC	MW-14	Chloride		0.0234	-589	0.43	0.00	44	Inc.		-0.0587	3027	-0.69	0.01	10	Dec.
COC	MW-14B	Chloride		0.0156	-337	0.42	0.00	44	Inc.		0.0106	-149	0.18	0.53	10	None
COC	MW-15	Chloride		0.0119	-264.6	0.34	0.08	15	None		0.0116	-251	0.00	1.00	5	None
COC	MW-16	Chloride		-0.0036	445	-0.13	0.51	17	None		-0.1064	4915	-1.00	0.09	4	None
COC	MW-16B	Chloride		0.0041	145	0.06	0.66	32	None		-0.0219	1293	-0.29	0.28	10	None
COC	MW-16D	Chloride		0.0627	-2397	0.28	0.06	24	None		-0.1170	5469	-0.80	0.09	5	None
COC	MW-17	Chloride		0.0199	-601	0.34	0.08	15	None		0.0421	-1581	0.33	0.21	10	None
COC	MW-17B	Chloride		0.0225	-704	0.30	0.12	15	None		-0.0206	1195	-0.44	0.09	10	None
COC	MW-17D	Chloride		0.0123	-214.02	0.10	0.62	15	None		-0.0388	2026.1	-0.38	0.15	10	None
COC	MW-3	Iron		0.2375	-1668.2	0.25	0.02	44	Inc.		-0.0092	9902.4	-0.02	1.00	10	None
COC	MW-3B	Iron		-1.5104	65628.75	-0.50	0.00	44	Dec.		0.1153	-5035.97	0.09	0.71	10	None
COC	MW-3D	Iron		-0.0061	400.6	-0.13	0.29	32	None		0.0073	-184.1	0.20	0.47	10	None
COC	MW-4BR	Iron		0.6699	-17032.26	0.57	0.00	44	Inc.		1.2767	-43696	0.36	0.18	10	None
COC	MW-7	Iron		-0.0147	642.81	-0.05	0.80	19	None		-0.0360	1625	-0.50	0.25	5	None
COC	MW-7B	Iron		-0.1215	5092.37	-0.18	0.22	22	None		0.0000	N/A	N/A	N/A	5	None
COC	MW-8	Iron		0.0000	16000.00	0.03	0.83	37	None		6.0143	-244505	0.43	0.23	7	None
COC	MW-8B	Iron		0.0950	1193.7	0.14	0.20	44	None		0.6114	-21813.86	0.29	0.28	10	None
COC	MW-9B	Iron		-0.0352	1574.93	-0.21	0.04	44	Dec.		-0.0656	2971.77	-0.18	0.52	10	None
COC	MW-9R	Iron		-0.2189	9973.03	-0.37	0.00	44	Dec.		0.1218	-4976.95	0.07	0.86	10	None
COC	MW-10	Iron		-0.0194	841.8	-0.06	0.55	43	None		0.0162	-689	0.13	0.54	10	None
COC	MW-10B	Iron		-0.0041	183.2	-0.04	0.68	43	None		1.0351	-45441	0.36	0.11	10	None
COC	MW-11B	Iron		-0.2094	8760.0	-0.19	0.06	43	None		-0.0850	3778	-0.11	0.07	10	None
COC	MW-12	Iron		0.5836	-20751.11	0.23	0.03	44	Inc.		0.1554	-2372	0.02	1.00	10	None
COC	MW-12B	Iron		0.7455	-27073.41	0.64	0.00	44	Inc.		0.2997	-7706.92	0.11	0.72	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COC	MW-13B	Iron		0.1389	5102.6	0.17	0.10	44	None		0.4114	-7024.5	0.13	0.65	10	None
COC	MW-13D	Iron		-0.1449	6270.37	-0.44	0.00	32	Dec.		-0.5125	22554.7	-0.33	0.02	10	Dec.
COC	MW-14	Iron		-0.2431	16300.20	-0.35	0.00	44	Dec.		-0.5013	27645.15	-0.16	0.59	10	None
COC	MW-14B	Iron		0.1393	3211.53	0.16	0.14	44	None		0.0000	8940	-0.02	1.00	10	None
COC	MW-15	Iron		-0.0218	1007.7	-0.17	0.39	15	None		3.4929	########	0.10	1.00	5	None
COC	MW-16	Iron		-0.1184	4917.03	-0.15	0.37	17	None		0.0000	N/A	N/A	N/A	4	None
COC	MW-16B	Iron		-0.4459	18683.98	-0.18	0.12	32	None		0.0000	N/A	N/A	N/A	10	None
COC	MW-16D	Iron		0.0648	-2480.3	0.32	0.03	24	Inc.		0.2168	-9096.2	0.60	0.22	5	None
COC	MW-17	Iron		0.0201	-854	0.09	0.63	15	None		0.1274	-5561	0.07	0.75	10	None
COC	MW-17B	Iron		0.6103	-25143.4	0.55	0.00	15	Inc.		-0.0193	2443.71	-0.02	1.00	10	None
COC	MW-17D	Iron		0.0190	-806	0.09	0.67	15	None		0.0308	-1312	0.18	0.45	10	None
COC	MW-3	Manganese		-0.0060	381.5	-0.29	0.01	44	Dec.		-0.0412	1931.1	-0.60	0.02	10	Dec.
COC	MW-3B	Manganese		0.0322	-1018	0.40	0.00	44	Inc.		-0.0336	1871.3	-0.11	0.72	10	None
COC	MW-3D	Manganese		-0.0063	282	-0.34	0.01	32	Dec.		0.0010	-37	0.22	0.42	10	None
COC	MW-4BR	Manganese		0.0000	110	-0.01	0.95	44	None		0.0047	-106	0.07	0.86	10	None
COC	MW-7	Manganese		-0.0004	16.0	-0.13	0.45	19	None		-0.0024	107.9	-0.50	0.25	5	None
COC	MW-7B	Manganese		-0.0034	152	-0.68	0.00	22	Dec.		-0.0029	131	-0.60	0.22	5	None
COC	MW-8	Manganese		-0.0105	575	-0.20	0.08	37	None		0.0294	-1152	0.24	0.55	7	None
COC	MW-8B	Manganese		0.0311	-1004	0.32	0.00	44	Inc.		-0.0602	2949	-0.47	0.07	10	None
COC	MW-9B	Manganese		-0.0207	929.4	-0.59	0.00	44	Dec.		0.0032	-104.93	0.16	0.59	10	None
COC	MW-9R	Manganese		-0.0381	1865	-0.34	0.00	44	Dec.		-0.0434	2079	-0.38	0.15	10	None
COC	MW-10	Manganese		0.0001	-4.02	0.13	0.22	43	None		0.0000	1	0.00	1.00	10	None
COC	MW-10B	Manganese		0.0024	-23.2	0.05	0.64	43	None		0.1022	-4426.0	0.69	0.01	10	Inc.
COC	MW-11B	Manganese		-0.0036	155.1	-0.31	0.00	43	Dec.		-0.0135	604.0	-0.53	0.04	10	Dec.
COC	MW-12	Manganese		-0.0124	685	-0.33	0.00	44	Dec.		-0.0016	211	-0.02	1.00	10	None
COC	MW-12B	Manganese		0.0000	70.0	0.00	0.99	44	None		-0.0010	107.46	-0.07	0.86	10	None
COC	MW-13B	Manganese		0.0057	-156	0.60	0.00	44	Inc.		0.0144	-533	0.33	0.21	10	None
COC	MW-13D	Manganese		-0.0474	2218	-0.64	0.00	32	Dec.		-0.0083	486	-0.07	0.86	10	None
COC	MW-14	Manganese		-0.0188	1007	-0.29	0.01	44	Dec.		-0.0627	2974	-0.69	0.01	10	Dec.
COC	MW-14B	Manganese		0.0036	-81	0.39	0.00	44	Inc.		0.0058	-174	0.24	0.37	10	None
COC	MW-15	Manganese		-0.0006	36	-0.11	0.59	15	None		-0.0002	22	0.00	1.00	5	None
COC	MW-16	Manganese		-0.0006	26	-0.12	0.53	17	None		0.0027	-118	0.33	0.73	4	None
COC	MW-16B	Manganese		0.0000	2	-0.01	0.97	32	None		0.0013	-58	0.38	0.05	10	Inc.
COC	MW-16D	Manganese		-0.0132	985	-0.07	0.64	24	None		-0.0018	463	-0.20	0.81	5	None
COC	MW-17	Manganese		0.0110	-357.9	0.06	0.80	15	None		-0.0123	693	-0.11	0.72	10	None
COC	MW-17B	Manganese		-0.0038	184.65	-0.46	0.02	15	Dec.		-0.0007	45	-0.13	0.65	10	None
COC	MW-17D	Manganese		0.0061	-4	0.11	0.59	15	None		0.0027	135	0.02	1.00	10	None
COC	MW-3	Vinyl Chloride		-0.0011	46	-0.18	0.05	48	Dec.		0.1011	-4458	0.20	0.32	10	None
COC	MW-3B	Vinyl Chloride		-0.0073	350.94	-0.20	0.04	48	Dec.		0.0099	-429	0.38	0.15	10	None
COC	MW-3D	Vinyl Chloride		0.0000	7	0.00	0.99	32	None		0.0033	-138	0.40	0.13	10	None
COC	MW-4BR	Vinyl Chloride		-0.0013	56.64	-0.33	0.00	48	Dec.		0.0012	-48	0.16	0.59	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COC	MW-7	Vinyl Chloride		0.0000	N/A	0.00	1.00	21	None		0.0000	N/A	0.00	1.00	5	None
COC	MW-7B	Vinyl Chloride		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COC	MW-8	Vinyl Chloride		-0.0002	7	-0.16	0.15	37	None		-0.0010	44	-0.29	0.30	7	None
COC	MW-8B	Vinyl Chloride		-0.0004	33.4	-0.11	0.29	44	None		0.0000	16	-0.02	1.00	10	None
COC	MW-9B	Vinyl Chloride		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-9R	Vinyl Chloride		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-10	Vinyl Chloride		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-10B	Vinyl Chloride		-0.0015	61.42	-0.52	0.00	47	Dec.		-0.0011	50	-0.24	0.24	10	None
COC	MW-11B	Vinyl Chloride		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-12	Vinyl Chloride		-0.0001	5.57	-0.25	0.01	47	Dec.		0.0000	N/A	0.00	1.00	10	None
COC	MW-12B	Vinyl Chloride		0.0003	-11.99	0.56	0.00	48	Inc.		-0.0008	35	-0.49	0.06	10	None
COC	MW-13B	Vinyl Chloride		-0.0006	24	-0.26	0.01	47	Dec.		-0.0002	11	-0.11	0.57	10	None
COC	MW-13D	Vinyl Chloride		-0.0420	1883	-0.42	0.00	32	Dec.		-0.0033	171	-0.09	0.79	10	None
COC	MW-14	Vinyl Chloride		0.0000	0	0.01	0.89	48	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-14B	Vinyl Chloride		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-15	Vinyl Chloride		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	5	None
COC	MW-16	Vinyl Chloride		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COC	MW-16B	Vinyl Chloride		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-16D	Vinyl Chloride		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COC	MW-17	Vinyl Chloride		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COC	MW-17B	Vinyl Chloride		-0.0086	383.8	-0.89	0.00	15	Dec.		-0.0051	232.18	-0.78	0.00	10	Dec.
COC	MW-17D	Vinyl Chloride		0.0100	-406.85	0.23	0.25	15	None		0.0242	-1048.1	0.16	0.59	10	None
COI	MW-3	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3B	1,1-Dichloroethene		0.0004	-17.48	0.11	0.26	48	None		0.0011	-50	0.53	0.03	10	Inc.
COI	MW-3D	1,1-Dichloroethene		-0.0003	13.1	-0.41	0.00	32	Dec.		0.0000	1.3	0.02	1.00	10	None
COI	MW-4BR	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-7	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	21	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-7B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	37	None		0.0000	N/A	0.00	1.00	7	None
COI	MW-8B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	44	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-9B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-9R	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10	1,1-Dichloroethene		-0.0023	95.7	-0.08	0.36	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	1,1-Dichloroethene		-0.0016	72.8	-0.58	0.00	47	Dec.		-0.0016	71.88	-0.53	0.04	10	Dec.
COI	MW-11B	1,1-Dichloroethene		-0.0001	6.5	-0.55	0.00	47	Dec.		0.0000	0.4	-0.09	0.77	10	None
COI	MW-12	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13D	1,1-Dichloroethene		-0.0007	32.25	-0.22	0.07	32	None		0.0004	-16.61	0.13	0.63	10	None
COI	MW-14	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-14B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COI	MW-15	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-16	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	1,1-Dichloroethene		-0.0001	5	-0.17	0.16	32	None		-0.0016	70.26	-0.20	0.26	10	None
COI	MW-16D	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	1,1-Dichloroethene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17D	1,1-Dichloroethene		0.0004	-17	0.13	0.49	15	None		0.0004	-18	0.16	0.57	10	None
COI	MW-3	1,2,4-Trimethylbenzene		0.0000	2	-0.01	0.92	48	None		-0.0005	20	-0.07	0.80	10	None
COI	MW-3B	1,2,4-Trimethylbenzene		0.0000	-0.9	0.01	0.94	48	None		0.0037	-162.85	0.20	0.32	10	None
COI	MW-3D	1,2,4-Trimethylbenzene		0.0001	-2	0.01	0.97	32	None		0.0040	-174	0.20	0.32	10	None
COI	MW-4BR	1,2,4-Trimethylbenzene		-0.0462	2117	-0.22	0.03	48	Dec.		0.3197	-13505	0.11	0.72	10	None
COI	MW-7	1,2,4-Trimethylbenzene		-0.0001	3	-0.04	0.78	21	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-7B	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	1,2,4-Trimethylbenzene		0.0000	0	0.01	0.97	37	None		-0.0163	713	-0.38	0.23	7	None
COI	MW-8B	1,2,4-Trimethylbenzene		-0.0001	2.19	-0.04	0.69	44	None		-0.0004	19	-0.07	0.80	10	None
COI	MW-9B	1,2,4-Trimethylbenzene		0.0013	-54.53	0.03	0.70	48	None		0.0013	-58.7	0.11	0.62	10	None
COI	MW-9R	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	1,2,4-Trimethylbenzene		-0.0005	21.45	-0.02	0.80	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-11B	1,2,4-Trimethylbenzene		-0.0003	13.9	-0.02	0.81	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12	1,2,4-Trimethylbenzene		-0.0003	10.61	-0.05	0.60	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12B	1,2,4-Trimethylbenzene		0.0000	1	0.00	0.98	48	None		0.0037	-163	0.20	0.32	10	None
COI	MW-13B	1,2,4-Trimethylbenzene		0.0000	1	-0.01	0.91	47	None		-0.0004	19	-0.07	0.80	10	None
COI	MW-13D	1,2,4-Trimethylbenzene		0.0001	-6	0.01	0.94	32	None		-0.0004	18	-0.07	0.80	10	None
COI	MW-14	1,2,4-Trimethylbenzene		0.0000	1	-0.06	0.55	48	None		-0.0004	19	-0.07	0.80	10	None
COI	MW-14B	1,2,4-Trimethylbenzene		0.0000	-1.2	0.02	0.84	48	None		-0.0004	19.2	-0.07	0.80	10	None
COI	MW-15	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-16	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	1,2,4-Trimethylbenzene		0.0037	-158	0.06	0.63	32	None		0.0037	-165	0.20	0.32	10	None
COI	MW-16D	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17D	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3B	1,3,5-Trimethylbenzene		-0.0001	5	-0.01	0.95	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3D	1,3,5-Trimethylbenzene		0.0042	-175	0.05	0.65	32	None		0.0042	-184	0.20	0.32	10	None
COI	MW-4BR	1,3,5-Trimethylbenzene		-0.0124	550.3	-0.27	0.01	48	Dec.		0.0411	-1731	0.07	0.86	10	None
COI	MW-7	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	21	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-7B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	1,3,5-Trimethylbenzene		0.0003	-12	0.04	0.70	37	None		-0.0024	103	-0.38	0.23	7	None
COI	MW-8B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	44	None		0.0000	N/A	0.00	1.00	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COI	MW-9B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-9R	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-11B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13B	1,3,5-Trimethylbenzene		-0.0005	20	-0.05	0.60	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13D	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-14	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-14B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-15	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-16	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-16D	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17D	1,3,5-Trimethylbenzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3	Arsenic		-0.0003	14.44	-0.20	0.06	44	None		0.0006	-24.7	0.47	0.07	10	None
COI	MW-3B	Arsenic		-0.0002	8.68	-0.18	0.09	44	None		0.0003	-11.74	0.40	0.13	10	None
COI	MW-3D	Arsenic		0.0000	1.02	-0.03	0.79	32	None		0.0002	-8.02	0.42	0.10	10	None
COI	MW-4BR	Arsenic		0.0003	-10.29	0.20	0.05	44	None		0.0025	-104.52	0.36	0.18	10	None
COI	MW-7	Arsenic		0.0000	-0.67	0.11	0.49	19	None		0.0003	-10.8	0.60	0.22	5	None
COI	MW-7B	Arsenic		0.0000	0.78	-0.03	0.88	22	None		0.0002	-9.64	0.40	0.46	5	None
COI	MW-8	Arsenic		-0.0009	44	-0.21	0.06	37	None		0.0012	-48	0.29	0.45	7	None
COI	MW-8B	Arsenic		-0.0011	54.72	-0.43	0.00	44	Dec.		-0.0008	45	-0.58	0.02	10	Dec.
COI	MW-9B	Arsenic		-0.0004	20.58	-0.13	0.23	44	None		0.0018	-74.1	0.38	0.15	10	None
COI	MW-9R	Arsenic		-0.0001	4.71	-0.18	0.08	44	None		0.0004	-15.2	0.42	0.10	10	None
COI	MW-10	Arsenic		0.0000	-1.5	0.07	0.49	43	None		0.0000	0.44	0.00	1.00	10	None
COI	MW-10B	Arsenic		0.0000	-0.54	0.05	0.62	43	None		0.0003	-14.55	0.47	0.07	10	None
COI	MW-11B	Arsenic		0.0000	-0.96	0.08	0.44	43	None		0.0002	-9	0.40	0.13	10	None
COI	MW-12	Arsenic		0.0007	-25.61	0.41	0.00	44	Inc.		0.0026	-112.3	0.56	0.03	10	Inc.
COI	MW-12B	Arsenic		0.0002	-4.46	0.15	0.15	44	None		0.0000	3.3	0.00	1.00	10	None
COI	MW-13B	Arsenic		-0.0001	9.6	-0.05	0.61	44	None		0.0004	-12.3	0.36	0.18	10	None
COI	MW-13D	Arsenic		-0.0001	5	-0.19	0.12	32	None		0.0002	-8	0.24	0.37	10	None
COI	MW-14	Arsenic		-0.0001	3.2	-0.10	0.32	44	None		-0.0001	6.8	-0.09	0.79	10	None
COI	MW-14B	Arsenic		0.0001	0	0.08	0.47	44	None		0.0008	-30.55	0.22	0.42	10	None
COI	MW-15	Arsenic		0.0025	-96	0.56	0.00	15	Inc.		0.0113	-480	0.20	0.81	5	None
COI	MW-16	Arsenic		0.0000	-1.5	0.15	0.38	17	None		-0.0002	10	0.00	1.00	4	None
COI	MW-16B	Arsenic		0.0001	-4	0.25	0.03	32	Inc.		0.0001	-5	0.16	0.59	10	None
COI	MW-16D	Arsenic		-0.0002	7	-0.25	0.09	24	None		0.0002	-7	0.60	0.22	5	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COI	MW-17	Arsenic		0.0003	-12	0.44	0.02	15	Inc.		0.0002	-10	0.24	0.37	10	None
COI	MW-17B	Arsenic		0.0005	-21	0.21	0.30	15	None		-0.0019	88	-0.22	0.42	10	None
COI	MW-17D	Arsenic		0.0003	-12.05	0.43	0.02	15	Inc.		0.0001	-5	0.22	0.42	10	None
COI	MW-3	Benzene		-0.0031	127.9	-0.47	0.00	48	Dec.		0.0000	N/A	0.00	1.00	10	None
COI	MW-3B	Benzene		-0.0043	189	-0.68	0.00	48	Dec.		0.0001	-5	0.16	0.59	10	None
COI	MW-3D	Benzene		0.0000	1.7	-0.27	0.03	32	Dec.		0.0001	-3.1	0.13	0.65	10	None
COI	MW-4BR	Benzene		-0.0019	90.36	-0.29	0.00	48	Dec.		0.0034	-135.02	0.04	0.93	10	None
COI	MW-7	Benzene		0.0042	-171	0.08	0.58	21	None		0.0001	-3.9	0.00	1.00	5	None
COI	MW-7B	Benzene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	Benzene		-0.0012	55	-0.56	0.00	37	Dec.		-0.0024	109	-0.71	0.04	7	Dec.
COI	MW-8B	Benzene		-0.0005	22.94	-0.61	0.00	44	Dec.		-0.0002	12.52	-0.27	0.32	10	None
COI	MW-9B	Benzene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-9R	Benzene		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10	Benzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	Benzene		-0.0005	18.9	-0.37	0.00	47	Dec.		0.0000	N/A	0.00	1.00	10	None
COI	MW-11B	Benzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12	Benzene		0.0000	2	-0.06	0.48	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12B	Benzene		0.0000	0	0.20	0.05	48	Inc.		-0.0002	11	-0.38	0.14	10	None
COI	MW-13B	Benzene		-0.0010	45	-0.70	0.00	47	Dec.		-0.0003	15	-0.47	0.07	10	None
COI	MW-13D	Benzene		-0.0027	120	-0.53	0.00	32	Dec.		-0.0002	10	-0.16	0.59	10	None
COI	MW-14	Benzene		-0.0001	4	-0.32	0.00	48	Dec.		-0.0003	15	-0.44	0.08	10	None
COI	MW-14B	Benzene		-0.0009	36	-0.53	0.00	48	Dec.		0.0000	1	-0.11	0.65	10	None
COI	MW-15	Benzene		0.0000	2.1	-0.08	0.46	32	None		0.0001	-4	0.10	1.00	5	None
COI	MW-16	Benzene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	Benzene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-16D	Benzene		-0.0101	418	-0.08	0.58	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	Benzene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	Benzene		-0.0010	45	-0.64	0.00	15	Dec.		-0.0004	19	-0.24	0.37	10	None
COI	MW-17D	Benzene		0.0004	-16.1	0.22	0.26	15	None		0.0003	-12	0.20	0.47	10	None
COI	MW-3	Boron		-0.0219	1220.1	-0.41	0.00	44	Dec.		-0.0243	1335	-0.20	0.47	10	None
COI	MW-3B	Boron		-0.0523	2422	-0.51	0.00	44	Dec.		0.0239	-964	0.11	0.72	10	None
COI	MW-3D	Boron		0.0000	139	-0.04	0.73	32	None		0.0082	-232	0.24	0.37	10	None
COI	MW-4BR	Boron		-0.0004	598.0	-0.01	0.91	44	None		0.0521	-1719	0.20	0.47	10	None
COI	MW-7	Boron		0.0011	-18.9	0.12	0.46	19	None		0.0000	N/A	N/A	N/A	5	None
COI	MW-7B	Boron		-0.0020	135	-0.34	0.03	22	Dec.		-0.0023	147	-0.20	0.81	5	None
COI	MW-8	Boron		-0.0396	2265	-0.29	0.01	37	Dec.		-0.2217	10306	-0.52	0.13	7	None
COI	MW-8B	Boron		-0.0460	2652.2	-0.52	0.00	44	Dec.		0.0370	-983.9	0.20	0.47	10	None
COI	MW-9B	Boron		-0.0036	204.7	-0.36	0.00	44	Dec.		0.0012	-7	0.07	0.86	10	None
COI	MW-9R	Boron		0.0000	135.0	-0.03	0.78	44	None		-0.0136	735	-0.07	0.86	10	None
COI	MW-10	Boron		-0.0005	70.6	-0.06	0.56	43	None		0.0090	-350.4	0.47	0.07	10	None
COI	MW-10B	Boron		-0.0008	123	-0.07	0.50	43	None		-0.0072	391	-0.07	0.86	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COI	MW-11B	Boron		0.0013	-1	0.24	0.02	43	Inc.		0.0086	-323	0.42	0.11	10	None
COI	MW-12	Boron		-0.0181	1047	-0.36	0.00	44	Dec.		0.0859	-3563	0.78	0.00	10	Inc.
COI	MW-12B	Boron		-0.0057	841	-0.15	0.14	44	None		0.0127	27	0.22	0.42	10	None
COI	MW-13B	Boron		-0.0069	796	-0.11	0.30	44	None		-0.0146	1131	-0.11	0.72	10	None
COI	MW-13D	Boron		-0.0344	1626	-0.59	0.00	32	Dec.		-0.0075	432	-0.07	0.86	10	None
COI	MW-14	Boron		-0.0058	496.7	-0.08	0.44	44	None		-0.1100	5089	-0.64	0.01	10	Dec.
COI	MW-14B	Boron		-0.0039	614	-0.04	0.70	44	None		-0.0469	2503	-0.47	0.07	10	None
COI	MW-15	Boron		-0.0021	290	-0.08	0.73	15	None		0.0181	-610	0.20	0.81	5	None
COI	MW-16	Boron		0.0028	-75	0.37	0.04	17	Inc.		0.0116	-463	0.67	0.31	4	None
COI	MW-16B	Boron		0.0016	-26.6	0.26	0.04	32	Inc.		-0.0016	109	-0.11	0.72	10	None
COI	MW-16D	Boron		-0.0058	937	-0.10	0.50	24	None		0.0182	-140	0.40	0.46	5	None
COI	MW-17	Boron		0.0000	340	0.00	1.00	15	None		0.1542	-6509	0.60	0.02	10	Inc.
COI	MW-17B	Boron		0.0199	-465	0.39	0.05	15	Inc.		-0.0224	1416	-0.22	0.42	10	None
COI	MW-17D	Boron		-0.0024	250	-0.02	0.96	15	None		-0.0027	265	-0.04	0.93	10	None
COI	MW-3	Chlorobenzene		-0.0017	74	-0.82	0.00	48	Dec.		-0.0006	31	-0.27	0.32	10	None
COI	MW-3B	Chlorobenzene		-0.0094	418.2	-0.50	0.00	48	Dec.		-0.0001	5	0.00	1.00	10	None
COI	MW-3D	Chlorobenzene		-0.0001	5	-0.02	0.86	32	None		0.1744	-7690	0.20	0.32	10	None
COI	MW-4BR	Chlorobenzene		0.0000	33	0.02	0.86	48	None		0.0192	-803	0.42	0.11	10	None
COI	MW-7	Chlorobenzene		0.0000	N/A	0.00	1.00	21	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-7B	Chlorobenzene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	Chlorobenzene		-0.0177	875.6	-0.23	0.04	37	Dec.		0.0000	110	0.00	1.00	7	None
COI	MW-8B	Chlorobenzene		-0.0134	646	-0.53	0.00	44	Dec.		0.0047	-145	0.11	0.72	10	None
COI	MW-9B	Chlorobenzene		-0.0001	5	-0.32	0.00	48	Dec.		0.0000	N/A	0.00	1.00	10	None
COI	MW-9R	Chlorobenzene		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10	Chlorobenzene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	Chlorobenzene		-0.0001	5	-0.02	0.81	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-11B	Chlorobenzene		0.0000	2	-0.03	0.78	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12	Chlorobenzene		-0.0005	23	-0.43	0.00	47	Dec.		0.0023	-103	0.16	0.45	10	None
COI	MW-12B	Chlorobenzene		-0.0002	18	-0.08	0.43	48	None		0.0026	-102	0.40	0.11	10	None
COI	MW-13B	Chlorobenzene		-0.0074	380.07	-0.26	0.01	47	Dec.		-0.0209	977	-0.40	0.13	10	None
COI	MW-13D	Chlorobenzene		-0.0075	332	-0.45	0.00	32	Dec.		0.0017	-72	0.07	0.86	10	None
COI	MW-14	Chlorobenzene		0.0002	2	0.04	0.70	48	None		-0.0097	435	-0.67	0.01	10	Dec.
COI	MW-14B	Chlorobenzene		-0.0037	196.2	-0.23	0.02	48	Dec.		-0.0183	841	-0.71	0.01	10	Dec.
COI	MW-15	Chlorobenzene		-0.0009	37.27	-0.46	0.00	32	Dec.		0.0026	-114	0.40	0.46	5	None
COI	MW-16	Chlorobenzene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	Chlorobenzene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-16D	Chlorobenzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	Chlorobenzene		-0.0059	258	-0.13	0.43	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	Chlorobenzene		0.0051	-207.6	0.45	0.02	15	Inc.		0.0000	21	0.00	1.00	10	None
COI	MW-17D	Chlorobenzene		0.0019	-80	0.19	0.35	15	None		0.0019	-82	0.20	0.47	10	None
COI	MW-3	cis-1,2-Dichloroethene		-0.0008	32.25	-0.26	0.01	48	Dec.		0.1206	-5317.6	0.20	0.32	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COI	MW-3B	cis-1,2-Dichloroethene		-0.0094	484.8	-0.11	0.29	48	None		0.0262	-1110	0.11	0.72	10	None
COI	MW-3D	cis-1,2-Dichloroethene		-0.0050	244.52	-0.36	0.00	32	Dec.		0.0027	-91.43	0.16	0.59	10	None
COI	MW-4BR	cis-1,2-Dichloroethene		-0.0004	18.4	-0.10	0.30	48	None		0.0000	6	0.13	0.64	10	None
COI	MW-7	cis-1,2-Dichloroethene		0.0002	-8.53	0.03	0.83	21	None		0.0002	-10	0.20	0.74	5	None
COI	MW-7B	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	cis-1,2-Dichloroethene		-0.0003	11	-0.17	0.12	37	None		0.0003	-12	0.19	0.58	7	None
COI	MW-8B	cis-1,2-Dichloroethene		-0.0041	204	-0.49	0.00	44	Dec.		0.0011	-25	0.07	0.86	10	None
COI	MW-9B	cis-1,2-Dichloroethene		0.0005	-19	0.03	0.70	48	None		0.0005	N/A	0.11	0.62	10	None
COI	MW-9R	cis-1,2-Dichloroethene		0.0006	-23	0.03	0.71	49	None		0.0006	-24	0.11	0.62	10	None
COI	MW-10	cis-1,2-Dichloroethene		-0.0012	51	-0.43	0.00	47	Dec.		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	cis-1,2-Dichloroethene		-0.0239	1071	-0.72	0.00	47	Dec.		-0.0123	568	-0.67	0.01	10	Dec.
COI	MW-11B	cis-1,2-Dichloroethene		-0.0019	87	-0.74	0.00	47	Dec.		-0.0001	11	-0.11	0.72	10	None
COI	MW-12	cis-1,2-Dichloroethene		-0.0001	6.2	-0.13	0.18	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12B	cis-1,2-Dichloroethene		0.0011	-38.67	0.34	0.00	48	Inc.		-0.0041	186.0	-0.56	0.03	10	Dec.
COI	MW-13B	cis-1,2-Dichloroethene		-0.0027	110.2	-0.17	0.08	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13D	cis-1,2-Dichloroethene		-0.1945	8618.2	-0.57	0.00	32	Dec.		-0.0392	1792	-0.16	0.59	10	None
COI	MW-14	cis-1,2-Dichloroethene		0.0000	-2	0.02	0.84	48	None		-0.0005	22	-0.11	0.64	10	None
COI	MW-14B	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-15	cis-1,2-Dichloroethene		0.0005	-18	0.05	0.63	32	None		0.0005	-20	0.20	0.74	5	None
COI	MW-16	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	cis-1,2-Dichloroethene		-0.0005	24	-0.42	0.00	32	Dec.		0.0001	-2	0.07	0.86	10	None
COI	MW-16D	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	cis-1,2-Dichloroethene		-0.0092	412.3	-0.79	0.00	15	Dec.		-0.0047	213.24	-0.56	0.03	10	Dec.
COI	MW-17D	cis-1,2-Dichloroethene		0.0585	-2418	0.28	0.17	15	None		0.0892	-3836	0.20	0.47	10	None
COI	MW-3	Methylene Chloride		0.0015	-61.21	0.03	0.69	48	None		0.0013	-57	0.02	1.00	10	None
COI	MW-3B	Methylene Chloride		0.0027	-111	0.05	0.59	48	None		0.0019	-81	0.02	1.00	10	None
COI	MW-3D	Methylene Chloride		0.0004	-16.5	0.04	0.72	32	None		0.0017	-71.47	0.02	1.00	10	None
COI	MW-4BR	Methylene Chloride		0.0014	-55	0.03	0.73	48	None		0.0027	-116	0.07	0.82	10	None
COI	MW-7	Methylene Chloride		0.0000	N/A	0.00	1.00	21	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-7B	Methylene Chloride		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	Methylene Chloride		0.0033	-135	0.04	0.74	37	None		0.0033	-143	0.19	0.56	7	None
COI	MW-8B	Methylene Chloride		0.0002	-6.86	0.03	0.78	44	None		0.0009	-40.09	0.02	1.00	10	None
COI	MW-9B	Methylene Chloride		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-9R	Methylene Chloride		0.0000	N/A	0.00	1.00	49	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10	Methylene Chloride		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-10B	Methylene Chloride		0.0070	-286.7	0.04	0.64	47	None		0.0005	-20.6	0.16	0.45	10	None
COI	MW-11B	Methylene Chloride		0.0027	-107.9	0.08	0.37	47	None		0.0027	-115.5	0.24	0.27	10	None
COI	MW-12	Methylene Chloride		0.0006	-23.9	0.06	0.52	47	None		0.0030	-132.5	0.24	0.27	10	None
COI	MW-12B	Methylene Chloride		0.0020	-81.7	0.11	0.20	48	None		0.0019	-82.5	0.22	0.36	10	None
COI	MW-13B	Methylene Chloride		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None

Results of Akritas-Theil-Sen Nonparametric Trend Tests
West Ave. Landfill
Waukesha, WI

				Long-Term Trend Results (2003 Through 2022)							5-Year Trend Results (2018 Through 2022)					
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend
COI	MW-13D	Methylene Chloride		0.0260	-1079.9	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-14	Methylene Chloride		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-14B	Methylene Chloride		0.0010	-41.9	0.01	0.90	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-15	Methylene Chloride		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-16	Methylene Chloride		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	Methylene Chloride		0.0029	-122.8	0.11	0.34	32	None		0.0029	-126.8	0.24	0.27	10	None
COI	MW-16D	Methylene Chloride		0.0031	-126.9	0.08	0.57	24	None		0.0031	-133.8	0.20	0.74	5	None
COI	MW-17	Methylene Chloride		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	Methylene Chloride		0.0013	-55.4	0.02	0.95	15	None		-0.0006	27.5	-0.07	0.80	10	None
COI	MW-17D	Methylene Chloride		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3	Trichloroethene		-0.0007	29.1	-0.13	0.15	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-3B	Trichloroethene		-0.0001	4.4	-0.11	0.28	48	None		0.0002	-8.7	0.11	0.72	10	None
COI	MW-3D	Trichloroethene		-0.0009	36.3	-0.33	0.01	32	Dec.		0.0082	-363.1	0.20	0.32	10	None
COI	MW-4BR	Trichloroethene		-0.0003	11.9	-0.16	0.09	48	None		0.0004	-16.2	0.16	0.52	10	None
COI	MW-7	Trichloroethene		0.0002	-6.8	0.07	0.63	21	None		0.0002	-7.4	0.20	0.74	5	None
COI	MW-7B	Trichloroethene		0.0000	N/A	0.00	1.00	22	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-8	Trichloroethene		0.0000	N/A	0.00	1.00	37	None		0.0000	N/A	0.00	1.00	7	None
COI	MW-8B	Trichloroethene		-0.0029	118.5	-0.50	0.00	44	Dec.		0.0000	N/A	0.00	1.00	10	None
COI	MW-9B	Trichloroethene		0.0003	-10.1	0.03	0.71	48	None		0.0003	-10.9	0.11	0.62	10	None
COI	MW-9R	Trichloroethene		0.0002	-6.7	0.03	0.76	49	None		0.0002	-7.3	0.11	0.62	10	None
COI	MW-10	Trichloroethene		-0.0002	9.3	-0.26	0.01	47	Dec.		-0.0175	771.3	-0.02	1.00	10	None
COI	MW-10B	Trichloroethene		-0.0018	81.4	-0.69	0.00	47	Dec.		-0.0010	45.9	-0.47	0.07	10	None
COI	MW-11B	Trichloroethene		-0.0003	14.0	-0.67	0.00	47	Dec.		0.0000	1.0	0.02	1.00	10	None
COI	MW-12	Trichloroethene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-12B	Trichloroethene		0.0000	0.8	-0.03	0.78	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13B	Trichloroethene		0.0000	N/A	0.00	1.00	47	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-13D	Trichloroethene		-0.0010	45.8	-0.44	0.00	32	Dec.		-0.0003	13.2	-0.31	0.24	10	None
COI	MW-14	Trichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-14B	Trichloroethene		0.0000	N/A	0.00	1.00	48	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-15	Trichloroethene		-0.0002	7.0	-0.03	0.79	32	None		-0.0065	289.0	-0.60	0.22	5	None
COI	MW-16	Trichloroethene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	4	None
COI	MW-16B	Trichloroethene		-0.0001	2.6	-0.22	0.07	32	None		0.0000	1.3	0.00	1.00	10	None
COI	MW-16D	Trichloroethene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	5	None
COI	MW-17	Trichloroethene		0.0000	N/A	0.00	1.00	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17B	Trichloroethene		-0.0008	36.4	-0.32	0.06	15	None		0.0000	N/A	0.00	1.00	10	None
COI	MW-17D	Trichloroethene		0.0001	-4.7	0.19	0.33	15	None		0.0000	0.5	0.00	1.00	10	None

Prepared by: SGL
Checked by: KMC2

Appendix D
Historical Groundwater Data – Indicator Parameters

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-10	2003-10	330	3.7		7.1	1,950	46
MW-10	2004-04	310	1.2	4.8	7.2	1,950	55
MW-10	2004-10	300	1.3	6.2	7.2	1,950	52
MW-10	2005-03	340	1.8	5.8	7.3	2,150	54
MW-10	2005-06	210	2.1	5	7.2	1,800	32
MW-10	2005-09	430	1.6	5.7	7.7	2,200	57
MW-10	2005-12	640	2.27	5	7.5	2,850	87
MW-10	2007-06			5.7	7.2	1,500	
MW-10	2007-09			7	8.1	1,500	
MW-10	2007-12				8.8	2,000	
MW-10	2008-03			7	7.5	2,100	
MW-10	2009-03	280	2.8	5.76	7.1	1,850	43
MW-10	2009-06	200	2.03	6.29	7.7	1,050	69
MW-10	2009-09	260	1.51	5.52	7.2	1,000	56
MW-10	2009-12	280	1.4	5.36	7.8	1,500	45
MW-10	2010-03	260	2.1	3.03	7.1	1,659	39
MW-10	2010-06	280	3.13	2.28	8.7	1,457	21
MW-10	2010-09	280	2.27	5.2	7	1,693	42
MW-10	2010-12	300	1.09	3.3	9.2	1,748	34
MW-10	2011-03	248	2.9	4.2	6.5	1,711	36.9
MW-10	2011-06	210	2.6	1.4	7	1,448	35
MW-10	2011-09	290	4.8	0.9	7.1	1,564	39
MW-10	2011-12	260	2	0.2	7.2	1,348	38
MW-10	2012-03	160	2	< 0	7	1,748	52
MW-10	2012-06	144	0.21	6.8	7.8	1,452	49.4
MW-10	2012-09	281	0.12	0	7.6	1,635	45.6
MW-10	2012-12	426	0.29	2.5	6.5	2,119	51.2
MW-10	2013-03	320	< 0.084	2.6	6.9	1,747	48
MW-10	2013-09	330	0.58	4.1	7.2	1,855	45
MW-10	2014-04	270	1.2	2.9	7.3	1,255	34
MW-10	2014-09	340	1.2	2.2	7.2	1,846	42
MW-10	2015-04	480	< 0.5	1.9	7.1	1,886	45
MW-10	2015-09	370	1.7	2	7.3	2,008	50
MW-10	2016-04	410	< 0.5	6.6	7.5	1997	48
MW-10	2016-09	370	0.89	5	7.9	2,012	45

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-10	2017-04	400	< 0.5	6	7.3	2086	45
MW-10	2017-09	360	< 0.5	1.5	7.4	1993	43
MW-10	2018-04	468	1.6	3.4	7.9	1973	45.4
MW-10	2018-09	388	1.2	4.1	7.4	3790	43.9
MW-10	2019-04	364	1.9	2.1	7.6	1,981	51.3
MW-10	2019-09	323	1	3.1	7.6	1,928	58
MW-10	2020-04	1190	0.63	0	7.5	4,042	54.8
MW-10	2020-09	333	1.6	0.6	7	2,671	45.3
MW-10	2021-04	349	1.4	0.9	7.2	1836	44.8
MW-10	2021-09	393	< 0.47	0.2	7.1	1,836	51.2
MW-10	2022-04	429	1.3	5.4	7.1	1,980	48.9
MW-10	2022-09	351	1.4	7	7.1	1,812	48.9
MW-10B	2003-10	230	2.7		7	1,525	63
MW-10B	2004-04	250	2.1	1	7.1	1,450	68
MW-10B	2004-10	240	2.4	2.8	7.3	1,650	72
MW-10B	2005-03	230	3.4	1.1	7	1,650	72
MW-10B	2005-06	220	3.2	4.6	7.2	1,550	36
MW-10B	2005-06	170	2.1	1.6	7	1,450	30
MW-10B	2005-09	240	2.5	1.2	7.5	1,550	65
MW-10B	2005-12	250	4.17	1.7	8.1	1,700	75
MW-10B	2007-06			2.4	7.2	1,500	
MW-10B	2007-09			5.8	8.2	1,550	
MW-10B	2007-12			2.5	8	1,800	
MW-10B	2008-03			0.52	7.4	2,050	
MW-10B	2009-03	260	3.08	1.42	7.1	1,800	70
MW-10B	2009-06	320	2.34	3.65	7.8	1,500	67
MW-10B	2009-09	320	2.32	1.34	7.3	1,500	81
MW-10B	2009-12	290	2.83	3.24	7	1,500	66
MW-10B	2010-03	260	2.7	1.69	7.1	1,677	72
MW-10B	2010-06	300	1.76	3.15	7.8	1,482	67
MW-10B	2010-09	320	2.43	0	7	1,805	83
MW-10B	2010-12	320	1.23	0	8	1,790	71
MW-10B	2011-03	274	3.26	1.8	6.9	1,769	77.6
MW-10B	2011-06	330	2	0.7	7	1,767	68
MW-10B	2011-09	340	5.6	< 0	7.1	1,749	97

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-10B	2011-12	340	1.5	0	7	1,721	75
MW-10B	2012-03	< 6	2.3	< 0	6.8	1,722	83
MW-10B	2012-06	306	< 0.072	0	7.7	1,720	71
MW-10B	2012-09	293	0.099	0	7.1	1,725	76.9
MW-10B	2012-12	246	0.43	3.7	6.5	1,090	60.7
MW-10B	2013-03	3100	< 0.084	3	6.2	2,095	78
MW-10B	2013-09	2000	0.17	2.8	7.1	7,255	< 130
MW-10B	2014-04	2400	0.61	0	7.2	8,129	< 130
MW-10B	2014-09	1300	< 0.5	0	7.1	5,296	< 130
MW-10B	2015-04	730	< 0.5	0	7.1	3,681	74
MW-10B	2015-09	590	1.4	0	6.9	2,868	63
MW-10B	2016-04	460	< 0.5	2.3	7.6	2,295	66
MW-10B	2016-09	460	1	2.5	7.4	2,339	66
MW-10B	2017-04	330	< 0.5	2.8	7.2	1,902	71
MW-10B	2017-09	390	< 0.5	1.8	7.3	2,058	77
MW-10B	2018-04	462	2	0.7	7.9	2,043	86.2
MW-10B	2018-09	283	1.5	1.9	7.1	3,668	91.7
MW-10B	2019-04	326	1.7	2.2	7.5	1,885	90.2
MW-10B	2019-09	302	1.6	3.1	6.7	2,200	87.7
MW-10B	2020-04	333	1.5	0	7.1	1,949	92
MW-10B	2020-09	324	1.7	0	6.9	2,594	89
MW-10B	2021-04	720	4.5	0	7.1	3,025	88.4
MW-10B	2021-09	11.8	6.7	0.3	7.1	1,205	4.7
MW-10B	2022-04	220	2.3	1	7.1	805	45.1
MW-10B	2022-09	270	1.6	1.7	7.1	1,540	69.6
MW-11	2007-06			3	7.3	1,050	
MW-11	2007-09			3.7	8.2	1,400	
MW-11	2007-12			3.3	8	2,000	
MW-11	2008-03			5	7.8	2,000	
MW-11	2009-03	320	2.37	6.73	7.2	1,700	43
MW-11	2009-06	340	1.21	5.42	7.3	1,450	39
MW-11	2009-09	300	1.58	4.54	7.6	1,500	44
MW-11	2009-12	270	1.35	4.84	8.5	1,450	39
MW-11	2010-03	270	1.35	4.8	7.2	1,683	38
MW-11	2010-06	300	1.13	6.9	8	1,421	36

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-11	2010-09	310	1.68	9.3	7.3	1,733	44
MW-11	2010-12	270	1.41	6.3	8.5	1,570	33
MW-11	2011-03	275	2.21	5.8	6.9	1,688	38.4
MW-11	2011-06	250	1.5	5.8	7	1,492	36
MW-11	2011-09				7.2	1,784	
MW-11	2011-09	380	3.2	7.2	7.2	1,784	40
MW-11	2011-12	300	1	4.8	7.5	1,704	38
MW-11	2012-03	300	2.1	4.4	7.4	1,757	37
MW-11	2012-06	297	< 0.072	6.2	5.5	1,710	39.4
MW-11	2012-09	297	0.18	8.7	7.6	1,714	39.1
MW-11	2012-12	296	0.31	0.5	7	1,708	39
MW-11	2013-03	310	< 0.084	0.6	7	1,658	39
MW-11	2013-09	350	0.54	3.6	7.7	1,850	38
MW-11	2014-04	310	1.2	4.8	7.1	1,684	37
MW-11	2014-09	240	0.72	5.1	6.9	1,482	28
MW-11	2016-09	340	0.84	4.3	7.3	1,909	40
MW-11	2017-09	380	< 0.5	5.4	7.1	1,957	38
MW-11	2018-09	320	1.4	6.6	7.3	3,902	37.1
MW-11	2019-09	291	0.91	3.4	7.1	2,002	42.2
MW-11	2020-09	283	1.1	1	7.1	2,260	37.5
MW-11B	2003-10	190	1.7		7	1,350	59
MW-11B	2004-04	180	1.3	3.2	7.3	1,250	64
MW-11B	2004-10	170	1.7	4.1	7.1	1,325	72
MW-11B	2005-03	170	2	3.5	7.1	1,400	66
MW-11B	2005-06	150	2.2	2.9	7.4	1,300	55
MW-11B	2005-09	170	1.8	3.2	7.5	1,300	56
MW-11B	2005-12	180	2.22	3.9	7.9	1,350	63
MW-11B	2007-06			3.9	7	1,300	
MW-11B	2007-09			4	7.9	1,000	
MW-11B	2007-12			5.2	7.8	1,800	
MW-11B	2008-03			3.3	7.7	1,600	
MW-11B	2009-03	200	2.22	3.46	7.2	1,450	59
MW-11B	2009-06	240	2.1	3.56	7.9	1,500	66
MW-11B	2009-09	220	1.37	3.73	7.7	1,100	60
MW-11B	2009-12	200	1.27	3.22	7.4	1,250	55

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-11B	2010-03	190	1.28	2.67	7.2	1,397	55
MW-11B	2010-06	230	1.06	3.87	7.9	1,188	49
MW-11B	2010-09	220	1.71	5.1	7.2	1,436	60
MW-11B	2010-12	230	0.787	0.4	9.6	1,628	53
MW-11B	2011-03	217	1.74	1.5	7	1,540	58.2
MW-11B	2011-06	240	1.5	1.9	7.2	1,444	67
MW-11B	2011-09	240	4	0.7	7.1	1,509	58
MW-11B	2011-12	240	0.69	2.2	7.4	1,489	70
MW-11B	2012-03	290	1.3	< 0	7.4	1,518	58
MW-11B	2012-06	238	< 0.072	0	6.9	1,576	58.2
MW-11B	2012-09	250	0.2	2.4	7.8	1,536	56.8
MW-11B	2012-12	234	0.73	0.3	6.8	1,535	57.4
MW-11B	2013-03	250	< 0.084	1.7	7.1	1,526	59
MW-11B	2013-09	230	0.66	3.1	7.3	1,580	58
MW-11B	2014-04	210	1.4	0	7.2	1,542	54
MW-11B	2014-09	240	0.69	0	7.1	1,557	56
MW-11B	2015-04	240	< 0.5	0	7.2	1,570	49
MW-11B	2015-09	220	1.4	0.8	7.1	1,582	53
MW-11B	2016-04	240	< 0.5	4.6	6.8	1,551	55
MW-11B	2016-09	250	0.88	2.8	7.1	1,649	58
MW-11B	2017-04	240	< 0.5	0	7.4	1,643	57
MW-11B	2017-09	250	< 0.5	0	7.2	1,665	59
MW-11B	2018-04	270	1.6	1.6	8	1,458	54
MW-11B	2018-09	238	1.3	0.2	7.1	3,464	58.7
MW-11B	2019-04	278	1.1	0	7.3	1,836	58.9
MW-11B	2019-09	246	1.4	0	7	2,120	64.3
MW-11B	2020-04	279	0.71	0	7.1	1,797	64.2
MW-11B	2020-09	160	2.7	0	7.1	2,106	35.1
MW-11B	2021-04	246	1	0	7.2	1,533	57.3
MW-11B	2021-09	184	1.9	0.5	7.1	1,312	42.2
MW-11B	2022-04	288	0.83	1.5	7.2	1,512	64.1
MW-11B	2022-09	149	2.9	5.4	7.9	1,006	35.6
MW-12	2003-10	310	9		6.6	2,030	4.5
MW-12	2004-04	240	4.3	0.8	6.4	1,950	24
MW-12	2004-10	320	3.3	1.4	7.1	2,100	38

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-12	2005-03	320	4.3	0.5	6.8	1,250	130
MW-12	2005-06	250	6.1	0.7	6.5	2,050	70
MW-12	2005-09	290	5.4	0.9	7.4	1,950	120
MW-12	2005-12	320	6.72	1.3	7.3	1,300	100
MW-12	2006-10	330	3.86		7.1	2,200	78
MW-12	2007-06			1.2	7	1,700	
MW-12	2007-09			1.2	7.3	1,500	
MW-12	2007-12			1.3	8.6	2,400	
MW-12	2008-03			0.35	7.1	2,300	
MW-12	2009-03	260	9.58	0.69	6.9	2,000	10
MW-12	2009-06	360	6.06	0.73	7.4	1,600	11
MW-12	2009-09	310	5.02	0.24	7	1,750	23
MW-12	2009-12	280	5.91	6.67	7.3	1,800	12
MW-12	2010-03	230	6.5	0.33	6.9	1,778	3.5
MW-12	2010-06	230	5.25	0.05	7	1,468	2.7
MW-12	2010-09	220	5.16	1.63	6.4	1,633	46
MW-12	2010-12	210	4.42	0	9.9	1,839	93
MW-12	2011-03	194	6.86	0	6.8	1,749	33
MW-12	2011-06	220	6.5	< 0	7	1,647	9.2
MW-12	2011-09	260	11	< 0	7.2	1,780	23
MW-12	2011-12	300	4.8	0	7.2	1,700	18
MW-12	2012-03	230	5.5	0.1	8.3	1,624	9.2
MW-12	2012-06	190	1.2	0	6.5	1,579	7.7
MW-12	2012-09	177	4.3	0.9	7.9	1,507	8.1
MW-12	2012-12	130	3.5	0	6.9	1,384	4.7
MW-12	2013-03	130	2.7	0	7.1	1,352	4.1
MW-12	2013-09	240	3.7	3.8	7	1,874	71
MW-12	2014-04	280	4.7	0	7	1,658	18
MW-12	2014-09	270	4	0	6.9	1,921	< 13
MW-12	2015-04	290	3.7	5.6	6.9	2,037	< 13
MW-12	2015-09	300	4.4	0	7.2	2,057	< 13
MW-12	2016-04	370	1.8	2.8	6.7	2,159	11
MW-12	2016-09	340	2	1.9	7.3	2,078	37
MW-12	2017-04	330	2.1	0	6.9	2,219	< 13
MW-12	2017-09	320	3.5	0	7.1	2,224	41

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-12	2018-04	47.8	1.5	0	7.8	920	105
MW-12	2018-09	214	2.7	0.5	7.2	3,461	42.4
MW-12	2019-04	300	2.8	0	7	2,026	25.5
MW-12	2019-09	356	4.4	0	7.1	2,522	30.6
MW-12	2020-04	339	3.3	0	6.7	2,177	13.6
MW-12	2020-09	250	4.7	1.2	7	2,570	29.3
MW-12	2021-04	299	4.3	0	7	3,579	4.7
MW-12	2021-09	369	2.3	0.6	-11	1,930	18.6
MW-12	2022-04	375	4.8	1	7	2,009	4.8
MW-12	2022-09	327	4	3.1	7.1	1,922	9.9
MW-12B	2003-10	220	14		6.7	1,625	11
MW-12B	2004-04	210	6.2	0.6	7	1,500	16
MW-12B	2004-10	180	7.3	1	7.4	1,600	14
MW-12B	2005-03	190	6.2	0.6	7.3	1,800	17
MW-12B	2005-06	220	7.7	0.6	6.6	1,500	17
MW-12B	2005-09	200	5.7	0.4	7.5	1,450	14
MW-12B	2005-12	210	7.72	0.8	7	1,700	22
MW-12B	2006-10	210	7.99		7.2	1,700	20
MW-12B	2007-06			0.67	7.1	1,400	
MW-12B	2007-06			0.67	7.1	1,400	
MW-12B	2007-09			0.64	7.2	1,100	
MW-12B	2007-12			1.5	7.9	1,900	
MW-12B	2008-03			0.39	7.2	1,850	
MW-12B	2009-03	220	11.4	0.57	7	1,550	7.1
MW-12B	2009-06	240	7.91	0.15	7.1	1,600	7.8
MW-12B	2009-09	240	7.26	0.26	7.5	1,150	7.5
MW-12B	2009-12	230	8.43	1.37	7.6	1,500	7
MW-12B	2010-03	240	7.91	4.1	6.9	1,656	7.3
MW-12B	2010-06	240	7.1	4.53	7.2	1,378	7.2
MW-12B	2010-09	250	8.99	0	6.5	1,672	9.5
MW-12B	2010-12	240	5.38	0	9.2	1,669	9
MW-12B	2011-03	234	9.74	0	6.8	1,245	10.6
MW-12B	2011-06	250	8.1	0.9	7.1	1,638	11
MW-12B	2011-09	240	15	< 0	7.3	1,670	11
MW-12B	2011-12	260	7.1	0.3	7.3	1,659	14

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-12B	2012-03	350	8	< 0	7.5	1,671	11
MW-12B	2012-06	241	3.7	0	6.2	1,680	10.6
MW-12B	2012-09	240	5.8	1.2	7.9	1,676	11.1
MW-12B	2012-12	238	3.7	1.1	6.8	1,677	10.4
MW-12B	2013-03	300	2.4	0	7	1,802	11
MW-12B	2013-09	240	4	1.2	7	1,728	< 13
MW-12B	2014-04	270	5.2	0	7	1,916	14
MW-12B	2014-09	250	5.7	0	6.8	1,741	< 13
MW-12B	2015-04	250	5.2	0	6.9	1,748	< 13
MW-12B	2015-09	250	6.2	0	7	1,789	15
MW-12B	2016-04	270	4.5	2.1	6.9	1,780	10
MW-12B	2016-09	250	4	5.4	7.4	1,712	< 13
MW-12B	2017-04	410	3.1	0	6.9	2,342	< 13
MW-12B	2017-09	290	4.2	0	7.2	1,932	8.2
MW-12B	2018-04	288	6.7	0	7.6	1,938	8.5
MW-12B	2018-09	322	5.8	1.9	7.1	3,722	8.6
MW-12B	2019-04	291	7.6	0	6.8	2,138	8.3
MW-12B	2019-09	288	7.5	0	7.3	2,366	8.8
MW-12B	2020-04	307	6.9	0.1	6.8	2,088	7.1
MW-12B	2020-09	281	7	6	6.9	2,653	7.2
MW-12B	2021-04	288	6.8	0	6.9	3,360	6.3
MW-12B	2021-09	293	4.7	0.6	6.8	1,733	6.7
MW-12B	2022-04	310	7.3	0.6	6.9	1,714	6.1
MW-12B	2022-09	289	8	18	7	1,728	5.8
MW-13	2003-10	300	12		6.7	2,200	1.5
MW-13	2004-04	230	5.6	0.8	6.9	2,100	18
MW-13	2004-10	260	5.2	0.6	7.3	2,100	27
MW-13	2005-03	300	7	0.5	6.7	2,750	260
MW-13	2005-06	300	7.8	5.2	6.9	2,150	140
MW-13	2005-09	280	3.8	0.4	7.4	2,150	110
MW-13	2005-12	290	7.99	0.8	6.9	2,300	80
MW-13	2006-10	270	7.91		7.3	2,050	69
MW-13	2007-06			1.2	7	1,800	
MW-13	2007-09			1.1	7.5	1,550	
MW-13	2007-12			1.7	7.9	2,500	

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-13	2008-03			0.85	7	2,100	
MW-13	2009-03	240	12.2	0.45	7.3	2,150	3.1
MW-13	2009-06	300	7.1	0.91	7.3	1,700	7
MW-13	2009-09	240	5.49	0.42	7.5	1,800	15
MW-13	2009-12	180	6.51	1.2	6.9	1,500	< 1.5
MW-13	2010-03	190	6.98	0.66	7	1,724	< 1.5
MW-13	2010-06	170	5.7	0	7.3	1,345	1.7
MW-13	2010-09	210	6.72	1.3	6.7	1,660	20
MW-13	2010-12	200	4.74	0	6.9	1,748	5.9
MW-13	2011-03	199	8.02	0.2	6.8	1,708	0.733
MW-13	2011-06	170	7	< 0	7.1	1,568	2.8
MW-13	2011-09	150	13	< 0	7.4	1,509	3.5
MW-13	2011-12	160	4.9	0	6.8	1,485	2.7
MW-13	2012-03	130	6.2	< 0	6.8	1,387	2.8
MW-13	2012-06	101	2.8	0	5.7	1,302	2.7
MW-13	2012-09	88.5	4.4	0	7.5	1,277	< 2
MW-13	2012-12	87.2	2.4	0.8	6.9	1,277	< 2
MW-13	2013-03	100	3.2	0	6.8	1,323	< 5
MW-13	2013-09	220	2.4	0	7.3	1,784	45
MW-13	2014-04	280	6	0	6.9	2,005	< 13
MW-13	2014-09	260	4.5	0.6	6.9	1,925	< 13
MW-13	2015-04	300	4.6	1	6.8	2,337	< 13
MW-13	2015-09	300	5.3	1.7	6.9	2,185	< 13
MW-13	2016-04	300	2.4	0.3	7.3	2,103	< 13
MW-13	2016-09	300	4.5	2.3	7.4	2,248	23
MW-13B	2003-10	250	12		6.7	1,900	1.6
MW-13B	2004-04	210	5	0.5	7.1	1,800	14
MW-13B	2004-10	260	9	0.6	7.1	2,100	17
MW-13B	2005-03	230	7.4	0.7	7	2,050	14
MW-13B	2005-06	250	8.1	0.5	7	1,650	16
MW-13B	2005-09	250	4.7	0.2	7.4	1,850	< 10
MW-13B	2005-12	260	7.16	0.8	7.2	2,000	27
MW-13B	2006-10	270	10.4		7.7	1,950	14
MW-13B	2007-06			0.79	7.1	1,700	
MW-13B	2007-09			0.82	8.5	1,900	

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-13B	2007-12			1	7.4	2,400	
MW-13B	2008-03			0.42	7	2,100	
MW-13B	2009-03	220	17.6	0.54	6.9	2,200	< 1.5
MW-13B	2009-06	360	13.6	0.58	7.1	2,100	< 1.5
MW-13B	2009-09	300	12.2	0.31	7.2	2,200	< 1.5
MW-13B	2009-12	300	13.4	0.96	7.1	1,900	< 1.5
MW-13B	2010-03	280	13.6	0.08	6.7	2,164	< 1.5
MW-13B	2010-06	300	10.2	0	6.8	1,895	< 1.5
MW-13B	2010-09	110	5.6	0.9	7	2,179	5.7
MW-13B	2010-12	280	8.71	0	6.8	2,195	< 1.5
MW-13B	2011-03	229	12.9	0.5	6.6	1,930	0.891
MW-13B	2011-06	320	12	0.9	7	2,184	< 1.5
MW-13B	2011-09	280	23	< 0	7.2	2,159	2.6
MW-13B	2011-12	310	9	0	6.9	2,095	2.7
MW-13B	2012-03	280	11	< 0	7	2,065	2.5
MW-13B	2012-06	268	38	0	5.5	2,102	< 2
MW-13B	2012-09	292	9.8	0	7.3	2,062	< 2
MW-13B	2012-12	294	1.8	1	5.9	2,040	< 2
MW-13B	2013-03	310	2.8	0.6	6.5	1,969	< 5
MW-13B	2013-09	290	5.7	0	6.9	2,244	< 13
MW-13B	2014-04	310	7.5	0	6.8	2,155	< 13
MW-13B	2014-09	340	7.3	1.1	6.5	2,288	< 13
MW-13B	2015-04	630	2.8	0	6.8	2,108	18
MW-13B	2015-09	360	5.9	0.9	6.9	2,251	< 25
MW-13B	2016-04	400	5.9	0.2	7.1	2,492	< 13
MW-13B	2016-09	350	6.7	2.6	7.7	2,348	< 13
MW-13B	2017-04	370	3.2	2	6.2	2,394	< 13
MW-13B	2017-09	320	8.7	0	6.8	1,835	< 13
MW-13B	2018-04	323	8.9	1	7.6	2,283	0.19
MW-13B	2018-09	345	8.1	1.1	6.9	4,424	0.43
MW-13B	2019-04	250	10	0.3	6.6	2,846	2.4
MW-13B	2019-09	328	11.1	0	6.6	3,446	1.3
MW-13B	2020-04	347	9.9	0.4	6.9	2,760	1
MW-13B	2020-09	333	10.7	0	6.8	3,043	1
MW-13B	2021-04	321	8.2	0.3	6.8	4,010	0.29

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-13B	2021-09	349	5.7	0	6.6	2,094	0.17
MW-13B	2022-04	338	8.3	0	6.9	1,981	< 0.095
MW-13B	2022-09	286	9.5	18	6.8	1,991	1.2
MW-13D	2010-03	270	6.35	0.05	6.9	1,892	26
MW-13D	2010-06	290	4.78	0	6.7	1,551	26
MW-13D	2010-09	300	3.55	0	6.9	1,768	41
MW-13D	2010-12	310	2.31	0	6.9	1,820	37
MW-13D	2011-03	248	6.64	0	6.8	1,820	36.8
MW-13D	2011-06	280	5.1	< 0	7.2	1,738	31
MW-13D	2011-09	300	8.1	< 0	7.4	1,793	41
MW-13D	2011-12	290	3.8	2.4	7	1,727	32
MW-13D	2012-03	300	5.9	< 0	7.4	1,691	27
MW-13D	2012-06	251	0.78	0	5.1	1,721	33.4
MW-13D	2012-09	289	0.7	0	7.5	1,769	37
MW-13D	2012-12	278	1.1	1.3	7	1,800	30.1
MW-13D	2013-03	290	1.7	0	6.8	1,799	28
MW-13D	2013-09	320	1.3	0	7.1	1,832	38
MW-13D	2014-04	310	3.4	0	7.1	1,859	39
MW-13D	2014-09	340	2.2	1.7	6.8	1,901	42
MW-13D	2015-04	320	2.6	0	6.8	1,918	29
MW-13D	2015-09	340	2.4	1.6	7.1	1,930	37
MW-13D	2016-04	340	1.5	0	7.1	1,968	42
MW-13D	2016-09	350	1.6	2.1	7.6	2,025	43
MW-13D	2017-04	340	1.7	0	7	1,949	42
MW-13D	2017-09	380	1	2	7.2	2,030	43
MW-13D	2018-04	405	4.6	0	7.8	2,099	55.5
MW-13D	2018-09	403	2.3	0.3	7.3	4,140	43.6
MW-13D	2019-04	395	2.7	0	6.9	2,589	72.2
MW-13D	2019-09	312	1.7	0	7	2,673	61.5
MW-13D	2020-04	369	1.2	0	6.5	2,408	47.5
MW-13D	2020-09	403	1.5	0	7.4	2,678	47
MW-13D	2021-04	333	2.9	0	7	3,587	35.6
MW-13D	2021-09	351	2.3	1.1	6.9	1,787	38.7
MW-13D	2022-04	292	1.2	0.1	7.1	1,487	65.2
MW-13D	2022-09	303	3.3	1.8	7	1,808	41.9

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-14	2003-10	340	2		6.8	1,900	31
MW-14	2004-04	240	2.1	0.6	7.9	1,850	57
MW-14	2004-10	330	3.5	0.5	7.3	2,250	63
MW-14	2005-03	320	3.9	0.6	6.9	2,250	27
MW-14	2005-06	330	3.8	0.6	7.1	2,000	22
MW-14	2005-09	350	2	0.3	7.4	2,150	15
MW-14	2005-12	350	3.46	0.5	7.2	2,300	46
MW-14	2006-10	370	2.9		7.1	2,350	54
MW-14	2007-06			0.43	7.2	1,800	
MW-14	2007-09			0.55	8.3	1,550	
MW-14	2007-12			0.84	7.5	2,500	
MW-14	2008-03			0.83	7.2	2,500	
MW-14	2009-03	340	5.46	0.66	7.2	2,700	8.2
MW-14	2009-06	380	5.8	0.24	7.6	1,850	15
MW-14	2009-09	280	8.55	1.32	7.6	2,000	18
MW-14	2009-12	340	8.21	0.95	6.8	2,100	1.9
MW-14	2010-03	420	4.8	2.45	7	2,395	< 1.5
MW-14	2010-06	370	4.55	0.25	7	1,933	< 1.5
MW-14	2010-09	240	5.33	0	7.1	1,756	14
MW-14	2010-12	220	4.76	0	9.6	1,876	6.7
MW-14	2011-03	303	7.18	0	6.8	2,155	0.857
MW-14	2011-06	280	6.4	1.3	7.1	1,987	5.4
MW-14	2011-09	250	16	< 0	7.3	1,953	10
MW-14	2011-12	300	6.8	0	7.1	2,033	5.7
MW-14	2012-03	320	7.2	< 0	7.5	2,099	4.7
MW-14	2012-06	329	0.72	0	6.1	2,163	2.8
MW-14	2012-09	411	0.58	6.4	7.7	2,384	< 2
MW-14	2012-12	434	0.59	0.6	6.9	2,381	5.8
MW-14	2013-03	450	< 0.084	0	7.1	2,191	19
MW-14	2013-09	230	1.8	0.6	7	1,724	23
MW-14	2014-04	410	2.8	0	7.2	2,306	< 13
MW-14	2014-09	360	1.7	0	6.8	2,144	18
MW-14	2015-04	390	1.6	0	6.9	2,182	24
MW-14	2015-09	400	1.6	0	6.8	2,243	38
MW-14	2016-04	440	0.57	0.2	7.2	2,367	29

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-14	2016-09	480	1.7	2.1	7.8	2,566	< 13
MW-14	2017-04	520	< 0.5	0.2	6.9	2,672	< 13
MW-14	2017-09	400	1.5	0	7.1	2,443	< 25
MW-14	2018-04	489	5	0	7.8	2,671	4.5
MW-14	2018-09	626	2.5	0	7.2	4,693	10
MW-14	2019-04	441	3.1	1.6	6.8	2,236	11.8
MW-14	2019-09	459	4.2	0	6.8	3,635	3.5
MW-14	2020-04	456	2.9	0	6.8	2,855	0.78
MW-14	2020-09	399	3.9	0	7.3	3,141	3.4
MW-14	2021-04	442	2.6	0	7	4,246	2.4
MW-14	2021-09	437	1.4	0	6.9	2,161	5.1
MW-14	2022-04	411	2.2	0	7	1,832	36.9
MW-14	2022-09	386	2.1	1.6	77.2	2,020	39.3
MW-14B	2021-04	323	6.4	0.1	6.8	3,596	0.28
MW-14B	2021-09	366	4.1	0	6.7	1,982	0.15
MW-14B	2003-10	290	4.6		6.6	1,750	< 1.1
MW-14B	2004-04	220	3.6	0.6	7.6	1,700	8.5
MW-14B	2004-10	230	7	0.3	7.2	1,800	18
MW-14B	2005-03	230	4.9	0.5	7.1	1,800	9.2
MW-14B	2005-06	250	6.1	0.4	7.1	1,550	5.1
MW-14B	2005-09	250	3.4	0.3	7.2	1,750	< 10
MW-14B	2005-12	290	4.87	0.9	7.3	1,900	14
MW-14B	2006-10	270	7.22		7.1	1,900	14
MW-14B	2007-06			0.42	7	1,700	
MW-14B	2007-09			1.7	8.5	1,600	
MW-14B	2007-12			1.1	7.6	2,050	
MW-14B	2008-03			0.3	8	2,000	
MW-14B	2009-03	220	14.1	0.29	7	2,300	< 1.5
MW-14B	2009-06	340	12.4	1.78	7	1,850	< 1.5
MW-14B	2009-09	280	11	1.14	7.6	1,950	< 1.5
MW-14B	2009-12	290	11.1	0.61	6.9	2,000	< 1.5
MW-14B	2010-03	280	9.4	0	6.9	2,048	< 1.5
MW-14B	2010-06	320	7.56	4.9	7	1,776	< 1.5
MW-14B	2010-09	270	14.7	0	6.8	2,189	< 1.5
MW-14B	2010-12	290	7.05	0	8.7	2,109	< 1.5

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-14B	2011-03	247	10.3	0.3	6.7	2,038	0.546
MW-14B	2011-06	360	10	1.1	6.9	2,140	< 1.5
MW-14B	2011-09	310	19	< 0	7.6	2,112	2.5
MW-14B	2011-12	310	8.2	0	7.2	2,056	2.5
MW-14B	2012-03	330	8.8	< 0	7.4	2,037	2.4
MW-14B	2012-06	314	3	0	5.7	2,069	< 2
MW-14B	2012-09	319	4.6	0	7.5	2,020	< 2
MW-14B	2012-12	342	1.2	0.4	6.5	2,029	< 2
MW-14B	2013-03	360	1.2	0	6.8	1,953	< 5
MW-14B	2013-09	280	5.6	0	7.3	2,159	< 13
MW-14B	2014-04	340	5.7	0	6.9	2,089	< 13
MW-14B	2014-09	330	5.6	1.2	7	2,173	< 13
MW-14B	2015-04	390	3.1	0	6.8	2,278	< 13
MW-14B	2015-09	420	3.4	0.5	6.8	2,309	< 13
MW-14B	2016-04	400	3.6	0	7	2,395	< 5
MW-14B	2016-09	340	5.1	1.8	7.4	2,273	< 13
MW-14B	2017-04	340	3.8	0.6	6.7	2,273	< 13
MW-14B	2017-09	280	5.4	0	7	2,007	< 13
MW-14B	2018-04	313	6.9	2.1	8.1	2,142	0.11
MW-14B	2018-09	313	6.5	0	7.1	4,221	0.11
MW-14B	2019-04	349	8.9	0	7	2,512	< 0.2
MW-14B	2019-09	309	9.8	0	6.9	3,270	0.098
MW-14B	2020-04	314	8.8	0.2	6.8	2,630	< 0.095
MW-14B	2020-09	261	9.4	0.6	7	2,560	1.9
MW-14B	2021-04	323	6.4	0.1	6.8	3,596	0.28
MW-14B	2021-09	366	4.1	0	6.7	1,982	0.15
MW-14B	2022-04	419	5.1	0.1	6.8	2,022	0.12
MW-14B	2022-09	290	6.9	1.6	6.9	1,958	1.1
MW-15	2004-10	180	4.8	2.3	7.7	1,450	49
MW-15	2005-03	170	4.7	1.8	7.5	1,400	85
MW-15	2005-06	190	5.1	1.9	7.4	1,400	14
MW-15	2009-04	250	2.61	2.19	7.7	1,800	30
MW-15	2009-06	680	4.03	3.86	7.9	2,300	65
MW-15	2009-09	220	5.27	1.72	7.8	1,500	3.1
MW-15	2009-12	230	6.24	1.72	7.6	1,500	2

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-15	2010-03	210	6.33	1.48	7.3	1,576	18
MW-15	2010-06			2.89	7.9	3,375	
MW-15	2010-09			0	8.8	1,651	
MW-15	2010-12			0	8.2	1,540	
MW-15	2011-03			0	7	1,362	
MW-15	2011-06			0.4	7.4	1,805	
MW-15	2011-09			< 0	7.6	1,482	
MW-15	2012-03			< 0	7.8	1,429	
MW-15	2012-06			0	7.5	1,515	
MW-15	2012-09			0	7.4	1,437	
MW-15	2012-12			6	6.9	1,501	
MW-15	2013-03			1.3	7	1	
MW-15	2013-09			1.2	7	1,386	
MW-15	2014-04			3.9	7.8	398	
MW-15	2014-09			0	7.6	1,490	
MW-15	2015-09			0	8.2	3,163	
MW-15	2016-09	220	4.2	2.8	7.7	1,585	16
MW-15	2017-09	340	1.5	0	7.8	2,070	49
MW-15	2018-09	634	2.9	0.8	7.6	4,556	75.2
MW-15	2019-09	185	4.7	0	7.8	1,644	48.7
MW-15	2020-09	261	8.1	0	7.6	2,130	4.2
MW-15	2021-09	239	4.6	0	7.7	1,456	38.6
MW-15	2022-09	293	4.2	3.2	7.4	1,768	41.1
MW-15B	2003-10	240	10		6.6	1,600	6.2
MW-15B	2004-04	240	3.4	0.9	6.7	1,450	12
MW-15B	2004-10	230	4	0.8	7.3	1,600	12
MW-15B	2005-03	250	4.2	0.4	7	1,750	18
MW-15B	2005-06	220	4.3	0.7	6.9	1,550	15
MW-15B	2005-09	250	4	0.9	7.5	1,450	11
MW-15B	2005-12	260	3.82	1.2	7.6	1,650	20
MW-15B	2009-04	340	2.73	0.33	6.8	1,600	4.5
MW-16	2010-09	310	1.78	8.2	7.1	1,606	41
MW-16	2010-12	300	1.09	3.9	8.3	1,639	40
MW-16	2011-03	251	2.04	5.7	7	1,626	40.4
MW-16	2011-06	270	2	7	7.1	1,504	56

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-16	2011-09	300	3.1	6.4	7.1	1,625	100
MW-16	2011-12	340	0.76	5.1	7.2	1,610	57
MW-16	2012-03	280	1.1	5.6	7.3	1,642	39
MW-16	2012-06	290	< 0.072	8.6	5.8	1,645	50.6
MW-16	2012-09	286	0.19	5.6	6.1	1,658	40.6
MW-16	2012-12	292	0.33	1.9	7	1,668	39.8
MW-16	2013-09	300	0.65	1.4	7	1,662	36
MW-16	2016-09	290	0.83	6	7	1,690	34
MW-16	2017-09	340	< 0.5	7.2	7.8	1,798	34
MW-16	2018-09	303	1.1	5	7.3	3,513	38.5
MW-16	2019-09	289	0.92	6	7.4	1,987	42
MW-16	2020-09	255	1	2	7.1	2,104	39.3
MW-16	2022-09	127	1	8.4	7.1	1,006	62.3
MW-16B	2010-03	280	1.35	4.57	7.3	1,669	45
MW-16B	2010-06	290	1.08	5.86	7.7	1,419	39
MW-16B	2010-09	280	1.78	6.9	7.3	1,633	44
MW-16B	2010-12	290	0.904	4.7	8.4	1,648	39
MW-16B	2011-03	273	2	4.3	7	1,729	46.5
MW-16B	2011-06	340	1.5	6.5	7.3	1,677	55
MW-16B	2011-09	360	3	6.7	7.2	1,833	110
MW-16B	2011-12	420	0.84	4.3	7.4	1,913	59
MW-16B	2012-03	500	1.5	3.5	7.2	1,942	51
MW-16B	2012-06	381	< 0.072	5.6	8.3	1,910	44.3
MW-16B	2012-09	310	< 0.072	5.1	7.3	1,695	39.8
MW-16B	2012-12	312	0.3	1.5	6.9	1,658	42
MW-16B	2013-03	350	< 0.084	5.4	6.3	1,780	42
MW-16B	2013-09	290	0.64	0.8	7.2	1,638	40
MW-16B	2014-04	270	1.4	4.5	7.2	1,570	43
MW-16B	2014-09	290	0.65	5	7.1	1,609	38
MW-16B	2015-04	280	< 0.5	4.7	7.7	1,620	36
MW-16B	2015-09	330	1.1	4.6	7.1	1,817	39
MW-16B	2016-04	390	< 0.5	3.7	6.8	1,983	45
MW-16B	2016-09	350	0.79	5.9	7.4	1,860	41
MW-16B	2017-04	380	< 0.5	6.7	7.4	1,990	42
MW-16B	2017-09	350	< 0.5	5.7	7.6	1,895	43

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-16B	2018-04	394	2	4.4	8	1,787	48.3
MW-16B	2018-09	343	1.2	5.3	7.4	3,633	45.7
MW-16B	2019-04	188	0.67	6.8	7.1	1,405	81
MW-16B	2019-09	335	0.92	5.4	7.3	2,108	49.9
MW-16B	2020-04	386	1	6.6	7.3	1,971	47.3
MW-16B	2020-09	316	1.1	2.3	7.2	2,281	44.7
MW-16B	2021-04	266	1	2.6	7.2	1,568	40.7
MW-16B	2021-09	326	< 0.47	2.5	7.1	1,562	40.8
MW-16B	2022-04	304	0.95	5.6	7.2	1,492	41
MW-16B	2022-09	333	1.1	6.8	7.2	1,715	43.3
MW-16D	2010-03	80	1.35				72
MW-16D	2010-06	27	0.924	0.8	7.3	530	46
MW-16D	2010-09	19	1.48	0	7.3	614	57
MW-16D	2010-12	19	1.08	0	9	626	51
MW-16D	2011-03	549	4.14	0	7	2,488	64.5
MW-16D	2011-06	190	1.5	0.2	7.2	1,471	53
MW-16D	2011-09	260	4	< 0	7.1	1,364	57
MW-16D	2011-12	240	0.96	0	7.3	1,271	70
MW-16D	2012-03	200	1.8	< 0	7.4	1,195	61
MW-16D	2012-06	178	< 0.072	0	6.8	1,124	59.8
MW-16D	2012-09	147	0.29	0	7.1	1,058	65.5
MW-16D	2012-12	136	0.65	0	6.8	1,025	65.9
MW-16D	2013-03	150	0.095	2.1	6.8	1,061	69
MW-16D	2013-09	120	0.98	0	7.5	1,009	64
MW-16D	2014-04	770	0.87	0	7.2	3,157	77
MW-16D	2014-09	720	0.52	0	7.1	2,795	86
MW-16D	2015-09	590	1.2	0	7.2	2,470	82
MW-16D	2016-09	460	0.8	4.8	7.3	2,216	75
MW-16D	2017-09	410	< 0.5	0	7.6	1,953	74
MW-16D	2018-09	366	1.4	0	7.4	3,619	76.2
MW-16D	2019-09	391	0.93	0	7.2	2,217	74.2
MW-16D	2020-09	324	1	0	7.3	2,235	78.9
MW-16D	2021-09	260	0.69	0.3	7.1	1,286	75.5
MW-16D	2022-09	225	1.1	1.8	7.4	1,164	70.8
MW-17	2021-04	282	4.8	0	7	3,537	4.7

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-17	2021-09	315	3.2	0.3	6.9	1,863	7.5
MW-17	2015-11	220	3.4	0	6.6	1,765	35
MW-17	2016-04	220	3	1	6.9	1,783	32
MW-17	2016-09	260	3.6	0	7.2	1,883	18
MW-17	2017-04	310	2.5	0	7	2,094	< 13
MW-17	2017-09	270	3	0	7.3	2,001	14
MW-17	2018-04	304	4.9	0	7.7	2,091	8.7
MW-17	2018-09	220	3.4	0	7.2	3,461	43.9
MW-17	2019-04	222	3.4	0	6.9	1,808	44.1
MW-17	2019-09	263	4.3	0	7.1	2,316	11.3
MW-17	2020-04	272	3.8	3.3	7.3	2,087	5.5
MW-17	2020-09	255	4.1	0	7.3	2,584	3.7
MW-17	2022-04	331	4.6	0	6.7	1,878	9.8
MW-17	2022-09	237	5.9	1.6	7.1	1,783	10.8
MW-17B	2015-11	230	4	0	6.6	1,667	31
MW-17B	2016-04	230	3.8	2.7	7.1	1,970	25
MW-17B	2016-09	240	4.4	0.5	7.5	1,662	18
MW-17B	2017-04	260	3.4	0	7.1	1,780	15
MW-17B	2017-09	270	3.5	0	7.1	1,819	17
MW-17B	2018-04	306	6.6	0	7.8	1,938	8.9
MW-17B	2018-09	305	5.2	0	7	3,694	13.7
MW-17B	2019-04	270	6.6	0	6.9	2,086	12.6
MW-17B	2019-09	290	7.3	0	7.1	2,365	10.8
MW-17B	2020-04	315	7.1	2.5	6.8	2,032	8.8
MW-17B	2020-09	288	6.3	0	7	2,633	12.2
MW-17B	2021-04	283	6.2	0	6.9	3,370	11.1
MW-17B	2021-09	303	4.5	0.2	6.8	1,670	9.9
MW-17B	2022-04	283	4.7	0.3	6.8	1,645	14.8
MW-17B	2022-09	233	6.5	1.9	6.8	1,657	12.1
MW-17B	2022-09			1.9	6.8	1,657	
MW-17D	2015-11	73	1.1	10.8	7.1	913	100
MW-17D	2016-04	93	0.62	5.6	7.1	1,304	90
MW-17D	2016-09	300	2.1	0	7.3	1,760	40
MW-17D	2017-04	330	0.74	0	6.9	1,938	40
MW-17D	2017-09	370	0.58	0	7.3	2,019	38

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-17D	2018-04	367	2.9	0	7.9	2,064	35.1
MW-17D	2018-09	396	2.1	0	7	3,886	40.5
MW-17D	2019-04	318	1.8	0	7.2	2,135	59.2
MW-17D	2019-09	322	1.6	0	7.1	2,304	58.7
MW-17D	2020-04	340	1.2	0	7	2,353	45.1
MW-17D	2020-09	316	1.7	0	7.4	2,569	48
MW-17D	2021-04	299	2.3	0.8	7.1	3,456	37.1
MW-17D	2021-09	331	2.2	0	7	1,659	55.9
MW-17D	2022-04	345	2.2	0	6.9	1,718	36.8
MW-17D	2022-09	276	3.6	1.9	7	1,745	35.2
MW-2	2003-10	370	< 1		6.8	2,100	43
MW-2	2004-04	300	1.8	0.6	6.9	2,100	68
MW-2	2004-10	280	3.9	0.6	7.2	2,150	110
MW-2	2005-03	290	4.2	0.7	7	2,300	190
MW-2	2005-06	250	4	0.5	7.2	1,750	44
MW-2	2005-09	320	3	0.7	8.1	1,800	83
MW-2	2005-12	340	4.17	0.8	7	2,200	85
MW-2	2006-10	290	4		7.4	2,050	120
MW-2	2009-04	320	1.72	0.47	7.2	2,000	48
MW-3	2003-10	300	6.7		6.7	2,050	13
MW-3	2004-04	240	5.2	0.4	6.8	2,050	40
MW-3	2004-10	290	9.8	0.4	6.9	2,500	120
MW-3	2005-03	280	9.7	0.6	6.8	2,375	79
MW-3	2005-06	250	7.2	0.3	6.7	1,900	61
MW-3	2005-09	270	6.6	0.4	6.9	2,000	41
MW-3	2005-12	290	8.49	0.7	6.9	2,200	42
MW-3	2006-10	290	11.2		7.1	2,400	58
MW-3	2007-06			0.38	7.1	2,100	
MW-3	2007-09			0.93	8.2	1,600	
MW-3	2007-12			1.7	8.5	2,400	
MW-3	2008-03			1.9	7.2	2,200	
MW-3	2009-03	220	10.8	1.22	7.2	2,400	6.2
MW-3	2009-06	260	6.64	1.6	7.2	1,600	22
MW-3	2009-09	240	5.72	1.67	7.1	1,600	< 1.5
MW-3	2009-12	240	6.09	1.99	7	1,600	< 1.5

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-3	2010-03	200	7.32	0.28	7.1	1,772	< 1.5
MW-3	2010-06	180	1.55	0	7.4	1,436	< 1.5
MW-3	2010-09	210	8.5	0	7.1	1,802	12
MW-3	2010-12	200	5.12	0	6.9	1,723	< 1.5
MW-3	2011-03	172	7.09	0	6.7	1,617	1.84
MW-3	2011-06	240	6.5	< 0	6.8	1,543	< 1.5
MW-3	2011-09	150	13	< 0	7.4	1,470	3.5
MW-3	2011-12	140	5.2	0	7.1	1,395	2.6
MW-3	2012-03	120	5.3	< 0	7.1	1,318	2.4
MW-3	2012-06	85.8	2.4	0	5.9	1,270	< 2
MW-3	2012-09	77	2.6	0	7.4	1,177	< 2
MW-3	2012-12	81.4	4.5	0.6	6.9	1,126	7.6
MW-3	2013-03	170	1.6	2.8	7.4	1,435	9
MW-3	2013-09	290	4	0.6	6.8	2,127	< 5
MW-3	2014-04	290	4.7	0	6.9	1,970	< 13
MW-3	2014-09	300	4	2.3	7.1	2,069	< 13
MW-3	2015-04	330	3.5	1.4	6.9	2,049	< 13
MW-3	2015-09	330	3.9	0.6	7	2,142	< 13
MW-3	2016-04	370	3.1	0	7.1	2,318	17
MW-3	2016-09	340	4.5	2.8	6.9	2,281	< 13
MW-3	2017-04	340	3.3	0.6	6.6	2,240	< 13
MW-3	2017-09	320	3.5	0	7	2,268	< 13
MW-3	2018-04	412	5.9	0.8	7.7	2,273	
MW-3	2018-09	352	5.3	0	7	4,424	0.7
MW-3	2019-04	405	6.4	0	6.8	3,167	13.2
MW-3	2019-09	344	6.8	0	7	3,318	0.12
MW-3	2020-04	274	4.9	0	6.8	2,472	1.6
MW-3	2020-09	319	5.9	0.5	6.9	2,845	0.4
MW-3	2021-04	271	5.5	0	6.9	1,858	0.53
MW-3	2021-09	394	3.9	1	7	2,004	0.1
MW-3	2022-04	354	4.9	1.5	6.8	1,927	4.2
MW-3	2022-09	353	7.5	1.5	6.9	2,256	7.1
MW-3B	2003-10	300	18		6.6	2,230	28
MW-3B	2004-04	230	8.6	0.5	6.7	2,100	29
MW-3B	2004-10	280	8.2	0.5	6.9	2,100	47

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-3B	2005-03	290	6.9	0.6	6.9	2,300	41
MW-3B	2005-06	220	10	0.3	6.4	1,950	32
MW-3B	2005-09	270	8.7	0.3	6.4	2,050	23
MW-3B	2005-12	280	14	1.3	6.8	2,200	31
MW-3B	2006-10	280	11.9		7.2	2,100	31
MW-3B	2007-06			0.33	7.2	1,808	
MW-3B	2007-09			1.2	8.1	1,600	
MW-3B	2007-12			1.8	8.7	2,500	
MW-3B	2008-03			0.96	7.4	2,200	
MW-3B	2009-03	240	10.5	1.13	7.4	2,300	28
MW-3B	2009-06	105	4.72	5.6	7.2	1,500	41
MW-3B	2009-09	320	5.87	0.87	7.9	1,700	34
MW-3B	2009-12	290	8.42	1.22	6.9	1,800	23
MW-3B	2010-03	260	8.5	0.13	7	1,935	21
MW-3B	2010-06	290	6.94	0.02	7.2	1,604	21
MW-3B	2010-09	290	4.06	0	7.2	1,843	39
MW-3B	2010-12	270	5.51	0	6.9	1,898	13
MW-3B	2011-03	225	11	0	6.6	1,861	7.78
MW-3B	2011-06	260	6.2	54	6.9	1,750	26
MW-3B	2011-09	290	8.7	81	7	1,798	32
MW-3B	2011-12	330	2.8	0	7.2	1,759	40
MW-3B	2012-03	280	3.8	< 0	6.9	1,676	37
MW-3B	2012-06	222	2.1	0	6.2	1,578	41.2
MW-3B	2012-09	302	0.41	0	7.3	1,812	37.7
MW-3B	2012-12	299	2.2	0.2	7	1,859	30.5
MW-3B	2013-03	300	2.2	1.5	6.9	1,958	30
MW-3B	2013-09	320	2.5	0	7.2	1,968	39
MW-3B	2014-04	290	7.7	0	6.8	2,062	13
MW-3B	2014-09	340	3.8	1.7	6.8	2,088	28
MW-3B	2015-04	330	7	0	6.6	2,228	< 13
MW-3B	2015-09	340	4.7	0	7	2,158	26
MW-3B	2016-04	250	2.3	3.9	6.9	1,447	27
MW-3B	2016-09	360	3.8	1.8	7.3	2,178	26
MW-3B	2017-04	350	3	0.8	6.7	2,146	27
MW-3B	2017-09	360	< 0.5	0	7.1	2,056	43

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-3B	2018-04	417	5.5	1.4	7.7	2,179	20.4
MW-3B	2018-09	430	1.7	0	7.1	4,291	43.6
MW-3B	2019-04	310	1.6	0	7	2,522	67.3
MW-3B	2019-09	355	1.5	0	7.2	3,248	50.6
MW-3B	2020-04	335	1.1	0	7.1	2,402	47.2
MW-3B	2020-09	380	1.5	0	6.9	2,729	54.1
MW-3B	2021-04	360	2.8	0	6.9	1,828	39.4
MW-3B	2021-09	356	1.8	1	7	1,810	41.9
MW-3B	2022-04	353	4.3	1.7	6.9	1,755	31.1
MW-3B	2022-09	133	1.5	0	7.4	1,927	23.6
MW-3D	2010-03	110	2.97	0.46	7.4	1,054	22
MW-3D	2010-06	120	6.39	0.08	7.5	852	19
MW-3D	2010-09	130	2.6	0	7.2	1,051	25
MW-3D	2010-12	140	1.75	0	7.3	1,050	22
MW-3D	2011-03	139	3.11	0	6.9	1,089	27.5
MW-3D	2011-06	160	2.4	< 0	7.1	1,018	23
MW-3D	2011-09	150	5.2	< 0	7.1	1,113	25
MW-3D	2011-12	170	1.6	0	7.2	1,101	30
MW-3D	2012-03	150	2	< 0	6.9	1,107	26
MW-3D	2012-06	153	2	0	6.2	1,048	26.8
MW-3D	2012-09	157	0.3	0	7.8	1,137	25.7
MW-3D	2012-12	140	0.62	0.3	6.7	1,142	24.4
MW-3D	2013-03	150	0.38	3.5	6.9	1,111	25
MW-3D	2013-09	130	1.5	0	7.4	1,052	22
MW-3D	2014-04	140	2.6	0	7.1	1,191	46
MW-3D	2014-09	140	1.6	0.2	7	1,110	24
MW-3D	2015-04	120	1.3	1.4	7.2	1,038	18
MW-3D	2015-09	120	1.9	1.7	7.3	1,061	21
MW-3D	2016-04	120	0.75	0	7	1,046	25
MW-3D	2016-09	130	1.3	2.4	7.4	1,080	23
MW-3D	2017-04	120	1.1	0	7	1,415	21
MW-3D	2017-09	120	0.74	0	7.3	1,076	22
MW-3D	2018-04	185	2	0.4	7.8	1,183	25
MW-3D	2018-09	172	1.6	0	7.3	3,275	26.3
MW-3D	2019-04	161	1.8	0	7.1	1,868	26.1

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-3D	2019-09	159	2.2	0	6.8	2,464	26.1
MW-3D	2020-04	140	1.2	0	7	1,567	23.2
MW-3D	2020-09	159	1.7	0.5	7.1	1,910	27.2
MW-3D	2021-04	142	1.8	0	7	1,078	23.3
MW-3D	2021-09	151	1.4	1.2	7.1	1,058	35.7
MW-3D	2022-04	149	1.5	1.5	7	987	24.9
MW-3D	2022-09	298	2.8	0	7.6	1,036	40.5
MW-4	2006-10	320	6.83		7.1	2,300	72
MW-4BR	2003-10	330	29		6.5	2,250	15
MW-4BR	2004-04	250	8.9	0.4	6.8	2,400	18
MW-4BR	2004-10	290	31	0.7	6.8	2,450	22
MW-4BR	2005-03	300	22	0.6	6.5	2,575	18
MW-4BR	2005-06	230	29	0.5	6.9	2,000	17
MW-4BR	2005-09	280	22	0.2	7.8	1,850	< 10
MW-4BR	2005-12	300	18.5	1.2	7.2	2,300	17
MW-4BR	2006-10	300	32.7		6.9	2,400	16
MW-4BR	2007-06			0.26	6.5	2,000	
MW-4BR	2007-09			3.2	7.7	1,500	
MW-4BR	2007-12			0.68	7.2	2,600	
MW-4BR	2008-03			0.3	7.1	2,600	
MW-4BR	2009-03	280	53.4	0.72	7.1	2,800	< 1.5
MW-4BR	2009-06	360	2.12	0.54	6.9	1,900	< 1.5
MW-4BR	2009-09	320	37.9	0.36	6.8	2,000	< 1.5
MW-4BR	2009-12	320	18.2	1.21	7.6	1,950	< 1.5
MW-4BR	2010-03	280	33.1	0.05	6.9	2,226	< 1.5
MW-4BR	2010-06	280	17.8	2.68	8.3	1,831	< 1.5
MW-4BR	2010-09	280	20.4	0	7	2,372	< 1.5
MW-4BR	2010-12	300	9	0	7	2,176	< 1.5
MW-4BR	2011-03	262	12.9	0	6.5	2,044	1.63
MW-4BR	2011-06	290	13	< 0	6.8	2,081	< 1.5
MW-4BR	2011-09	290	24	< 0	7	2,065	3.5
MW-4BR	2011-12	310	13	0	7.1	2,006	2.5
MW-4BR	2012-03	280	19	0.3	7.5	2,035	2.4
MW-4BR	2012-06	292	5.8	0	5.9	2,034	< 2
MW-4BR	2012-09	225	1	0.2	7.1	2,100	36.4

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-4BR	2012-12	301	11.9	0.2	6.4	2,102	< 2
MW-4BR	2013-03	300	4.2	1.6	6.5	2,180	< 5
MW-4BR	2013-09	270	9.2	0	6.8	2,366	< 13
MW-4BR	2014-04	290	10	0	6.9	2,212	< 13
MW-4BR	2014-09	340	8.1	0	6.8	2,329	< 13
MW-4BR	2015-04	320	7.8	3.1	6.6	2,259	< 13
MW-4BR	2015-09	310	7.6	1.9	7	2,315	< 13
MW-4BR	2016-04	340	8.6	0	6.9	2,367	< 13
MW-4BR	2016-09	320	8.1	2	7.7	2,373	< 13
MW-4BR	2017-04	300	4.5	0.2	6.8	2,280	< 13
MW-4BR	2017-09	310	14	0	6.9	2,445	< 13
MW-4BR	2018-04	337	15.2	2	7.7	2,339	
MW-4BR	2018-09	306	11.8	0	7.4	4,493	0.12
MW-4BR	2019-04	319	28.2	0	6.7	3,244	0.12
MW-4BR	2019-09	323	13.5	0.5	6.9	3,730	< 0.2
MW-4BR	2020-04	291	13.1	0.2	6.7	2,816	0.11
MW-4BR	2020-09	335	16.6	0.7	6.7	3,144	0.26
MW-4BR	2021-04	253	27.3	0	6.6	21,109	0.15
MW-4BR	2021-09	337	11.6	0.8	6.7	2,170	0.15
MW-4BR	2022-04	315	16.2	1.6	6.8	2,139	< 0.095
MW-4BR	2022-09	246	13.8	0	7.1	2,218	0.31
MW-7	2004-04	180	1.6		7.5	1,300	34
MW-7	2004-10	130	1.9		7.6	1,350	57
MW-7	2005-03	160	1.7	5.4	7.5	1,450	40
MW-7	2005-06				6.6	1,200	
MW-7	2009-04	150	1.67				29
MW-7	2009-06	130	2.96	0.35	7.8	1,000	31
MW-7	2010-06	98	1.48	7.4	7.2	849	27
MW-7	2011-06	230	1.9	6.1	7.1	1,441	27
MW-7	2012-06	148	< 0.072	5.8	7.2	1,340	26.8
MW-7	2013-09	69	1.4	1.9	6.9	989	36
MW-7	2014-09	95	1.6	5.1	7.1	991	35
MW-7	2015-09	110	1.9	4.1	7.3	1,131	33
MW-7	2016-09	84	1.7	6	7.8	1,012	26
MW-7	2017-09	49	0.82	4.2	7.2	937	25

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-7	2018-09	208	1.8	6.4	7	3,079	18.7
MW-7	2019-09	98.5	1.6	4.9	7.1	1,102	23.4
MW-7	2020-09	107	1.9	0	7.1	1,484	22.4
MW-7	2021-09	174	0.74	3.6	7.2	1,125	20.4
MW-7	2022-09	196	1.4	7.2	7.2	1,215	17.7
MW-7B	2003-10	78	< 1		6.9	1,050	100
MW-7B	2004-04	82	1.4	0.5	7.9	950	98
MW-7B	2004-10	63	1.1	0.8	7.7	1,025	120
MW-7B	2005-03	64	1.7	0.3	7.4	1,050	96
MW-7B	2005-06	54	2	1.9	6.6	900	92
MW-7B	2005-09	70	1.6	0.9	8.5	950	95
MW-7B	2005-12	74	1.91	0.4	7.8	1,100	96
MW-7B	2009-04	77	2.8	0.45	7	1,000	95
MW-7B	2009-06	83	2.48	0.52	7.8	900	98
MW-7B	2010-06	84	1.32	0.11	7.8	880	75
MW-7B	2011-06	94	1.6	0.3	7.2	1,009	81
MW-7B	2012-06	124	< 0.072	0	6.9	1,244	69.2
MW-7B	2013-09	110	0.97	0.5	7.6	1,113	71
MW-7B	2014-09	110	0.97	0	7.3	1,146	76
MW-7B	2015-09	120	1.3	0.1	7.4	1,226	74
MW-7B	2016-09	140	1	2.4	7.8	1,270	74
MW-7B	2017-09	140	< 0.5	0	7.5	1,218	71
MW-7B	2018-09	161	1.1	0.2	7.2	2,074	75.4
MW-7B	2019-09	185	0.92	0	7.7	1,359	86.4
MW-7B	2020-09	179	1.1	0	7.2	1,642	76.8
MW-7B	2021-09	192	< 0.47	0	7.3	1,214	76.8
MW-7B	2022-09	215	0.89	2	7.2	1,317	77.4
MW-7B	2022-09			2	7.2	1,317	
MW-8	2004-10	270	9.9	0.6	7	2,300	48
MW-8	2005-03	280	7.6	1.1	6.8	2,250	32
MW-8	2005-06	220	8.5	1.4	6.2	1,900	13
MW-8	2006-10	280	12.1		6.9	2,250	25
MW-8	2009-04	280	7.01	1.56	6.9	2,100	< 1.5
MW-8	2009-06	320	15.5	7	7.1	1,900	< 1.5
MW-8	2009-09	240	14.1	1.06	6.9	1,800	4.3
MW-8	2009-12	270	16.1	1.6	7.7	2,000	< 1.5

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-8	2010-03	240	16.4	0	7	2,230	< 1.5
MW-8	2010-06	270	14	0	8.1	1,845	< 1.5
MW-8	2010-09	220	22.4	0	7.1	2,541	65
MW-8	2010-12	270	9.02	0	6.8	2,562	12
MW-8	2011-03	568	13	1.9	6.6	2,126	26
MW-8	2011-06	260	13	< 0	6.8	2,054	4.5
MW-8	2011-09	250	26	< 0	6.9	2,141	3.9
MW-8	2011-12	260	12	0	7	2,058	2.5
MW-8	2012-03	220	12	< 0	7.1	2,008	2.5
MW-8	2012-06	233	7.2	0	6.4	2,030	< 2
MW-8	2012-09	260	7.5	0	6.8	2,082	< 2
MW-8	2012-12	271	12	1.2	7.4	2,108	< 2
MW-8	2013-03	300	2.9	0	7.1	2,099	< 5
MW-8	2013-09	230	5.8	2	6.9	2,252	55
MW-8	2014-04	290	8.8	0	6.8	2,230	< 13
MW-8	2014-09	350	8.1	0	7.3	2,394	< 13
MW-8	2015-04	330	6.6	0	7.1	2,341	< 13
MW-8	2015-09	350	5.7	0	7.2	2,372	20
MW-8	2016-04	390	6.9	0	7	2,554	14
MW-8	2016-09	350	5.3	2.6	8.1	2,487	< 5
MW-8	2017-04	350	4	0	6.6	2,488	< 13
MW-8	2017-09	320	11	0	7	2,502	< 13
MW-8	2018-04	376	12.8	1.8	7.5	2,518	14
MW-8	2018-09	349	9	0.5	7	4,585	0.92
MW-8	2019-04	337	11.3	0	6.5	3,188	0.74
MW-8	2019-09	334	12.3	0	7	3,635	0.22
MW-8	2020-04	320	11.4	2.4	6.4	2,829	0.16
MW-8	2020-09	332	12.1	0.2	6.6	3,127	4
MW-8	2021-04	259	12.9	0	6.6	2,099	0.17
MW-8B	2003-10	300	28		6.6	2,050	19
MW-8B	2004-04	240	8.4	0.3	7.3	1,950	24
MW-8B	2004-10	260	12	0.8	7.2	2,050	24
MW-8B	2005-03	270	9.3	0.4	7.1	2,150	28
MW-8B	2005-06	220	9.3	0.7	6.7	1,800	15
MW-8B	2005-09	250	6.8	0.2	7.4	1,750	25
MW-8B	2005-12	270	14.1	0.6	7.1	2,000	28

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-8B	2006-10	250	13.1		7.3	2,050	27
MW-8B	2009-04	240	4.14	0.38	7.2	1,900	14
MW-8B	2009-06	300	12	7	7.1	1,600	14
MW-8B	2009-09	320	11.4	0.5	6.5	1,600	13
MW-8B	2009-12	290	14.2	0.68	6.9	1,700	12
MW-8B	2010-03	250	13.6	0.02	6.8	2,033	14
MW-8B	2010-06	270	13.9	0.03	7.8	1,658	10
MW-8B	2010-09	270	15.5	0	7.2	2,056	11
MW-8B	2010-12	290	8.4	0	6.8	2,052	8.9
MW-8B	2011-03	221	15.6	0.7	6.7	3,073	4.47
MW-8B	2011-06	350	12	1.3	6.8	2,070	13
MW-8B	2011-09	360	24	< 0	6.9	2,228	15
MW-8B	2011-12	320	11	0	7.1	2,108	13
MW-8B	2012-03	300	13	< 0	7.2	2,005	13
MW-8B	2012-06			0	6.8	2,014	
MW-8B	2012-06	286	6.4	0	6.8	2,014	13.4
MW-8B	2012-09	285	7.9	0	7.2	1,987	13.7
MW-8B	2012-12	275	10.3	5.2	6.9	1,957	13
MW-8B	2013-03	230	4.2	0	6.6	1,237	17
MW-8B	2013-09	250	4	0	7	1,661	20
MW-8B	2014-04	260	7.2	0	7	1,703	20
MW-8B	2014-09	270	6.9	1.7	6.9	1,818	18
MW-8B	2015-04	250	6.8	0	7.2	1,725	18
MW-8B	2015-09	250	7.3	0	7	1,821	22
MW-8B	2016-04	270	5.7	0	7.2	1,865	21
MW-8B	2016-09	270	6.6	2.1	8.3	1,876	16
MW-8B	2017-04	250	6.9	0	6.9	1,880	17
MW-8B	2017-09	260	6.6	0	7.2	1,931	15
MW-8B	2018-04	315	7.4	1	7.7	1,728	16.5
MW-8B	2018-09	278	6.8	0	7.3	3,918	17.8
MW-8B	2019-04	267	8.6	0	6.7	2,591	18
MW-8B	2019-09	342	9.2	0	7.1	2,966	14.9
MW-8B	2020-04	257	8.4	0.1	6.9	2,377	15.2
MW-8B	2020-09	314	8.8	0	6.7	2,622	15.8
MW-8B	2021-04	218	10.2	0	6.8	1,678	13

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-8B	2021-09	263	7.2	1.1	6.9	1,645	14.7
MW-8B	2022-04	478	7.2	1.6	6.7	2,315	16.1
MW-8B	2022-09	264	8.7	1.5	7	1,822	12.4
MW-9B	2003-10	160	3.2		7.1	1,225	29
MW-9B	2004-04	160	1.8	0.7	7.1	1,200	37
MW-9B	2004-10	150	2.2	1	7.3	1,300	28
MW-9B	2005-03	240	2.3	1.3	7.1	1,850	38
MW-9B	2005-06	190	2.5	0.5	7.1	1,200	35
MW-9B	2005-09	180	1.8	0.9	7.6	1,225	31
MW-9B	2005-12	190	2.88	0.8	6.8	1,350	34
MW-9B	2006-10	190	0.97		7.1	1,350	35
MW-9B	2007-06			0.16	8	1,100	
MW-9B	2007-09			2	8.2	1,000	
MW-9B	2007-12			3.9	8.1	1,500	
MW-9B	2008-03			2.6	7.7	2,100	
MW-9B	2009-03	240	2.7	0.86	7.2	1,450	22
MW-9B	2009-06	280	1.35	4.5	7.1	1,000	26
MW-9B	2009-09	280	1.79	0.28	7.3	1,200	25
MW-9B	2009-12	260	1.7	1.33	8	1,150	24
MW-9B	2010-03	250	1.65	0.36	7.1	1,548	26
MW-9B	2010-06	260	1.17	2.2	7.5	1,260	24
MW-9B	2010-09	240	2.17	0	7.2	1,481	25
MW-9B	2010-12	210	1.34	0	6.5	1,378	20
MW-9B	2011-03	589	3.33	2.1	7.1	3,608	31.2
MW-9B	2011-06	310	1.9	0.3	7	1,486	59
MW-9B	2011-09	230	3.2	< 0	7	1,311	25
MW-9B	2011-12	190	1.4	4.2	7.1	310	18
MW-9B	2012-03	300	1.6	0.1	7	3,591	20
MW-9B	2012-06	243	< 0.072	0.2	7.4	1,348	24.7
MW-9B	2012-09	237	0.43	0	6.5	1,465	23.8
MW-9B	2012-12	245	0.59	6.2	6.2	1,208	23.6
MW-9B	2013-03	1700	< 0.084	6.4	7.2	6,884	43
MW-9B	2013-09	150	0.99	2.6	7	709	17
MW-9B	2014-04	250	1.1	1.1	7.1	1,377	23
MW-9B	2014-09	170	1.4	1.9	8.6	860	19
MW-9B	2015-04	590	1	0	7.8	2,546	20

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-9B	2015-09	210	2.1	1.7	7.5	1,043	31
MW-9B	2016-04	760	< 0.5	5.6	7.7	3,259	29
MW-9B	2016-09	150	2.1	5.8	7.6	1,051	17
MW-9B	2017-04	310	0.59	3	9.4	1,513	26
MW-9B	2017-09	190	0.87	2.2	7.8	728	23
MW-9B	2018-04	279	1.9	0	7.8	1,408	23.6
MW-9B	2018-09	251	1.5	0	6.9	3,298	22.6
MW-9B	2019-04	393	1.1	1.6	7.4	1,714	23.2
MW-9B	2019-09	444	1.8	0	7.2	1,764	29.3
MW-9B	2020-04	336	1	2	7.5	1,980	26.1
MW-9B	2020-09	227	1.6	0	7.1	1,566	22.1
MW-9B	2021-04	376	1.5	0	7.2	1,839	26.7
MW-9B	2021-09	206	3.7	0	7.8	1,169	106
MW-9B	2022-04	239	2	2.6	8.2	980	17.4
MW-9B	2022-09	187	1.7	2	7.4	1,068	17.5
MW-9R	2003-10	98	5.1		7	1,350	46
MW-9R	2004-04	61	4.9	0.86	7	1,300	57
MW-9R	2004-10	120	3.9	1.2	6.9	1,500	52
MW-9R	2005-03	170	8.9	0.9	7	2,000	93
MW-9R	2005-06	170	9.1	0.7	6.7	1,500	98
MW-9R	2005-09	190	4.4	0.6	6.4	1,850	52
MW-9R	2005-12	160	5.87	0.8	6.9	1,600	48
MW-9R	2006-10	190	8.75		6.9	1,700	81
MW-9R	2007-06			2.5	7.4	1,600	
MW-9R	2007-09			3.9	7.8	1,100	
MW-9R	2007-12			3.1	7.8	2,200	
MW-9R	2007-12			3.1	7.8	2,200	
MW-9R	2008-03			3	7.3	2,250	
MW-9R	2009-03	260	3.97	1.83	6.9	1,950	25
MW-9R	2009-06	320	2.82	2.47	7.6	1,500	18
MW-9R	2009-09	460	2.52	1.37	6.6	1,800	23
MW-9R	2009-12	370	2.75	0.93	8.1	1,900	25
MW-9R	2010-03	290	2.91	0.34	7	1,980	22
MW-9R	2010-06	270	1.97	2.1	7.4	1,455	21
MW-9R	2010-09	320	3.58	2.7	7.5	2,146	16
MW-9R	2010-12	470	1.74	0	5.9	2,698	20

Appendix D
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Units	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	Sample Date						
MW-9R	2011-03	330	3.58	2.6	6.3	2,080	17.8
MW-9R	2011-06	180	3.1	1.1	6.9	1,482	18
MW-9R	2011-09	370	5.8	< 0	6.9	2,248	110
MW-9R	2011-12	360	2.2	0	6.7	2,214	20
MW-9R	2012-03	750	2.6	< 0	6.7	1,922	33
MW-9R	2012-06	238	0.29	0.3	7.2	1,779	25.1
MW-9R	2012-09	285	0.37	1.2	6.8	1,856	34.1
MW-9R	2012-12	238	1.2	4.5	7.2	1,790	33.8
MW-9R	2013-03	200	1.2	0	7	1,712	37
MW-9R	2013-09	510	0.48	2	7.1	2,630	22
MW-9R	2014-04	200	2.1	0	6.9	1,781	38
MW-9R	2014-09	130	4	0	7	1,268	32
MW-9R	2015-04	220	3	0	7.1	1,760	38
MW-9R	2015-09	70	2.9	0	7	1,045	26
MW-9R	2016-04	140	1.9	0	7.1	1,320	20
MW-9R	2016-09	610	1.7	5.8	7.3	2,608	31
MW-9R	2017-04	240	0.99	3.7	7.1	1,832	36
MW-9R	2017-09	690	0.53	0	7.1	3,310	29
MW-9R	2018-04	416	2.9	0	7.3	2,168	38.8
MW-9R	2018-09	235	2.9	1.4	6.9	3,425	29.7
MW-9R	2019-04	453	2.2	0	6.9	2,518	21.6
MW-9R	2019-09	437	2.4	1.2	7	2,420	23
MW-9R	2020-04	318	2.5	0	7	2,070	15.1
MW-9R	2020-09	372	2.9	0	6.8	2,604	14.8
MW-9R	2021-04	246	3.1	0	7	1,766	13.3
MW-9R	2021-09	73.5	3.4	0.1	7	1,931	15.3
MW-9R	2022-04	196	2.8	8.6	6.9	1,800	23.9
MW-9R	2022-09	163	2.3	2.8	6.8	1,268	21.6

µmhos/cm @ 25 C = microohms/centimeter at 25 degrees Centigrade

s.u. = standard pH units

mg/L = milligram per liter

Prepared By: HLH

Checked By: KMC2

Appendix E

Historical Groundwater Data – Median Values for MW-7 and MW-3 Indicator Parameters

Appendix E
Historical Groundwater Data - Indicator Parameters

	Chemical Name	Chloride	Dissolved Organic Carbon	Dissolved Oxygen	pH	Specific Conductance	Sulfate
	Unit	mg/L	mg/L	mg/L	s.u.	µmhos/cm @25 C	mg/L
Well ID	**Sample Date**						
MW-7	2004-04	180	1.6		7.5	1,300	34
MW-7	2004-10	130	1.9		7.6	1,350	57
MW-7	2005-03	160	1.7	5.4	7.5	1,450	40
MW-7	2005-06				6.6	1,200	
MW-7	2009-04	150	1.67				29
MW-7	2009-06	130	2.96	0.35	7.8	1,000	31
MW-7	2010-06	98	1.48	7.4	7.2	849	27
MW-7	2011-06	230	1.9	6.1	7.1	1,441	27
MW-7	2012-06	148	< 0.072	5.8	7.2	1,340	26.8
MW-7	2013-09	69	1.4	1.9	6.9	989	36
MW-7	2014-09	95	1.6	5.1	7.1	991	35
MW-7	2015-09	110	1.9	4.1	7.3	1,131	33
MW-7	2016-09	84	1.7	6	7.8	1,012	26
MW-7	2017-09	49	0.82	4.2	7.2	937	25
MW-7	2018-09	208	1.8	6.4	7	3,079	18.7
MW-7	2019-09	98.5	1.6	4.9	7.1	1102	23.4
MW-7	2020-09	107	1.9	0	7.1	1,484	22.4
MW-7	2021-09	174	0.74	3.6	7.2	1125	20.4
MW-7	2022-09	196	1.4	7.2	7.2	1,215	17.7
Median		130	1.7	5.1	7.2	1,166	27
MW-3	2003-10	300	6.7		6.7	2,050	13
MW-3	2004-04	240	5.2	0.4	6.8	2,050	40
MW-3	2004-10	290	9.8	0.4	6.9	2,500	120
MW-3	2005-03	280	9.7	0.6	6.8	2,375	79
MW-3	2005-06	250	7.2	0.3	6.7	1,900	61
MW-3	2005-09	270	6.6	0.4	6.9	2,000	41
MW-3	2005-12	290	8.49	0.7	6.9	2,200	42
MW-3	2006-10	290	11.2		7.1	2,400	58
MW-3	2007-06			0.38	7.1	2,100	
MW-3	2007-09			0.93	8.2	1,600	
MW-3	2007-12			1.7	8.5	2,400	
MW-3	2008-03			1.9	7.2	2,200	
MW-3	2009-03	220	10.8	1.22	7.2	2,400	6.2
MW-3	2009-06	260	6.64	1.6	7.2	1,600	22
MW-3	2009-09	240	5.72	1.67	7.1	1,600	< 1.5
MW-3	2009-12	240	6.09	1.99	7	1,600	< 1.5
MW-3	2010-03	200	7.32	0.28	7.1	1,772	< 1.5

Appendix E
Historical Groundwater Data - Indicator Parameters

Well ID	Sample Date	Chemical Name / Unit: Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
MW-3	2010-06	180	1.55	0	7.4	1,436	< 1.5
MW-3	2010-09	210	8.5	0	7.1	1,802	12
MW-3	2010-12	200	5.12	0	6.9	1,723	< 1.5
MW-3	2011-03	172	7.09	0	6.7	1,617	1.84
MW-3	2011-06	240	6.5	< 0	6.8	1,543	< 1.5
MW-3	2011-09	150	13	< 0	7.4	1,470	3.5
MW-3	2011-12	140	5.2	0	7.1	1,395	2.6
MW-3	2012-03	120	5.3	< 0	7.1	1,318	2.4
MW-3	2012-06	85.8	2.4	0	5.9	1,270	< 2
MW-3	2012-09	77	2.6	0	7.4	1,177	< 2
MW-3	2012-12	81.4	4.5	0.6	6.9	1,126	7.6
MW-3	2013-03	170	1.6	2.8	7.4	1,435	9
MW-3	2013-09	290	4	0.6	6.8	2,127	< 5
MW-3	2014-04	290	4.7	0	6.9	1,970	< 13
MW-3	2014-09	300	4	2.3	7.1	2,069	< 13
MW-3	2015-04	330	3.5	1.4	6.9	2,049	< 13
MW-3	2015-09	330	3.9	0.6	7	2,142	< 13
MW-3	2016-04	370	3.1	0	7.1	2,318	17
MW-3	2016-09	340	4.5	2.8	6.9	2,281	< 13
MW-3	2017-04	340	3.3	0.6	6.6	2,240	< 13
MW-3	2017-09	320	3.5	0	7	2,268	< 13
MW-3	2018-04	412	5.9	0.8	7.7	2,273	
MW-3	2018-09	352	5.3	0	7	4,424	0.7
MW-3	2019-04	405	6.4	0	6.8	3167	13.2
MW-3	2019-09	344	6.8	0	7	3318	0.12
MW-3	2020-04	274	4.9	0	6.8	2,472	1.6
MW-3	2020-09	319	5.9	0.5	6.9	2,845	0.4
MW-3	2021-04	271	5.5	0	6.9	1858	0.53
MW-3	2021-09	394	3.9	1	7	2004	0.1
MW-3	2022-04	354	4.9	1.5	6.8	1,927	4.2
MW-3	2022-09	353	7.5	1.5	6.9	2,256	7.1
Median		277	5.4	0.50	7	2,050	7.6

µmhos/cm @ 25 C = microohms/centimeter at 25 degrees Centigrade
s.u. = standard pH units
mg/L = milligram per liter

Prepared by: HLH
Checked by: KMC2