Report

2018 Annual Report

West Avenue Landfill
License #521, FID #268145680

Project I.D.: 19W013

City of Waukesha
Waukesha, Wisconsin

February 2019

Foth

Green Bay Location

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February 28, 2019

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

Dear Ms. Mylotta:

RE: *2018 Annual Report* for the West Avenue Landfill
License #521, FID # 268145680

On behalf of the city of Waukesha, Foth Infrastructure & Environment, LLC (Foth) is submitting two copies of this *2018 Annual Report* to the Wisconsin Department of Natural Resources for your review and approval. This report summarizes the continuing operation and maintenance activities and groundwater monitoring information for the West Avenue Landfill, located in Waukesha, Wisconsin.

If you have any questions regarding this report, please contact the undersigned at (920) 497-2500.

Sincerely,

Foth Infrastructure & Environment, LLC

Daniel J. Michiels, P.E.
Project Engineer

Heather L. Hallett, P.G.
Project Hydrogeologist

2018 Annual Report

Distribution

No. of Copies	Sent To
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2018 Annual Report

Project ID: 19W013

Prepared for

City of Waukesha

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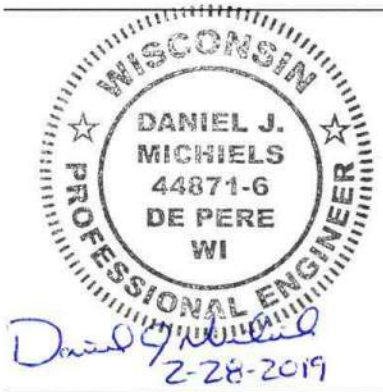

Prepared by

Foth Infrastructure & Environment, LLC

February 2019

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This *2018 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 *2018 Annual Report* information indicates that the remediation 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 2018 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 by bringing the surface up to grade in recent years where standing water was observed, thus infiltration of precipitation is minimized, reducing contaminant load to the groundwater. Asphalt and the storm water management system were repaired and maintained in multiple areas over recent years to promote surface water drainage.

2. Demonstrated effectiveness of natural attenuation.

   Decreasing trends of chlorinated 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. Increasing trends of vinyl chloride in samples from several wells located downgradient of the Site are evident and will continue to be monitored.

   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	*2018 Annual Report*
CL	chloride
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	preventative action limit
SC	specific conductivity
SF	sulfate
Site	West Avenue Landfill
TCE	trichloroethene
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
µmhos/cm	micro-mhos/centimeter
VC	vinyl chloride
WDNR	Wisconsin Department of Natural Resources
WGNHS	Wisconsin Geological and Natural History Survey
Wis. Admin. Code	Wisconsin Administrative Code

1 Introduction

This *2018 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, 2018 through December 31, 2018.

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 2019 activities.

1.1 Site Contacts

The City's project manager is:

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

The consultant for this project is:

Mr. 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, for the purpose of developing the vacant parcel into a public soccer field and recreational park. The City also acquired 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 properties were 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.

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 2018 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 2018.

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 on March 21 and September 11, 2018. 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 on March 21 and September 11, 2018. The storm water management system appeared to be in good condition and no damage was observed. Field observation forms are attached in Appendix A.

In late summer, a small area of depressed soil was noticed along Hoover Avenue directly above the storm water piping near a storm water inlet. City staff excavated the storm water piping on October 9, 2018 to inspect the piping and storm water inlet structure. There were no observed breaks in the piping. A small piping sag was noted and clay was compacted and backfilled around the piping to restore the piping elevation. No work disturbed the final cover system. The area was backfilled and restored and no additional repairs were needed.

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 (17) vertical gas extraction wells
- Four (4) horizontal gas extraction trenches
- Three (3) 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 9-25, June 4-5, September 10-11, and December 3-4, 2018. 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 observed as part of the quarterly inspections for Q1, Q2, and Q3. Each of the KO lift stations were opened and the pump and level floats were inspected. During the reporting year, the following observations were made:

- KO-1, KO-2, and KO-3 operated normally in 2018.

Wisconsin Department of Natural Resources (WDNR) was contacted prior to conducting the Q4 field work. In a conversation between Foth and WDNR's site engineer, Gerald Demers, it was stated that the observation of the interior KO sump conditions was considered a maintenance task to be performed at an interval determined by the City. It was discussed that quarterly observations of the interior conditions were not necessary unless warranted by indications from pump control panel conditions or pump run time issues. As a result of the conversation, the frequency of interior KO sump conditions will be reduced from quarterly to a schedule determined by the City. The anticipated observation frequency going forward will be annual and is subject to change as necessary. As a result, the interior KO sumps were not observed during the Q4 field event.

The gas extraction blower and flare system were assessed during 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.

3.3.1 Maintenance Work Summary

The following maintenance items were performed on the landfill gas and condensate management system in 2018:

- Replaced pump at KO-3
- Replaced transient voltage surge suppressors and blower motor
- Installed a blower motor timer
- Replaced blower pillow block bearings

- Repaired communication equipment

A new submersible grinder pump was installed in KO-3 on August 3, 2018. The old pump had failed and a new pump was installed. The pump discharge piping was modified as necessary for the new pump outlet connection. Upon replacement of the pump, the control panel and lift station were brought back online. The lift station functioned as designed for the remainder of 2018.

Maintenance and repair work was performed on the blower motor and controls in 2018. The blower motor and transient voltage surge suppressors were replaced on March 1, 2018. Once replaced, the City put the blower back into operation. A timer was installed for automated control of motor run time on April 5, 2018. The timer functions to run the blower motor for 12 hours of operation. Once the timer elapses, the blower motor shuts off and the system is down for 12 hours. This sequence repeats every 24 hours. Following the blower timer installation, a full round of gas probe sampling was performed to assess the impacts of the decreased blower run time. No impacts were observed with the decreased run time during the Quarter 1 gas probe monitoring event that was performed a week after the timer installation. WDNR was informed of the reduced blower run time by e-mail on April 9, 2018.

Additional maintenance work completed in 2018 include replacement of the pillow block motor bearings for the blower system on August 6, 2018. Repairs to the communication equipment monitoring the KO pump and blower run times were also completed on December 21, 2018.

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 on March 21, 2018, June 19, 2018, September 11, 2018, and December 10, 2018. The inspections are performed quarterly in conjunction with other on-site monitoring events. Field observation forms are provided in Appendix A.

During the reporting year, there was no damage to the systems noted during routine inspections. The security system are 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 is 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 on March 21, 2018 and September 11, 2018. 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:

- 349 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

The quarterly inspection of the sub-slab air venting systems and methane monitors were conducted by City personnel on March 21, 2018, June 19, 2018, September 11, 2018, and December 10, 2018. 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 9, 2018, June 4, 2018, September 10, 2018, and December 4, 2018. Gas probes are monitored for gas composition and the presence of methane. The landfill gas composition ranges within the gas probes in 2018 across the site were as follows:

- Methane (CH_4): 0 to 12.5% (0 to 0.4%, excluding GP-11)
- Carbon Dioxide (CO_2): 0 to 16.6%
- Oxygen (O_2): 0 to 21.9%

In 2018, gas composition at each of the gas probes was measured to be less than the lower explosive limit (LEL) for methane of 5% except at GP-11. Field observation forms are provided in Appendix A.

The inspection and monitoring of the gas extraction wells were conducted by City personnel on April 9, 2018, June 4, 2018, September 10, 2018, and December 3, 2018. Gas extraction wells are monitored for gas composition. Field observation forms are provided in Appendix A.

3.7.1 GP-11 Exceedance

The percent methane measured at GP-11 exceeded the LEL (5%) on September 10, 2018 (12.5%). The City notified the WDNR via e-mail of the exceedance on October 11, 2018. The valve at GW-16 was maintained fully open to increase gas collection in the area in an effort to increase gas collection in the area of GP-11. Indoor and outdoor air monitoring of the strip mall at 442 W. Sunset Drive was performed monthly with no presence of methane detected. Methane monitors installed at Murf's and Panos were monitored on a quarterly basis. The methane monitoring device at Murf's was replaced in fall 2018. The City performed weekly monitoring of GP-11 following the exceedance and measured methane levels above the LEL through the last quarterly event of 2018 (10.8% on December 4, 2018) and until the end of year. Methane levels in GP-11 were later recorded below the LEL on January 7, 2019 (4.2%). As a result, gas probe monitoring will be performed quarterly per the 2010 *O&M Plan*. Documentation of weekly monitoring results and indoor and outdoor air monitoring is provided in Appendix A.

A conference call between the City, WDNR, and Foth was held on February 7, 2018 to discuss the readings at GP-11 and proposed future plans. During the call, it was noted that a potential sag in the gas header piping may be reducing available system vacuum. The City will explore options for correcting the potential gas header sag near the blower in 2019.

4 Groundwater Monitoring and Data Evaluation

Groundwater monitoring was conducted at the Site in 2018 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. No deviations from the approved monitoring plan or approved variances were noted in 2018.

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 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 2018 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 810.83 feet above mean sea level (ft msl) in MW-17 to a high of 850.05 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 809.74 ft msl in MW-17BB to a high of 848.55 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 814.23 ft msl in MW-16D to a high of 831.39 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 on September 11, 2018. 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), and 0.02 (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 2018 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 2018 ranged from -0.08 to 0.25 feet/foot (negative indicates downward gradient); however there is a strong average downward vertical gradient of -0.67 feet/foot 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 typical gradients ranging from 0.01 to 0.20 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 2018 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 2018 measurements, the average linear flow velocity of shallow groundwater in the uppermost aquifer at the Site is 0.892 feet per day (ft/day); the average linear flow velocity of intermediate groundwater in the uppermost aquifer at the Site is 0.712 to 0.79 ft/day and; the average linear flow velocity of deep groundwater in the uppermost aquifer at the Site is 0.222 ft/day. The average linear flow velocities for the three geologic sections 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 2018 groundwater analytical results. The locations of the sampled wells are shown on Figure 4. No deviations from the monitoring plan were noted.

4.2.2 Groundwater Analysis of Exceedances

Table 4 presents preventative action limit (PAL) and enforcement standard (ES) exceedances detected during 2018 monitoring. Primary COCs were identified by evaluating their frequency of detection in 2018 at levels above the ES. Those compounds detected above the ES levels in more than four wells (i.e., >20 percent of the wells) are considered COCs and evaluated further in this report. The COCs include chloride, iron, and vinyl chloride. Table 5 presents the historical and 2018 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 2018 results.

- Chloride ES exceedances occur throughout shallow soil, intermediate bedrock, and deep bedrock wells, with the maximum concentration of 634 milligrams per liter (mg/L) occurring at MW-15.

- Iron ES exceedances occur throughout shallow soil, intermediate bedrock, and deep bedrock wells, with the maximum concentration of 15.4 mg/L occurring at MW-8.

- Vinyl chloride ES exceedances occur primarily in the intermediate and deep bedrock wells, with the maximum concentration 140 micrograms per liter (µg/L) occurring at MW-13D. Of the shallow soil wells, only MW-8 had vinyl chloride ES exceedances.

Additional compounds of interest were identified based on a comparison of the maximum concentrations detected in the 2003-2018 groundwater data to the ESs (see Table 5). 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 2018 are compared to those for 2003-2017. Of the parameters not identified as COCs, compounds of interest were identified as parameters exceeding the ES in at least four wells in historical data.

The additional compounds of interest are:

- 1,2,4-Trimethylbenzene
- Arsenic
- Benzene
- Bromodichloromethane
- Cadmium
- Chlorobenzene
- cis-1,2-Dichloroethene
- Manganese

- Methylene chloride
- Naphthalene
- Trichloroethene

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 (H0) 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 2018. Table 7 presents the trends from 2014 through 2018, 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: No detections or no significant trends at all wells.

- DCE: Decreasing, no detections, or no significant trends at all wells with the exception of MW-3B and MW-4BR (increasing).

- VC: No detections or no significant trends at all wells with the exception of MW-4BR (increasing).

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 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 2003-2018. 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 Appendices D and E. The median pH values at the two locations were similar at 7.2 and 7.0, upgradient (MW-7) and downgradient (MW-3), respectively. The median DO value was lower and the SC value was higher at MW-3 (0.6 mg/L and 2,025 micro-mhos/centimeter [µmhos/cm], respectively) [downgradient] as compared to the values from MW-7 (5.4 mg/L and 1,166 µmhos/cm) [upgradient]. Two other indicator parameter values were less upgradient at MW-7 (CL=130 mg/L and OC=1.7 mg/L) and one was higher (SF=30 mg/L) as compared to the downgradient median values at MW-3 (CL=255 mg/L, OC=5.3 mg/L, and SF=13 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 (with a few exceptions) 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. Increasing vinyl chloride concentrations in samples from two monitoring wells are also indicative of natural degradation of parent chlorinated compounds. Off-site chlorinated compounds may be contributing to the detected vinyl chloride concentrations in samples from Site wells. Overall, the 2018 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 2019 Activities

The activities anticipated at the West Avenue Landfill for 2019 are:

- Landfill Gas and Condensate System
  - The City plans to perform routine O&M inspections and monitoring in accordance with the 2010 *O&M Plan*.
  - The City plans to explore options for correcting a sagged gas pipe near the blower system header.
  - The City plans to evaluate options for remote monitoring of condensate sump water levels and required panel modifications.
  - The City will continue to evaluate the gas collection in the area of GP-11 and maintain high collection through the use of the southern perimeter gas trenches.
  - The City will maintain existing gas extraction and condensate removal equipment.

- Principal Landfill Cover System
  - The City plans to perform routine O&M inspections and monitoring in accordance with the 2010 *O&M Plan*.

- Groundwater Monitoring
  - The City will conduct routine groundwater monitoring activities with the WDNR approved April 2010 Conditional Closure Plan Modification letter.

- Waukesha Water Utility abandonment of Municipal Well #4 (445 West Newhall)
  - The Waukesha Water Utility plans to abandon MW #4 in 2019.

The 2019 Annual Report will be prepared and submitted to the WDNR by March 1, 2020.

6 References

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Tables

Table 1
2018 Groundwater Elevations
West Avenue Landfill
Waukesha, WI

Well No.	Groundwater Elevation 4/12/18	Groundwater Elevation 9/11/18
Shallow Wells		
MW-3	815.26	816.32
MW-7	848.97	850.05
MW-8	815.39	816.12
MW-9R	815.45	816.1
MW-10	823.40	826.46
MW-11	813.92	815.08
MW-12	811.88	812.26
MW-14	814.51	815
MW-15	823.28	824.74
MW-16	821.95	823.91
MW-17	810.55	810.83
Intermediate Wells		
MW-3B	814.99	816.38
MW-4BR	815.42	816.77
MW-7B	848.49	848.55
MW-8B	815.69	817.01
MW-9B	821.89	823.39
MW-10B	825.99	827.27
MW-11B	811.35	812.41
MW-12B	813.16	814.31
MW-13B	813.97	814.23
MW-14B	815.26	816.56
MW-15B	826.33	827.95
MW-16B	811.77	812.8
MW-17B	808.77	809.74
Deep Wells		
MW-3D	829.33	831.39
MW-13D	813.86	815.22
MW-16D	811.97	814.23
MW-17D	813.76	815.03

Prepared by: JAR5
Checked by: GGR

Table 2
Vertical Hydraulic Gradients - April and September 2018
West Avenue Landfill
Waukesha, WI

Well ID	Water Elevation 4/2018 ft amsl	Water Elevation 9/2018 ft amsl	Historical Depth to Bottom ft	Vertical Hydraulic Gradient 4/2018 ft/ft	Vertical Hydraulic Gradient 9/2018 ft/ft	Vertical Hydraulic Gradient 2018 Average ft/ft
Shallow-Intermediate Vertical Gradients						
MW-3	815.26	816.32	49.87	-0.01	0.00	0.00
MW-3B	814.99	816.38	74.11			
MW-7	848.97	850.05	17.41	-0.02	-0.07	-0.05
MW-7B	848.49	848.55	37.61			
MW-8	815.39	816.12	38.83	0.01	0.04	0.03
MW-8B	815.69	817.01	62.32			
MW-9R	815.45	816.10	36.40	0.23	0.26	0.25
MW-9B	821.89	823.39	64.37			
MW-10	823.40	826.46	40.62	0.11	0.03	0.07
MW-10B	825.99	827.27	64.50			
MW-11	813.92	815.08	41.72	-0.08	-0.08	-0.08
MW-11B	811.35	812.41	74.63			
MW-12	811.88	812.26	44.84	0.03	0.04	0.03
MW-12B	813.16	814.31	93.82			
MW-14	814.51	815.00	40.74	0.02	0.04	0.03
MW-14B	815.26	816.56	75.52			
MW-15	823.28	824.74	26.61	0.05	0.06	0.05
MW-15B	826.33	827.95	84.43			
MW-16	821.95	823.91	33.63	-0.64	-0.70	-0.67
MW-16B	811.77	812.80	49.52			
MW-17	810.55	810.83	44.75	-0.03	-0.02	-0.03
MW-17B	808.77	809.74	97.88			
Intermediate-Deep Vertical Gradients						
MW-3B	814.99	816.38	74.11	0.19	0.20	0.20
MW-3D	829.33	831.39	148.01			
MW-13B	813.97	814.23	84.56	0.00	0.02	0.01
MW-13D	813.86	815.22	134.63			
MW-16B	811.77	812.80	49.52	0.00	0.02	0.01
MW-16D	811.97	814.23	140.13			
MW-17B	808.77	809.74	97.88	0.10	0.10	0.10
MW-17D	813.76	815.03	148.62			

Notes:

A negative vertical gradient indicates a downward gradient.

NM - not measured

Prepared by: JAR5

Checked by: GGR

Table 3
Detected Compounds and Regulatory Exceedances in 2018
West Avenue Landfill
Waukesha, WI

		MW-3		MW-3B			MW-3D		MW-4BR		MW-7		MW-7B	MW-8		MW-8B		MW-9B	
		4/24/2018	9/18/2018	4/24/2018	9/18/2018	4/24/2018	4/24/2018	9/18/2018	4/24/2018	9/18/2018	9/12/2018	9/12/2018	9/12/2018	4/24/2018	9/18/2018	4/24/2018	9/18/2018	4/12/2018	9/12/2018
		N	N	N	N	N	FD	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	**Unit**																		
1,1,1,2-Tetrachloroethane	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
1,1,1-Trichloroethane	µg/L	< 0.19	< 0.19	0.73	3.6	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1,2,2-Tetrachloroethane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1,2-Trichloroethane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1-Dichloroethane	µg/L	< 0.24	0.38	21	20	13	12	18	8	3.8	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	6.7	9.9	< 0.24	< 0.24
1,1-Dichloroethene	µg/L	< 0.25	< 0.25	< 0.25	0.38	1.1	1.1	1.6	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
1,1-Dichloropropene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
1,2,3-Trichloropropane	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
1,2,4-Trichlorobenzene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	310	320	< 0.17	< 0.17	< 0.17	9	0.24	< 0.17	< 0.17	< 0.17	< 0.17
1,2-Dibromo-3-chloropropane	µg/L	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94
1,2-Dibromoethane	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
1,2-Dichlorobenzene	µg/L	0.33	0.34	1.1	< 0.19	< 0.19	< 0.19	< 0.19	4.2	3.7	< 0.19	< 0.19	< 0.19	1.7	1.6	2.7	4.6	< 0.19	< 0.19
1,2-Dichloroethane	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
1,3,5-Trimethylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	45	17	< 0.17	< 0.17	< 0.17	1.8	0.2	< 0.17	< 0.17	< 0.17	< 0.17
1,3-Dichlorobenzene	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	0.47	0.38	< 0.18	0.3	< 0.18	< 0.18
1,3-Dichloropropane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,4-Dichlorobenzene	µg/L	0.73	0.81	0.7	< 0.17	< 0.17	< 0.17	< 0.17	1.5	1.4	< 0.17	< 0.17	< 0.17	4.2	3.7	2.2	3.7	< 0.17	< 0.17
2,2-Dichloropropane	µg/L	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
2-Butanone	µg/L	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
2-Chlorotoluene	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
4-Chlorotoluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
4-Methyl-2-pentanone	µg/L	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81
Acetone	µg/L	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	3.6	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	2.8	< 2.7	< 2.7
Arsenic	µg/L	2.7	1.8	4.8	0.49	0.95	N/A	1	3.5	3.2	0.2	N/A	0.24	6.4	5	9.3	9	4.9	5.5
Barium	µg/L	347	339	281	214	197	N/A	191	361	353	67	N/A	82.7	498	487	315	342	201	233
Benzene	µg/L	< 0.20	< 0.20	2.9	0.49	< 0.20	< 0.20	0.42	13	11	< 0.20	< 0.20	< 0.20	4	3.2	2.5	3.4	< 0.20	< 0.20
Beryllium	µg/L	< 0.030	0.066	< 0.030	0.13	< 0.030	N/A	0.077	< 0.030	0.045	0.049	N/A	< 0.030	< 0.030	0.076	< 0.030	< 0.030	< 0.030	< 0.030
Boron	µg/L	284	293	289	112	144	N/A	133	579	522	< 37.4	N/A	48.7	875	542	580	622	47.3	52.2
Bromobenzene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
Bromochloromethane	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Bromodichloromethane	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Bromoform	µg/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
Bromomethane	µg/L	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35
Cadmium	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	N/A	< 0.15	< 0.15	< 0.15	< 0.15	N/A	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	0.21
Carbon Disulfide	µg/L	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22
Carbon Tetrachloride	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
Chloride	mg/L	412	352	417	430	185	N/A	172	337	306	208	N/A	161	376	349	315	278	279	251
Chlorobenzene	µg/L	4.1	4.7	31	2.9	< 0.18	< 0.18	< 0.18	33	30	< 0.18	< 0.18	< 0.18	100	130	52	82	< 0.18	< 0.18
Chlorodibromomethane	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Chloroethane	µg/L	< 0.36	< 0.36	1.3	< 0.36	1.9	2	0.75	14	14	< 0.36	< 0.36	< 0.36	0.55	3	0.98	1.1	< 0.36	< 0.36
Chloroform	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23

Table 3 (*Continued*)

		MW-3		MW-3B			MW-3D		MW-4BR		MW-7		MW-7B	MW-8		MW-8B		MW-9B	
		4/24/2018	9/18/2018	4/24/2018	9/18/2018	4/24/2018	4/24/2018	9/18/2018	4/24/2018	9/18/2018	9/12/2018	9/12/2018	9/12/2018	4/24/2018	9/18/2018	4/24/2018	9/18/2018	4/12/2018	9/12/2018
		N	N	N	N	N	FD	N	N	N	N	FD	N	N	N	N	N	N	N
Parameter	**Unit**																		
Chloromethane	µg/L	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36
cis-1,2-Dichloroethene	µg/L	< 0.21	< 0.21	74	77	26	26	34	6.2	5	< 0.21	< 0.21	< 0.21	< 0.21	0.25	16	30	< 0.21	< 0.21
cis-1,3-Dichloropropene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Dibromomethane	µg/L	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45
Dichlorodifluoromethane	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	32	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Diisopropyl Ether	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.22	< 0.17	< 0.17
Dissolved Organic Carbon	mg/L	5.9	5.3	5.5	1.7	2	N/A	1.6	15.2	11.8	1.8	N/A	1.1	12.8	9	7.4	6.8	1.9	1.5
Ethane	µg/L	0.0041	0.006	0.027	0.0035	0.0074	N/A	0.0074	0.67	0.4	< 0.0027	N/A	< 0.0027	0.0092	0.015	0.05	0.057	< 0.0027	< 0.0027
Ethene	µg/L	< 0.0022	< 0.0022	0.01	< 0.0022	< 0.0022	N/A	< 0.0022	0.048	< 0.0022	< 0.0022	N/A	< 0.0022	< 0.0022	< 0.0022	0.0068	0.0096	< 0.0022	< 0.0022
Ethylbenzene	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	380	320	< 0.19	< 0.19	< 0.19	8	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
Fluorotrichloromethane	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
Hexachlorobutadiene	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
Iron	ug/L	8620	8490	2240	< 37.7	176	N/A	132	11300	11200	41	N/A	< 37.7	15400	13200	3910	4440	143	166
Isopropylbenzene	µg/L	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	29	24	< 0.33	< 0.33	< 0.33	2.2	0.64	< 0.33	< 0.33	< 0.33	< 0.33
Lead	µg/L	< 0.16	< 0.16	0.35	< 0.16	0.19	N/A	< 0.16	< 0.16	1.4	< 0.16	N/A	< 0.16	< 0.16	< 0.16	< 0.16	0.2	< 0.16	0.16
Manganese	µg/L	158	162	488	375	25.7	N/A	5.3	99.3	103	3.2	N/A	6.3	102	120	377	296	35.2	44.9
Methane, % of Dissolved Gases	µg/L	11	5.3	7.6	0.094	0.47	N/A	0.43	29	18	< 0.0017	N/A	< 0.0017	3.3	6.7	1.1	1.2	0.14	0.2
Methylene Chloride	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl-tert-butyl-ether	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Naphthalene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	200	110	< 0.21	< 0.21	< 0.21	12	2	< 0.21	< 0.21	< 0.21	< 0.21
n-Butylbenzene	µg/L	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	37	27	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
Nickel	µg/L	< 0.92	0.96	7.5	12.4	< 0.92	N/A	< 0.92	2.4	2.3	1.2	N/A	1.1	4.4	3.5	8.3	10.1	1.9	1.4
Nitrogen, Nitrate	mg/L	< 0.068	< 0.068	< 0.068	1.7	< 0.068	N/A	< 0.068	< 0.068	< 0.068	1	N/A	0.098	< 0.068	0.46	0.086	< 0.068	0.51	0.48
n-Propylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	83	73	< 0.17	< 0.17	< 0.17	1.1	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
p-Isopropyltoluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	7.4	4.8	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
sec-Butylbenzene	µg/L	< 0.17	< 0.17	0.42	< 0.17	< 0.17	< 0.17	< 0.17	15	15	< 0.17	< 0.17	< 0.17	1.2	0.75	0.63	0.67	< 0.17	< 0.17
Styrene	µg/L	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28
Sulfate	mg/L	< 0.095	0.7	20.4	43.6	25	N/A	26.3	< 0.095	0.12	18.7	N/A	75.4	14	0.92	16.5	17.8	23.6	22.6
tert-Butylbenzene	µg/L	< 0.17	< 0.17	0.28	< 0.17	< 0.17	< 0.17	< 0.17	1.4	1.2	< 0.17	< 0.17	< 0.17	0.84	0.58	0.38	0.36	< 0.17	< 0.17
Tetrachloroethene	µg/L	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	0.17	0.19	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14
Tetrahydrofuran	µg/L	< 0.82	0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	1	< 0.82	< 0.82	< 0.82	< 0.82	1.1	< 0.82	4.3	< 0.82	< 0.82
Thallium	µg/L	0.033	< 0.019	0.05	< 0.019	0.04	N/A	< 0.019	0.039	< 0.019	< 0.019	N/A	< 0.019	0.038	< 0.019	0.38	0.29	0.05	0.022
Toluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	330	51	< 0.17	< 0.17	< 0.17	0.79	0.2	0.44	0.58	< 0.17	< 0.17
trans-1,2-Dichloroethene	µg/L	< 0.23	< 0.23	1.3	0.78	< 0.23	< 0.23	< 0.23	4.4	3	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	2.8	4.4	< 0.23	< 0.23
trans-1,3-Dichloropropene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Trichloroethene	µg/L	< 0.20	< 0.20	0.64	0.97	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vinyl Chloride	µg/L	< 0.18	< 0.18	35	10	5.4	5.5	5.8	3.4	2	< 0.18	< 0.18	< 0.18	0.26	< 0.18	10	17	< 0.18	< 0.18
Xylene, m & p	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	310	190	< 0.38	< 0.38	< 0.38	3.6	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
Xylene, o	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	110	42	< 0.20	< 0.20	< 0.20	2.9	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Notes:
N = Normal sample
FD = Field Duplicate sample
N/A = Not Applicable
µg/L = microgram per liter
mg/L = milligram per liter
MW-13 was abandoned on August 7, 2017

Table 3 (*Continued*)

		MW-9R		MW-10		MW-10B		MW-11		MW-11B		MW-12		MW-12B		MW-13B			MW-13D
		4/12/2018	9/12/2018	4/12/2018	9/12/2018	4/12/2018	9/12/2018	9/13/2018	9/18/2018	4/12/2018	9/13/2018	4/23/2018	9/13/2018	4/23/2018	9/13/2018	4/23/2018	9/18/2018	4/24/2018	9/18/2018
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	**Unit**																		
1,1,1,2-Tetrachloroethane	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	N/A	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
1,1,1-Trichloroethane	µg/L	4.7	1.2	< 0.19	< 0.19	48	57	< 0.19	N/A	< 0.19	1.2	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	4.6	2.9
1,1,2,2-Tetrachloroethane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1,2-Trichloroethane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1-Dichloroethane	µg/L	0.54	0.34	< 0.24	< 0.24	37	38	< 0.24	N/A	2.7	5.1	< 0.24	< 0.24	5.7	3.5	< 0.24	0.33	41	31
1,1-Dichloroethene	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	4.9	4.5	< 0.25	N/A	0.33	0.39	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	1.2	0.72
1,1-Dichloropropene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	N/A	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
1,2,3-Trichloropropane	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
1,2,4-Trichlorobenzene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	N/A	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
1,2-Dibromo-3-chloropropane	µg/L	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	N/A	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94
1,2-Dibromoethane	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
1,2-Dichlorobenzene	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	1.4	1.4	< 0.19	< 0.19
1,2-Dichloroethane	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	N/A	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
1,3,5-Trimethylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
1,3-Dichlorobenzene	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	N/A	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	0.35	0.3	< 0.18	< 0.18
1,3-Dichloropropane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,4-Dichlorobenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	0.7	0.52	3.3	3.2	< 0.17	< 0.17
2,2-Dichloropropane	µg/L	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	N/A	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
2-Butanone	µg/L	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	N/A	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
2-Chlorotoluene	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	N/A	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
4-Chlorotoluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
4-Methyl-2-pentanone	µg/L	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	N/A	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81
Acetone	µg/L	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.70	< 2.7	N/A	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	5.8	< 2.7	< 2.7	< 2.7
Arsenic	µg/L	0.52	0.29	0.25	0.24	0.44	0.19	0.23	N/A	0.34	0.34	0.87	2.1	3.4	3.3	5.6	5.4	0.68	0.45
Barium	µg/L	215	187	131	131	130	126	84.2	N/A	142	163	146	230	299	305	422	432	225	224
Benzene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	N/A	< 0.20	< 0.20	< 0.20	< 0.20	2	1.6	1.2	1.1	2.7	1.6
Beryllium	µg/L	< 0.030	< 0.030	< 0.030	0.036	< 0.030	< 0.03	0.048	N/A	< 0.03	0.072	< 0.030	0.068	< 0.030	0.07	< 0.030	< 0.030	< 0.030	< 0.030
Boron	µg/L	184	135	37.5	40.7	80.5	67.3	39.8	N/A	47	55.4	106	160	589	584	500	485	180	138
Bromobenzene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
Bromochloromethane	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	N/A	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Bromodichloromethane	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Bromoform	µg/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	N/A	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
Bromomethane	µg/L	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	N/A	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35
Cadmium	µg/L	< 0.15	0.18	< 0.15	< 0.15	0.2	< 0.15	< 0.15	N/A	1.1	1.4	< 0.15	0.2	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Carbon Disulfide	µg/L	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	N/A	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	0.55	< 0.22	< 0.22	< 0.22
Carbon Tetrachloride	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	N/A	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
Chloride	mg/L	416	235	468	388	462	283	N/A	320	270	238	47.8	214	288	322	323	345	405	403
Chlorobenzene	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	N/A	< 0.18	< 0.18	< 0.18	< 0.18	11	11	69	71	11	6
Chlorodibromomethane	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	N/A	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Chloroethane	µg/L	< 0.36	< 0.36	< 0.36	< 0.36	0.65	< 0.36	< 0.36	N/A	< 0.36	< 0.36	< 0.36	< 0.36	2.4	2.8	5.1	4.9	< 0.36	0.46
Chloroform	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	0.23	0.51	< 0.23	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23

Table 3 (*Continued*)

		MW-9R		MW-10		MW-10B		MW-11		MW-11B		MW-12		MW-12B		MW-13B			MW-13D
		4/12/2018	9/12/2018	4/12/2018	9/12/2018	4/12/2018	9/12/2018	9/13/2018	9/18/2018	4/12/2018	9/13/2018	4/23/2018	9/13/2018	4/23/2018	9/13/2018	4/23/2018	9/18/2018	4/24/2018	9/18/2018
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Parameter	**Unit**																		
Chloromethane	µg/L	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	N/A	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36
cis-1,2-Dichloroethene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	42	35	< 0.21	N/A	3.2	5.8	< 0.21	< 0.21	14	11	< 0.21	< 0.21	380	220
cis-1,3-Dichloropropene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Dibromomethane	µg/L	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	N/A	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45
Dichlorodifluoromethane	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Diisopropyl Ether	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	0.24	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Dissolved Organic Carbon	mg/L	2.9	2.9	1.6	1.2	2	1.5	1.4	N/A	1.6	1.3	1.5	2.7	6.7	5.8	8.9	8.1	4.6	2.3
Ethane	µg/L	< 0.0027	< 0.0027	< 0.0027	< 0.0027	< 0.0027	< 0.0027	< 0.0027	N/A	< 0.0027	< 0.0027	< 0.0027	< 0.0027	0.044	0.041	0.026	0.025	0.033	0.017
Ethene	µg/L	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	N/A	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	0.0053	0.0032	< 0.0022	0.015	< 0.0022
Ethylbenzene	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	N/A	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	0.28	< 0.19	< 0.19	< 0.19
Fluorotrichloromethane	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
Hexachlorobutadiene	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	N/A	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
Iron	ug/L	544	312	< 37.7	< 37.7	41.4	< 37.7	< 37.7	N/A	< 37.7	< 37.7	1130	4550	5680	5350	10300	9910	220	< 37.7
Isopropylbenzene	µg/L	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	N/A	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	0.79	0.35	< 0.33	< 0.33
Lead	µg/L	< 0.16	0.42	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	N/A	< 0.16	< 0.16	< 0.16	< 0.16	0.18	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Manganese	µg/L	245	196	< 1.1	6.1	39	35.9	< 1.1	N/A	5.4	17.1	126	146	70.7	55	94.3	79.5	271	192
Methane, % of Dissolved Gases	µg/L	0.071	0.013	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	N/A	< 0.0017	< 0.0017	0.0037	1.2	2.4	1.9	10	6.9	2.1	0.66
Methylene Chloride	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	N/A	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl-tert-butyl-ether	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Naphthalene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	N/A	< 0.21	< 0.21	0.72	< 0.21	< 0.21	< 0.21	0.32	< 0.21	< 0.21	< 0.21
n-Butylbenzene	µg/L	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	N/A	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	0.29	< 0.24	< 0.24	< 0.24
Nickel	µg/L	7.4	7.9	1.2	4.4	2.7	2.6	1	N/A	3.6	2.3	1.5	2	5.2	5.1	6.2	2	4.7	5.4
Nitrogen, Nitrate	mg/L	2.4	3.8	6.5	5.8	0.6	0.83	N/A	8.7	3.4	3.2	0.13	0.091	< 0.068	0.087	< 0.068	< 0.068	0.36	1.2
n-Propylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.19	< 0.17	< 0.17	< 0.17
p-Isopropyltoluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
sec-Butylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.96	0.52	< 0.17	< 0.17
Styrene	µg/L	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	N/A	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28
Sulfate	mg/L	38.8	29.7	45.4	43.9	86.2	91.7	N/A	37.1	54	58.7	105	42.4	8.5	8.6	0.19	0.43	55.5	43.6
tert-Butylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.81	0.59	< 0.17	< 0.17
Tetrachloroethene	µg/L	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	0.18	< 0.14	N/A	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14
Tetrahydrofuran	µg/L	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	N/A	< 0.82	< 0.82	< 0.82	< 0.82	4.5	2.6	< 0.82	0.98	< 0.82	< 0.82
Thallium	µg/L	0.063	0.019	0.054	0.037	0.048	0.033	< 0.019	N/A	0.026	0.042	0.046	0.029	0.15	< 0.019	0.041	0.023	0.052	< 0.019
Toluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	0.2	< 0.17	0.29	0.26	< 0.17	< 0.17
trans-1,2-Dichloroethene	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	0.56	0.29	< 0.23	N/A	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	0.23	2.9	1.4
trans-1,3-Dichloropropene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	N/A	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Trichloroethene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	4.5	4.4	< 0.20	N/A	0.65	0.97	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	1.6	0.94
Vinyl Chloride	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	0.73	< 0.18	< 0.18	N/A	< 0.18	< 0.18	< 0.18	< 0.18	2.3	3.1	< 0.18	< 0.18	140	60
Xylene, m & p	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	N/A	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
Xylene, o	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	N/A	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Notes:
N = Normal sample
FD = Field Duplicate sample
N/A = Not Applicable
µg/L = microgram per liter
mg/L = milligram per liter
MW-13 was abandoned on August 7, 2017

Table 3 (*Continued*)

		MW-14		MW-14B		MW-15	MW-16	MW-16B	MW-16D	MW-17		MW-17B		MW-17D	
		9/18/2018 FD	4/23/2018 N	9/13/2018 N	4/23/2018 N	9/18/2018 N	9/12/2018 N	9/12/2018 N	4/12/2018 N	9/12/2018 N	9/12/2018 N	4/23/2018 N	4/23/2018 FD	9/13/2018 N	4/23/2018 N	9/13/2018 N	4/23/2018 N	9/13/2018 N
Parameter	**Unit**																	
1,1,1,2-Tetrachloroethane	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
1,1,1-Trichloroethane	µg/L	2.9	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	5.6	1.2	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	5	4.8
1,1,2,2-Tetrachloroethane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1,2-Trichloroethane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,1-Dichloroethane	µg/L	31	< 0.24	0.87	< 0.24	< 0.24	< 0.24	< 0.24	3.4	0.88	< 0.24	< 0.24	< 0.24	< 0.24	15	13	39	29
1,1-Dichloroethene	µg/L	0.79	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	0.41	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	1.3	0.73
1,1-Dichloropropene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
1,2,3-Trichloropropane	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
1,2,4-Trichlorobenzene	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
1,2-Dibromo-3-chloropropane	µg/L	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94	< 0.94
1,2-Dibromoethane	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
1,2-Dichlorobenzene	µg/L	< 0.19	0.29	< 0.19	0.91	0.83	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	0.4	< 0.19	< 0.19	< 0.19
1,2-Dichloroethane	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
1,3,5-Trimethylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
1,3-Dichlorobenzene	µg/L	< 0.18	< 0.18	< 0.18	0.29	0.24	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
1,3-Dichloropropane	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
1,4-Dichlorobenzene	µg/L	< 0.17	0.5	0.47	3.2	2.8	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.33	< 0.17	1.3	0.53	< 0.17	< 0.17
2,2-Dichloropropane	µg/L	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
2-Butanone	µg/L	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
2-Chlorotoluene	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
4-Chlorotoluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
4-Methyl-2-pentanone	µg/L	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81	< 0.81
Acetone	µg/L	< 2.7	< 2.7	4.1	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	3.9	< 2.7	< 2.7	< 2.7
Arsenic	µg/L	N/A	1.1	0.85	4.9	4.7	8.3	0.25	0.42	0.44	0.82	0.36	N/A	0.19	10.7	2.8	0.37	0.37
Barium	µg/L	N/A	273	236	387	376	63.3	96.3	117	122	107	299	N/A	221	488	451	250	238
Benzene	µg/L	1.6	0.69	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	3.2	2.9	1.9	1.3
Beryllium	µg/L	N/A	< 0.030	0.073	< 0.030	< 0.030	0.046	0.031	< 0.030	0.069	0.066	< 0.030	N/A	0.049	< 0.030	0.093	< 0.030	0.067
Boron	µg/L	N/A	368	268	464	429	71.3	39.5	39.9	51.2	669	332	N/A	274	447	447	157	170
Bromobenzene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
Bromochloromethane	µg/L	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Bromodichloromethane	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Bromoform	µg/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
Bromomethane	µg/L	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35
Cadmium	µg/L	N/A	< 0.15	0.31	< 0.15	< 0.15	0.26	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	N/A	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15
Carbon Disulfide	µg/L	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	0.45	< 0.22	< 0.22	< 0.22
Carbon Tetrachloride	µg/L	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18
Chloride	mg/L	N/A	489	626	313	313	634	303	394	343	366	304	N/A	220	306	305	367	396
Chlorobenzene	µg/L	5.7	19	10	41	41	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	25	16	4.2	7.8
Chlorodibromomethane	µg/L	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Chloroethane	µg/L	0.62	< 0.36	< 0.36	3.7	3.4	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	4.1	4.9	< 0.36	< 0.36
Chloroform	µg/L	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23

Table 3 (*Continued*)

		MW-14			MW-14B		MW-15	MW-16	MW-16B		MW-16D	MW-17			MW-17B		MW-17D	
		9/18/2018	4/23/2018	9/13/2018	4/23/2018	9/18/2018	9/12/2018	9/12/2018	4/12/2018	9/12/2018	9/12/2018	4/23/2018	4/23/2018	9/13/2018	4/23/2018	9/13/2018	4/23/2018	9/13/2018
		FD	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Parameter	**Unit**																	
Chloromethane	µg/L	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36
cis-1,2-Dichloroethene	µg/L	200	0.72	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	2.9	0.48	< 0.21	< 0.21	< 0.21	< 0.21	13	7.8	330	190
cis-1,3-Dichloropropene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Dibromomethane	µg/L	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45
Dichlorodifluoromethane	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Diisopropyl Ether	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Dissolved Organic Carbon	mg/L	N/A	5	2.5	6.9	6.5	2.9	1.1	2	1.2	1.4	4.9	N/A	3.4	6.6	5.2	2.9	2.1
Ethane	µg/L	N/A	0.012	0.0044	0.0082	0.0074	< 0.0027	< 0.0027	< 0.0027	< 0.0027	< 0.0027	< 0.0027	N/A	< 0.0027	0.03	0.029	0.02	0.012
Ethene	µg/L	N/A	< 0.0022	< 0.0022	0.0037	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	< 0.0022	N/A	< 0.0022	0.0085	0.016	0.0067	< 0.0022
Ethylbenzene	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19
Fluorotrichloromethane	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
Hexachlorobutadiene	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
Iron	µg/L	N/A	5880	6140	8640	8070	< 37.7	< 37.7	< 37.7	< 37.7	302	< 37.7	N/A	< 37.7	2130	1360	39.1	< 37.7
Isopropylbenzene	µg/L	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33
Lead	µg/L	N/A	0.17	5.2	0.45	0.33	0.18	< 0.16	< 0.16	0.32	< 0.16	0.16	N/A	< 0.16	< 0.16	0.19	0.17	< 0.16
Manganese	µg/L	N/A	267	258	67.7	63.6	4.9	3.8	< 1.1	< 1.1	401	160	N/A	96.1	19.6	13.7	274	261
Methane, % of Dissolved Gases	µg/L	N/A	3.9	2.6	7.2	6.2	0.095	< 0.0017	< 0.0017	< 0.0017	0.003	0.22	N/A	0.019	3.8	2.8	1.2	0.41
Methylene Chloride	µg/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl-tert-butyl-ether	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Naphthalene	µg/L	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
n-Butylbenzene	µg/L	< 0.24	< 0.24	< 0.24	< 0.24	0.35	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
Nickel	µg/L	N/A	1.4	4.1	1.5	1.9	4.7	3.1	1.1	0.96	4.4	7.7	N/A	5.5	5.4	3.2	6.9	6.6
Nitrogen, Nitrate	mg/L	N/A	< 0.068	0.087	< 0.068	< 0.068	4.9	6.7	5.9	6.4	0.08	0.14	N/A	0.67	< 0.068	0.084	0.27	0.76
n-Propylbenzene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
p-Isopropyltoluene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
sec-Butylbenzene	µg/L	< 0.17	< 0.17	< 0.17	0.49	0.3	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Styrene	µg/L	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28	< 0.28
Sulfate	mg/L	N/A	4.5	10	0.11	0.11	75.2	38.5	48.3	45.7	76.2	8.7	N/A	43.9	8.9	13.7	35.1	40.5
tert-Butylbenzene	µg/L	< 0.17	0.2	< 0.17	0.79	0.56	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.25	< 0.17	< 0.17	< 0.17
Tetrachloroethene	µg/L	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14
Tetrahydrofuran	µg/L	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	< 0.82	3	2.9	< 0.82	< 0.82
Thallium	µg/L	N/A	0.036	< 0.019	0.032	< 0.019	0.021	< 0.019	0.034	0.022	< 0.019	0.26	N/A	0.14	0.045	< 0.019	0.39	0.32
Toluene	µg/L	< 0.17	0.36	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	0.17	< 0.17	< 0.17	< 0.17
trans-1,2-Dichloroethene	µg/L	1.4	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	0.78	0.4	2.5	1.4
trans-1,3-Dichloropropene	µg/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Trichloroethene	µg/L	0.94	< 0.20	< 0.20	< 0.20	< 0.20	13	< 0.20	0.46	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	1.9	1.3
Vinyl Chloride	µg/L	61	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	11	9.9	100	58
Xylene, m & p	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
Xylene, o	µg/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Notes:
N = Normal sample
FD = Field Duplicate sample
N/A = Not Applicable
µg/L = microgram per liter
mg/L = milligram per liter
MW-13 was abandoned on August 7, 2017

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

Well ID	Sample Type	1,1,1-Trichloroethane	1,2,4-Trimethylbenzene (ug/L)	1,1-Dichloroethene (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Benzene (ug/L)	Boron (ug/L)	Cadmium (ug/L)	Chloride (mg/L)	Chlorobenzene (ug/L)	cis-1,2-Dichloroethene (ug/L)	Ethylbenzene (ug/L)	Iron (mg/L)	Lead (ug/L)	Manganese (ug/L)	Napthalene (ug/L)	Nitrogen, Nitrate (mg/L)	Toluene (ug/L)	Trichloroethene (ug/L)	Vinyl Chloride (ug/L)	Xylenes, Total (ug/L)
	ES	200	480	7	10	2,000	5	1,000	5	250	100	70	700	0.3	15	300	100	10	800	5	0.2	2,000
	PAL	40	96	0.7	1	400	0.5	200	0.5	125	20	7	140	0.15	1.5	60	10	2	160	0.5	0.02	400
Quarter 2_2018 Analytical Results																						
MW-3	N				*2.7*			*284*		**412**				0.0		*158*						
MW-3B	N				*4.8*		*2.9*	*289*		**417**	*31*	**74**		**2.2**		**488**				*0.64*	**35**	
MW-3D	FD			*1.1*								*26*									**5.5**	
MW-3D	N			*1.1*						*185*		*26*		*0.2*							**5.4**	
MW-4BR	N		*310*		*3.5*		**13**	*579*		**337**	*33*		*380*	**11.3**		*99.3*	**200**		*330*		**3.4**	*420*
MW-8	N				*6.4*	*498*	*4*	*875*		**376**	**100**			**15.4**		*102*	*12*				**0.26**	
MW-8B	N				*9.3*		*2.5*	*580*		**315**	*52*	*16*		**3.9**		**377**					**10**	
MW-9B	N				*4.9*					**279**												
MW-9R	N									**416**				**0.5**		*245*		*2.4*				
MW-10	N									**468**								*6.5*				
MW-10B	N	*48*		*4.9*						**462**		*42*								*4.5*	**0.73**	
MW-11B	N								*1.1*	**270**								*3.4*		*0.65*		
MW-12	N													**1.1**		*126*						
MW-12B	N				*3.4*		*2*	*589*		**288**		*14*		**5.7**		*70.7*					**2.3**	
MW-13B	N				*5.6*	*422*	*1.2*	*500*		**323**	*69*			**10.3**		*94.3*						
MW-13D	N			*1.2*			*2.7*			**405**		**380**		*0.2*		*271*				*1.6*	**140**	
MW-14	N				*1.1*		*0.69*	*368*		**489**				**5.9**		*267*						
MW-14B	N				*4.9*			*464*		**313**	*41*			**8.6**		*67.7*						
MW-16B	N									**394**								*5.9*				
MW-17	N							*332*		**304**						*160*						
MW-17B	N				**10.7**	*488*	*3.2*	*447*		**306**	*25*	*13*		**2.1**							**11**	
MW-17D	N			*1.3*			*1.9*			**367**		**330**				*274*				*1.9*	**100**	

Table 4 (*Continued*)

Chemical Name		1,1,1-Trichloroethane	1,2,4-Trimethylbenzene (ug/L)	1,1-Dichloroethene (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Benzene (ug/L)	Boron (ug/L)	Cadmium (ug/L)	Chloride (mg/L)	Chlorobenzene (ug/L)	cis-1,2-Dichloroethene (ug/L)	Ethylbenzene (ug/L)	Iron (mg/L)	Lead (ug/L)	Manganese (ug/L)	Naphthalene (ug/L)	Nitrogen, Nitrate (mg/L)	Toluene (ug/L)	Trichloroethene (ug/L)	Vinyl Chloride (ug/L)	Xylenes, Total (ug/L)
	ES	200	480	7	10	2,000	5	1,000	5	250	100	70	700	0.3	15	300	100	10	800	5	0.2	2,000
	PAL	40	96	0.7	1	400	0.5	200	0.5	125	20	7	140	0.15	1.5	60	10	2	160	0.5	0.02	400
Well ID	Sample Type																					
Quarter 3_2018 Analytical Results																						
MW-3	N				*1.8*			*293*		**352**				**8.5**		*162*						
MW-3B	N									**430**		**77**				**375**				*0.97*	**10**	
MW-3D	N			*1.6*	*1*					*172*		*34*									**5.8**	
MW-4BR	N		*320*		*3.2*		**11**	*522*		**306**	*30*		*320*	**11.2**		*103*	**110**				**2**	
MW-7	N									*208*												
MW-7B	N									*161*												
MW-8	N				*5*	*487*	*3.2*	*542*		**349**	**130**			**13.2**		*120*						
MW-8B	N				*9*		*3.4*	*622*		**278**	*82*	*30*		**4.4**		*296*					**17**	
MW-9B	N				*5.5*					**251**				*0.2*								
MW-9R	N									*235*				**0.3**		*196*		*3.8*				
MW-10	N									**388**								*5.8*				
MW-10B	N	*57*		*4.5*						**283**		*35*								*4.4*		
MW-11	N									**320**								*8.7*				
MW-11B	N								*1.4*	*238*								*3.2*		*0.97*		
MW-12	N				*2.1*					*214*				**4.6**		*146*						
MW-12B	N				*3.3*		*1.6*	*584*		**322**		*11*		**5.4**							**3.1**	
MW-13B	N				*5.4*	*432*	*1.1*	*485*		**345**	*71*			**9.9**		*79.5*						
MW-13D	N			*0.72*			*1.6*			**403**		**200**				*192*				*0.96*	**60**	
MW-13D	FD			*0.79*			*1.6*					**220**								*0.94*	**61**	
MW-14	N							*268*		**626**				**6.1**	*5.2*	*258*						
MW-14B	N				*4.7*			*429*		**313**	*41*			**8.1**		*63.6*						
MW-15	N				*8.3*					**634**								*4.9*		**13**		
MW-16	N									**303**								*6.7*				
MW-16B	N									**343**								*6.4*				
MW-16D	N							*669*		**366**				**0.3**		**401**						
MW-17	N							*274*		*220*						*96.1*						
MW-17B	N				*2.8*	*451*	*2.9*	*447*		**305**		*7.8*		**1.4**							**9.9**	
MW-17D	N			*0.73*			*1.3*			**396**		**190**				*261*				*1.3*	**58**	

Notes:
ES = Enforcement Standard (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, July 2015).
PAL = Preventative Action Limit (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, July 2015).
mg/L = milligram per liter
µg/L = microgram per liter
N = Normal sample
FD = Field Duplicate sample

Bold text = Exceeds ES
Italics text = Exceeds PAL

Prepared by: GGR
Checked by: JAR5

Table 5
Maximum Chemical Concentrations Detected in Groundwater
West Avenue Landfill
Waukesha, WI

	Units	ES	PAL	Deep Bedrock Wells		Intermediate Bedrock Wells		Shallow Wells	
				2003-2017	2018	2003-2017	2018	2003-2017	2018
COCs									
Chloride	mg/L	250	125	**770**	**405**	**3,100**	**462**	**750**	**634**
Iron	mg/L	0.3	0.15	**0.74**	**0.30**	**13**	**11.3**	**23**	**15.4**
Vinyl Chloride	µg/L	0.2	0.02	**350**	**140**	**480**	**35**	**75**	**0.26**
COIs									
1,2,4-Trimethylbenzene	µg/L	480	96	0.52	U	**1300**	*320*	68	U
Arsenic	µg/L	10	1	*7.9*	*1*	**59**	**10.7**	**40**	*8.3*
Benzene	µg/L	5	0.5	**22**	*2.7*	**49**	**13**	**31**	*4*
Bromodichloromethane	µg/L	0.6	0.06	**2.8**	U	*0.18*	U	**1**	U
Cadmium	µg/L	5	0.5	*0.5*	U	**130**	*1.4*	**6.2**	0.31
Chlorobenzene	µg/L	100	20	*58*	11	**150**	*74*	**350**	**130**
cis-1,2-Dichloroethene	µg/L	70	7	**1,300**	**380**	**897**	**77**	**130**	0.72
Manganese	µg/L	300	60	**670**	**401**	**540**	**488**	**920**	*267*
Methylene Chloride	µg/L	5	0.5	**57**	U	**19**	U	*1.2*	U
Naphthalene	µg/L	100	10	0.87	U	**560**	**200**	*83*	*12*
Trichloroethene	µg/L	5	0.5	**6.9**	*1.9*	**23**	*4.5*	**12**	**13**

Notes:
Prepared by: GGR
Checked by: JAR5

COC = Compounds of Concern
COI = Compounds of Interest
ES = Enforcement Standard (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, July 2015)
PAL = Preventative Action Limit (from Public Health Groundwater Quality Standards, Chapter NR 140 Wisconsin Administrative Code, July 2015)
U = Undetected
µg/L = micrograms per liter
mg/L = miligrams per liter
Bold text = Exceeds ES
Italics text = Exceeds PAL

Table 6
Summary of Akritas-Theil-Sen Nonparametric Trend Tests and Sample Sizes
Long-Term Data (2003 Through 2018)
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-11	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 (36)	Increasing (36)	No Sig. Trend (24)	Increasing (36)	No Sig. Trend (14)	Increasing (18)	Increasing (32)	No Sig. Trend (36)	Increasing (36)	Increasing (36)	Increasing (35)	Increasing (35)	No Sig. Trend (23)	Increasing (35)	No Sig. Trend (36)	Increasing (36)	Increasing (36)	Increasing (24)	Increasing (36)	Increasing (36)	No Sig. Trend (11)	No Sig. Trend (14)	No Sig. Trend (24)	Increasing (20)	No Sig. Trend (7)	Increasing (7)	Increasing (7)
Iron	No Sig. Trend (36)	Decreasing (36)	Decreasing (24)	Increasing (36)	No Sig. Trend (15)	No Sig. Trend (18)	No Sig. Trend (32)	No Sig. Trend (36)	Decreasing (36)	Decreasing (36)	No Sig. Trend (35)	No Sig. Trend (35)	Decreasing (23)	No Sig. Trend (35)	Increasing (36)	Increasing (36)	No Sig. Trend (36)	Decreasing (24)	Decreasing (36)	No Sig. Trend (36)	No Sig. Trend (11)	No Sig. Trend (14)	No Sig. Trend (24)	No Sig. Trend (20)	No Sig. Trend (7)	Increasing (7)	No Sig. Trend (7)
Manganese	No Sig. Trend (36)	Increasing (36)	No Sig. Trend (24)	No Sig. Trend (36)	No Sig. Trend (15)	Decreasing (18)	Decreasing (32)	Increasing (36)	Decreasing (36)	No Sig. Trend (36)	Increasing (35)	No Sig. Trend (35)	No Sig. Trend (23)	Decreasing (35)	Decreasing (36)	No Sig. Trend (36)	Increasing (36)	Decreasing (24)	Decreasing (36)	Increasing (36)	No Sig. Trend (11)	No Sig. Trend (14)	No Sig. Trend (24)	No Sig. Trend (20)	No Sig. Trend (7)	Decreasing (7)	No Sig. Trend (7)
Vinyl Chloride	Decreasing (76)	No Sig. Trend (76)	No Sig. Trend (44)	Decreasing (76)	No Detects (32)	No Detects (34)	No Sig. Trend (60)	No Sig. Trend (68)	No Detects (77)	No Detects (78)	No Detects (74)	Decreasing (74)	No Detects (52)	No Detects (74)	Decreasing (74)	Increasing (76)	Decreasing (75)	Decreasing (44)	No Sig. Trend (76)	No Detects (76)	No Detects (54)	No Detects (26)	No Detects (44)	No Detects (38)	No Detects (7)	Decreasing (7)	No Sig. Trend (7)
COIs																											
1,2,4-Trimethylbenzene	No Sig. Trend (40)	No Sig. Trend (40)	No Sig. Trend (24)	Decreasing (40)	No Sig. Trend (17)	No Detects (18)	No Sig. Trend (32)	No Sig. Trend (36)	No Detects (41)	No Detects (41)	No Detects (39)	No Sig. Trend (39)	No Detects (27)	No Sig. Trend (39)	No Sig. Trend (39)	No Sig. Trend (40)	No Sig. Trend (40)	No Detects (24)	No Sig. Trend (40)	No Sig. Trend (40)	No Detects (28)	No Detects (14)	No Detects (24)	No Detects (20)	No Detects (7)	No Detects (7)	No Detects (7)
Arsenic	No Sig. Trend (36)	No Sig. Trend (36)	Decreasing (24)	No Sig. Trend (36)	No Sig. Trend (15)	No Sig. Trend (18)	No Sig. Trend (32)	Decreasing (36)	No Sig. Trend (36)	Decreasing (36)	No Sig. Trend (35)	Decreasing (35)	No Sig. Trend (23)	No Sig. Trend (35)	Increasing (36)	No Sig. Trend (36)	No Sig. Trend (36)	Decreasing (24)	No Sig. Trend (36)	No Sig. Trend (36)	Increasing (11)	No Sig. Trend (14)	No Sig. Trend (24)	Decreasing (20)	No Sig. Trend (7)	No Sig. Trend (7)	No Sig. Trend (7)
Benzene	Decreasing (40)	Decreasing (40)	Decreasing (24)	Decreasing (40)	No Detects (17)	No Detects (18)	Decreasing (32)	Decreasing (36)	No Detects (41)	No Detects (41)	No Detects (39)	Decreasing (39)	No Sig. Trend (27)	No Detects (39)	No Sig. Trend (39)	No Sig. Trend (40)	Decreasing (40)	Decreasing (24)	No Sig. Trend (40)	Decreasing (40)	No Sig. Trend (28)	No Detects (14)	No Detects (24)	No Sig. Trend (20)	No Detects (7)	Decreasing (7)	No Sig. Trend (7)
Bromodichloromethane	No Detects (40)	No Detects (40)	No Detects (24)	No Detects (40)	No Detects (17)	No Detects (18)	No Detects (32)	No Detects (36)	No Detects (41)	No Detects (41)	No Sig. Trend (39)	No Detects (39)	No Detects (27)	No Detects (39)	No Detects (39)	No Detects (40)	No Detects (40)	No Detects (24)	No Detects (40)	No Detects (40)	No Sig. Trend (28)	No Detects (14)	No Detects (24)	No Detects (20)	No Detects (7)	No Sig. Trend (7)	No Sig. Trend (7)
Cadmium	No Sig. Trend (36)	No Sig. Trend (36)	No Sig. Trend (24)	No Sig. Trend (36)	No Sig. Trend (15)	No Sig. Trend (18)	No Sig. Trend (32)	No Sig. Trend (36)	No Sig. Trend (36)	No Sig. Trend (36)	No Sig. Trend (35)	No Sig. Trend (35)	No Sig. Trend (23)	No Sig. Trend (35)	No Sig. Trend (36)	No Sig. Trend (36)	No Sig. Trend (36)	No Sig. Trend (24)	No Sig. Trend (36)	No Sig. Trend (36)	No Sig. Trend (11)	No Sig. Trend (14)	No Sig. Trend (24)	No Sig. Trend (20)	No Sig. Trend (7)	No Detects (7)	No Sig. Trend (7)
Chlorobenzene	Decreasing (40)	Decreasing (40)	No Sig. Trend (24)	Decreasing (40)	No Detects (17)	No Detects (18)	Decreasing (32)	Decreasing (36)	Decreasing (41)	No Detects (41)	No Detects (39)	No Sig. Trend (39)	No Detects (27)	No Sig. Trend (39)	Decreasing (39)	Decreasing (40)	Decreasing (40)	Decreasing (24)	No Sig. Trend (40)	No Sig. Trend (40)	Decreasing (28)	No Detects (14)	No Detects (24)	No Detects (20)	No Sig. Trend (7)	No Sig. Trend (7)	No Sig. Trend (7)
cis-1,2-Dichloroethene	Decreasing (40)	No Sig. Trend (40)	Decreasing (24)	Decreasing (40)	No Detects (17)	No Detects (18)	No Sig. Trend (32)	Decreasing (36)	No Detects (41)	No Detects (41)	Decreasing (39)	Decreasing (39)	No Sig. Trend (27)	Decreasing (39)	No Sig. Trend (39)	Increasing (40)	No Sig. Trend (40)	Decreasing (24)	No Sig. Trend (40)	No Detects (40)	No Detects (28)	No Detects (14)	Decreasing (24)	No Detects (20)	No Detects (7)	Decreasing (7)	No Sig. Trend (7)
Methylene Chloride	No Detects (40)	No Sig. Trend (40)	No Sig. Trend (24)	No Sig. Trend (40)	No Detects (17)	No Detects (18)	No Detects (32)	No Sig. Trend (36)	No Detects (41)	No Detects (41)	No Detects (39)	No Sig. Trend (39)	No Detects (27)	No Detects (39)	No Sig. Trend (39)	No Detects (40)	No Detects (40)	No Sig. Trend (24)	No Detects (40)	No Sig. Trend (40)	No Detects (28)	No Detects (14)	No Detects (24)	No Detects (20)	No Detects (7)	No Detects (7)	No Detects (7)
Naphthalene	No Detects (40)	No Sig. Trend (40)	No Sig. Trend (24)	Decreasing (40)	No Sig. Trend (17)	No Sig. Trend (18)	No Sig. Trend (32)	No Sig. Trend (36)	No Detects (41)	No Detects (41)	No Detects (39)	No Sig. Trend (39)	No Detects (27)	No Detects (39)	No Sig. Trend (39)	No Sig. Trend (40)	No Sig. Trend (40)	No Sig. Trend (24)	No Sig. Trend (41)	No Sig. Trend (41)	No Detects (28)	No Detects (14)	No Detects (24)	No Detects (20)	No Detects (7)	No Detects (7)	No Detects (7)
Trichloroethene	No Sig. Trend (40)	No Sig. Trend (40)	Decreasing (24)	No Sig. Trend (40)	No Detects (17)	No Detects (18)	No Detects (32)	Decreasing (36)	No Detects (41)	No Detects (41)	Decreasing (39)	Decreasing (39)	No Sig. Trend (27)	Decreasing (39)	No Detects (39)	No Sig. Trend (40)	No Detects (40)	Decreasing (24)	No Detects (40)	No Detects (40)	No Sig. Trend (28)	No Detects (14)	No Sig. Trend (24)	No Detects (20)	No Detects (7)	No Sig. Trend (7)	No Sig. Trend (7)

Prepared by: SGL
Checked by: JAR5

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

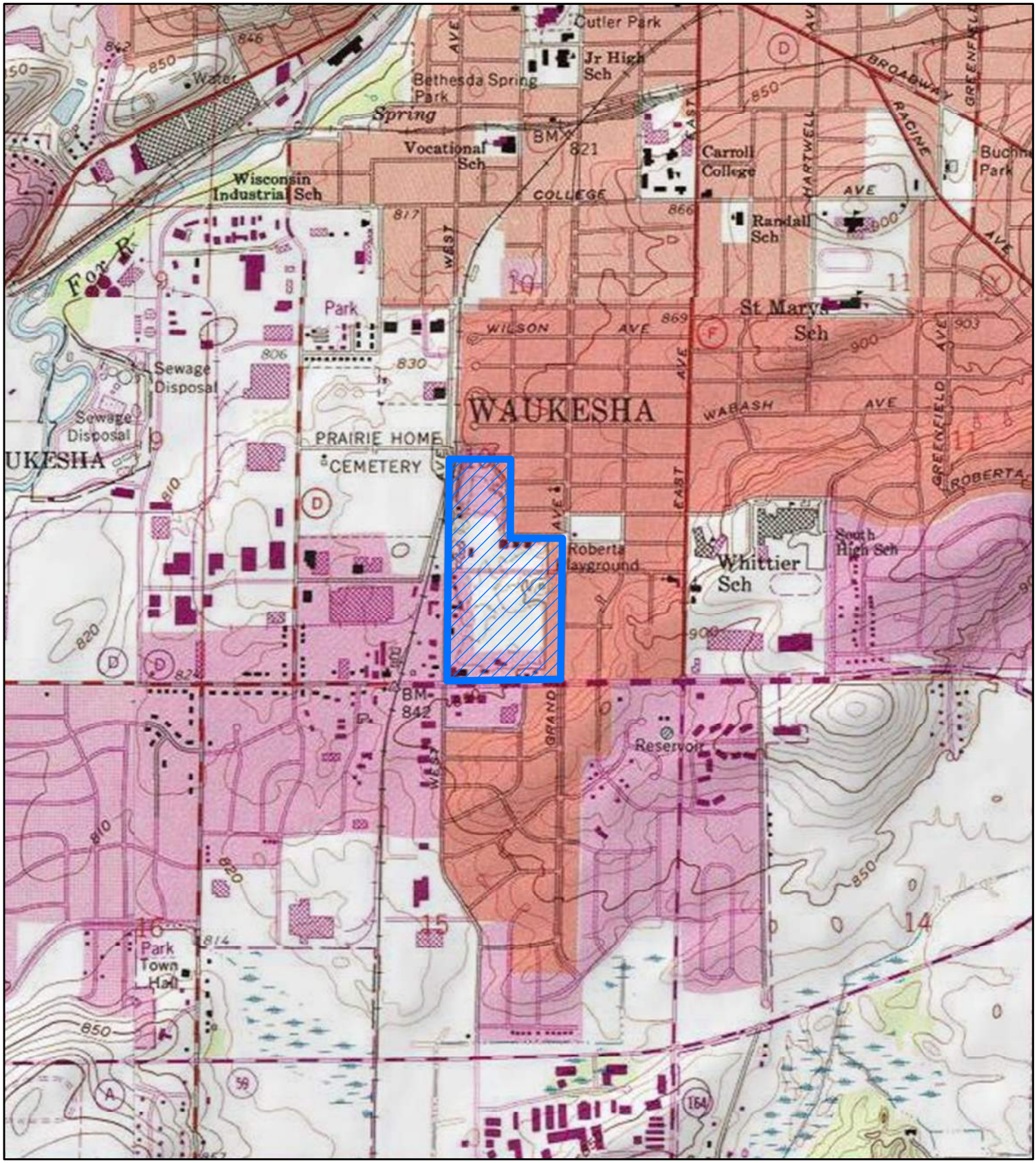
Table 7
Summary of Akritas-Theil-Sen Nonparametric Trend Tests and Sample Sizes
5-Year Data (2014 Through 2018)
West Avenue Landfill
Waukesha, WI

	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-11	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 (10)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	Increasing (5)	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 (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Increasing (10)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (3)	No Sig. Trend (3)	Increasing (10)	Decreasing (6)	No Sig. Trend (7)	Increasing (7)	Increasing (7)
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 (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 (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (3)	No Detects (3)	No Sig. Trend (10)	No Sig. Trend (6)	No Sig. Trend (7)	Increasing (7)	No Sig. Trend (7)
Manganese	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	Decreasing (10)	No Sig. Trend (5)	No Sig. Trend (5)	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 (5)	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 (3)	No Sig. Trend (3)	No Sig. Trend (10)	Decreasing (6)	No Sig. Trend (7)	Decreasing (7)	No Sig. Trend (7)
Vinyl Chloride	No Sig. Trend (16)	No Sig. Trend (16)	No Sig. Trend (16)	Increasing (16)	No Detects (8)	No Detects (8)	No Sig. Trend (16)	No Sig. Trend (16)	No Detects (17)	No Detects (18)	No Detects (16)	No Sig. Trend (16)	No Detects (8)	No Detects (16)	No Detects (16)	No Sig. Trend (16)	No Sig. Trend (17)	No Sig. Trend (16)	No Sig. Trend (16)	No Detects (16)	No Detects (10)	No Detects (4)	No Detects (16)	No Detects (10)	No Detects (7)	Decreasing (7)	No Sig. Trend (7)
COIs																											
1,2,4-Trimethylbenzene	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (10)	No Detects (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (6)	No Detects (3)	No Detects (10)	No Detects (6)	No Detects (7)	No Detects (7)	No Detects (7)
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 (10)	Increasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	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 (3)	No Sig. Trend (3)	No Sig. Trend (10)	No Sig. Trend (6)	No Sig. Trend (7)	No Sig. Trend (7)	No Sig. Trend (7)
Benzene	No Sig. Trend (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (11)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Sig. Trend (6)	No Detects (3)	No Detects (10)	No Detects (6)	No Detects (7)	Decreasing (7)	No Sig. Trend (7)
Bromodichloromethane	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (6)	No Detects (3)	No Detects (10)	No Detects (6)	No Detects (7)	No Sig. Trend (7)	No Sig. Trend (7)
Cadmium	No Detects (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Sig. Trend (5)	No Sig. Trend (5)	No Sig. Trend (10)	No Detects (10)	Decreasing (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (5)	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 (3)	No Sig. Trend (3)	No Sig. Trend (10)	No Sig. Trend (6)	No Sig. Trend (7)	No Detects (7)	No Sig. Trend (7)
Chlorobenzene	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (10)	Decreasing (10)	No Sig. Trend (10)	Increasing (11)	No Sig. Trend (10)	No Sig. Trend (10)	Increasing (10)	No Sig. Trend (6)	No Detects (3)	No Detects (10)	No Detects (6)	No Sig. Trend (7)	No Sig. Trend (7)	No Sig. Trend (7)
cis-1,2-Dichloroethene	No Sig. Trend (10)	Increasing (10)	No Sig. Trend (10)	Increasing (10)	No Detects (5)	No Detects (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (11)	No Detects (11)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (11)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (10)	No Detects (6)	No Detects (3)	Decreasing (10)	No Detects (6)	No Detects (7)	Decreasing (7)	No Sig. Trend (7)
Methylene Chloride	No Detects (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (11)	No Sig. Trend (10)	No Detects (10)	No Sig. Trend (10)	No Detects (6)	No Detects (3)	No Detects (10)	No Detects (6)	No Detects (7)	No Detects (7)	No Detects (7)
Naphthalene	No Detects (10)	No Detects (10)	No Detects (10)	No Sig. Trend (10)	No Detects (5)	No Detects (5)	No Sig. Trend (10)	No Detects (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (10)	No Sig. Trend (10)	No Detects (10)	No Sig. Trend (11)	No Detects (10)	No Detects (10)	No Detects (10)	No Detects (6)	No Detects (3)	No Detects (10)	No Detects (6)	No Detects (7)	No Detects (7)	No Detects (7)
Trichloroethene	No Detects (10)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (5)	No Detects (5)	No Detects (10)	No Detects (10)	No Detects (11)	No Detects (11)	No Detects (10)	No Sig. Trend (10)	No Detects (5)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Detects (11)	No Sig. Trend (10)	No Detects (10)	No Detects (10)	No Sig. Trend (6)	No Detects (3)	No Sig. Trend (10)	No Detects (6)	No Detects (7)	No Sig. Trend (7)	No Sig. Trend (7)

Prepared by: SGL
Checked by: JAR5

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

Figures



NOTES:

1. Basemap from esri and its data suppliers.

LEGEND

Site Location

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.

Foth

N

0 1,000 2,000 Feet

CITY OF WAUKESHA

FIGURE 1

WAUKESHA WEST AVENUE LANDFILL
SITE LOCATION MAP

Date: FEBRUARY 2019	Revision Date:	
Drawn By: BJW1	Checked By: DJM4	Project 19W013

Path: Q:\Waukesha WI C\18W013\GIS\mxd\Figure 1 - Waukesha West Ave LF Site Location Map.mxd Date: 2/5/2018

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

LEGEND

- GW-9 — EXISTING GAS EXTRACTION WELL AND WELLHEAD
- GP-22 — EXISTING GAS PROBE
- EXISTING REMOTE GAS EXTRACTION WELL
- GW-16 — EXISTING GAS COLLECTION TRENCH WELLHEAD
- KO-3 — EXISTING CONDENSATE KNOCKOUT SUMP
- X — EXISTING GAS HEADER PIPING HIGH POINT
- V-2 — EXISTING GAS HEADER CONTROL VALVE
- EXISTING GAS HEADER PIPING
- EXISTING GAS COLLECTION TRENCH
- LIMITS OF WASTE PLACEMENT
- X — GAS HEADER PIPE HIGH POINT

Foth

0' 100' 200'

BAR SCALE

West Avenue Landfill

FIGURE 2

LANDFILL GAS COLLECTION SYSTEM
SITE FEATURES

Date: FEBRUARY 2019	Revision Date:	
Drawn By: DJM4	Checked By: MRS	Project: 19W013

pw:\\PW-APS1.foth.com:PW_IE\Documents\Clients\Waukesha WI C\0019W013.00\CAD\Figures\2018 Annual Report\19w013 Figure 2 LFG Site features.dgn
2/27/2019 3:40:05 PM DJM4

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.
6. MW-13 WAS ABANDONED IN AUGUST 2017.

GRAND AVE
COOLIDGE AVE
WABASH AVE
ESTBERG AVE
DOUGLASS AVE
ROBERTA AVE
SCOTT AVE
HOOVER AVE
SUNSET AVE
WEST AVE

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

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-12 / MW-12B — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-2 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

Foth

0' 100' 200'
BAR SCALE

West Avenue Landfill

FIGURE 3

MONITORING WELL LOCATIONS MAP

Date: FEBRUARY 2019	Revision Date:	
Drawn By: DJM4	Checked By: MRS	Project: 19W013

pw:\\PW-APS1.foth.com:PW_IE\Documents\Clients\Waukesha WI C\0019W013.00\CAD\Figures\2018 Annual Report\19w013 Figure 3 Monitor well location map.dgn
2/11/2019 8:06:32 PM DJM4

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.
6. MW-13 WAS ABANDONED IN AUGUST 2017.

GRAND AVE
COOLIDGE AVE
WABASH AVE
ESTBERG AVE
DOUGLASS AVE
ROBERTA AVE
SCOTT AVE
HOOVER AVE
SUNSET AVE
WEST AVE

MW-7 850.05
MW-7B

MW-10 826.46
MW-10B

MW-16 823.91
MW-16B
MW-16D

815.08 MW-11
MW-11B

MW-2

MW-3 816.32
MW-3B
MW-3D

MW-4BR

816.12 MW-8
MW-8B

MW-5

MW-6

MW-15 824.74
MW-15B

MW-12 812.26
MW-12B

MW-13B
MW-13D

MW-17 810.83
MW-17B
MW-17D

MW-14 815.00
MW-14B

MW-9R 816.10
MW-9B

840
830
820
812

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-12 812.26 — MONITORING WELL NEST LOCATION AND WATER TABLE ELEVATION
- 820 — WATER TABLE CONTOUR (2 FOOT INTERVAL)
- GROUNDWATER FLOW LINE

GROUNDWATER ELEVATION DATA READINGS TAKEN ON SEPTEMBER 11, 2018.

Foth

0' 100' 200'
BAR SCALE

West Avenue Landfill

FIGURE 4

WATER TABLE ELEVATION MAP
SEPTEMBER 2018

Date: FEBRUARY 2019	Revision Date:	
Drawn By: DJM4	Checked By: HLH	Project: 19W013

pw:\\PW-APS1.foth.com:PW_IE\Documents\Clients\Waukesha WI C\0019W013.00\CAD\Figures\2018 Annual Report\19w013 Figure 4 Sept 2018 water table.dgn
2/11/2019 8:51:57 PM DJM4

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.
6. MW-13 WAS ABANDONED IN AUGUST 2017.

GRAND AVE
WABASH AVE
ESTBERG AVE
DOUGLASS AVE
ROBERTA AVE
COOLIDGE AVE
SCOTT AVE
HOOVER AVE
SUNSET AVE
WEST AVE

MW-7
MW-7B 848.55

MW-10
MW-10B
827.27

MW-16
MW-16B 812.80
MW-16D

MW-11
812.41 MW-11B

MW-2

MW-3
MW-3B 816.38
MW-3D

816.77 MW-4BR

MW-8
817.01 MW-8B

MW-12
MW-12B 814.31

MW-13B 814.23
MW-13D

MW-17
MW-17B 809.74
MW-17D

MW-14
MW-14B 816.56

MW-9R
MW-9B 823.39

MW-6

MW-5

MW-15
MW-15B 827.95

840
830
820
820
830

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-12B 814.31 — MONITORING WELL NEST LOCATION AND WATER TABLE ELEVATION
- 820 — WATER TABLE CONTOUR (2 FOOT INTERVAL)
- GROUNDWATER FLOW LINE

GROUNDWATER ELEVATION DATA READINGS TAKEN ON SEPTEMBER 11, 2018.

Foth

0' 100' 200'
BAR SCALE

West Avenue Landfill

FIGURE 5

INTERMEDIATE BEDROCK GROUNDWATER PIEZOMETRIC SURFACE MAP-SEPTEMBER 2018

Date: FEBRUARY 2019	Revision Date:	
Drawn By: DJM4	Checked By: HLH	Project: 19W013

pw:\\PW-APS1.foth.com:PW_IE\Documents\Clients\Waukesha WI C\0019W013.00\CAD\Figures\2018 Annual Report\19w013 Figure 5 Sept 2018 water table.dgn
2/11/2019 9:22:52 PM DJM4

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.
6. MW-13 WAS ABANDONED IN AUGUST 2017.

GRAND AVE
WABASH AVE
ESTBERG AVE
DOUGLASS AVE
ROBERTA AVE
COOLIDGE AVE
SCOTT AVE
SUNSET AVE
HOOVER AVE
WEST AVE

MW-7
MW-7B
MW-10
MW-10B
MW-16
MW-16B
MW-16D 814.23
MW-11
MW-11B
MW-2
MW-3
MW-3B
MW-3D 831.39
MW-4BR
MW-6
MW-8
MW-8B
MW-5
MW-15
MW-15B
MW-12
MW-12B
MW-13B
MW-13D 815.22
MW-17
MW-17B
MW-17D 815.03
MW-14
MW-14B
MW-9R
MW-9B

815
820
825

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-17D 815.03 — MONITORING WELL NEST LOCATION AND WATER TABLE ELEVATION
- 820 — WATER TABLE CONTOUR (2 FOOT INTERVAL)
- GROUNDWATER FLOW LINE

GROUNDWATER ELEVATION DATA READINGS TAKEN ON SEPTEMBER 11, 2018.

Foth

0' 100' 200'
BAR SCALE

West Avenue Landfill

FIGURE 6

DEEP BEDROCK GROUNDWATER
PIEZOMETRIC SURFACE MAP-SEPTEMBER 2018

Date: FEBRUARY 2019	Revision Date:	
Drawn By: DJM4	Checked By: HLH	Project: 19W013

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2/22/2019 9:42:29 AM DJM4

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

GRAND AVE
WABASH AVE
ESTBERG AVE
DOUGLASS AVE
ROBERTA AVE
COOLIDGE AVE
HOOVER AVE
SUNSET AVE
SCOTT AVE
WEST AVE

MW-7 / MW-7B: 0 0 PAL; + + PAL
MW-10 / MW-10B: + 0 ES; + - ES
MW-16 / MW-16B / MW-16D: 0 0 ES; 0 + ES; + - ES
MW-11 / MW-11B: 0 0 ES; + 0 ES
MW-2
MW-3 / MW-3B / MW-3D: 0 + ES; + + ES; 0 0 PAL
MW-4BR: + 0 ES
MW-8 / MW-8B: + 0 ES; 0 0 ES
MW-12 / MW-12B: 0 0 PAL; + 0 ES
MW-13B / MW-13D: + 0 ES; + + ES
MW-17 / MW-17B / MW-17D: 0 0 ES; + + ES; + + ES
MW-14 / MW-14B: + + ES; + 0 ES
MW-6
MW-5
MW-15 / MW-15B: 0 0 ES
MW-9R / MW-9B: + 0 ES; + 0 ES

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-13B / MW-13D — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-4 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

	LONG TERM	5-YEAR TREND	2018 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'
BAR SCALE

West Avenue Landfill

FIGURE 7

CHLORIDE TRENDS AND 2018 EXCEEDANCES

Date: FEBRUARY 2019 | Revision Date:
Drawn By: DJM4 | Checked By: GGR | Project: 19W013

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2/26/2019 9:42:45 AM DJM4

368,000 N

367,000 N

366,000 N

2,441,000 E

2,440,000 E

GRAND AVE

SCOTT AVE

WEST AVE

WABASH AVE

ESTBERG AVE

DOUGLASS AVE

ROBERTA AVE

COOLIDGE AVE

HOOVER AVE

SUNSET AVE

MW-7 / MW-7B: 0 | 0 | NONE; 0 | N/A | NONE

MW-10 / MW-10B: 0 | 0 | NONE; 0 | 0 | NONE

MW-16 / MW-16B / MW-16D: 0 | N/A | NONE; 0 | 0 | NONE; 0 | 0 | ES

MW-11 / MW-11B: - | N/A | NONE; 0 | N/A | NONE

MW-2

MW-3 / MW-3B / MW-3D: 0 | 0 | ES; - | 0 | ES; - | 0 | PAL

MW-4BR: + | 0 | ES

MW-8 / MW-8B: 0 | 0 | ES; 0 | 0 | ES

MW-12 / MW-12B: + | - | ES; + | 0 | ES

MW-13B / MW-13D: 0 | 0 | ES; - | 0 | PAL

MW-17 / MW-17B / MW-17D: 0 | 0 | NONE; + | + | ES; 0 | 0 | NONE

MW-14 / MW-14B: - | 0 | ES; 0 | 0 | ES

MW-5

MW-6

MW-15 / MW-15B: 0 | 0 | NONE

MW-9R / MW-9B: - | 0 | ES; - | 0 | PAL

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

LEGEND

LIMITS OF WASTE PLACEMENT

MW-13B / MW-13D — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)

MW-4 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

	LONG TERM	5-YEAR TREND	2018 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 (0.3 mg/L)
PAL = Preventative Action Limit (0.15 mg/L)

Foth

0' 100' 200'

BAR SCALE

West Avenue Landfill

FIGURE 8

IRON TRENDS AND 2018 EXCEEDANCES

Date: FEBRUARY 2019 | Revision Date:

Drawn By: DJM4 | Checked By: GGR | Project: 19W013

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2/25/2019 10:57:46 AM DJM4

368,000 N

367,000 N

366,000 N

2,441,000 E

2,440,000 E

GRAND AVE

SCOTT AVE

WEST AVE

SUNSET AVE

HOOVER AVE

COOLIDGE AVE

ROBERTA AVE

DOUGLASS AVE

ESTBERG AVE

WABASH AVE

MW-7 / MW-7B: 0 0 NONE; - 0 NONE

MW-10 / MW-10B: + 0 NONE; 0 - NONE

MW-16 / MW-16B / MW-16D: 0 0 NONE; 0 0 NONE; 0 - ES

MW-11 / MW-11B: 0 0 NONE; - 0 NONE

MW-2

MW-3 / MW-3B / MW-3D: 0 0 PAL; + 0 ES; 0 0 NONE

MW-4BR: 0 - PAL

MW-8 / MW-8B: - 0 PAL; + 0 ES

MW-12 / MW-12B: - 0 PAL; 0 0 PAL

MW-13B / MW-13D: + 0 PAL; - 0 PAL

MW-17 / MW-17B / MW-17D: 0 0 PAL; - - NONE; 0 0 PAL

MW-14 / MW-14B: - 0 PAL; + 0 PAL

MW-9R / MW-9B: 0 0 PAL; - 0 NONE

MW-5

MW-15 / MW-15B: 0 0 NONE

MW-6

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

LEGEND

LIMITS OF WASTE PLACEMENT

MW-13B / MW-13D MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)

MW-4 MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

WELL LABEL	LONG TERM	5-YEAR TREND	2018 EXCEEDENCE
	+	+	ES OR PAL

N/A = Not Applicable
ug/L = micrograms per liter
+ = increasing trend
- = decreasing trend
0 = No significant trend
ES = Enforcement Standard (300 ug/L)
PAL = Preventative Action Limit (60 ug/L)

Foth

0' 100' 200'

BAR SCALE

West Avenue Landfill

FIGURE 9

MANGANESE TRENDS AND 2018 EXCEEDANCES

Date: FEBRUARY 2019 | Revision Date:

Drawn By: DJM4 | Checked By: GGR | Project: 19W013

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2/25/2019 10:55:52 AM DJM4

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. 2015 - 6" RESOLUTION AERIAL PHOTOGRAPH FROM WAUKESHA COUNTY.
5. HORIZONTAL COORDINATE SYSTEM BASED ON NAD1983 WISCONSIN STATE PLANE SOUTH, UNITS IN FEET.

LEGEND

- LIMITS OF WASTE PLACEMENT
- MW-13B / MW-13D — MONITORING WELL NEST LOCATION (PART OF ANNUAL SAMPLING PLAN)
- MW-4 — MONITORING WELL LOCATION (NOT PART OF ANNUAL SAMPLING PLAN)

	LONG TERM	5-YEAR TREND	2018 EXCEEDENCE
WELL LABEL	+	+	ES OR PAL

N/A = Not Applicable
ug/L = micrograms per liter
+ = increasing trend
- = decreasing trend
0 = No significant trend
ES = Enforcement Standard (0.2 ug/L)
PAL = Preventative Action Limit (0.02 ug/L)

0' 100' 200'
BAR SCALE

West Avenue Landfill

FIGURE 10

VINYL CHLORIDE TRENDS AND 2018 EXCEEDANCES

Date: FEBRUARY 2019 | Revision Date:

Drawn By: DJM4 | Checked By: GGR | Project: 19W013

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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 21, 2018 Inspector: Katie Jelacic

	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:

FORM 1

SEMI-ANNUAL INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

Inspection Date: September 11, 2018 Inspector: Katie Jelacic

	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:

FORM 2

QUARTERLY INSPECTION LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

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

Inspection Date: 4/10/18 ~820Am Inspector: B. Dashew/V. Weier

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	X		
Lubrication needed			N/A
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□	X		480 switch "ON"
Electrically actuated valve operating	X		
Record blower operating hours for quarter			35500.8

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

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		(6" water)
Open cover - 4" Butterfly Valve – operate valve & return to position	X		7 from 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		7 from 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		5 from 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: 4/10/18 Inspector: B. Dashew/V. Weier

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		7 from 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		7 from 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		6 from 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: 4/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
Inspect for damage to aboveground structure including Caution Label, locks/security bolts	X		NEEDS A NEW BOLT.
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		6 from 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		5 from 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		6 from 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: 4/10/18 Inspector: B. Dashew/V. Weier

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		7 from 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			LID BENT INWARD, DOES WATER IN.
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		8 from 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		7 from 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: 4/10/18 Inspector: B. Dashew/V. Weier

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		6 from 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		5 from 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		6 from 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: 4/10/18 Inspector: B. Dashew/V. Weier

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		FULL 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		5 pm 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		6 from 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: 4/10/18 Inspector: B. Dashew/V. Weier

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		6 From 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		(MH)
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		3 turns from (Rotary) Position of valve from Opening □ 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		(MH)
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		3 turns from (ROTARY) 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: 4-25-18 Inspector: B. Dashew/V. Weier

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	X		
KO-1, 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		
KO-1, 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: 4-25-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	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		
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: 4-25-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	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		
KO-3, 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: 4-25-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
Header Control Valves			
Point No. 9 – inspect for damage, operate valve & return to position	X		
Point No. 18 – inspect for damage, operate valve & return to position	X		
Point No. 23 – inspect for damage, operate valve & return to position	X		
Point No. 27 – inspect for damage, operate valve& return to position	X		
Force Main Clean-out Risers			
High Point, Point No. 21 – inspect for damage to riser	X		
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	X		

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: March 21, 2018 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.	x		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			
Inspect lock to ensure that the area is secure			
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: 6/4/18

Inspector: B. Dashew/V. Weier

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	X		
Lubrication needed	N/A		
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□	X		
Electrically actuated valve operating	X		
Record blower operating hours for quarter			* 36169.2

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-1			
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	✓		8 Position of valve from Opening 30 Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-2			
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 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
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	✓		6 Position of valve from Opening □ Closing X
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

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	✓		
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 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-5			
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 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-6			
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	✓		6 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
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 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
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	✓		5 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-9			
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	✓		6 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-10			
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 Position of valve from Opening □ Closing ✓
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-11			
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	✓		6 Position of valve from Opening □ Closing ✓
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-12			
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	✓		6 Position of valve from Opening □ Closing ✓
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-13			
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	✓		4 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-14 (Point No.-17 and Remote Wellhead GW-14 – Inspect Both)			
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	✓		5 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
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	✓		6 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage			

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-16			
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	✓		10 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-17			
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	✓		5 Position of valve from Opening ☒ Closing □ 30
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-18			
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	✓		6 Position of valve from Opening ☒ Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 6-5-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-19			
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	✓		30 67 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
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)	✓		4 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-21			
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)	✓		4 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 6/4/18 Inspector: B. Dashew/V. Weier

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	X		
KO-1, 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		
KO-1, 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: 6/4/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	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		
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:

New seal(s) @ main flange?

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

Inspection Date: 6/4/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	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		
KO-3, 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: _____ Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	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	X		
Point No. 23 – inspect for damage, operate valve & return to position			
Point No. 27 – inspect for damage, operate valve& return to position	X		
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: B. Dashew/V. Weier

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			
Inspect fence for disrepair that could allow access			
Inspect lock to ensure that the area is secure			
OTHER			
General Comments:			

Form 2 Template Corrected2 8-26-16

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: June 19, 2018 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.	x		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			
Inspect lock to ensure that the area is secure			
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: 9/10/18

Inspector: B. Dashew/V. Weier

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	✓		
Lubrication needed	✓	(✓)	→ NOT NEEDED
Flare stack appears in good condition	✓		
Flare operating	✓		→ N/A
Flare drain plug operational	✓		
Flame arrestor appears in good condition	✓		
Control panel status lights ☑ok☑	✓		
Electrically actuated valve operating	✓		
Record blower operating hours for quarter	✓		~~34~~ 37111.2

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-1			
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	✓		6 Position of valve from Opening [x] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-2			
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 Position of valve from Opening [ ] Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
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	✓		6 Position of valve from Opening [x] Closing [ ]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓	✓	Valve Lever opener is Cracked Needs to be Replaced

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

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	✓		
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 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-5			
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 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-6			
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	✓		6 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
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	✓		6 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
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	✓		5 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-9			
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	✓		6 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-10			
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 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-11			
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	✓		8 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-12			
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 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-13			
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	✓		6 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-14 (Point No.-17 and Remote Wellhead GW-14 – Inspect Both)			
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	✓		5 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
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	✓		6 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-16			
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	✓		full Position of valve from Opening x Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-17			
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	✓		4 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-18			
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	✓		6 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 9/10/18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-19			
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 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
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)	✓		WHEEL KNOB Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-21			
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)	✓		WHEEL KNOB Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 9-11-18 Inspector: B. Dashew/V. Weier

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	✓		
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	✓		
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	✓		
KO-1, Control Panel			
Inspect for structural damage	✓		
Inspect for power - test all functions and alarms	✓		
Notes:			

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

Inspection Date: 9-11-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
KO-2, KO Tank			
Inspect for damage to aboveground flange structure and sounding cable	✓		
KO-2, Condensate Pump Station			
Inspect for damage to aboveground flange structure	✓		
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	✓		
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	✓		
KO-2, Control Panel			
Inspect for structural damage	✓		
Inspect for power - test all functions and alarms	✓		
Notes:			

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

Inspection Date: 9-11-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
KO-3, KO Tank			
Inspect for damage to aboveground flange structure and sounding cable	✓		
KO-3, Condensate Pump Station			
Inspect for damage to aboveground flange structure	✓		
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	✓		
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	✓		
KO-3, Control Panel			
Inspect for structural damage	✓		
Inspect for power - test all functions and alarms	✓		
Notes:			

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

Inspection Date: 9-11-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	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: B. Dashew/V. Weier

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			
Inspect fence for disrepair that could allow access			
Inspect lock to ensure that the area is secure			
OTHER			
General Comments:			

Form 2 Template Corrected2 8-26-16

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: September 11, 2018 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.	x		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			
Inspect lock to ensure that the area is secure			
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: 12-4-18 Inspector: B. Dashew/V. Weier

LFG EXTRACTION SYSTEM			
Gas System Component	Acceptable? Yes	No	Comments/Action
BLOWER /FLARE STATION			
Check blower unit bearing	✓		N/A
Lubrication needed			NA
Flare stack appears in good condition	✓		
Flare operating		X	
Flare drain plug operational	✓		
Flame arrestor appears in good condition			Needs cleaning
Control panel status lights ☒ok☐	✓		
Electrically actuated valve operating	✓		
Record blower operating hours for quarter	✓		38486.2

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

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		Did fix manifold hose and exercise on 12/4/18 5 Position of valve from Opening ☒ 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	✓		
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	~~✓~~		Didn't exercise due to weather Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-3 (Point No.-3 and Remote Wellhead GW-3 – Inspect Both)			
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	✓		Lever is cracked 7 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

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	✓		
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	✓		Didn't Exercise due to water Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-5			
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 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-6			
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	✓		6 Position of valve from Opening □ Closing [x]
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-7			
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	✓		Didn't Exercise due to water Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-8 (Point No.-12 and Remote Wellhead GW-8 – Inspect Both)			
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	✓		5 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-9			
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	✓		6 Position of valve from Opening □ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
GW-10			
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 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	√		
GW-11			
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	√		8 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	√		
GW-12			
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	√		Didn't exercise due to water Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	√		

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

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		7 Position of valve from Opening ☒ 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	✓		
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			Didn't Exercise due to water Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-15 (Point No.-14 and Remote Wellhead GW-15 – Inspect Both)			
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	✓		5 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-16			
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	✓		Fully opened Position of valve from Opening x Closing □
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-17			
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	✓		5 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-18			
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	✓		6 Position of valve from Opening □ Closing x
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 12-3-18 Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	No	Comments/Action
GW-19			
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 Position of valve from Opening ☒ Closing ☐
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
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)	✓		3 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		
GW-21			
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)	✓		4 Position of valve from Opening ☐ Closing ☒
Open cover – inspect thermometer & gas sample tubing/ports for damage	✓		

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

Inspection Date: 12/4/18 Inspector: B. Dashew/V. Weier

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	X		
KO-1, Condensate Pump Station			
Inspect for damage to aboveground flange structure			HISSING LEAK FROM EAST SIDE JUNCTION BOX SEAL.
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			N/A
Open cover – inspect liquid level, should be below elevation of High Level Alarm switch			N/A
Open cover – operate sump pump using manual override switch on control panel & float switches, listen to ensure operational			N/A
KO-1, Control Panel			
Inspect for structural damage	X		
Inspect for power - test all functions and alarms	X		

Notes: DON FROM FOTH CONFIRMED WITH THE DNR THAT OPENING THE KNOCK OUT PUMP STATIONS IS A MAINTENANCE ISSUE AND THAT QUARTERLY CHECKS ARE NOT A REQUIREMENT OF THE DNR.

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

Inspection Date: 12/4/18 Inspector: B. Dashew/V. Weier

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			HISSING LEAK FROM MAIN GASKET. ADDED A BOLT, NEEDS NEW SEAL.
2" Ball Valve – inspect for damage, operate valve & return to position			2" TEE ABOVE GROUND – HISSING LEAK AT JOINT.
6" Butterfly Valve – inspect for damage, operate valve & return to position			
Open cover – inspect interior component parts for damage			N/A
Open cover – inspect liquid level, should be below elevation of High Level Alarm switch			N/A
Open cover – operate sump pump using manual override switch on control panel & float switches, listen to ensure operational			N/A
KO-2, Control Panel			
Inspect for structural damage	X		
Inspect for power - test all functions and alarms	X		

Notes:

DAN/FOTH CONFIRMED WITH DNR THAT QUARTERLY INTERIOR INSPECTIONS (UNDER THE LID) ARE NOT REQUIRED, & WILL BE PERFORMED ONCE ANNUALLY.

ADDED A BOLT TO THE MAIN FLANGE TO REDUCE THE LEAK BUT THE GASKET APPEARS TORN

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

Inspection Date: 12/19/18 Inspector: B. Dashew/V. Weier

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			WHERE THE PIPE MEETS THE ABOVE GROUND STRUCTURE — THERE IS A HISSING LEAK
6" Butterfly Valve – inspect for damage, operate valve & return to position	X		
Open cover – inspect interior component parts for damage			N/A
Open cover – inspect liquid level, should be below elevation of High Level Alarm switch			N/A
Open cover – operate sump pump using manual override switch on control panel & float switches, listen to ensure operational			N/A
KO-3, Control Panel			
Inspect for structural damage	X		
Inspect for power - test all functions and alarms	X		

Notes:

DAN/FOTH CONFIRMED WITH DNR THAT QUARTERLY INSPECTIONS OF THE INTERIOR ARE NOT REQUIRED. WILL PERFORM ONCE ANNALLY HENCEFORTH.

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

Inspection Date: _____ Inspector: B. Dashew/V. Weier

Gas System Component	Acceptable? Yes	Acceptable? No	Comments/Action
Header Control Valves			
Point No. 9 – inspect for damage, operate valve & return to position	X		
Point No. 18 – inspect for damage, operate valve & return to position	X		
Point No. 23 – inspect for damage, operate valve & return to position	X		
Point No. 27 – inspect for damage, operate valve& return to position	X		
Force Main Clean-out Risers			
High Point, Point No. 21 – inspect for damage to riser			N/A
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	X		

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

Inspection Date: _____ Inspector: B. Dashew/V. Weier

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			
Inspect fence for disrepair that could allow access			
Inspect lock to ensure that the area is secure			
OTHER			
General Comments:			

Form 2 Template Corrected2 8-26-16

FORM 2 (CONTINUED)

QUARTERLY INSPECTION LOG –WEST AVE. LANDFILL

Inspection Date: December 10, 2018 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.	x		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			
Inspect lock to ensure that the area is secure			
OTHER			

General Comments:

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

Sampled By: BD/VW Weather: Clear Warmer

Well No.	MW-9R	Parameter Stabilization Readings every 2 minutes						
DNR No.	035	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	29.89	1037		2442	89.7	0.0	7.8	12.7
Date Sampled	4-12-18	1039		2305	65	0.0	7.4	13.0
Purge Start Time	1036	1041	29.96	2280	61	0.0	7.4	13.0
Purge Stop Time	1048	1043		2170	54	0.0	7.3	13.0
Volume Purged (gal)	2.75	1045	29.50	2172	54	0.0	7.3	13.0
Sample Removal Time	1050							
Duplicate Sample Time								
Sample Readings	1049		29.45	2165	54	0.0	7.3	13.0
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)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	24.49	1126		1500	92	0.0	8.2	14.0
Date Sampled	4-12-18	1128		1472	83	0.0	7.8	12.5
Purge Start Time	1125	1130	24.68	1446	75	0.0	7.8	12.4
Purge Stop Time	1136	1132		1414	70	0.0	7.8	12.5
Volume Purged (gal)	1.0	1134	24.90	1410	70	0.0	7.8	12.6
Sample Removal Time	1138							
Duplicate Sample Time								
Sample Readings	1136		25.00	1408	70.	0.0	7.8	12.4
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)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	30.63	1238		1968	155	4.0	8.3	12.6
Date Sampled	4-12-18	1240		1970	188	3.4	8.0	13.0
Purge Start Time	1236	1242		1971	195	3.4	7.9	13.2
Purge Stop Time	1244							
Volume Purged (gal)	1.25							
Sample Removal Time	1245							
Duplicate Sample Time								
Sample Readings	1244		30.30	1973	190	3.4	7.9	13.3
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: BO/VW Weather: warm, clear

Well No.	MW-10B	Parameter Stabilization Readings every 2 minutes						
DNR No.	043	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	29.60	1307		2064	132	1.8	8.4	12.4
Date Sampled	4.12.18	1309		2047	156	0.6	8.0	12.5
Purge Start Time	1306	1311	31.52	2050	158	0.6	7.9	12.7
Purge Stop Time	1315	1313		2048	162	0.7	7.9	12.5
Volume Purged (gal)	1.25							
Sample Removal Time	1316							
Duplicate Sample Time								
Sample Readings	1315		31.48	2043	161	0.7	7.9	12.8
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)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	41.42	1345		1778	117	4.7	8.1	13.0
Date Sampled	4-12.18	1347	41.45	1784	178	4.3	8.0	12.9
Purge Start Time	1344	1349		1789	209	4.4	8.1	13.0
Purge Stop Time	1351	~~1351~~						
Volume Purged (gal)	1.75							
Sample Removal Time	1352							
Duplicate Sample Time								
Sample Readings	1351		41.50	1787	225	~~8.4~~ 4.4	8.0	13.0
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)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)		1423		1040	-12	2.6	8.7	13.3
Date Sampled	4-12-18	1425	49.23	1648	33	0.8	7.8	13.3
Purge Start Time	1422	1427	49.25	1585	72	0.1	7.9	13.5
Purge Stop Time	1433	1429	44.80	1456	103	1.5	8.0	13.6
Volume Purged (gal)	1.50	1431		1450	130	1.6	8.0	13.8
Sample Removal Time	1434							
Duplicate Sample Time								
Sample Readings		1433		1455	148	1.6	8.0	13.9
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: 55°F, clear, windy

Well No.	MW-12	Parameter Stabilization Readings every 2 minutes						
DNR No.	049	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	36.89	~~8:39~~		1000	-3	1.8	8.7	13.3
Date Sampled	4-23-18	0901		1096	-20	0.0	8.0	13.4
Purge Start Time	0858	0903	36.90	918	-26	0.0	7.8	13.7
Purge Stop Time	~~2.25~~ 0907	0905		919	-32	0.0	7.8	13.6
Volume Purged (gal)	2.25							
Sample Removal Time	0908							
Duplicate Sample Time								
Sample Readings	0907		36.95	920	-37	0.0	7.8	13.5

Color: ~~Brown~~ Slightly Brown Odor: none Turbidity: ~~Slt~~ Moderate

Comments, Well Condition: OK

Well No.	MW-12B	Parameter Stabilization Readings every 2 minutes						
DNR No.	051	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	35.43	~~8:43~~ 0926		1920	-65	4.3	8.9	13.4
Date Sampled	4-23-18	0928		1932	-73	2.6	7.8	13.4
Purge Start Time	0925	0930	39.65	1935	-80	0.0	7.6	13.5
Purge Stop Time	0934	0932		1936	-83	0.0	7.6	13.5
Volume Purged (gal)	2.00							
Sample Removal Time	0935							
Duplicate Sample Time								
Sample Readings	0934		39.68	1938	-84	0.0	7.6	13.6

Color: Clear Odor: ~~none~~ slight Turbidity: None

Comments, Well Condition: Missing ~~Thread~~ Bolt thread.

Well No.	MW-17	Parameter Stabilization Readings every 2 minutes						
DNR No.	271	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	36.73	1043		2086	10	1.8	8.4	12.7
Date Sampled	4-23-18	1045		2090	23	1.0	8.8	12.7
Purge Start Time	1042	1047	36.78	2091	44	0.0	7.6	12.8
Purge Stop Time	1051	1049		2091	43	0.0	7.7	12.9
Volume Purged (gal)	2.75							
Sample Removal Time	1052							
Duplicate Sample Time	1054							
Sample Readings	1051		36.90	2091	45	0.0	7.7	12.8

Color: Slight Odor: none Turbidity: ~~No~~ Moderate

Comments, Well Condition: needs a bolt.

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:

Well No.	MW-17B	Parameter Stabilization Readings every 2 minutes						
DNR No.	272	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	38.90	1125		1940	-101	2.6	8.3	12.8
Date Sampled	4.23.18	1126		1934	-100	1.6	8.2	12.7
Purge Start Time	1124	1128		1935	-96	0.2	7.8	12.9
Purge Stop Time	1132	1130	40.92	1937	-95	0.0	7.8	12.9
Volume Purged (gal)	2.75							
Sample Removal Time	1133							
Duplicate Sample Time								
Sample Readings	1132		41.00	1938	-93	0.0	7.8	12.9

Color: Dark Odor: slight gasoline Turbidity: yes

Comments, Well Condition: needs Bolt & Bolt threads

Well No.	MW-17D	Parameter Stabilization Readings every 2 minutes						
DNR No.	273	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	33.55	1222		1960	-62	2.6	9.0	13.6
Date Sampled	4.23.18	1224		2020	-15	0.8	8.3	13.1
Purge Start Time	1220	1226	33.10	2058	-2	0.0	8.0	13.2
Purge Stop Time	1232	1228		2063	0.7	0.0	7.8	13.2
Volume Purged (gal)	2.0	1230		2067	8.	0.0	7.9	13.1
Sample Removal Time	1233							
Duplicate Sample Time								
Sample Readings	1232		32.90	2064	11	0.0	7.9	13.1

Color: cloudy Odor: none Turbidity: slight

Comments, Well Condition: needs Bolt

Well No.	MW-14	Parameter Stabilization Readings every 2 minutes						
DNR No.	057	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	32.10	1356		2645	-135	1.8	8.9	13.0
Date Sampled	4-23-18	1358		2671	-128	0.0	8.0	13.3
Purge Start Time	1355	1400	32.50	2677	-128	0.0	7.8	13.3
Purge Stop Time	1404	1402		2675	-130	0.0	7.8	13.5
Volume Purged (gal)	2.00							
Sample Removal Time	1405							
Duplicate Sample Time								
Sample Readings	1404		32.70	2671	-131	0.0	7.8	13.4

Color: slightly muddy Odor: ~~off color~~ gasoline Turbidity: moderate

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/KW Weather: clear windy

Well No.	MW-14B	Parameter Stabilization Readings every 2 minutes						
DNR No.	059	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	31.35	1420		2140	-153	3.0	9.0	12.8
Date Sampled	~~4.23.18~~ 4.24.18	1422	31.40	2139	-118	2.2	8.6	12.5
Purge Start Time	1419	1424		2140	-115	2.0	8.2	12.6
Purge Stop Time	1426			2142	-119	2.0	8.1	12.7
Volume Purged (gal)	3.00							
Sample Removal Time	1428							
Duplicate Sample Time								
Sample Readings		1426	31.50	2142	-120	2.1	8.1	12.8
Color: slightly milky		Odor: none			Turbidity: moderate			
Comments, Well Condition: needs bolt								

Well No.	MW-13B	Parameter Stabilization Readings every 2 minutes						
DNR No.	055	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	33.80	1455		2246	-156	2.8	9.0	12.7
Date Sampled	4.27.18	1457		2248	-159	2.0	8.5	13.5
Purge Start Time	1454	1459	34.62	2262	-155	1.6	8.0	13.8
Purge Stop Time	1505	1501	34.80	2282	-78	1.0	7.6	13.6
Volume Purged (gal)	5.00	1503		2284	-108	1.0	7.6	13.4
Sample Removal Time	1506							
Duplicate Sample Time								
Sample Readings		1505	34.85	2283	-121	1.0	7.6	13.6
Color: dark		Odor: sulfied			Turbidity: yes			
Comments, Well Condition: needs bolt								

Well No.	MW-13D	Parameter Stabilization Readings every 2 minutes						
DNR No.	068	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	33.60	0847		2112	-88	~~8.6~~ 1.8	8.6	12.7
Date Sampled	4.24.18	0849		2101	-14	0.0	8.5	12.5
Purge Start Time	0846	0851	33.71	2091	-2	0.0	8.2	12.6
Purge Stop Time	0857	0853		2097	11	0.0	7.8	12.7
Volume Purged (gal)	2.00	~~0855~~		2099	9	0.0	7.8	12.8
Sample Removal Time	0858							
Duplicate Sample Time								
Sample Readings	0857		33.82	2099	7	0.0	7.8	12.9
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: BD/VW Weather: clear, 55°F, warmer

Well No.	MW-8B	Parameter Stabilization Readings every 2 minutes						
DNR No.	032	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	33.50	0938		1940	-121	0.8	9.2	13.3
Date Sampled	4.24.18	0940		1755	-98	0.4	8.6	13.2
Purge Start Time	0937	0942	34.72	1620	-85	1.0	8.1	13.4
Purge Stop Time	0952	0944		1650	-78	1.0	7.8	13.4
Volume Purged (gal)	1.50	0946	34.80	1699	-63	1.0	7.7	13.4
Sample Removal Time	0953	0948		1720	-64	1.0	7.7	13.5
Duplicate Sample Time		0950		1725	-68	1.0	7.7	13.4
Sample Readings		0950	34.90	1728	-71	1.0	7.7	13.8

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)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	34.28	~~0938~~ 1004	~~24.30~~ 34.30	~~1940~~ 2400	-163	3.2	9.0	13.5
Date Sampled	4.24.18	1004		2400	-163	3.2	9.0	13.5
Purge Start Time	~~0937~~ 1008	1011		2499	-155	2.1	8.2	14.0
Purge Stop Time	~~1018~~	1013	34.42	2514	-150	1.8	7.6	14.1
Volume Purged (gal)	2.0	1015		2522	-151	1.8	7.5	14.0
Sample Removal Time	1018	~~1017~~	~~34.43~~	~~2518~~				
Duplicate Sample Time								
Sample Readings		1017	34.43	2518	-150	1.8	7.5	14.0

Color: clear Odor: slight Turbidity: none

Comments, Well Condition: OK

Well No.	MW-3	Parameter Stabilization Readings every 2 minutes						
DNR No.	003	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	36.33	1118		2183	-101	1.6	8.8	16.4
Date Sampled	4.24.18	1120	36.45	2208	-94	1.4	8.2	16.5
Purge Start Time	1117	1122		2242	-87	1.0	7.8	16.6
Purge Stop Time	1128	1124	36.53	2265	-86	0.7	7.7	16.8
Volume Purged (gal)	2.25	1126		2272	-89	0.7	7.7	16.7
Sample Removal Time	1129							
Duplicate Sample Time								
Sample Readings		1128	36.55	2273	-89	0.8	7.7	16.8

Color: clear Odor: none Stuffed 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: BD/VW Weather: Warm, 60°F, Clear

Well No.	MW-3D	Parameter Stabilization Readings every 2 minutes						
DNR No.	066	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	21.94	1148	##	1095	+108	0.6	8.6	15.7
Date Sampled	4-24-18	1150	22.48	1116	-100	0.4	8.5	15.0
Purge Start Time	1147	1152		1144	-86	0.4	8.2	15.1
Purge Stop Time	1158	1154	22.80	1130	-64	0.4	7.8	15.0
Volume Purged (gal)	1.00	1156		1181	-62	0.4	7.8	15.1
Sample Removal Time	1159							
Duplicate Sample Time	1203							
Sample Readings	1158		23.25	1183	-59	0.4	7.8	~~15.1~~ 15.0
Color: Clear	Odor: Slight Smell				Turbidity: None			
Comments, Well Condition: OK								

Well No.	MW-3B	Parameter Stabilization Readings every 2 minutes						
DNR No.	005	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	37.21	1217		2120	-90	1.9	8.7	15.5
Date Sampled	4-24-18	1219	38.28	2152	-67	1.7	8.2	15.6
Purge Start Time	1216	1221		2169	-58	1.4	7.8	15.5
Purge Stop Time	1225	1223	38.48	2178	-54	1.4	7.7	15.5
Volume Purged (gal)	1.75	12						
Sample Removal Time	1226							
Duplicate Sample Time								
Sample Readings		1225	38.50	2179	-56	1.4	7.7	15.5
Color:	Odor:				Turbidity:			
Comments, Well Condition: OK								

Well No.	MW-4BR	Parameter Stabilization Readings every 2 minutes						
DNR No.	064	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	36.71	1441		2367	-121	4.6	8.6	14.8
Date Sampled	4-24-18	1443		2293	-118	2.7	8.7	14.8
Purge Start Time	1440	1445	36.75	2327	-115	2.0	8.2	14.8
Purge Stop Time	1451	1447		2387	-106	2.0	7.8	14.8
Volume Purged (gal)	1.75	1449		2339	-106	2.0	7.7	14.9
Sample Removal Time	1452							
Duplicate Sample Time								
Sample Readings	1451		36.87	2339	-107	2.0	7.7	15.0
Color: Clear ~~Rust~~ IR	Odor: ~~Light Odor~~ Gasoline				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: clear, 60°F

Field Blank	
Date Sampled	4-24-18
Sample Time	1509

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: Warmer 60's, Clear

Well No.	MW-14B	Parameter Stabilization Readings every 2 minutes						
DNR No.	059	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	Temp (oC)
DTW (ft)	31.33	1409		2136	-118	2.2	8.9	12.8
Date Sampled	4-24-18	1401		2137	-115	1.9	8.6	12.7
Purge Start Time	1408	1413	31.45	2138	-106	1.8	8.3	12.7
Purge Stop Time	1419	1415		2139	-106	1.8	8.1	12.8
Volume Purged (gal)	1.75	1417	31.48	2189	-108	1.8	8.0	12.8
Sample Removal Time	1420							
Duplicate Sample Time								
	Only None Preserved Bottle is Sent BD 4-24-18							
Sample Readings	1419		31.48	2139	-110	1.8	8.0	12.9
Color: clear	Odor: Light Smell			Turbidity: Slight				
Comments, Well Condition: needs Bolt None Preserved Sampled because it missed								

Well No.	MW-13B	Parameter Stabilization Readings every 2 minutes						
DNR No.	055	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	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-13D	Parameter Stabilization Readings every 2 minutes						
DNR No.	068	Time	DTW (ft)	Conduct. (uS)	ORP (mV)	DO (mg/L)	pH	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.

Water Elevations for City of Waukesha West Ave. Landfill												Rev. 08-30-16
FID Number 268145680												
Date Elevations Measured:			4-11-2018		Weather Conditions:							
Measured By:			BD/VW									
FIELD SHEET ONLY								Well Integrity				
Well No.	**Date**	**Time**	**Elevation of Top of Pipe**	**Depth to Water**	**Water Elevation**	**Measured Depth to Bottom (September)**	**Historical Depth to Bottom**	**Locked**	**Capped**	**Obstruct**	**Comments**	
	4-11-2018											
MW-9R		8:38	845.31	29.86	NA		36.40	ok	ok	none		
MW-9B		8:41	844.39	22.50	NA		64.37	ok	ok	none		
MW-15		8:49	845.63	22.35	NA		26.61	ok	ok	none		
MW-15B		8:55	845.50	19.17	NA		84.43	ok	ok	none		
MW-7		9:10	858.95	9.98	NA		17.41	ok	ok	none		
MW-7B		9:12	859.06	10.57	NA		37.61	ok	ok	none		
MW-10		9:22	854.00	30.60	NA		40.62	ok	ok	none		
MW-10B		9:24	853.89	27 ~~41.90~~	NA		64.50	ok	ok	none		
MW-16		9:37	853.13	31.18	NA		33.63	ok	ok	none	> NEEDS REPAIR - NEW LID LIKE 16B	
MW-16B		9:45	853.12	41.35	NA		49.52	ok	ok	none	> 8 7/8" DX 1/2" thick	
MW-16D		9:48	853.13	~~40~~ 41.16	NA		140.13	ok	ok	none	> NEEDS NEW LID "	
MW-11		9:59	851.16	37.24	NA		41.72	ok	ok	none		
MW-11B		10:03	851.09	39.74	NA		74.63	ok	ok	none		
MW-12		10:31	848.50	36.62	NA		44.84	ok	ok	none		
MW-12B		10:33	848.48	35.32	NA		93.82	ok	ok	none		
MW-17	10:46	~~10:38~~	847.05	~~33.50~~	NA	> 36.50	44.75	ok	ok	none	Westmost / Center / Eastmost } Need 4 small Bolts	
MW-17B		10:48	847.18	38.41	NA		97.88	ok	ok	none		
MW-17D		10:38	847.26	33.50	NA		148.62	ok	ok	none		
MW-14		11:01	846.60	32.09	NA		40.74	ok	ok	none		
MW-14B		11:04	846.58	31.37	NA		75.52	ok	ok	none		
MW-13B		11:11	847.75	33.78	NA		84.56	ok	ok	none		
MW-13D		11:15	847.50	33.64	NA		134.63	ok	ok	none		
MW-8B		11:25	849.16	33.47	NA		62.32	ok	ok	none		
MW-8		11:29	849.48	34.09	NA		38.83	ok	ok	none		
MW-3		11:38	851.66	36.40	NA		49.87	ok	ok	none		
MW-3D		11:40	851.64	22.31	NA		148.01	ok	ok	none		
MW-3B		11:41	852.20	37.21	NA		74.11	ok	ok	none		
MW-4BR		11:52	852.14	36.72	NA		54.50	ok	ok	none		

FORM 4

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

Personnel Conducting Monitoring BD/~~GS~~ NW Ambient Air Temp: 27°f - 30°f Date: 4/9/18

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	4/9	9:11	0.0	0.0	21.8	60		*
WALFGP2R	4/9	8:56	0.0	1.3	18.9	60		
WALFGP3.	4/9	9:45	0.3	3.5	19.0	60		
WALFGP4.	4/9	10:39	0.0	0.6	20.4	60		6" ICE UNDER CAP.
WALFGP5.	4/9	11:16	0.0	0.6	21.0	60		
WALFGP6.	4/9	9:35	0.0	0.8	21.3	60		
WALFGP7	4/9	9:58	0.0	1.3	19.5	60		
WALFGP10	4/9	9:49	0.0	0.0	21.8	60		
WALFGP11	4/9	10:10	0.1	1.7	0.0	60		TURNED BLOWER ON AND RETESTED- SAME RESULTS, 11:23
WALFGP12	4/9	11:07	0.0	4.9	16.9	60		VALVE "ON SIDEWAYS": CLOSED WHEN ALIGNED.
WALFGP13	4/9	9:30	0.0	0.2	21.5	60		
WALFGP14	4/9	9:39	0.0	2.5	18.9	60		
WALFGP15	4/9	9:25	0.0	2.7	18.5	60		
WALFGP16	4/9	9:18	0.0	1.9	19.5	60		
WALFGP20	4/9	9:05	0.0	2.1	19.8	60		
WALFGP21	4/9	8:46	0.0	2.7	18.1	180	-0.0	
WALFGP22	4/9	8:42	0.0	4.3	15.5	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	4/9	10:56	0.1	6.9	12.9	60	41°	$ 28.0	-29.5	X	X	
Flame Arrestor IN	4/9	11:00	X	X	X	X	X	X	X	11.0	+15.1	
Flame Arrestor OUT	4/9	11:01	X	X	X	X	X	X	X	X	+7.6	

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

Date: 4/10/18

Personnel Conducting Monitoring BD/VW

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	4/10	10:07	0.2	8.1	11.5	60	51	-2.8	+1.6	-7.7		water -6"
WALFGW02	4/10	10:18	0.0	4.7	15.4	60	54	-5.4	+3.5	-7.5		✓
WALFGW03	4/10	10:31	0.0	0.1	20.6	60	40	-4.1	+0.4	-7.6		✓
WALFGW04	4/10	3:05	0.3	5.6	14.6		60	-6.9	+4.9	-6.6		full of water
WALFGW05	4/10	11:03	0.1	7.5	12.3		51	-3.8	+4.4	-3.9		# ✓
WALFGW06	4/10	11:12	0.0	0.0	20.4		56	-1.5	-2.8	-5.6		# ✓ DOUBLE NEG. PRSR.
WALFGW07	4/10	11:21	0.0	2.3	18.4		55	-1.2	+0.9	-4.0		NEW BOLT ✓
WALFGW08	4/10	11:29	0.0	0.0	20.9		50	-2.2	-1.2	-9.6		# ✓ DOUBLE NEG PRSR
WALFGW09	4/10	1:42	0.3	14.1	4.8		62	-2.0	+1.1	-6.9		# ✓
WALFGW10	4/10	1:32	0.6	13.3	5.5		60	-1.8	-3.3	-6.5		✓ DOUBLE NEG
WALFGW11	4/10	11:35	0.0	0.0	21.0		51	+0.0	-13.4	-10.1		✓
WALFGW12	4/10	11:44	0.3	6.8	12.6		51	-2.1	+3.6	-5.2		# 18" WATER
WALFGW13	4/10	1:24	0.0	6.9	12.9		53	-5.7	+4.8	-5.9		✓
WALFGW14	4/10	1:16	0.0	1.2	19.6		48	-6.2	+0.1	-5.6		✓
WALFGW15	4/10	11:50	0.1	8.8	10.1	✓	48	-0.4	+0.5	-6.9		# ✓
WALFGW16	4/10	9AM	0.3	6.6	12.1	60	40	-8.3	+7.4	-9.2		— ✓
WALFGW17	4/10	9:15	0.8	8.2	9.1		45	-0.0	-0.1	-8.8		# ✓
WALFGW18	4/10	9:25	0.0	1.3	19.7		45	-0.0	+0.2	-9.5		✓
WALFGW19	4/10	9:42	0.9	8.8	6.6		48	-0.0	-0.1	-9.8		# ✓
21 WALFGW20	4/10	2:18	0.0	5.4	14.7		N/A	-4.4	+2.2	-4.9		(MH) ✓
20 WALFGW21	4/10	2:25	0.0	1.5	19.7	✓	N/A	+13.9	+14.6	-4.8		(MH) ✓

*

= NEEDS NUMBER/CAUTION TAG.

FORM 4

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

Personnel Conducting Monitoring BD~~AS~~ VW Ambient Air Temp: 55° - 72° Date: 6/4

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	6/4	9:29	0.1	0.3	20.2	60		* NEEDS BOLT * TRIM PVC?
WALFGP2R	6/4	9:37	0.1	0.4	17.2			
WALFGP3.	6/4	10:17	0.1	5.4	14.8			
WALFGP4.	6/4	10:42	0.1	1.6	16.8			
WALFGP5.	6/4	11:32	0.1	3.6	13.3			
WALFGP6.	6/4	9:03	0.1	1.2	19.6			
WALFGP7	6/4	10:31	0.1	4.5	12.2			
WALFGP10	6/4	10:24	0.1	0.0	20.5			
WALFGP11	6/4	10:57	1.2	2.8	0.0			~~* NEEDS 2 BOLTS~~ OK. * NO VALVE LEVER - OPEN. * VALVE OPEN REGRDLSS OF LEVER POSTN.
WALFGP12	6/4	11:12	0.1	9.9	5.4			
WALFGP13	6/4	9:08	0.1	0.2	20.1			
WALFGP14 *	6/4	8:55	0.1	0.00	20.6	60		
WALFGP15	6/4	9:15	0.1	2.9	17.6			
WALFGP16	6/4	9:17	0.1	2.9	16.4			
WALFGP20	6/4	10:00	0.1	1.8	18.3			
WALFGP21	6/4	9:40	0.1	4.4	14.6	180	+0.1	
WALFGP22	6/4	9:47	0.1	4.2	14.2	60		* NEEDS BOLT

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	6/4	3:47	0.6	7.3	11.6	~~20~~ 60	60	26	-26.3			
Flame Arrestor IN	6/4	3:50								12.5	+15.6	
Flame Arrestor OUT	6/4	3:51									+6.9	

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: 6-5-18

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	6-5-18	~~0965~~ 1046	~~0.7~~ 0.2	~~5.5~~ 8.0	~~14.2~~ 11.0	~~60~~ 30	~~54.0~~ 40.0	~~0.3~~ -2.6	~~-7.0~~ -2.3	~~-6.6~~ -6.0	29.92	
WALFGW02		1055	1.1	7.9	11.2		57.0	-1.8	-3.8	-6.0		
WALFGW03		1109	0.1	0.0	20.5		64.0	-3.6	-0.4	-6.2		
WALFGW04		1580	0.6	5.2	14.4		68	-1.0	-3.7	-5.5		
WALFGW05		1127	0.2	~~7.9~~ 7.2	~~7.9~~ 11.9		56.0	-0.2	-3.6	-4.9		
WALFGW06		1136	0.6	11.0	8.1		74.0	-2.3	-1.9	-4.1		
WALFGW07		1437	0.1	2.6	~~17.1~~ 17.1		65	-0.0	-4.4	-12.4		
WALFGW08		1448	0.2	8.6	9.5		62	-2.3	-0.3	-12.2		
WALFGW09		1426	0.5	12.6	5.9		70	-1.4	-1.9	-4.6		
WALFGW10		1416	1.0	12.7	4.9		68	-2.0	-1.8	-4.9		
WALFGW11		1328	1.0	13.3	~~4.9~~ 5.9		65	-10.5	-0.3	-11.4		
WALFGW12		1338	0.4	6.2	12.5		60	-0.0	-4.1	-4.8		
WALFGW13		1406	0.1	7.1	11.9		60	-0.1	-3.4	-5.9		
WALFGW14		1357	0.1	5.7	12.6		64	-4.6	0.1	-4.8		
WALFGW15		1346	0.2	8.7	8.4		60.0	0.2	-0.6	-4.5		
WALFGW16		0815	0.7	5.5	14.2		54.0	-0.2	-7.0	-6.6		
WALFGW17		0919	0.9	8.4	9.6		54.0	-1.4	+1.5	-6.6		
WALFGW18		0940	0.1	1.5	19.7		53.0	-0.0	-1.7	-7.0		
WALFGW19		0958	1.0	7.6	10.1		53.0	-0.1	-6.4	-6.6		
WALFGW20		1305	0.1	1.8	18.6		NA	-0.0	-3.6	4.6		
WALFGW21	↓	1312	0.1	5.6	13.5	↓	NA	+0.3	-0.3	-3.2	↓	

FORM 4

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

Personnel Conducting Monitoring ~~BD/GS~~ VW Ambient Air Temp: 64° Date: 9/10/18

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	9/10	15:30	0.0	1.6	15.9	60		NEEDS BOLTS FOR COVER ~~FRUSTED~~
WALFGP2R	9/10	10:54	0.0	3.4	11.3			
WALFGP3.	9/10	8:34	0.4	0.1	20.4			
WALFGP4.	9/10	8:57	0.4	3.8	13.8			
WALFGP5.	9/10	9:21	0.4	1.4	19.4			
WALFGP6.	9/10	10:10	0.0	1.1	18.9			
WALFGP7	9/10	8:48	0.4	4.6	13.8			
WALFGP10	9/10	8:30	0.4	1.2	19.2	60		
WALFGP11	9/10	9:07	12.5	4.3	0.0		+0.0	
WALFGP12	9/10	9:13	0.4	16.6	0.5			
WALFGP13	9/10	10:15	0.0	0.8	19.4			
WALFGP14	9/10	9:28	0.0	1.1	19.9			
WALFGP15	9/10	15:15	0.0	0.1	19.9			
WALFGP16	9/10	15:20	0.0	0.3	19.8			
WALFGP20	9/10	15:35	0.0	2.0	16.0	60		
WALFGP21	9/10	10:51	0.0	9.1	8.8	180	0.0	
WALFGP22	9/10	10:47	0.0	7.1	2.1	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	9/10	14:23	1.0	9.0	10.4	60	72	25	-25.0			
Flame Arrestor IN	9/10	14:47								12.5	+16.7	<
Flame Arrestor OUT	9/10	14:48									+8.9	

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: 9/10/18

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	9/10	13:30	0.1	13.8	5.4	60	70°	-5.9	+2.9	-6.1	30.07	NEEDS NEW MANIFOLD TUBE.
WALFGW02	9/10	13:40	1.4	10.5	8.9	60	66°	-5.3	+3.3	-6.1		
WALFGW03	9/10	13:50	11.1	14.4	5.6	60	72°	-5.1	-0.2	-5.9		
WALFGW04	9/10	15:00	1.1	9.2	11.0	60	76°	-12.2	+11.8	-8.7		PUMPED WATER (Full) was
WALFGW05	9/10	14:05	0.1	12.0	8.4	60	55°	-4.2	+3.8	-5.2		
WALFGW06	9/10	14:18	1.2	13.2	6.7	60	76°	-3.9	+1.2	-5.2		
WALFGW07	9/10	14:29	0.0	4.8	15.3	60	68°	-4.8	+4.6	-9.9		
WALFGW08	9/10	14:36	0.0	11.0	8.0	60	72°	-5.5	+1.0	-10.5		
WALFGW09	9/10	12:04	1.7	17.4	1.5	60	73°	-2.1	+1.4	-5.5		
WALFGW10	9/10	11:53	3.0	17.0	2.4	60	70°	-5.0	+2.4	-6.1		
WALFGW11	9/10	12:13	3.0	17.4	2.0	60	70°	-9.4	+0.1	-11.4		
WALFGW12	9/10	11:15	0.4	11.7	8.5	60	68°	-3.8	+3.0	-7.0		WATER (Below gauges)
WALFGW13	9/10	11:41	0.3	12.1	7.3	60	62°	-6.0	+6.9	-6.6		
WALFGW14	9/10	11:27	0.2	9.4	7.9	60	66	-5.9	+0.1	-6.3		NEEDS 1 WASHER.
WALFGW15	9/10	11:07	0.1	11.4	8.1	60	72°	-2.9	+2.4	-6.5		
WALFGW16	9/10	9:36	~~1.9~~	~~10.6~~	~~9.2~~	~~60~~ 60	66°	-6.6	+6.2	-6.3	30.09	(1.9, 10.7, 9.1)
WALFGW17	9/10	9:46	5.8	15.5	3.3	60	69.0°	-1.4	+1.3	-6.6		
WALFGW18	9/10	9:56	0.0	4.0	16.5	60	70°	-1.6	+1.4	-6.8		
WALFGW19	9/10	10:04	3.0	15.2	2.3	60	62°	-6.2	+5.9	-6.5		
WALFGW20	9/10	15:50	0.0	2.7	17.5	60	—	-4.1	+3.4	-5.5		
WALFGW21	9/10	15:37	0.0	8.4	11.0	60	—	-2.5	+1.9	-5.6		

FORM 4

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

Personnel Conducting Monitoring BD/VW

Date: 12-3-18

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	12-3-18	1021	0.1	11.0	8.9	60	67	-6.2	~~+3.1~~ +6.2	~~-6.4~~ -6.2	30.01	READ MANIFOLD ON 12/4/18 ~~no manif. data to write~~
WALFGW02		1036	1.4	9.1	10.6		~~55~~ 58	-5.9	+3.8	-6.6		NO EXERCISE, WATER
WALFGW03		1049	11.5	14.4	5.8		44	-6.1	-0.5	-6.6		
WALFGW04		1118	1.2	8.7	11.6			-5.8	+4.6	-6.6		NO TEMP. NO EXERCISE, WATER
WALFGW05		1127	0.2	10.8	10.3		49	-~~3.0~~	+0.1	-6.8		
WALFGW06		1145	1.2	13.5	7.5		65	-5.7	+1.0	-6.8		
WALFGW07		1319	0.0	3.7	17.4		60	-5.1	+5.0	-9.3		FULL OF WATER
WALFGW08		1327	0.0	12.0	8.2		50	-5.0	+0.4	-9.7		
WALFGW09		1450	1.6	18.2	2.4		62	-6.1	+3.0	-8.3		
WALFGW10		1441	2.1	14.2	6.4		64	-7.6	+3.1	-8.3		
WALFGW11		1339	3.7	18.0	2.1		52	-8.6	+0.3	-8.6		
WALFGW12		1351	0.2	8.4	12.8			-7.8	+4.5	-78		NO EXERCISE
WALFGW13		1429	0.4	10.6	9.7		62	~~-20~~ -7.4	+7.2	-7.6		
WALFGW14		1418	0.3	6.2	14.3			-7.7	+0.2	-7.7		NO EXERCISE
WALFGW15		1405	0.4	7.6	13.4	~~54~~	54	-2.8	+2.6	-8.4		
WALFGW16		0930	0.1	6.3	13.7	~~57~~	52	-6.6	+6.2	-6.2		
WALFGW17		0942	1.0	10.9	7.6	~~51~~	52	-1.4	+1.2	-6.4		
WALFGW18		0953	0.0	2.3	20.0	~~52~~	52	-1.8	+1.3	-6.4		
WALFGW19		1002	0.8	10.0	8.3	~~54~~	54	-2.5	+2.9	-6.2		
WALFGW20		1504	0.0	8.0	12.6	~~NA~~	NA	-5.4	+2.4	-9.7		
WALFGW21	↓	1513	0.0	2.1	19.3	↓ ~~NA~~	NA	-7.3	+7.2	-8.8	↓	

FORM 4

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

Personnel Conducting Monitoring BD/~~GS~~ VW Ambient Air Temp: 27°f Date: 12/4/18

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP1	12/4	10:56	0.0	0.4	21.3	60		
WALFGP2R	12/4	10:30	0.0	2.5	12.5			
WALFGP3.	12/4	9:06	0.0	5.5	15.9			
WALFGP4.	12/4	9:26	0.0	0.2	21.4			
WALFGP5.	12/4	9:46	0.0	0.5	21.5			
WALFGP6.	12/4	11:18	0.0	0.1	21.6			
WALFGP7	12/4	9:17	0.0	2.3	19.3			
WALFGP10	12/4	11:26	0.0	0.0	21.5			
WALFGP11	12/4	9:33	10.8	2.4	2.5		-0.5	
WALFGP12	12/4	9:39	0.1	11.0	7.6			
WALFGP13	12/4	11:11	0.0	0.3	20.3			
WALFGP14	12/4	9:01	0.0	0.0	21.9			
WALFGP15	12/4	11:04	0.0	2.4	16.4			
WALFGP16	12/4	11:01	0.0	0.2	21.5	↓		
WALFGP20	12/4	10:48	0.0	4.9	13.9	60		
WALFGP21	12/4	10:37	0.0	4.2	16.2	180	+0.0	
WALFGP22	12/4	10:43	0.0	5.8	11.5	60		

GW)

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	12/4	8:45	1.3	9.0	10.4	60	50	26	-27.1			
Flame Arrestor IN	"	9:49								13	+17.2	ΔP: 8.7 Needs Maintenance
Flame Arrestor OUT	"	8:50									+8.5	

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

FORM 5

PRINCIPAL LANDFILL COVER MAINTENANCE LOG

WEST AVENUE LANDFILL
CITY OF WAUKESHA
2010 O&M Manual

March 21, 2018

Activity	Date Conducted	Comments
CAP MOWING (MINIMUM OF TWICE PER YEAR)		
	March 2018-Sept 2018	Site is mowed on a 2 week cycle by Parks Department - during growing season
CAP REPAIR (AS NEEDED)		
ASPHALT REPAIR (AS NEEDED)		
STORMWATER SYSTEM CLEANOUT / REPAIR (AS NEEDED)		
OTHER		

Personnel Conducting Monitoring BD Ambient Air Temp: _____ Date: _____

Location ID	Date	Time	CH4 (%)	CO2 (%)	O2 (%)	Sample Recording Length (sec.)	Static Pressure (in.)	Comments
WALFGP11	10/11/2018	1020	14	5	0	60	0.1	39 °F, feels 29 Degree F, Windy, Cloudy
WALFGP11	10/19/2018	1030	21.1	4.6	0	60	0.2	43°F , rainy,
WALFGP11	10/25/2018	900	15.5	5.1	0	60	0.01	40 °F, cold
WALFGP11	11/6/2018	1200	10.3	3.6	0.3	60	0.4	43 °F, cold, light rain
WALFGP11	11/16/2018	1008	10.4	2.9	0.3	60	0.2	39 °F, cold
WALFGP11	11/28/2018	1500	10.1	2.6	0	60	0.1	27 °F, cold
WALFGP11	12/13/2018	1123	9.5	2.3	0.3	60	0.1	37 °F, cold
WALFGP11	12/18/2018	1540	6.8	2.4	0.5	60	0	
WALFGP11	1/7/2019	1530	4.2	2.6	0.3	60	0.1	
WALFGP11								
WALFGP11								
WALFGP11								
WALFGP11								
WALFGP11								
WALFGP11								
WALFGP11								
scanning results inbusines area								
Murphys on 10/11/18@1025			0	0	20.8	120		No Inside City installed Gas monitering reading is available in premesis
Panos on 10/11/18@ 1032			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Lundery on 10/11/18@ 1040			0	0	20.8	120		
Murphys on 10/25/2018@0910			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Panos on 10/25/18@ 0920			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Lundery on 10/25/2018@0935			0	0	20.8	120		
Murphys on 11/06/18@1210			0	0	21	120		Inside City installed Gas monitering reading is 0
Panos on 11/06/18@ 1220			0	0	21	120		Inside City installed Gas monitering reading is 0
Lundery on 11/06/18@ 1230			0	0	21	120		
Murphys on 11/16/18@1012			0	0	21	120		Inside City installed Gas monitering reading is 0
Panos on 11/16/18@ 1020			0	0	21	120		Inside City installed Gas monitering reading is 0
Lundery on 11/16/18@ 1023			0	0	21	120		
Murphys on 11/28/18@1505			0	0	20.9	120		Inside City installed Gas monitering reading is 0
Panos on 11/28/18@ 1515			0	0	20.9	120		Inside City installed Gas monitering reading is 0
Lundery on 11/28/18@ 1520			0	0	21	120		
Murphys on 12/13/18/18@1120			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Panos on 12/13/18@ 1128			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Lundery on 12/13/18@ 1132			0	0	20.6	120		
Murphys on 12/18/2018@1543			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Panos on 12/18/18@ 1548			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Laundery on 12/18/18/@1552			0	0	20.8	120		
Murphys on 01/07/2019@1533			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Panos on 01/07/2019@1538			0	0	20.8	120		Inside City installed Gas monitering reading is 0
Laundery on 01/07/2019@1544			0	0	20.6	120		

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 - Hydaulic 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, dimensionsless)

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 (lenth/time)

The following calcualation uses September 2018 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.

$K := 0.000741 \ \frac{cm}{s}$
$h2 := 831.39 \ ft$
$h1 := 815 \ ft$
$l2 := 775 \ ft$
$l1 := 0 \ ft$
$n := .2$

Output:

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

Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2 - h1))}{(l2 - l1)}}{n} = 0.222 \ \frac{ft}{day}$

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 - Hydaulic 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, dimensionsless)

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 (lenth/time)

The following calcualation uses September 2018 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.

$K := 0.0025\ \frac{cm}{}$
$h2 := 848.55\ ft$
$h1 := 816.77\ ft$
$l2 := 1425\ ft$
$l1 := 0\ ft$
$n := .2$

Output:

Horizontal Hydraulic Gradient $\frac{((h2-h1))}{(l2-l1)} = 0.022$

Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2-h1))}{(l2-l1)}}{n} = 0.79\ \frac{ft}{day}$

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 - Hydaulic 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, dimensionsless)

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 (lenth/time)

The following calcualation uses September 2018 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.

$K := 0.0025\ \frac{cm}{}$
$h2 := 827.27\ ft$
$h1 := 812.8\ ft$
$l2 := 720\ ft$
$l1 := 0\ ft$
$n := .2$

Output:

Horizontal Hydraulic Gradient $\frac{((h2-h1))}{(l2-l1)} = 0.02$

Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2-h1))}{(l2-l1)}}{n} = 0.712\ \frac{ft}{day}$

Client:Waukesha WI
Project: Waukesha East Avenue Landfill
Prepared by: HLH
Checked by:

Scope ID: 19W013
Date: 2/21/19
Date:

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 - Hydaulic 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, dimensionsless)

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 (lenth/time)

The following calcualation uses September 2018 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.

$K := 0.006315 \ \frac{cm}{s}$
$h2 := 826.46 \ ft$
$h1 := 812.26 \ ft$
$l2 := 950 \ ft$
$l1 := 0 \ ft$
$n := .3$

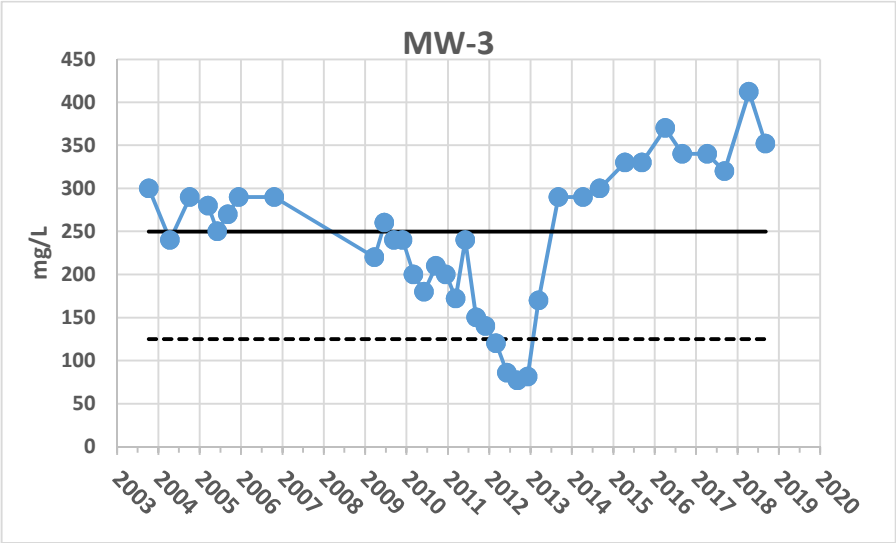
Output:

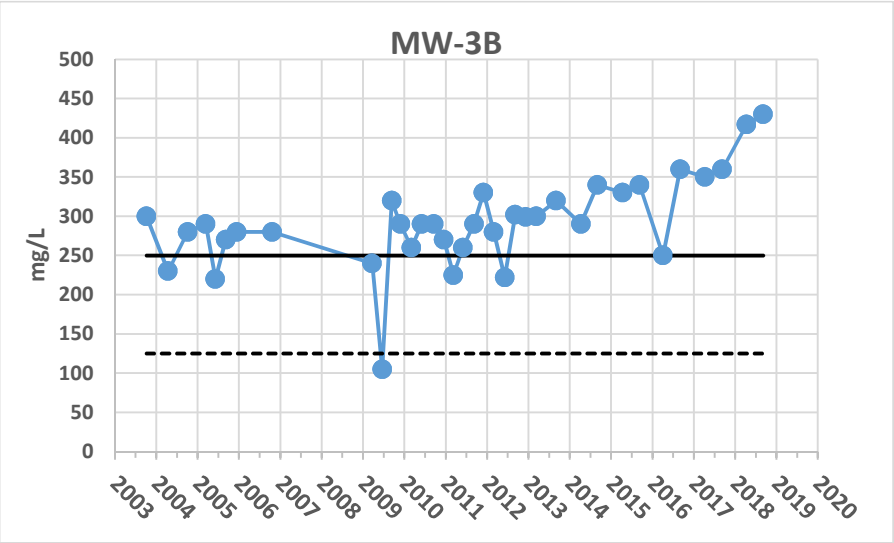
Horizontal Hydraulic Gradient $\frac{((h2-h1))}{(l2-l1)} = 0.015$

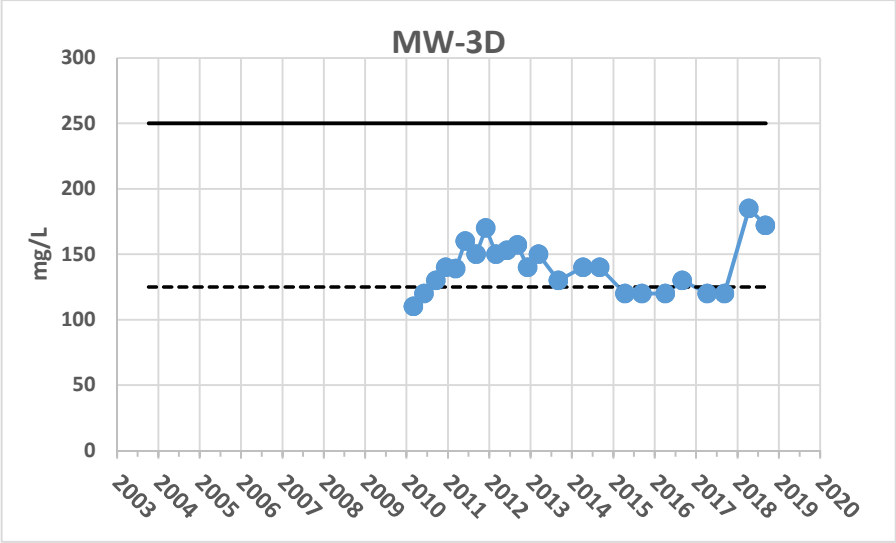
Seepage Velocity (Average Linear Flow Velocity) $(K) \cdot \frac{\frac{((h2-h1))}{(l2-l1)}}{n} = 0.892 \ \frac{ft}{day}$

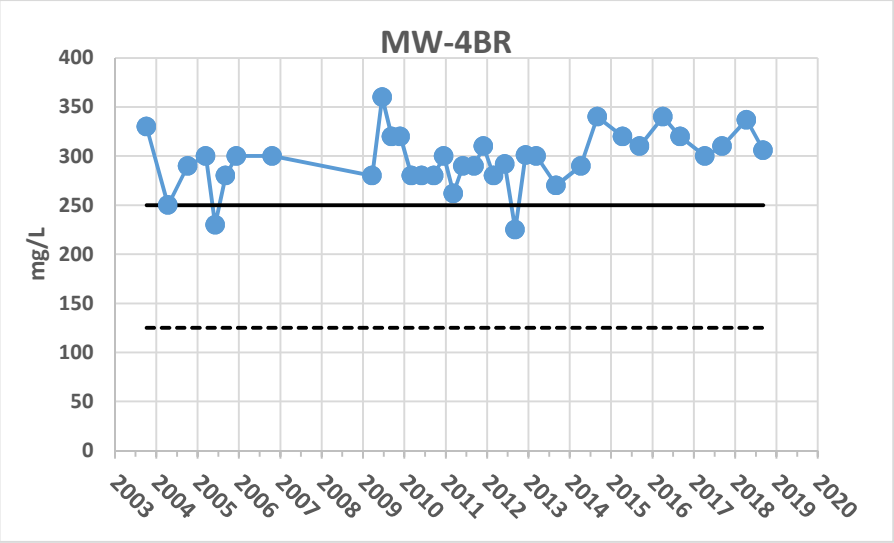
Appendix C

Statistical and Trend Analysis









Legend

Nondetects — Detects

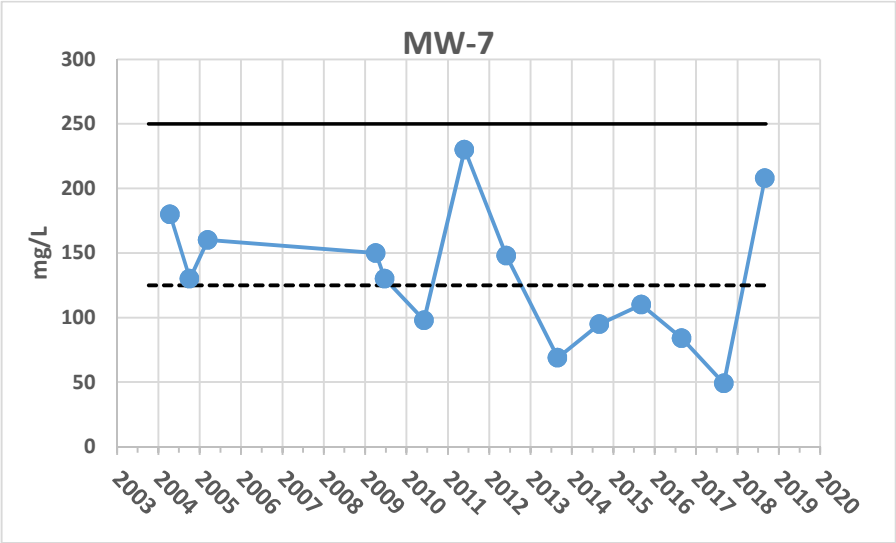
NR140 PAL — NR140 ES

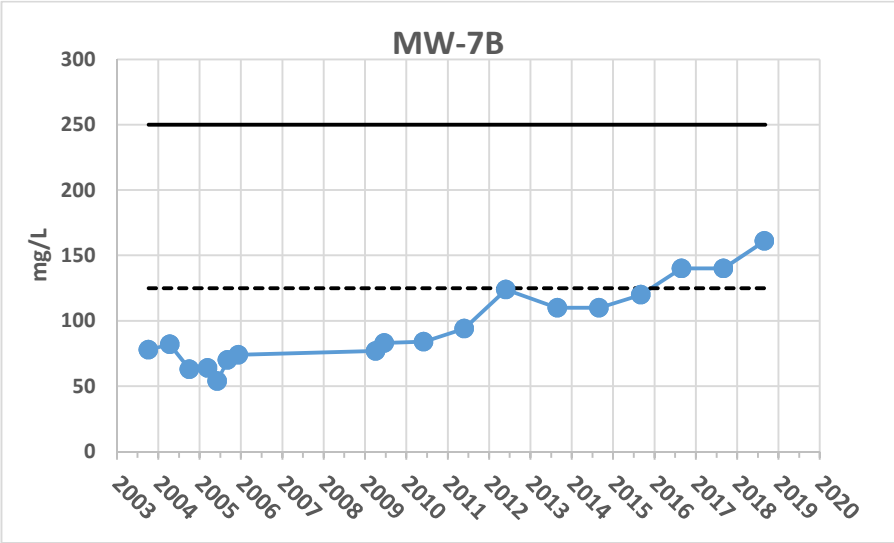
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

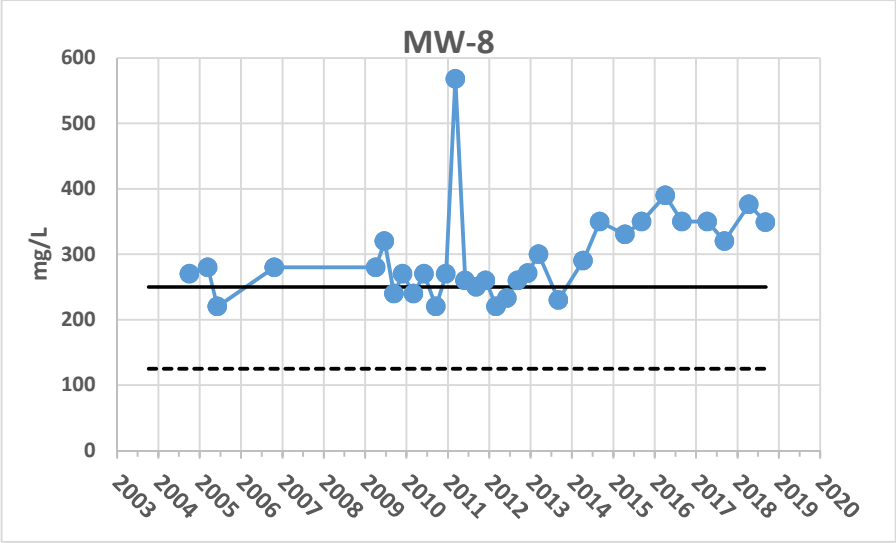
Foth

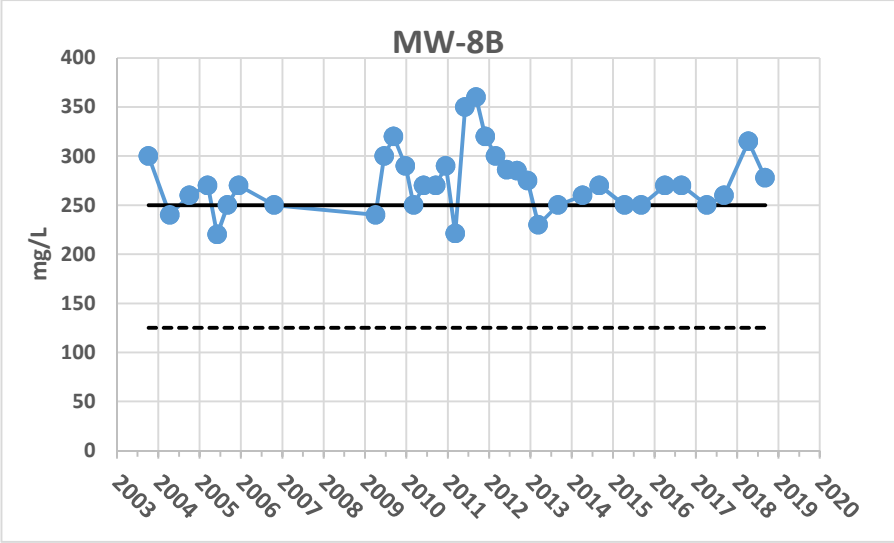
WEST AVENUE LANDFILL		
FIGURE 1A HISTORICAL TREND GRAPHS CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx









Legend

Nondetects — Detects

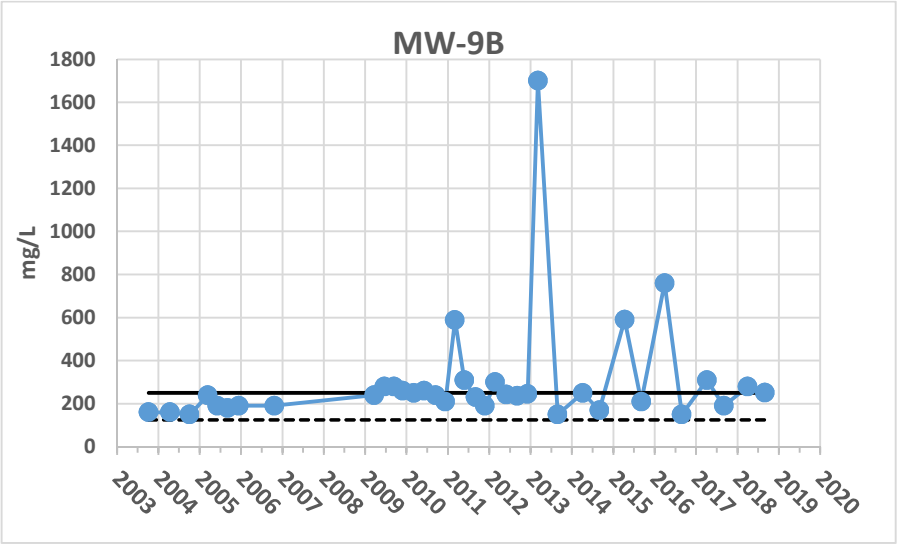
NR140 PAL — NR140 ES

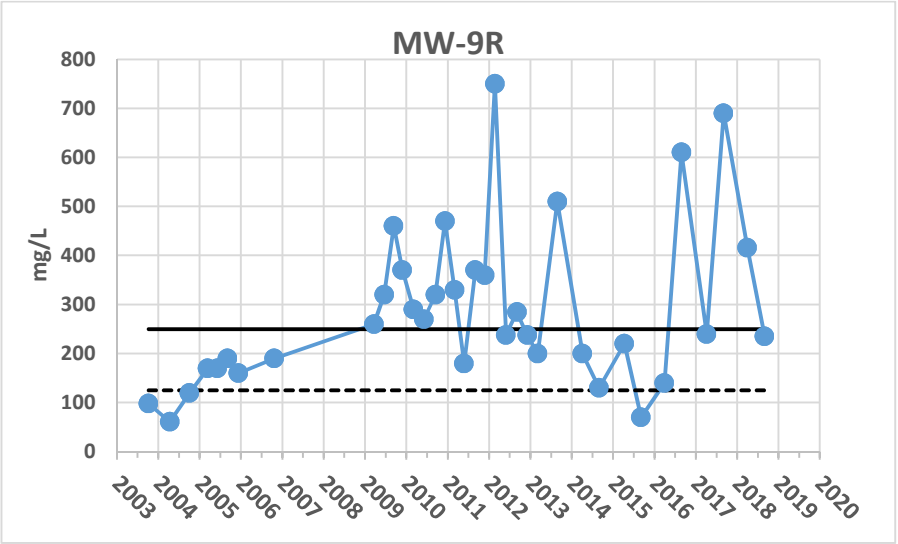
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

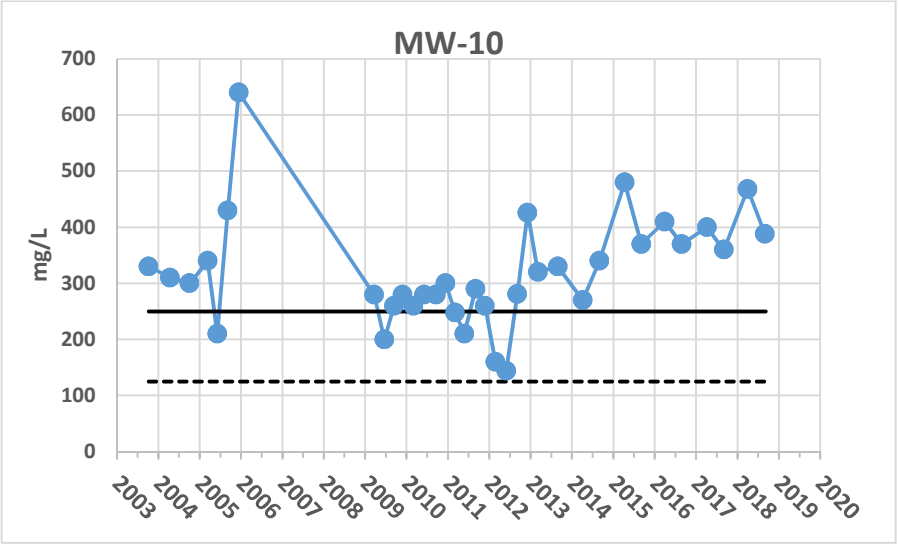
Foth

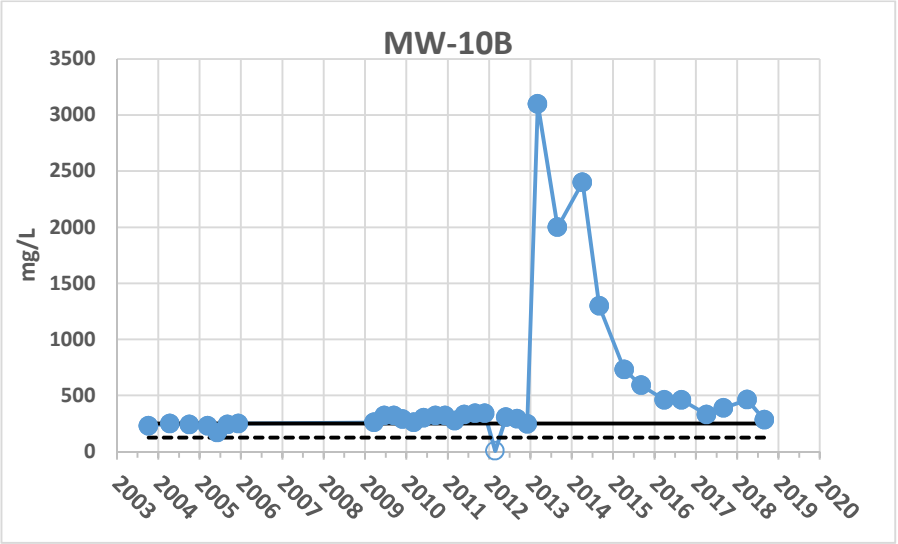
WEST AVENUE LANDFILL		
FIGURE 1B HISTORICAL TREND GRAPHS CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx









Legend

Nondetects — Detects

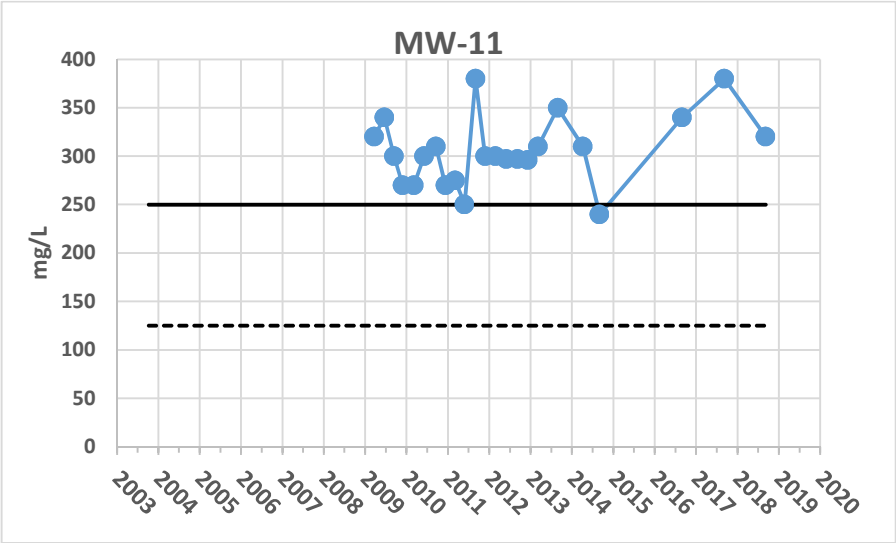
NR140 PAL — NR140 ES

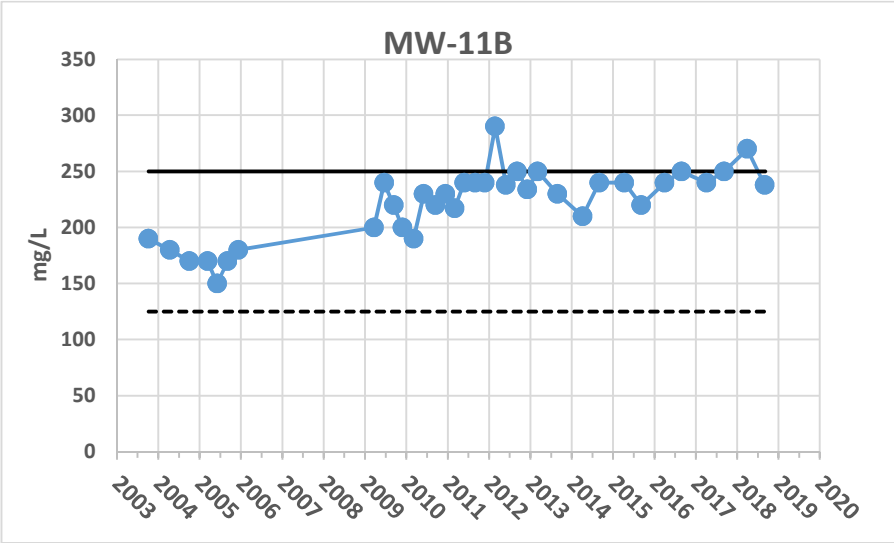
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

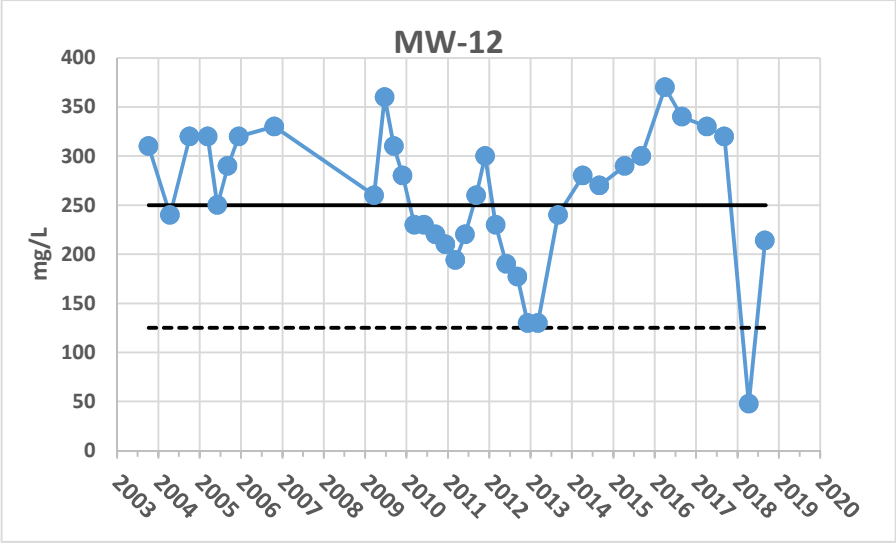
Foth

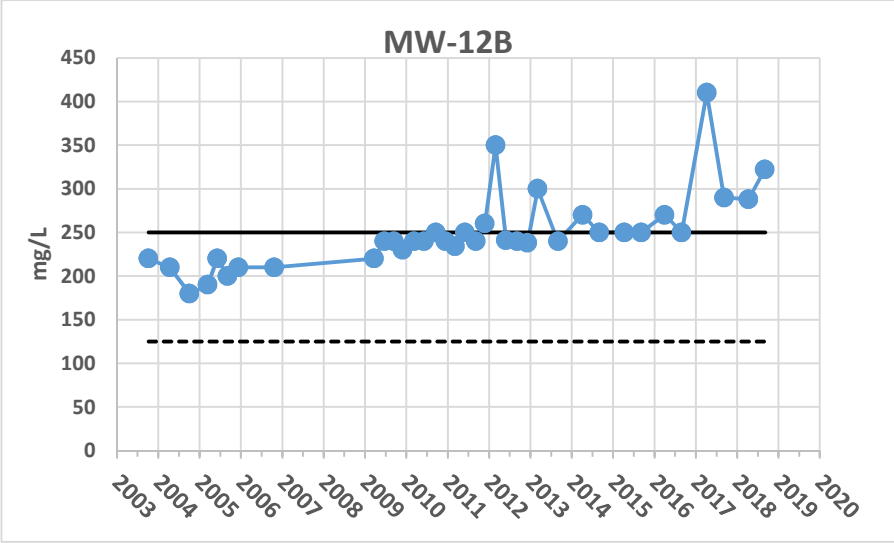
WEST AVENUE LANDFILL		
FIGURE 1C HISTORICAL TREND GRAPHS CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx









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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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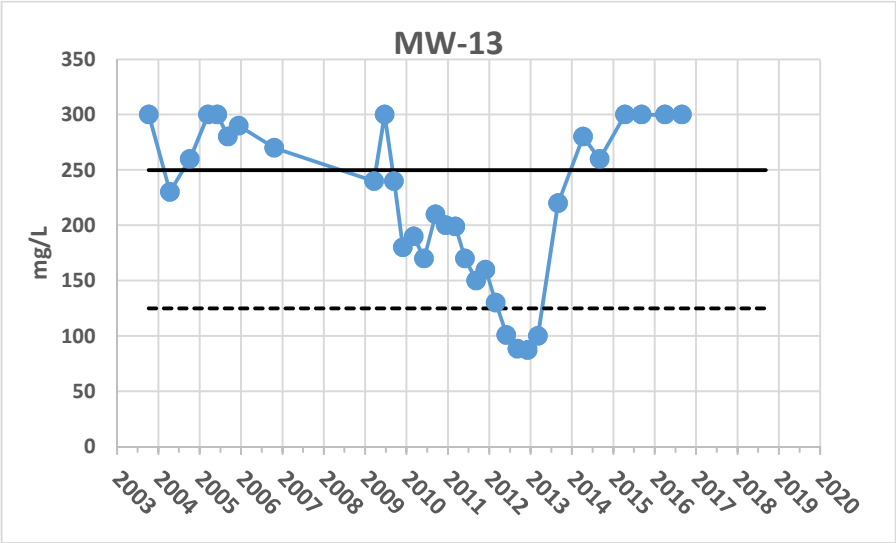

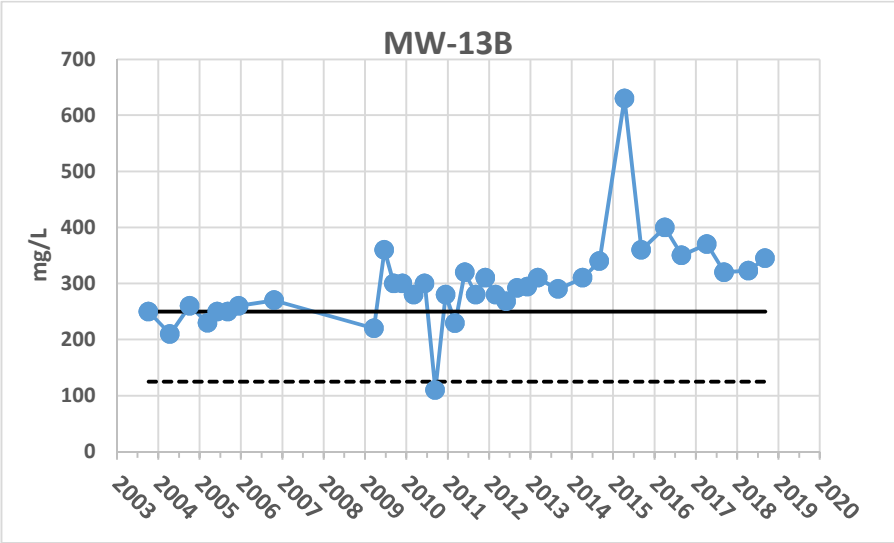

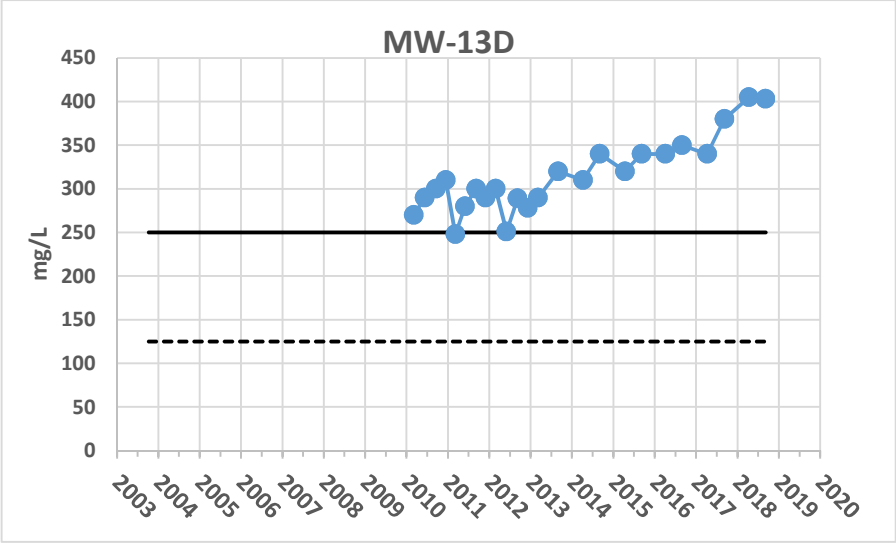

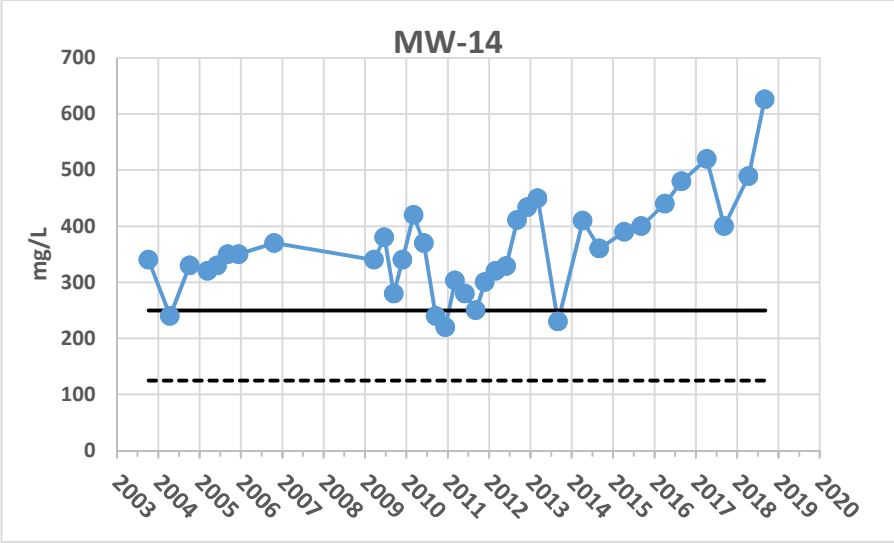

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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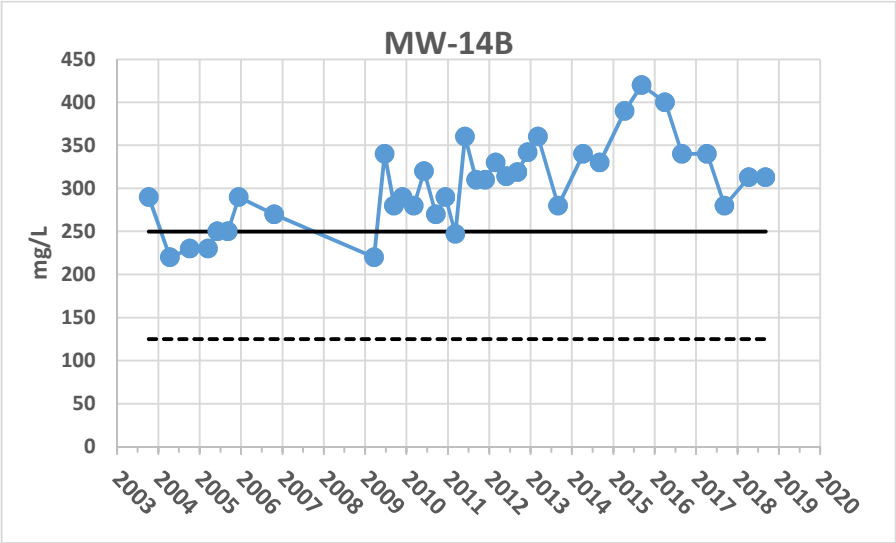

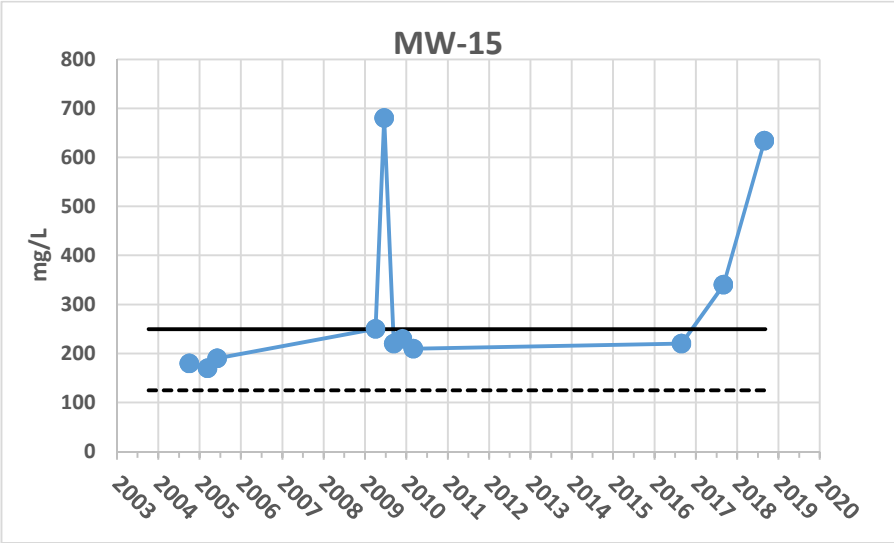

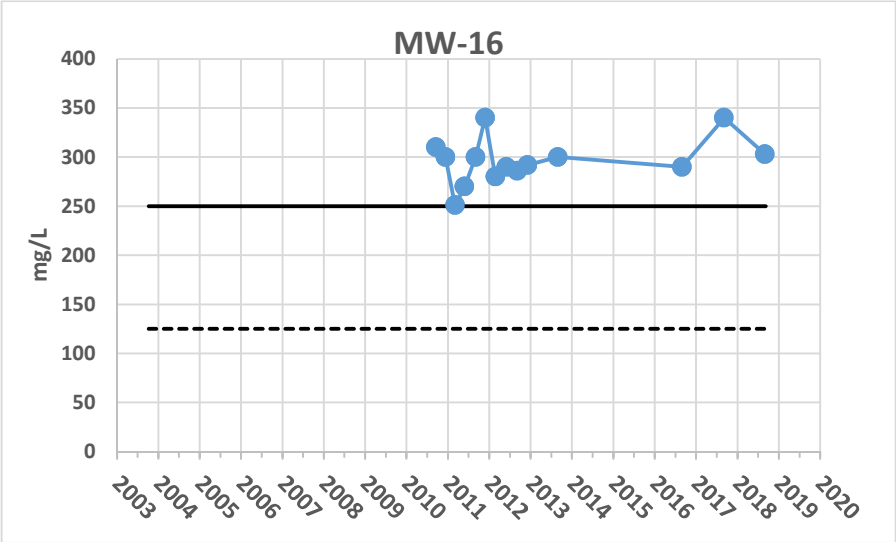

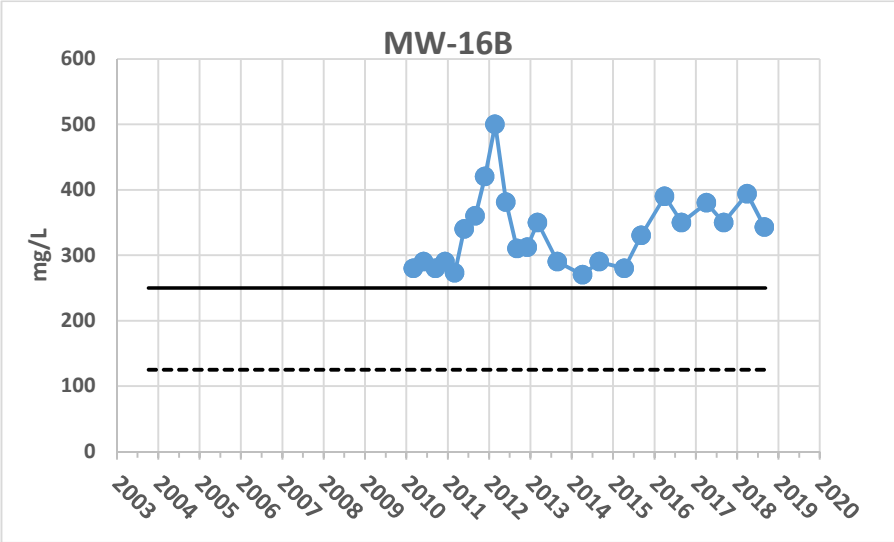

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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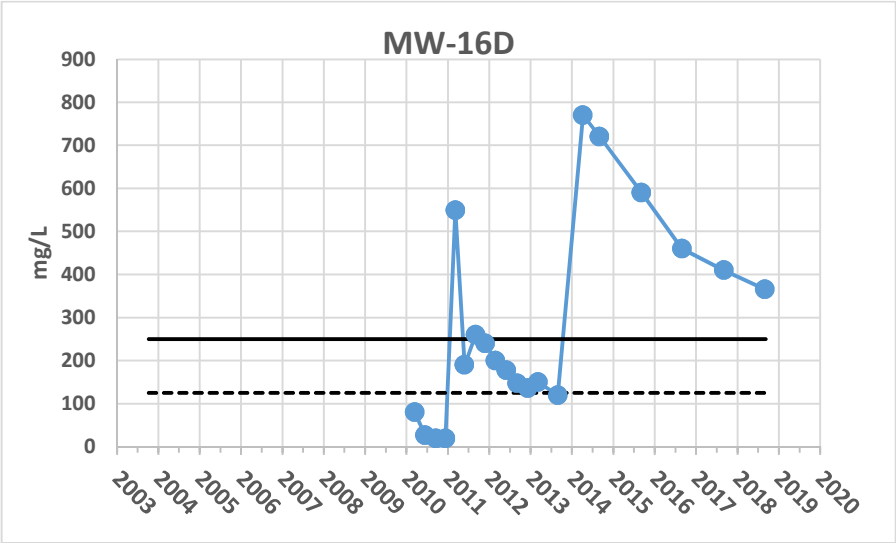

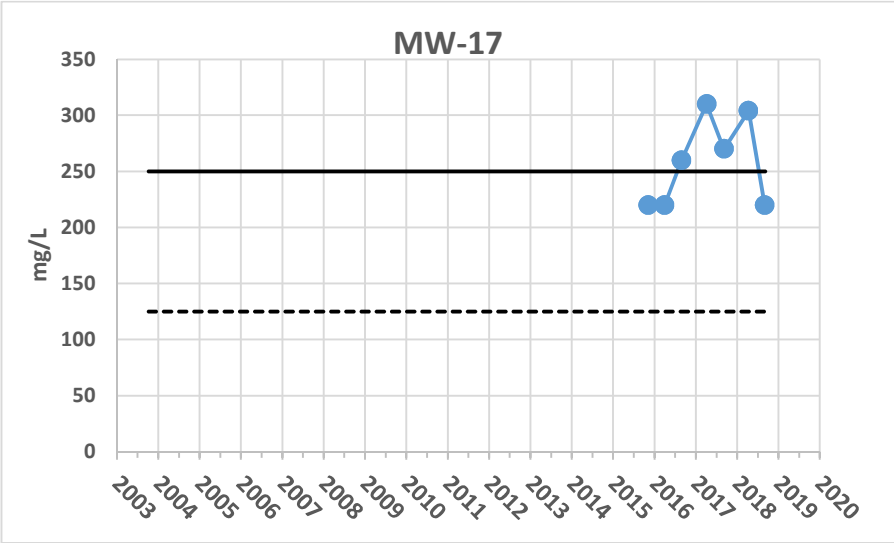

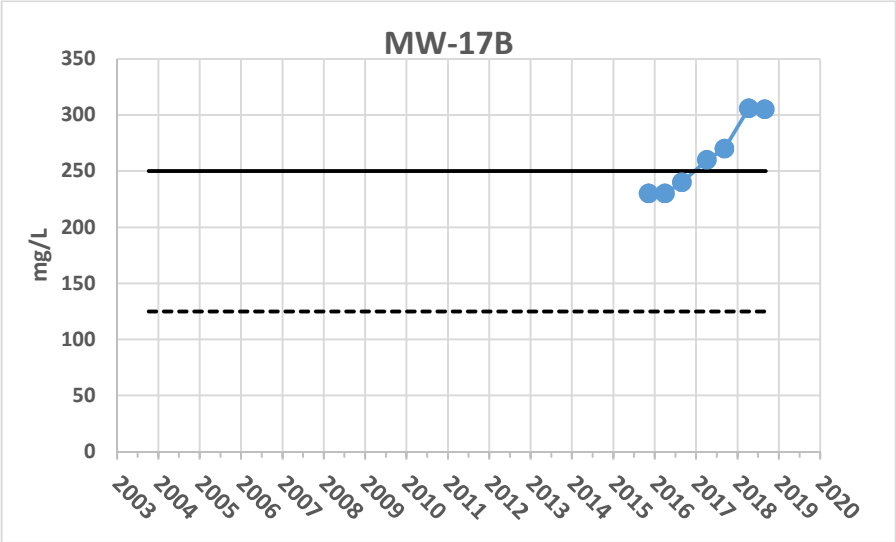

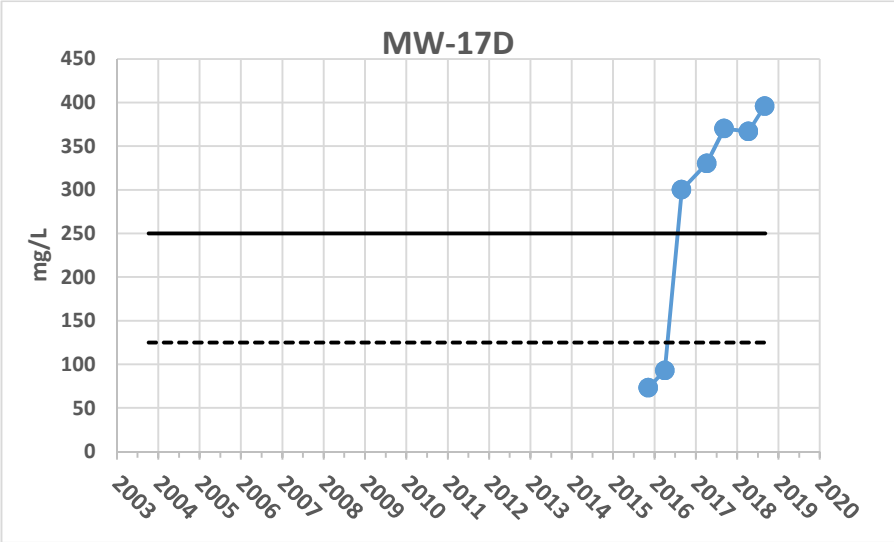

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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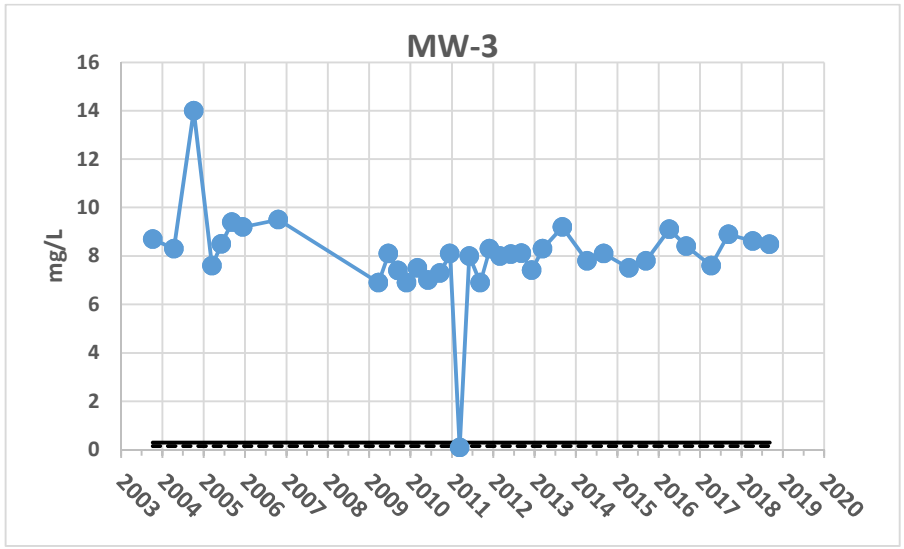

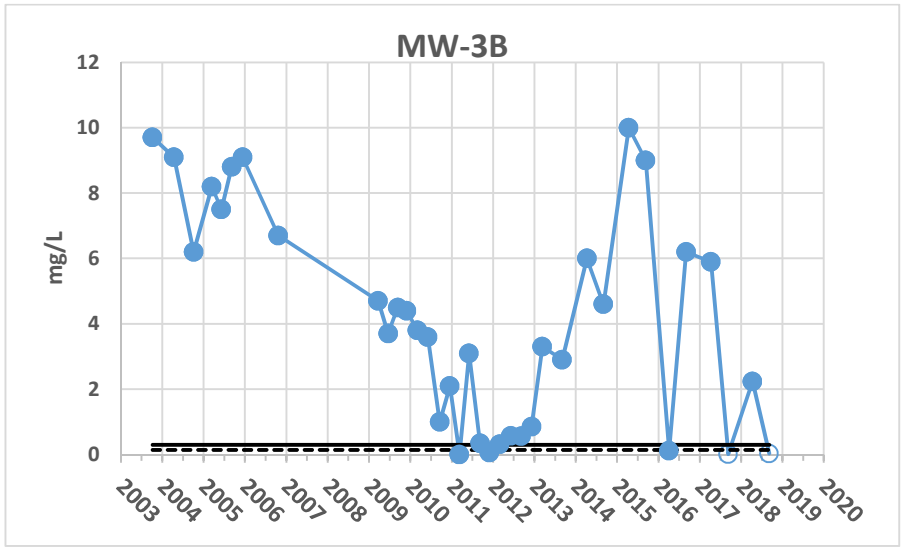

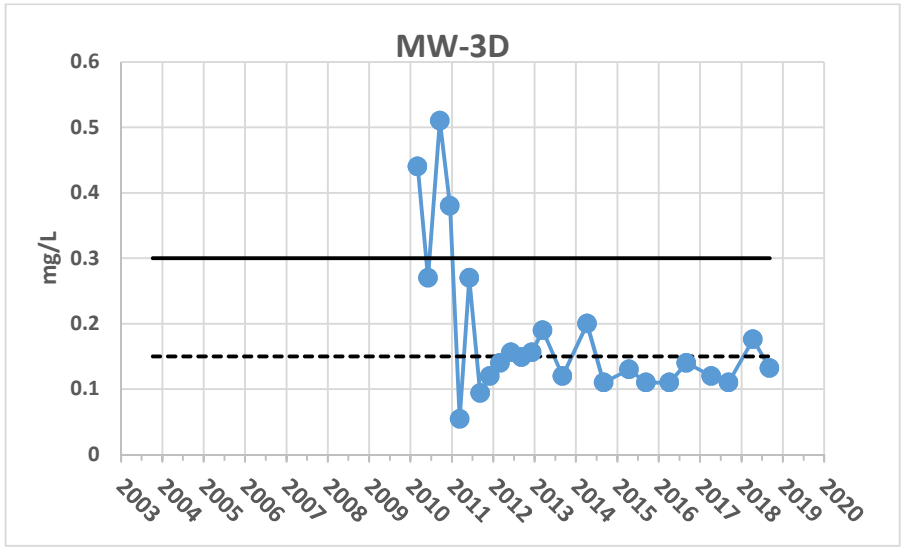

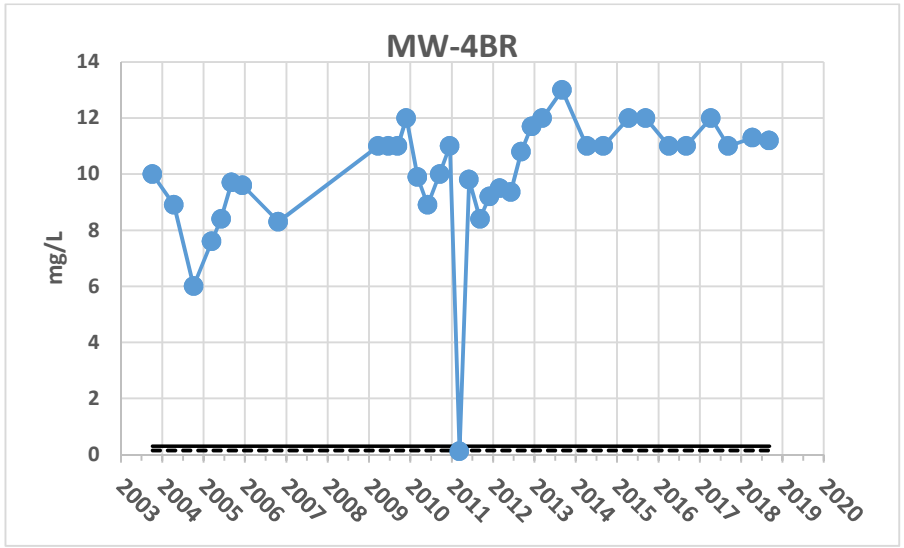

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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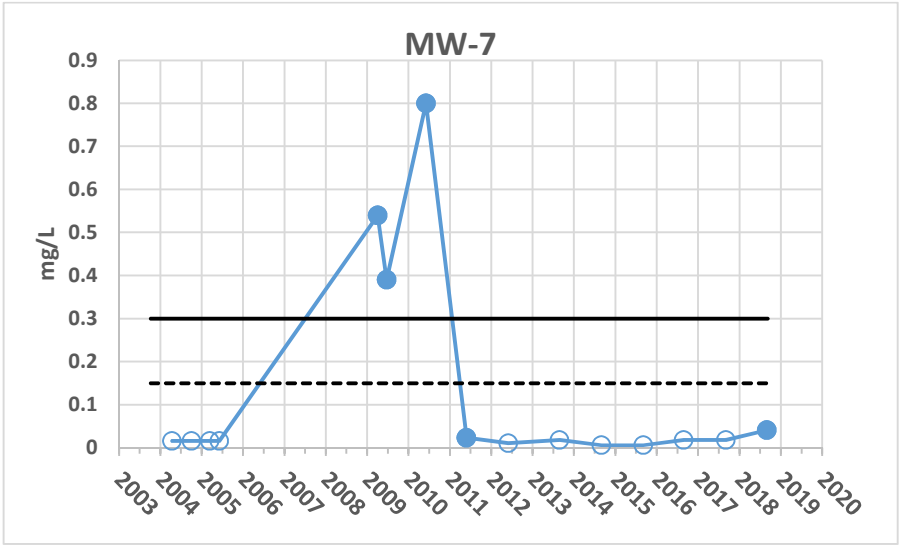

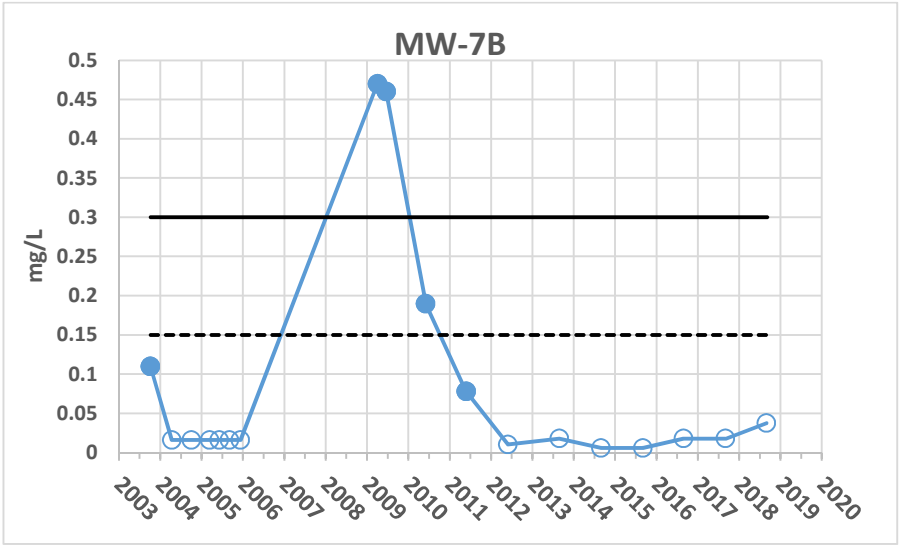

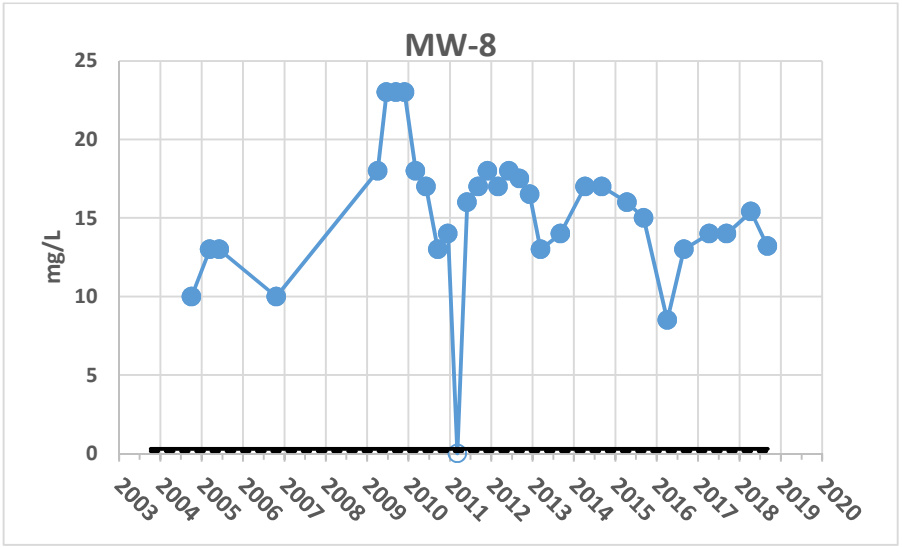

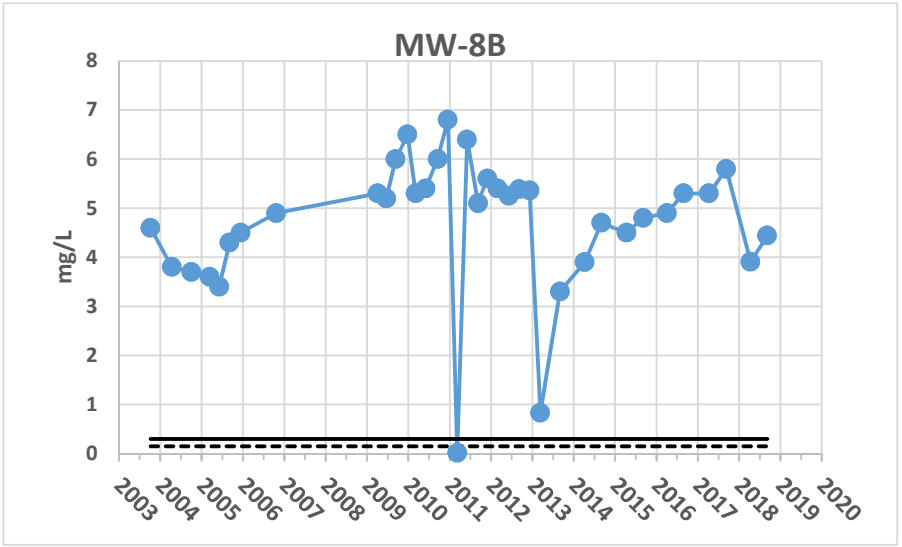

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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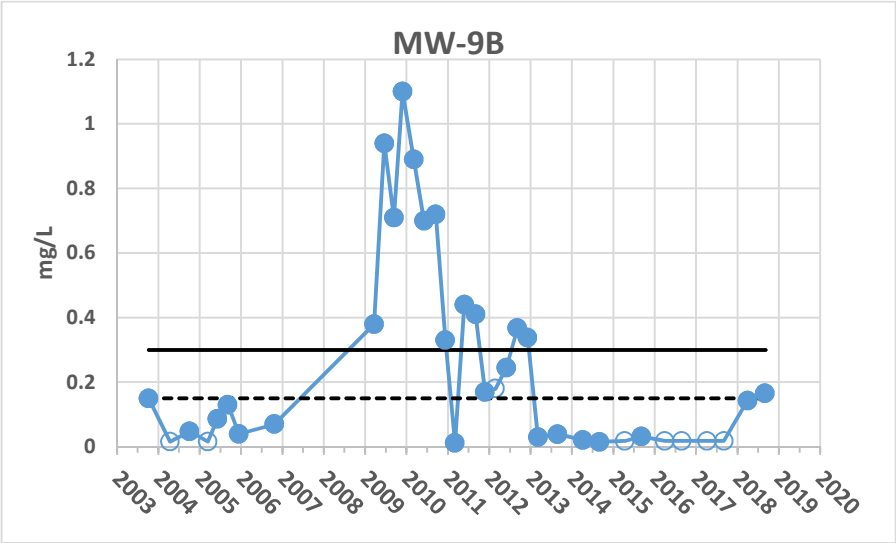

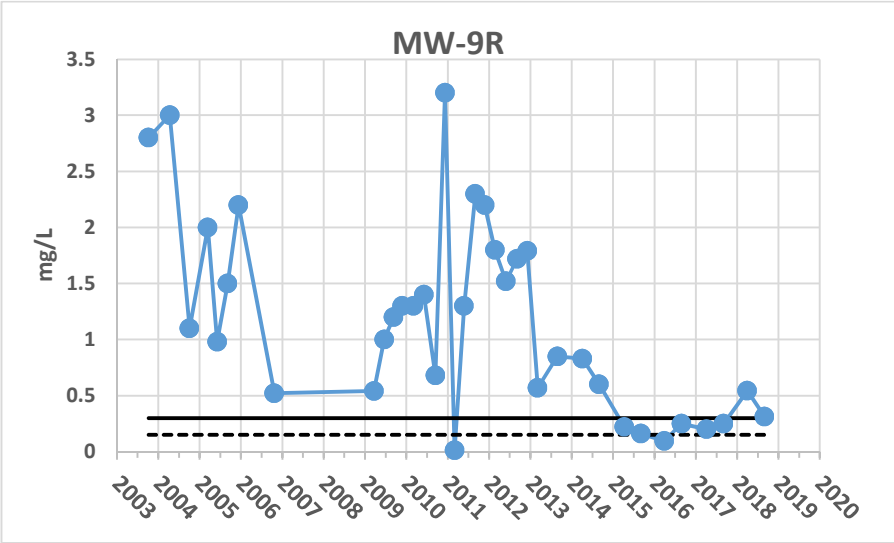

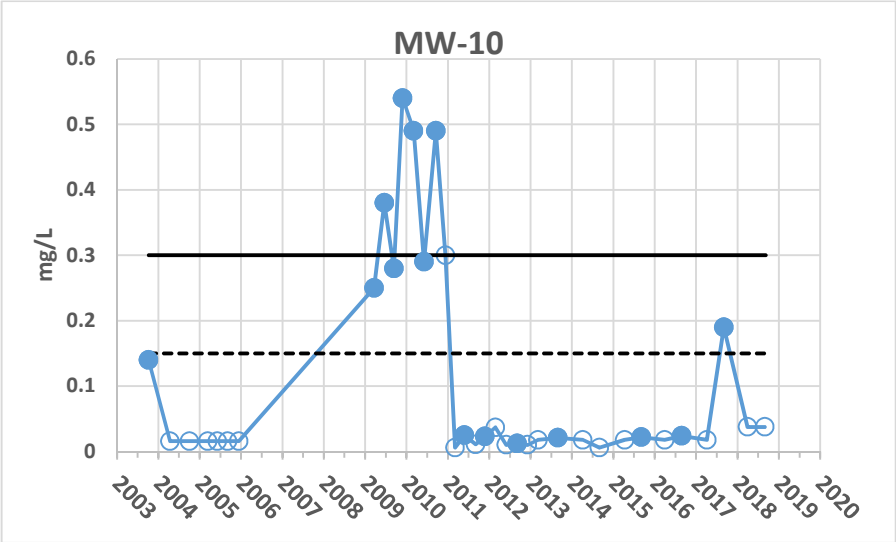

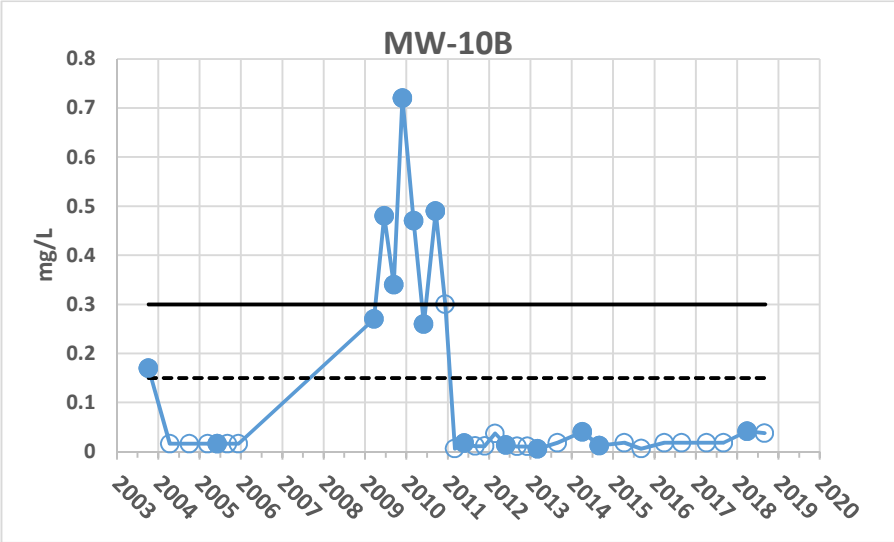

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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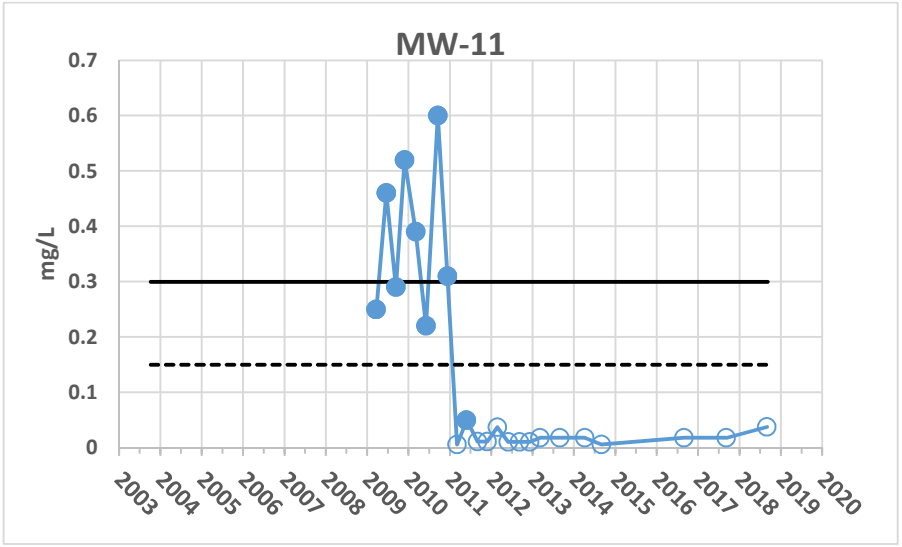

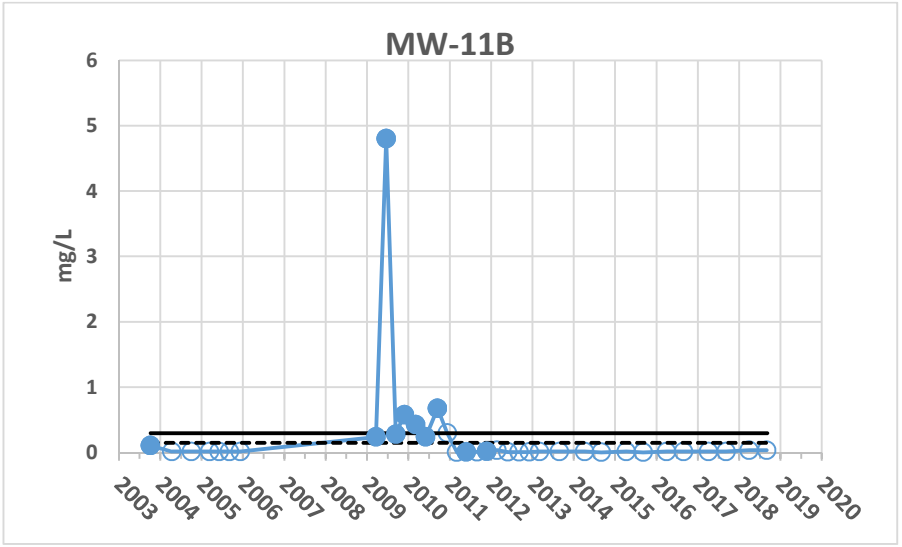

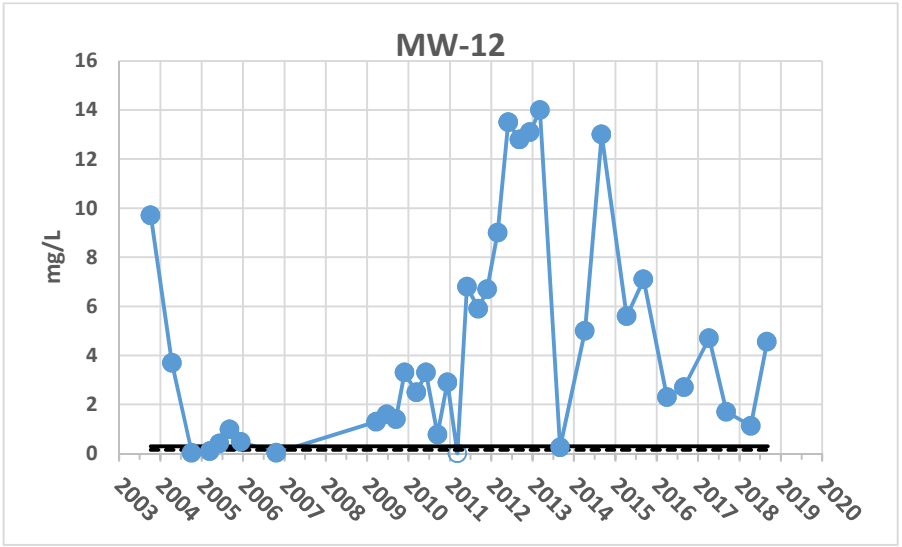

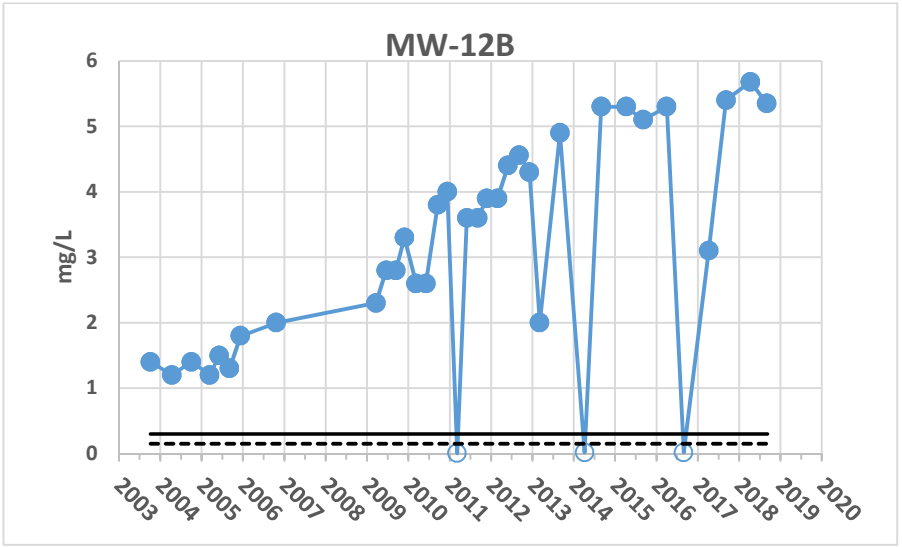

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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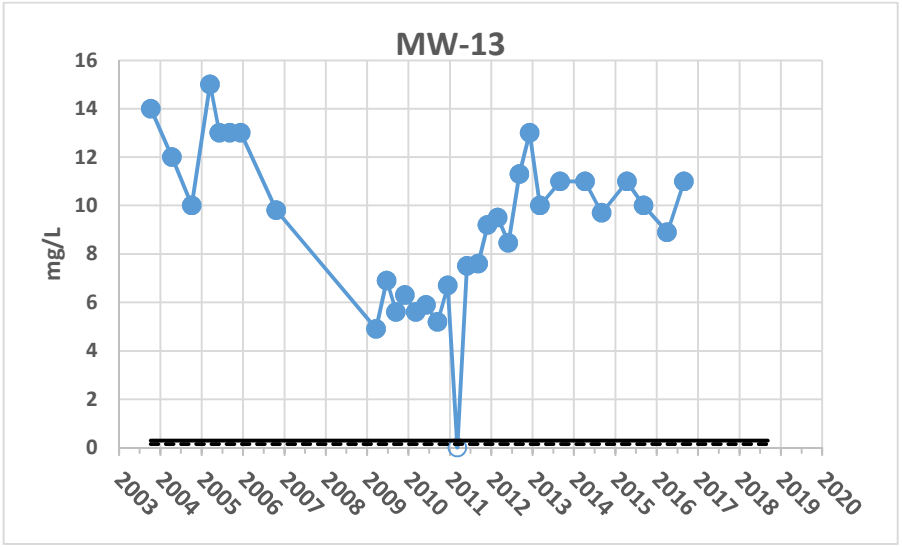

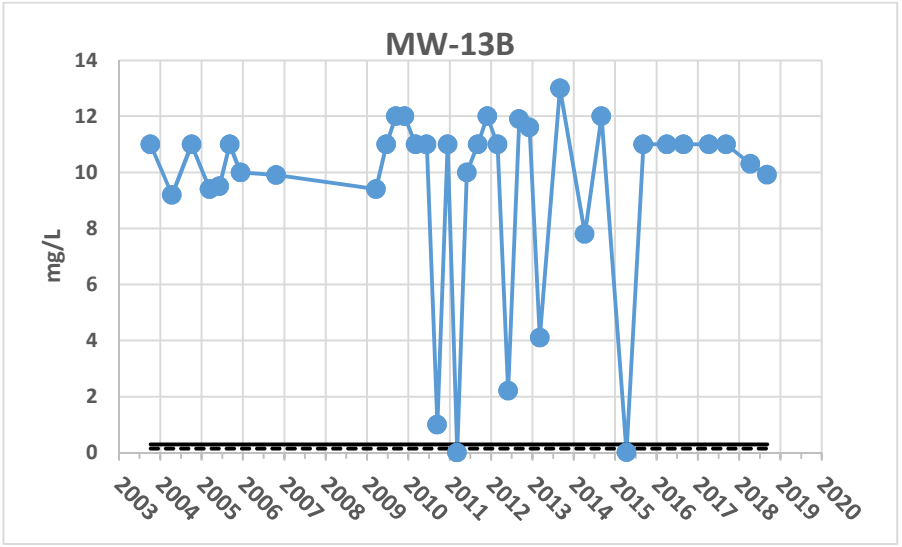

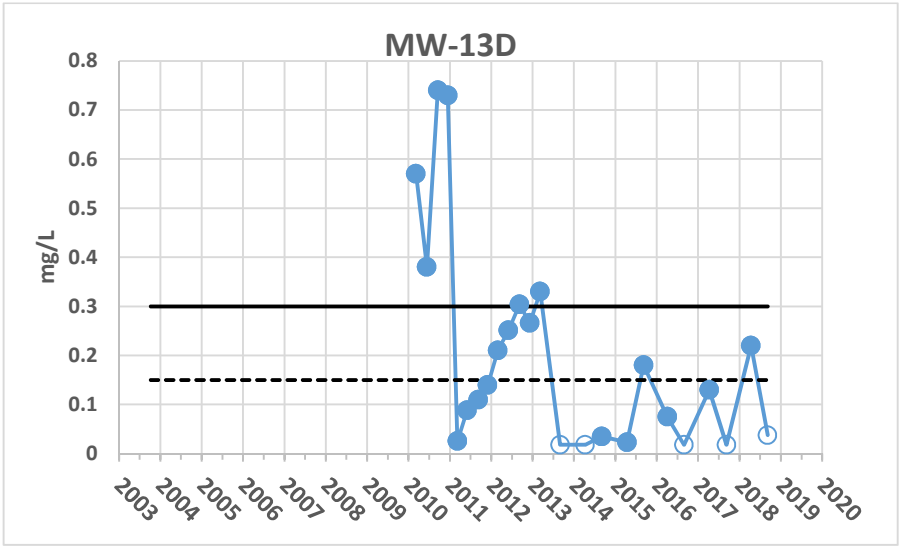

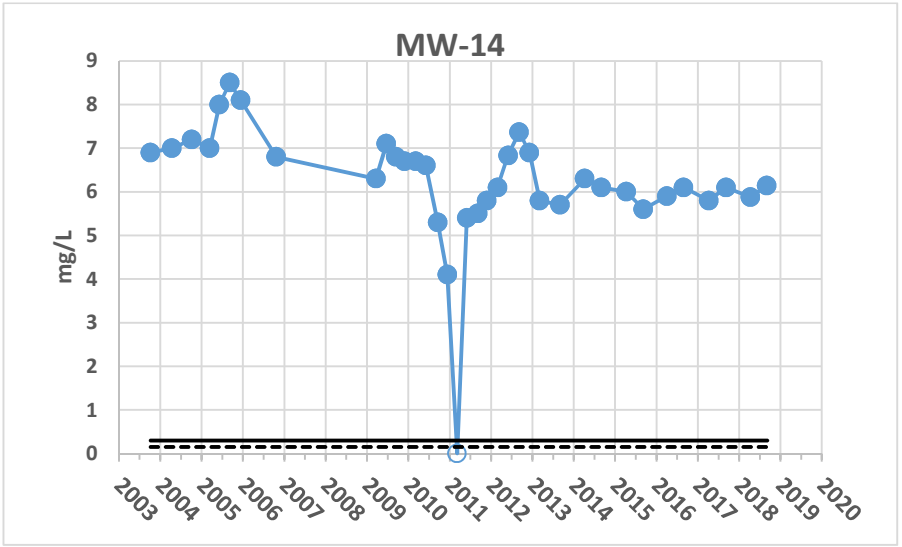

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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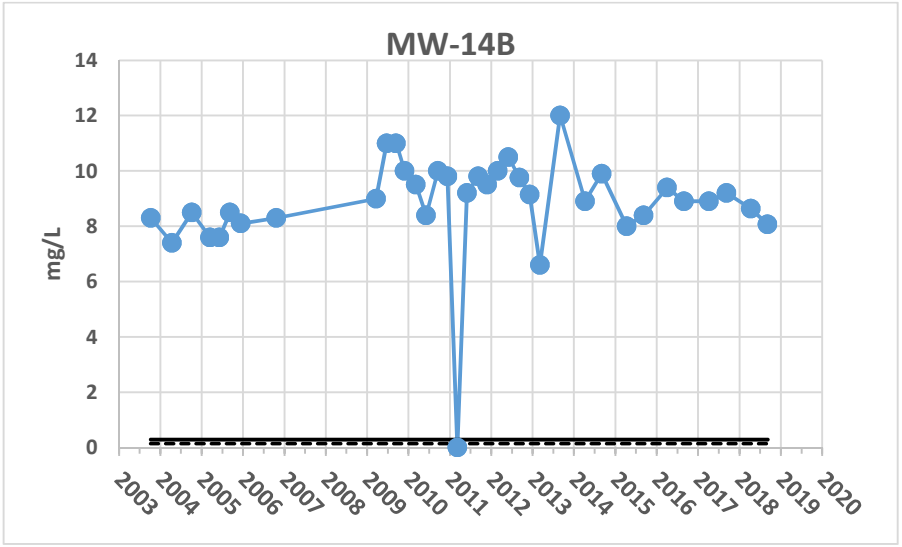

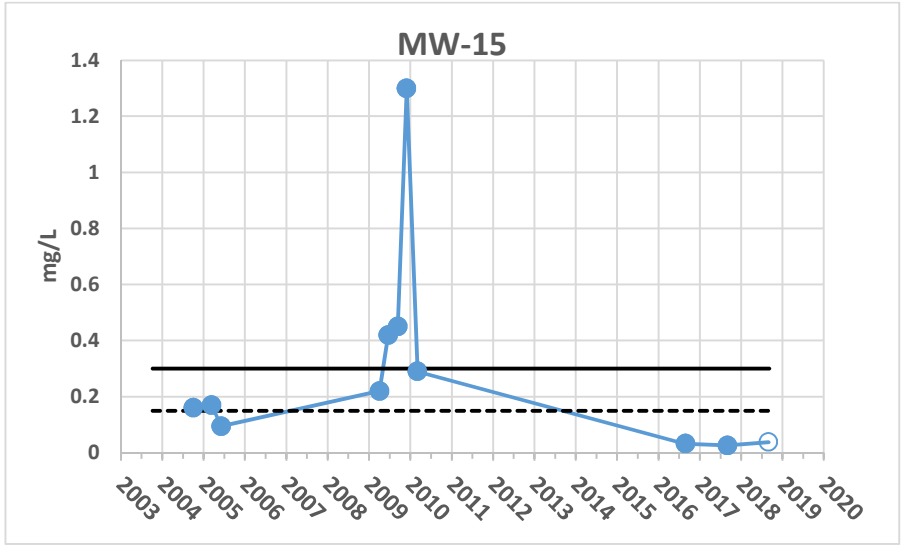

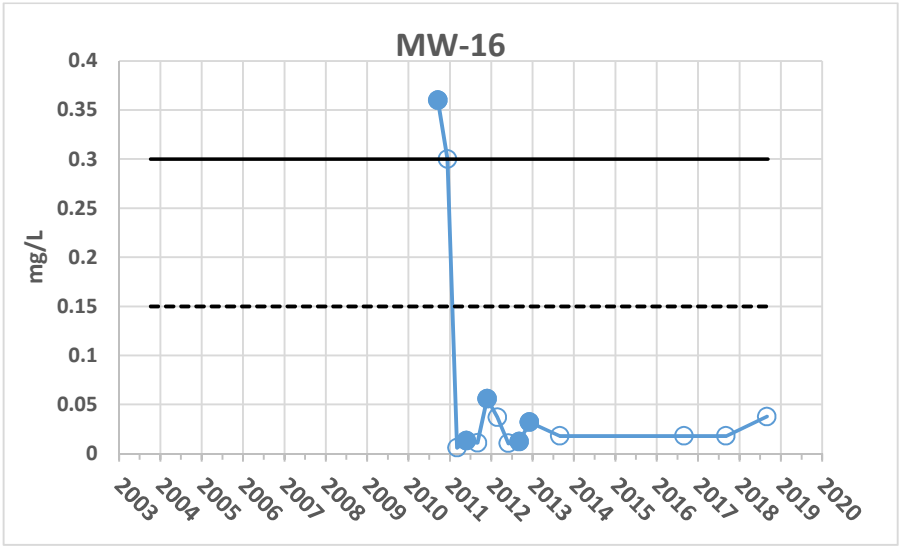

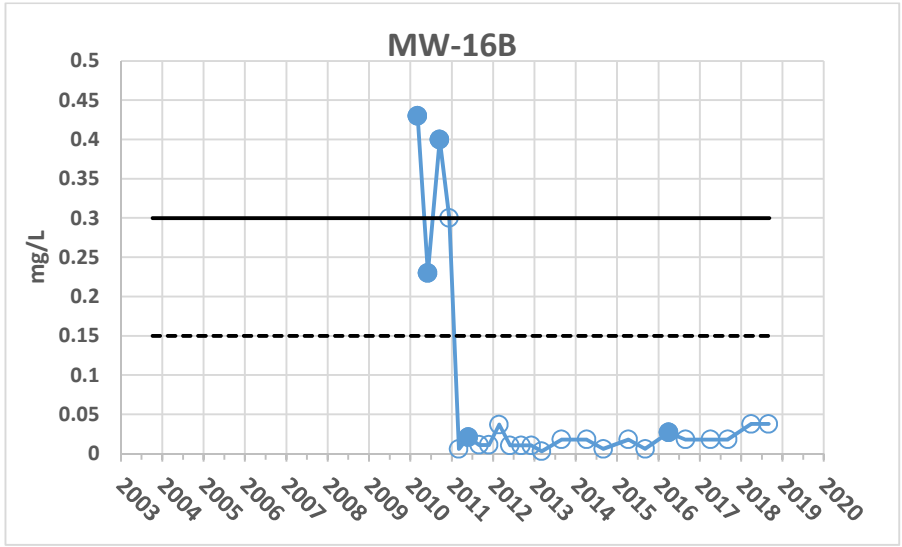

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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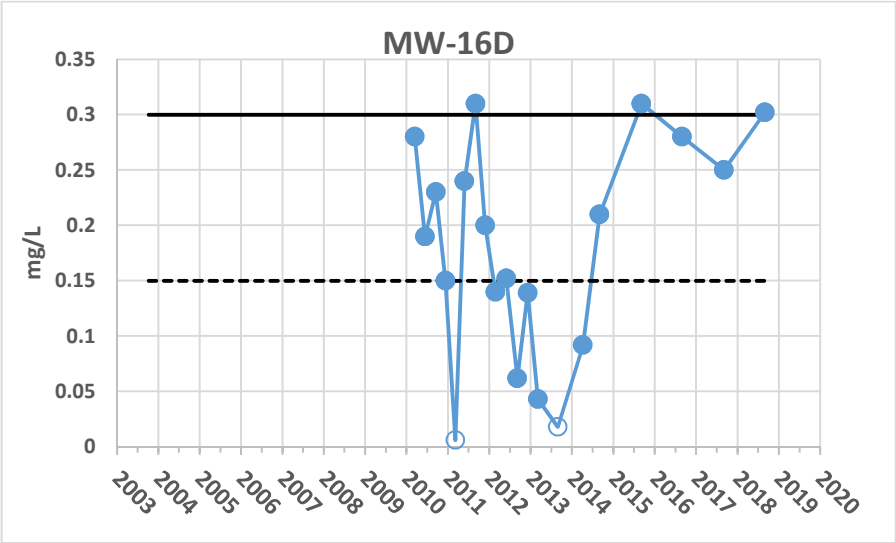

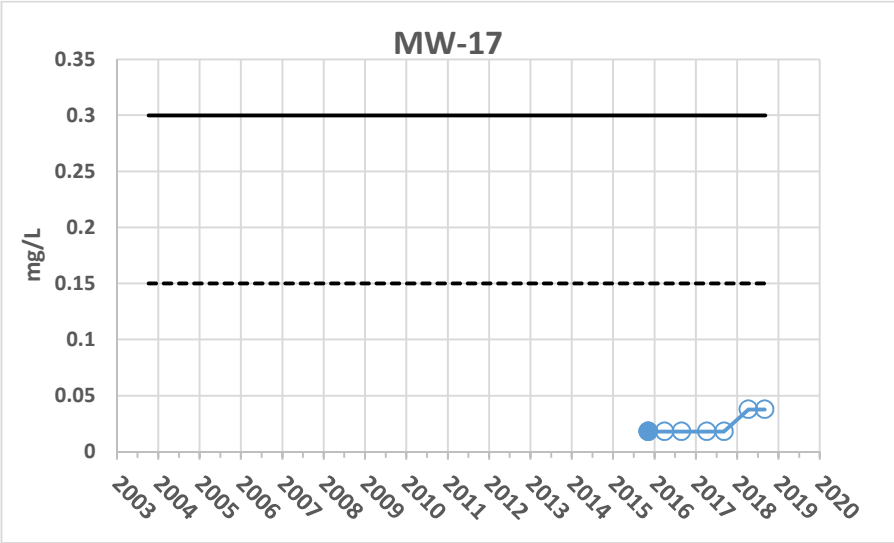

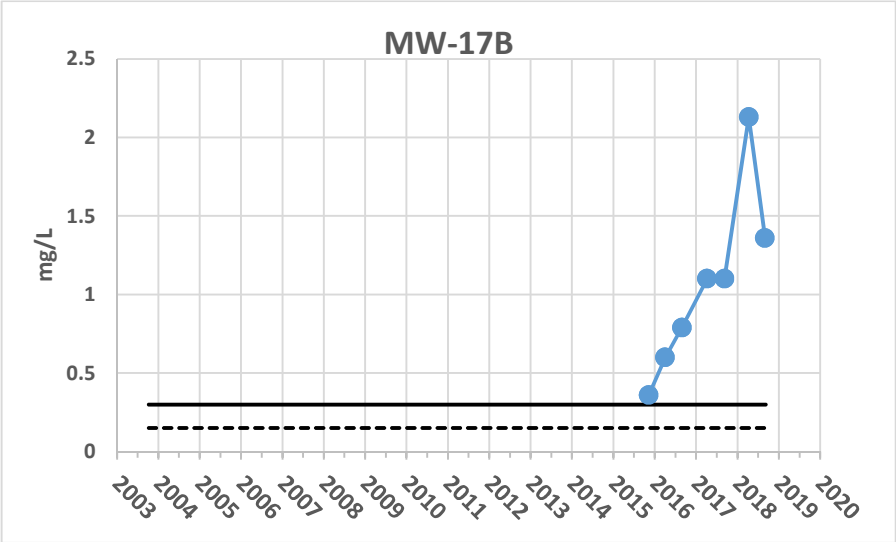

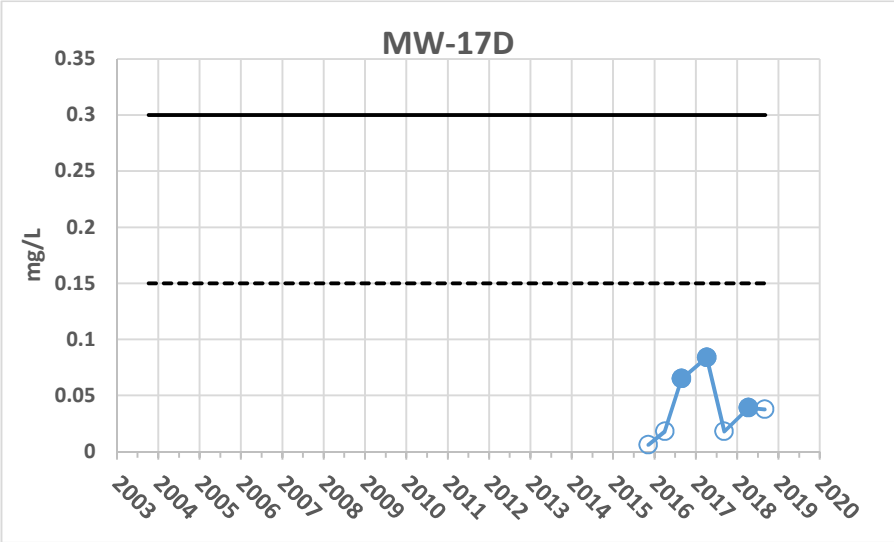

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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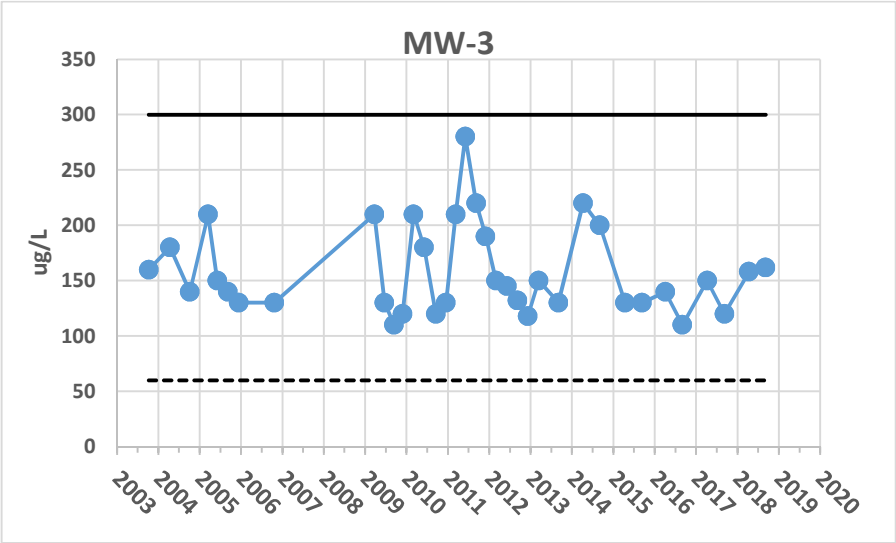
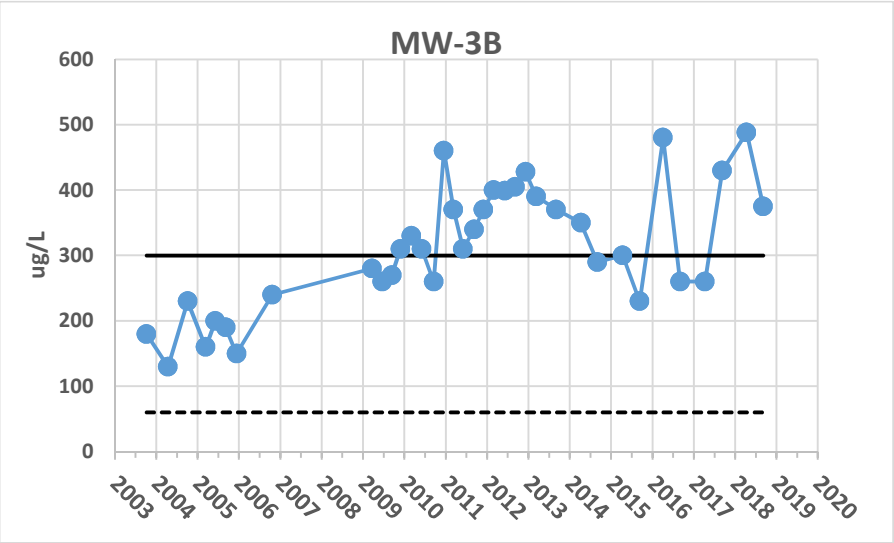
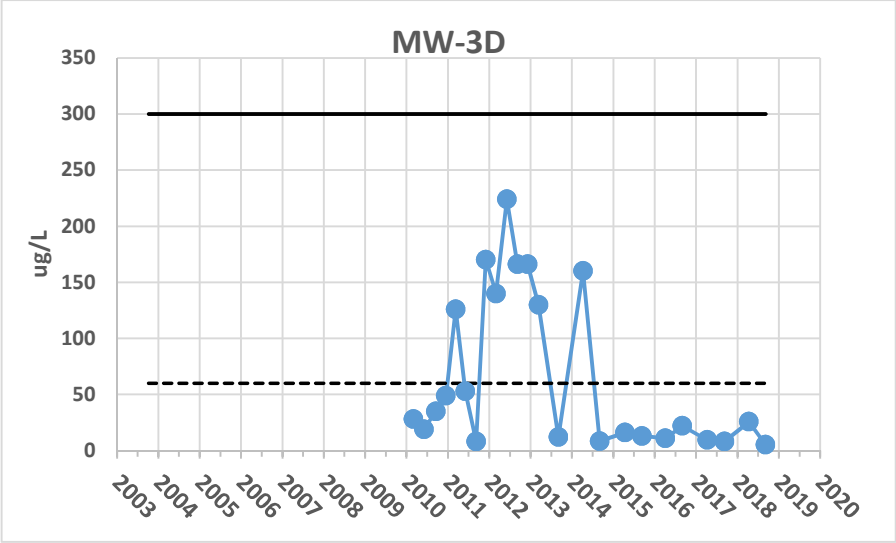
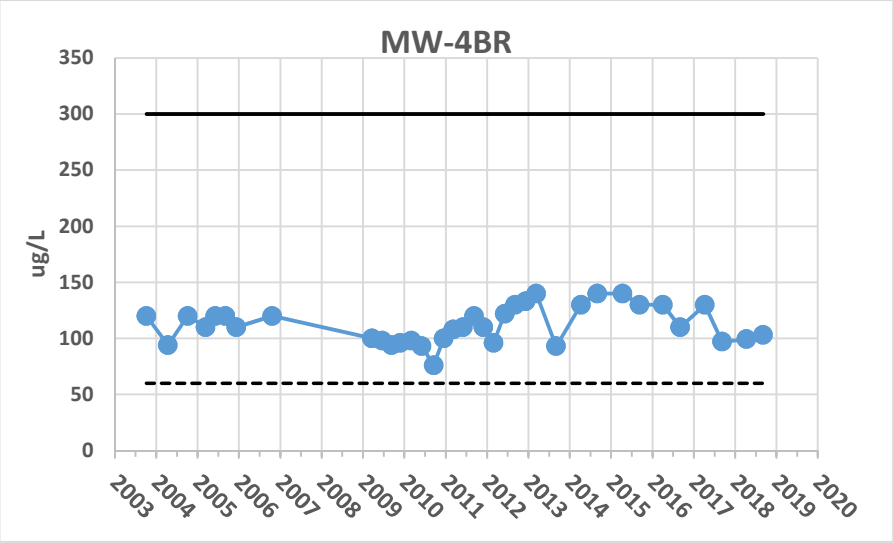








Legend

Nondetects — Detects

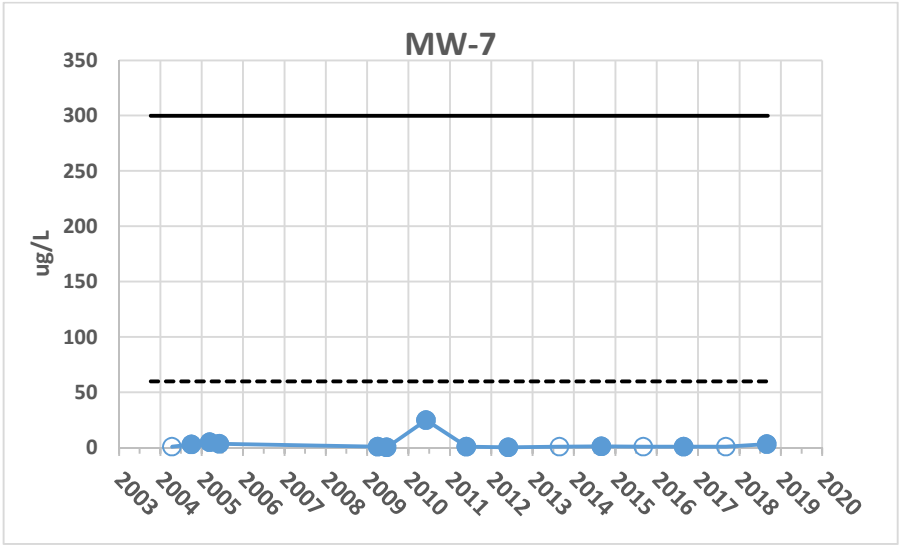
NR140 PAL — NR140 ES

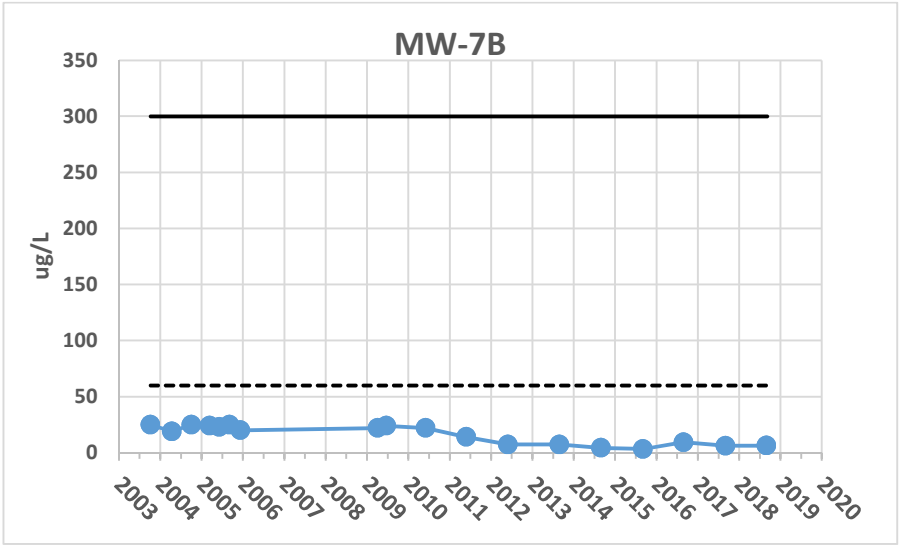
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

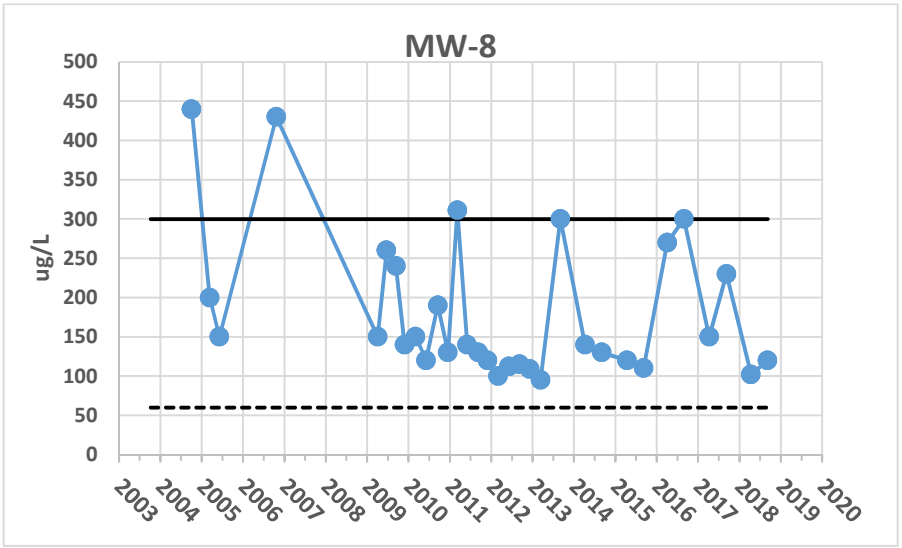
Foth

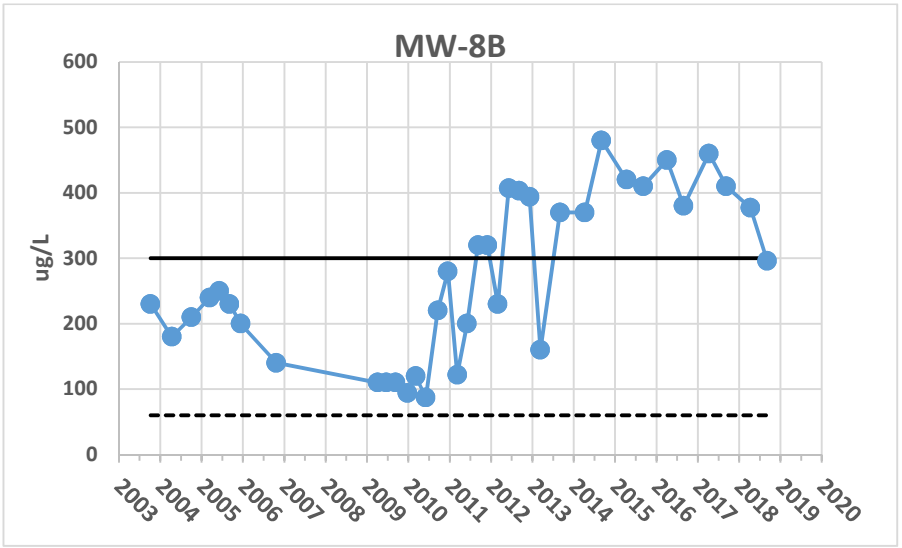
WEST AVENUE LANDFILL		
FIGURE 3A HISTORICAL TREND GRAPHS MANGANESE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx









Legend

Nondetects — Detects

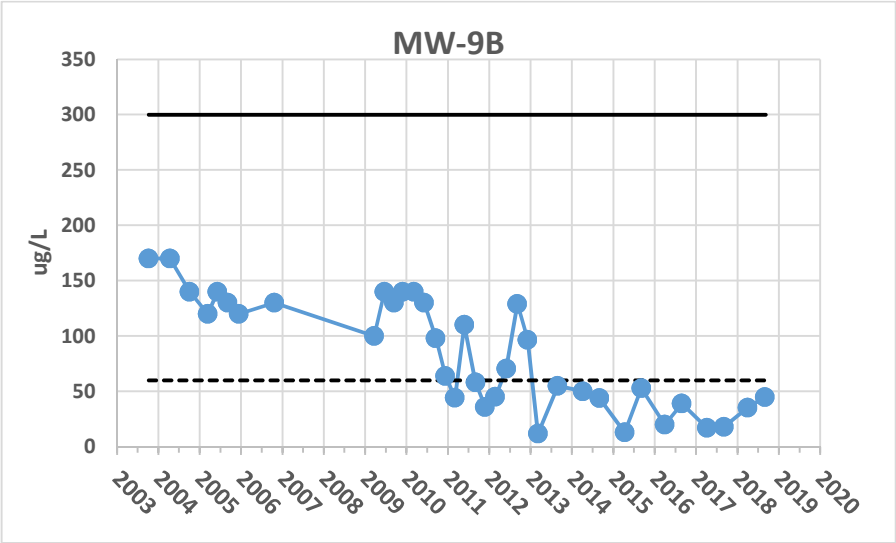
NR140 PAL — NR140 ES

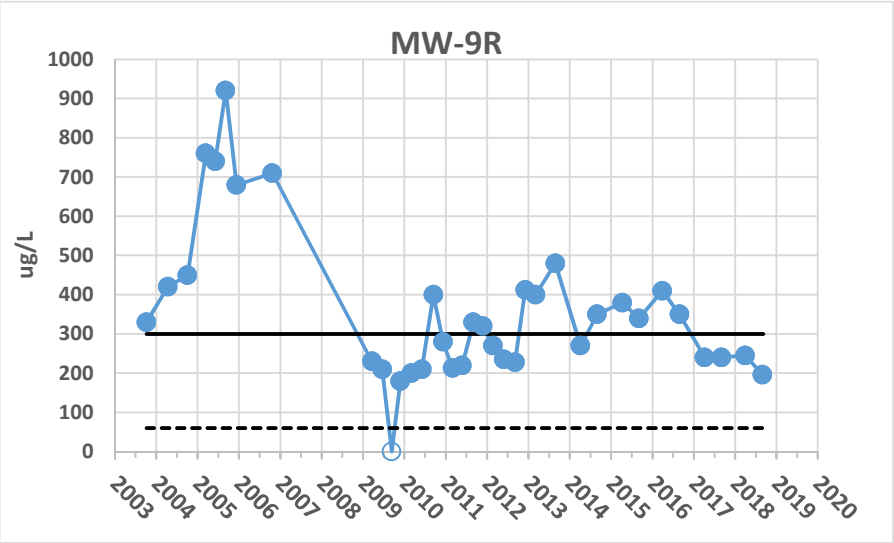
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

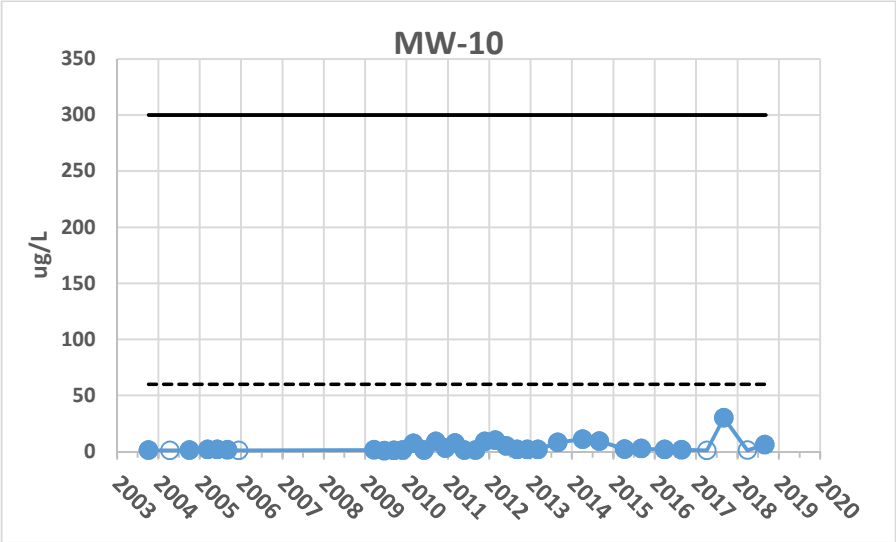
Foth

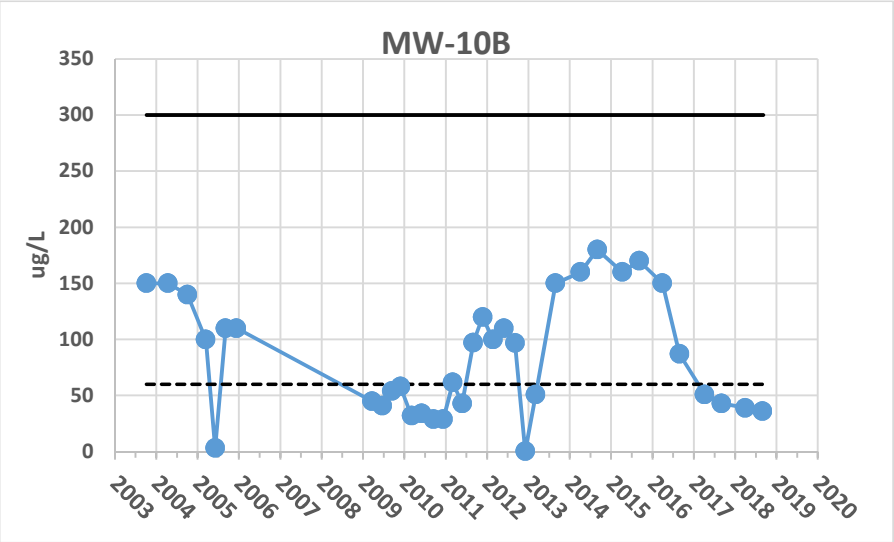
WEST AVENUE LANDFILL		
FIGURE 3B HISTORICAL TREND GRAPHS MANGANESE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx









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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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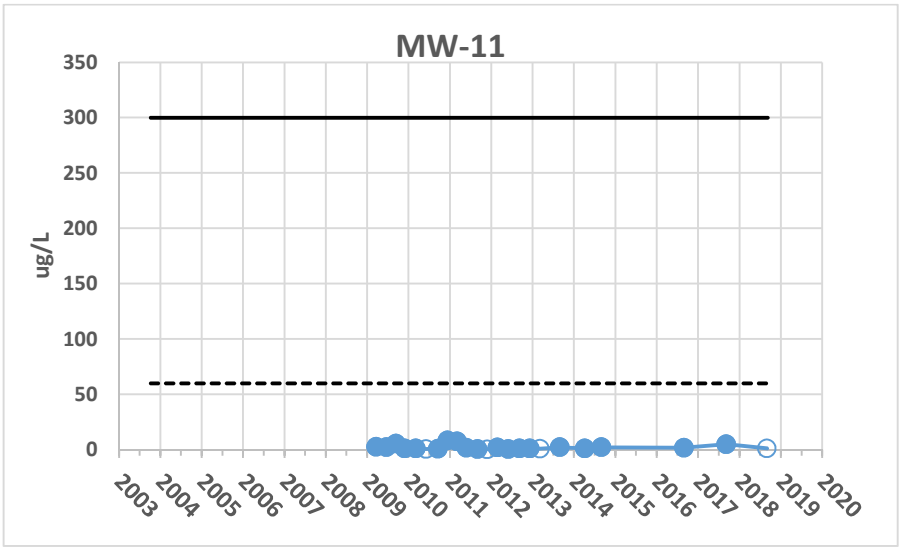

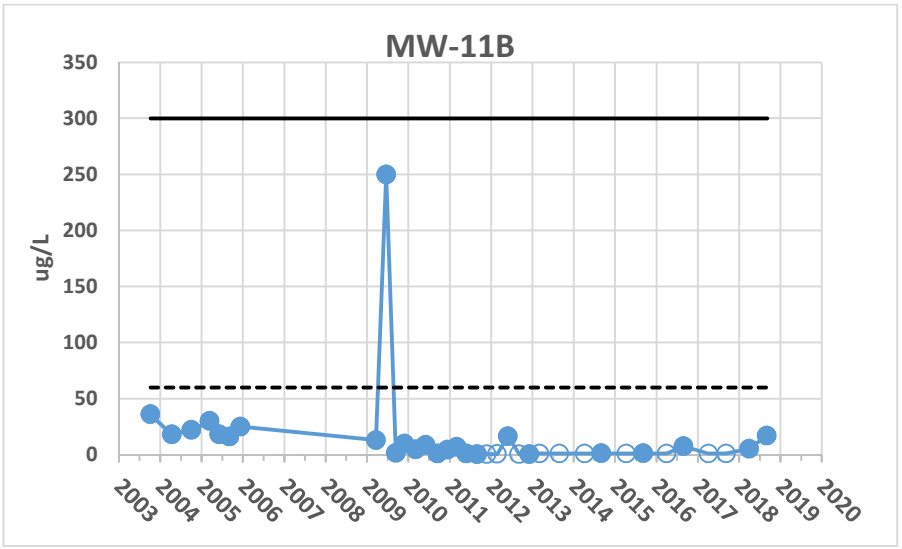

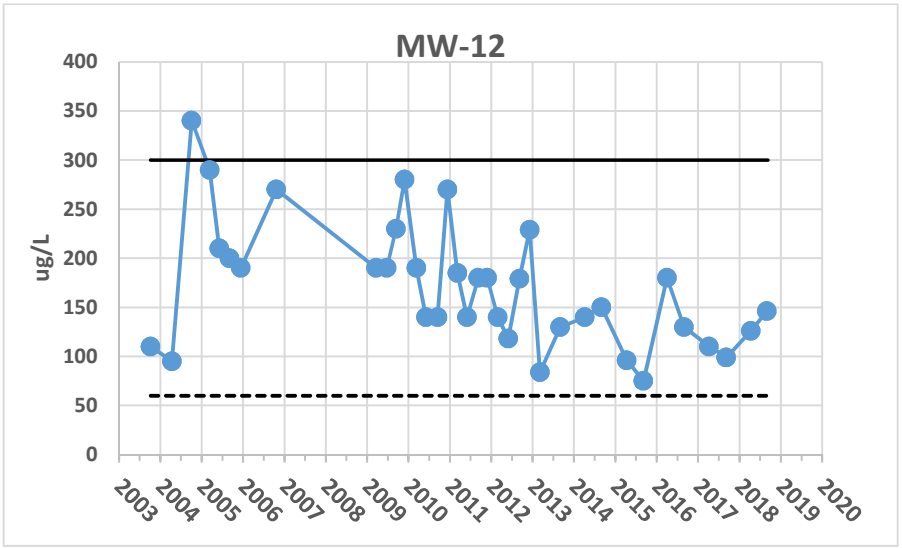

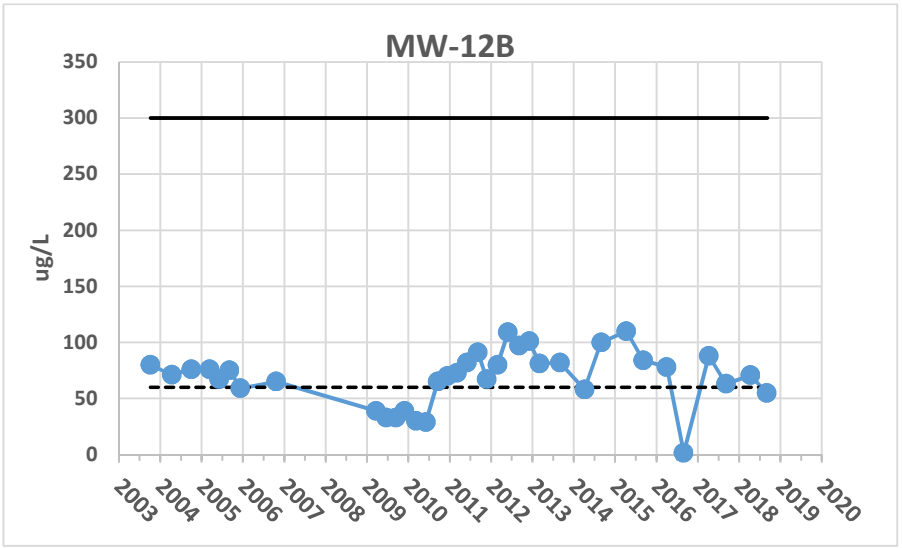

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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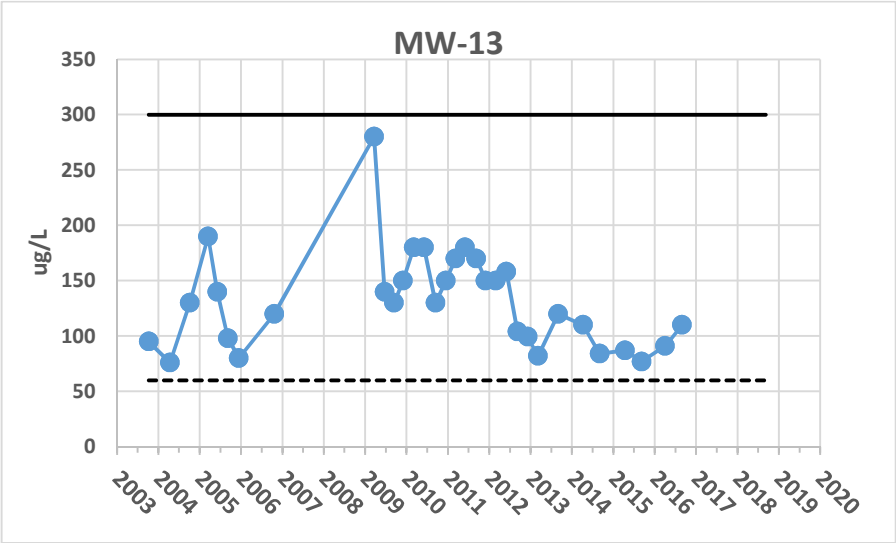

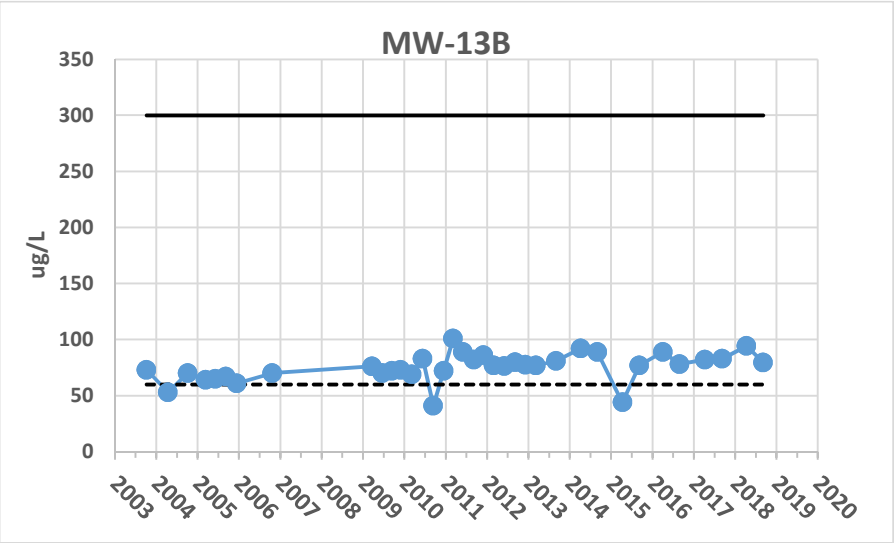

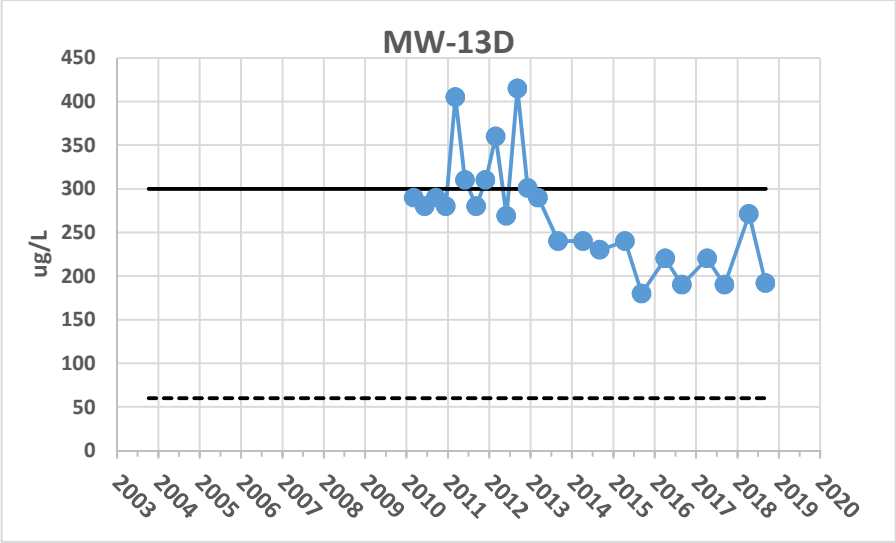

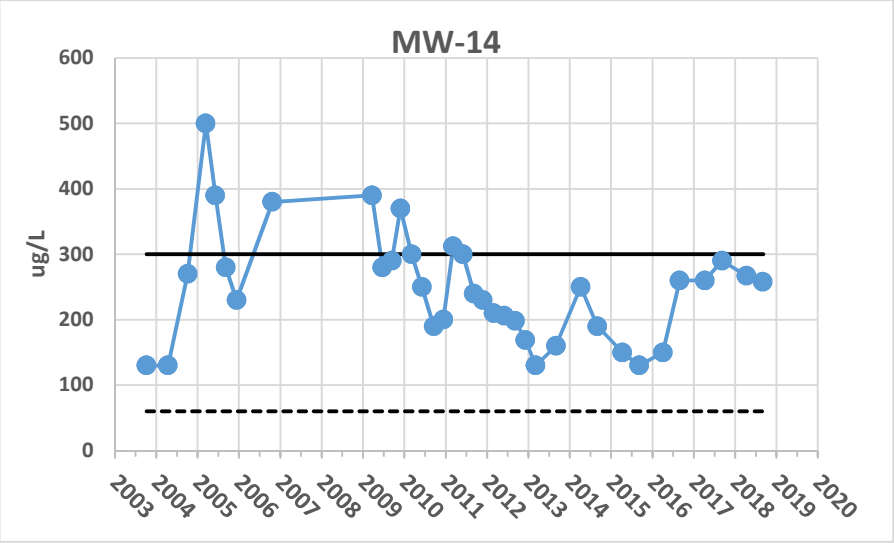

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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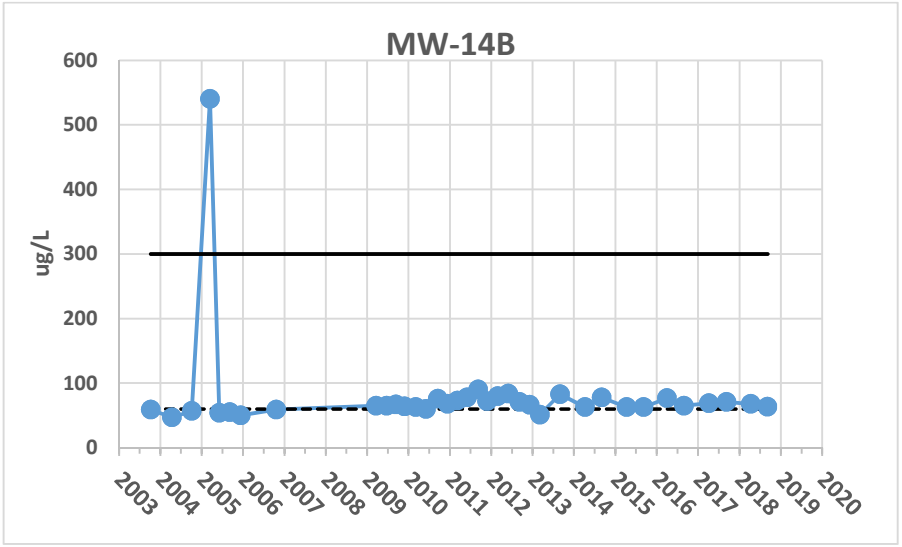

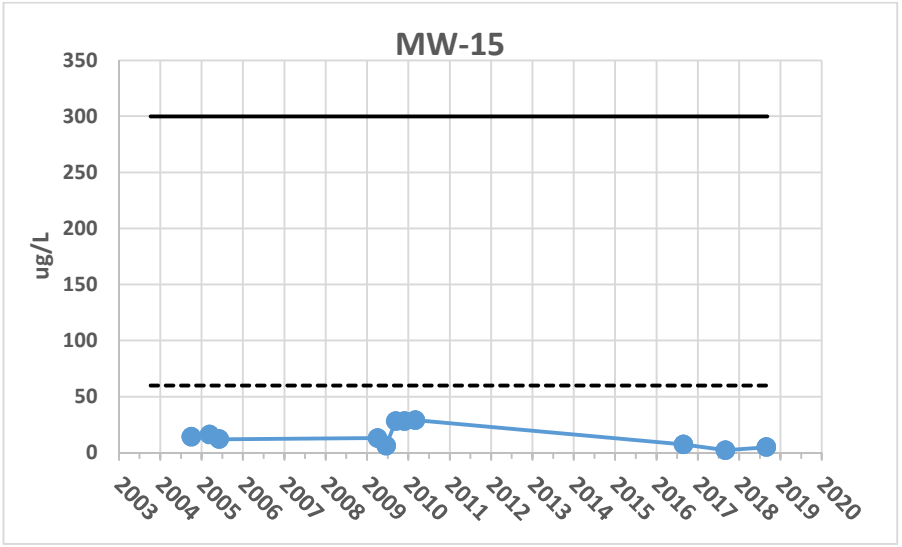

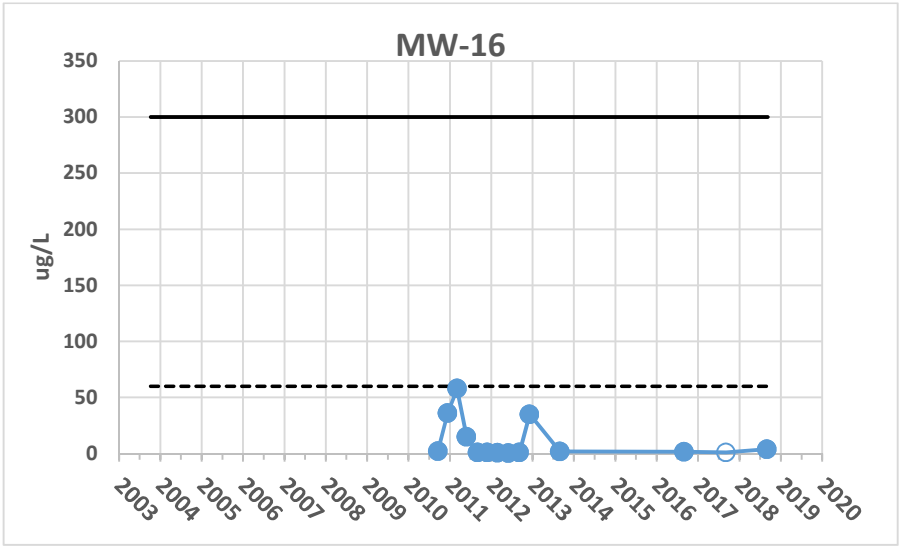

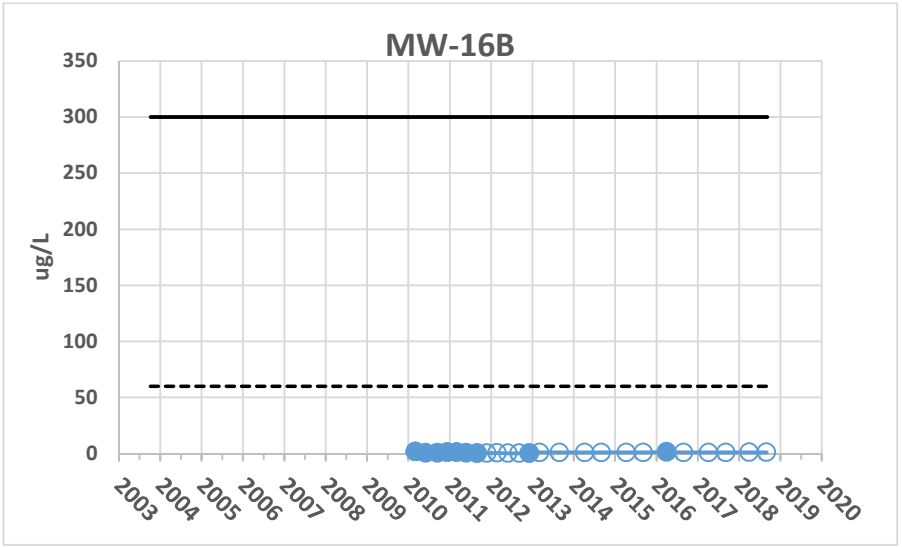

Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

FIGURE 3F
HISTORICAL TREND GRAPHS
MANGANESE

Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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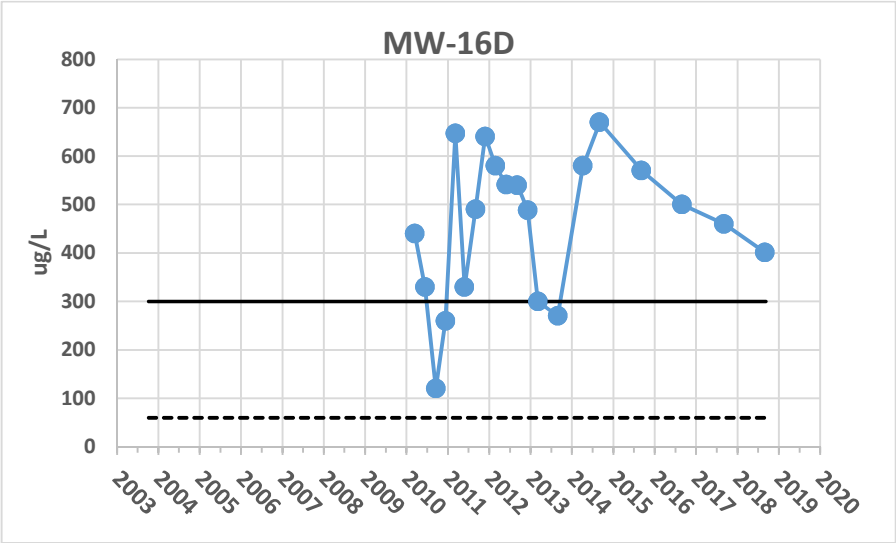

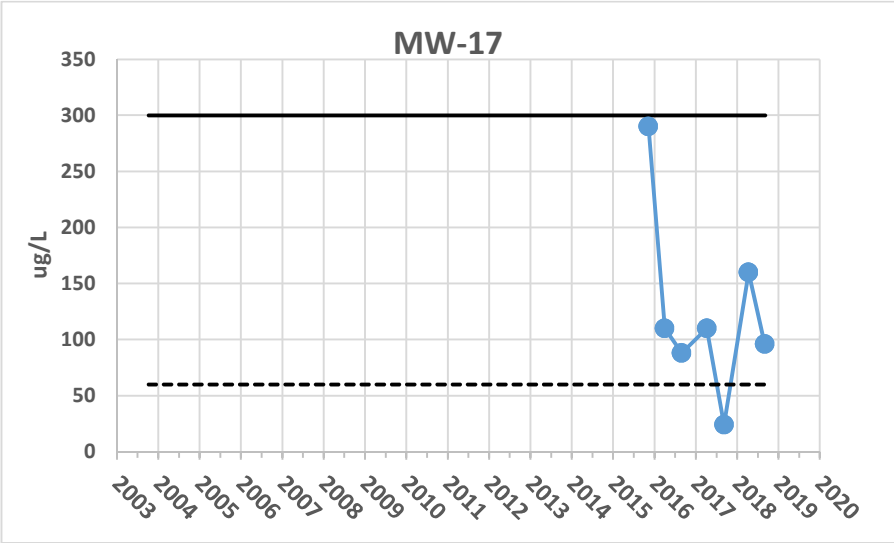

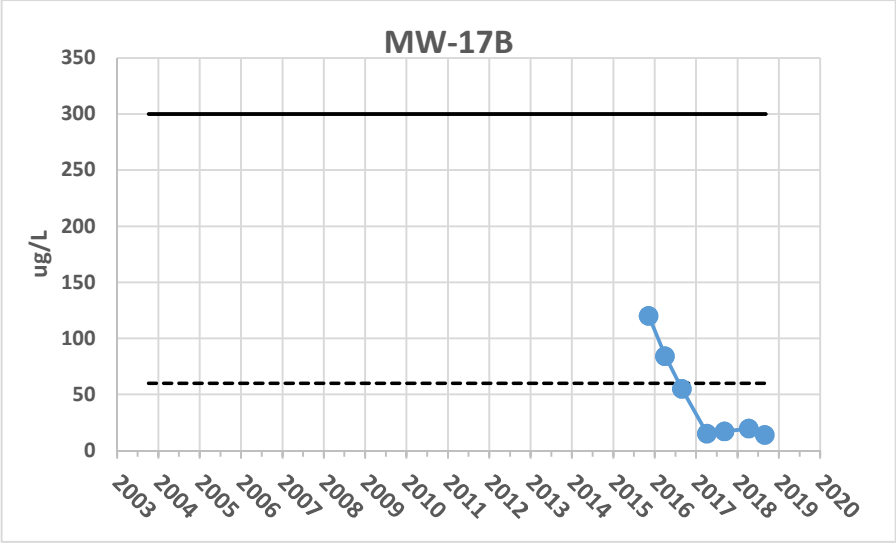

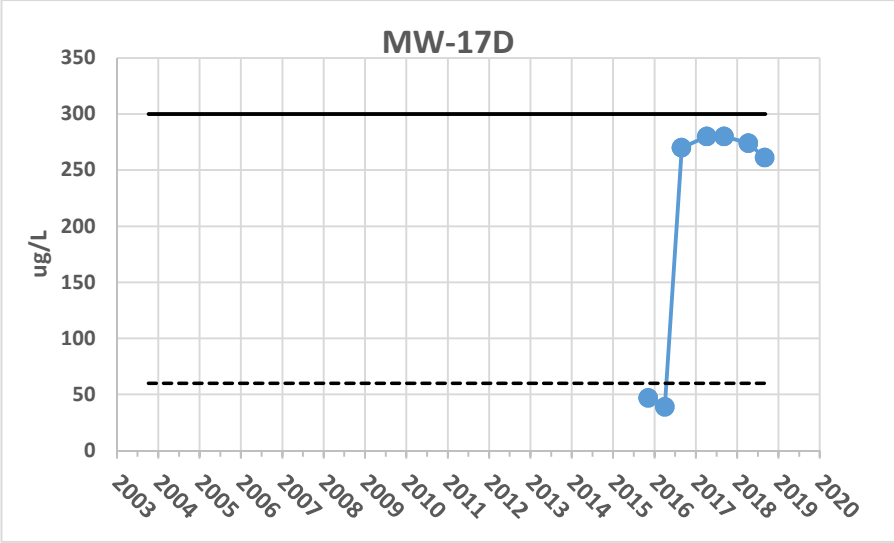

Legend

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: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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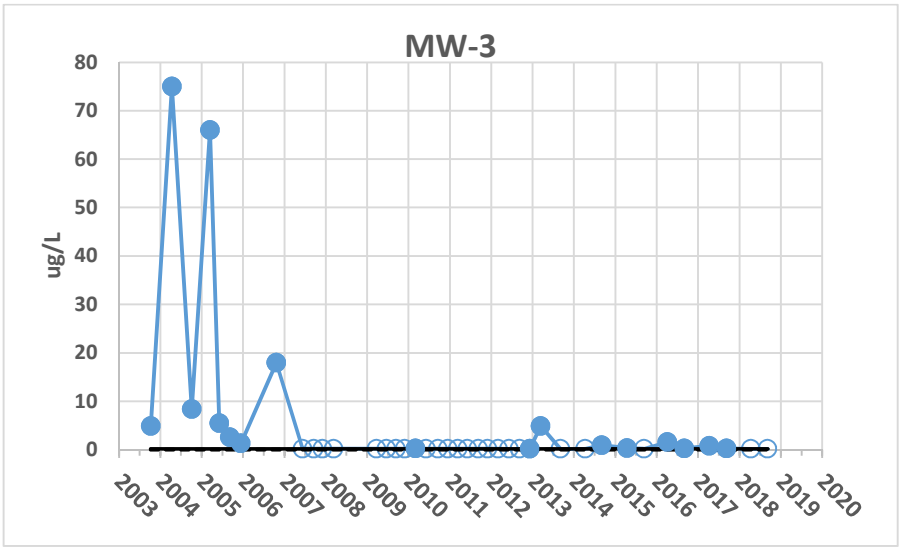

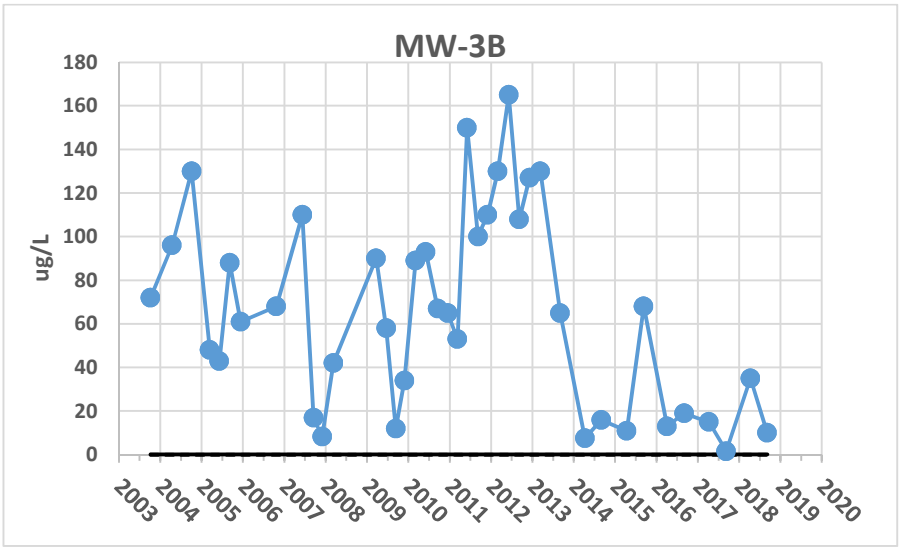

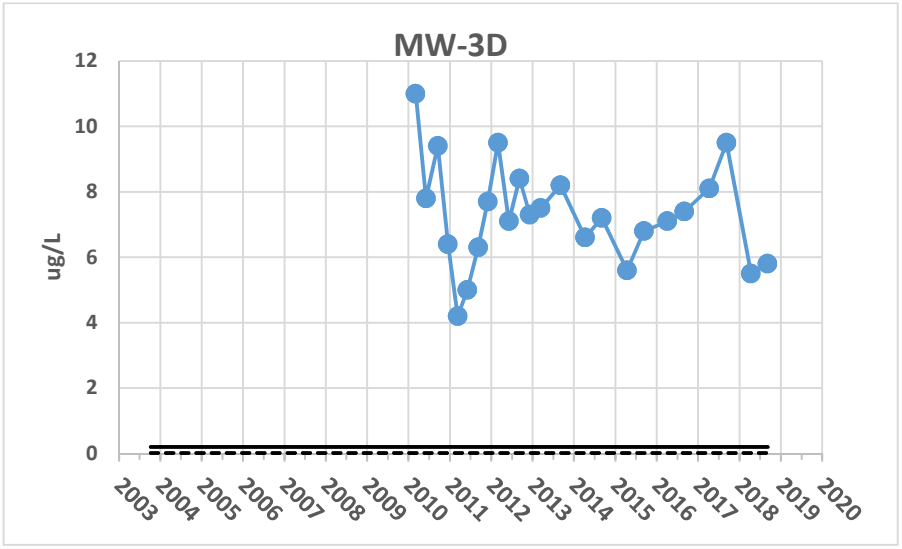

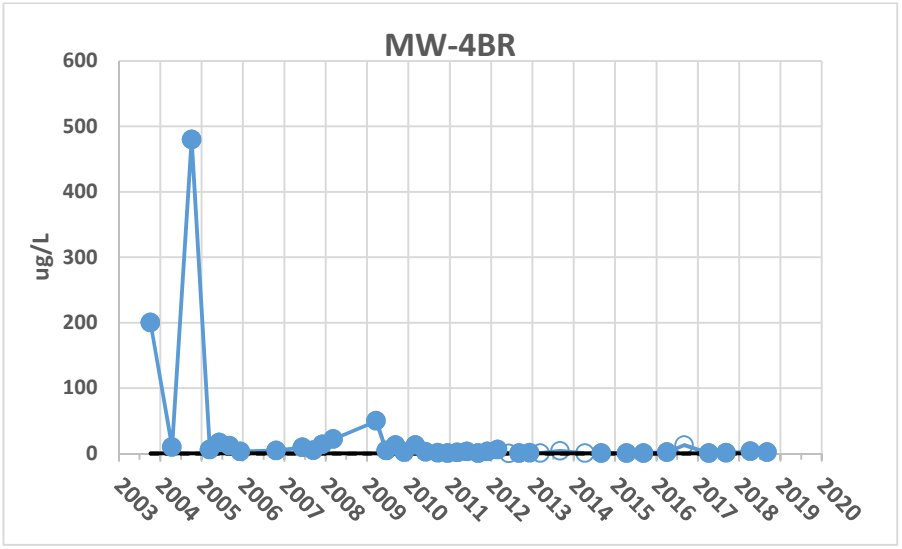

Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

WEST AVENUE LANDFILL		
FIGURE 4A HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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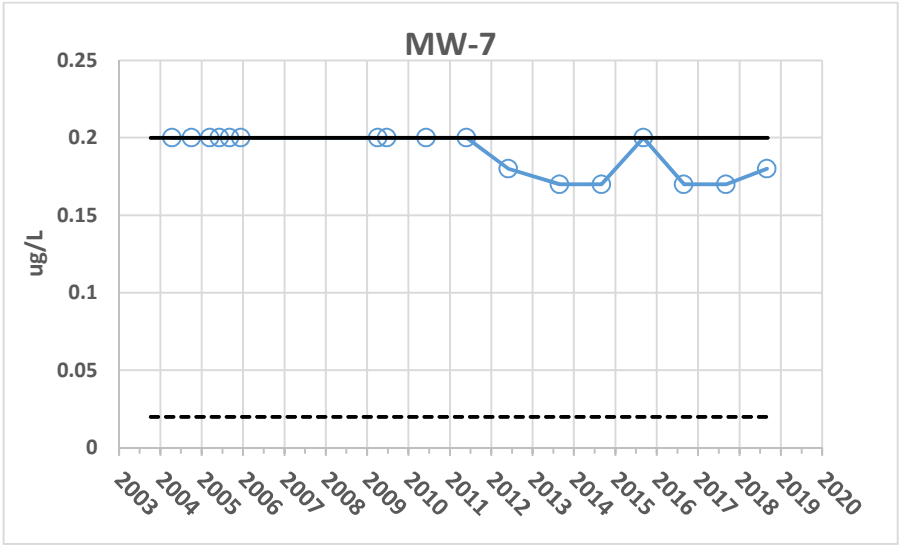

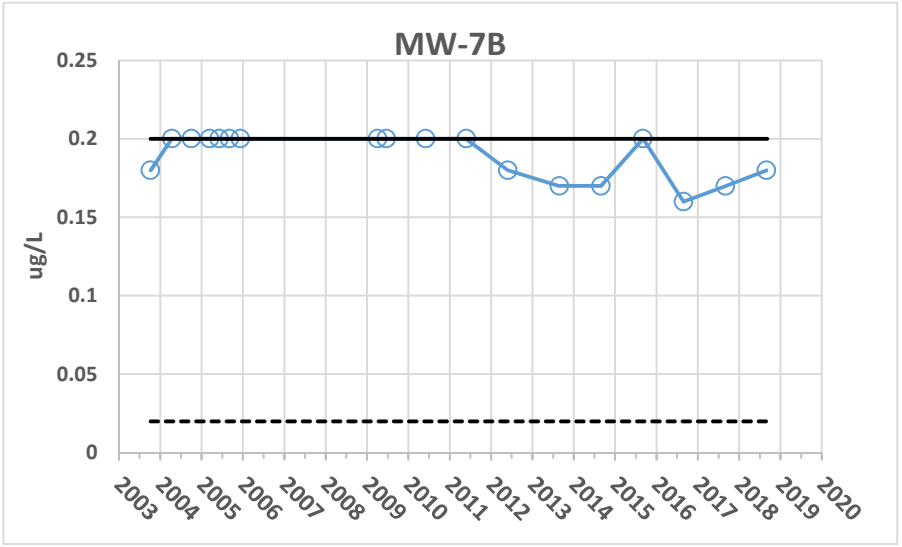

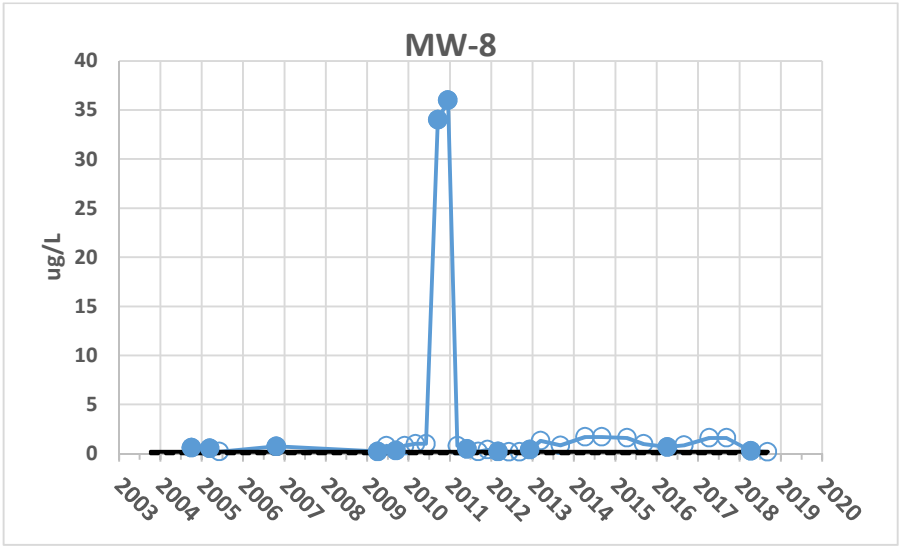

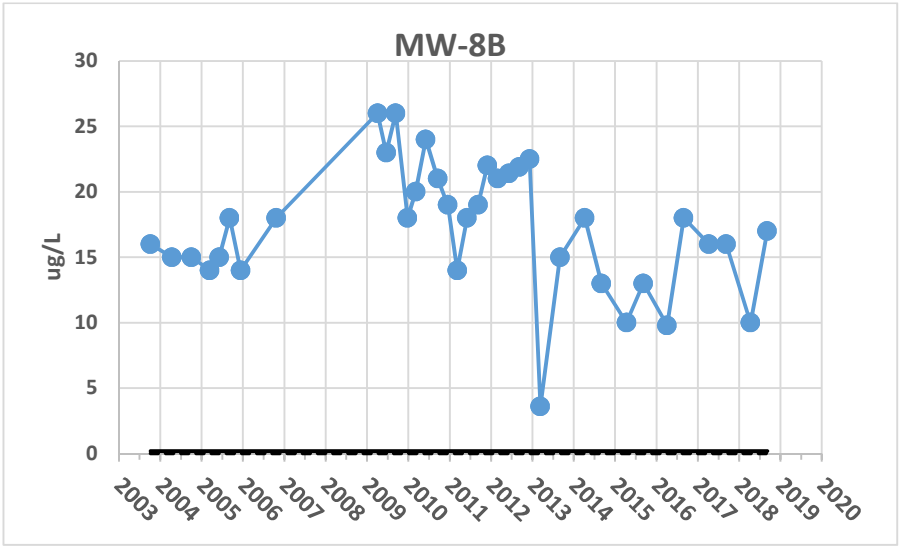

Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

WEST AVENUE LANDFILL		
FIGURE 4B HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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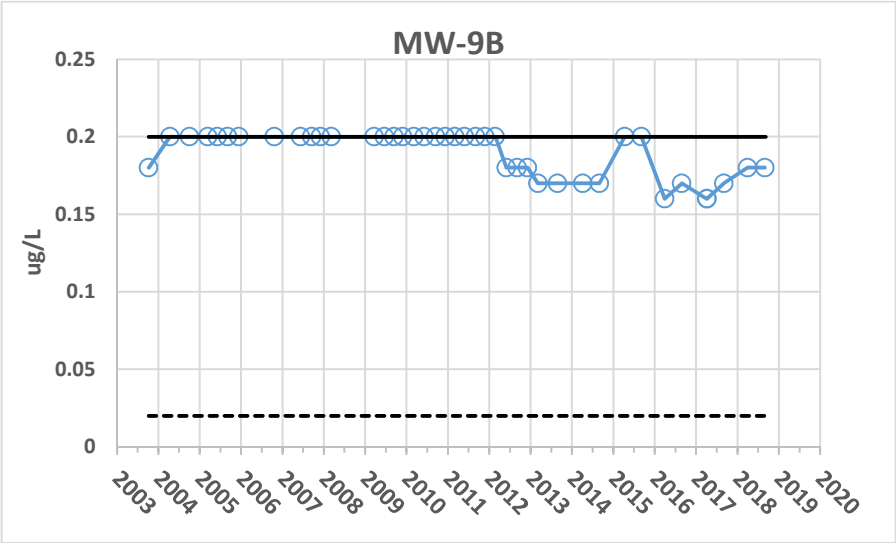

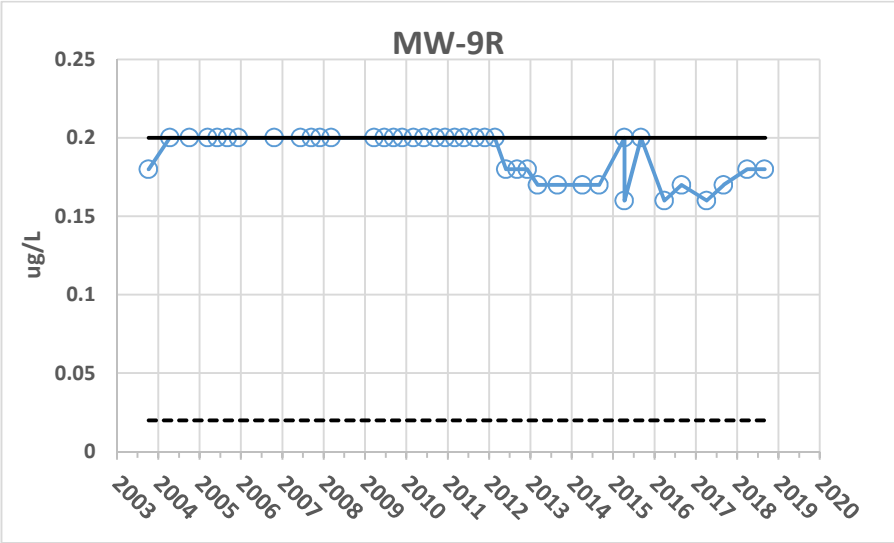

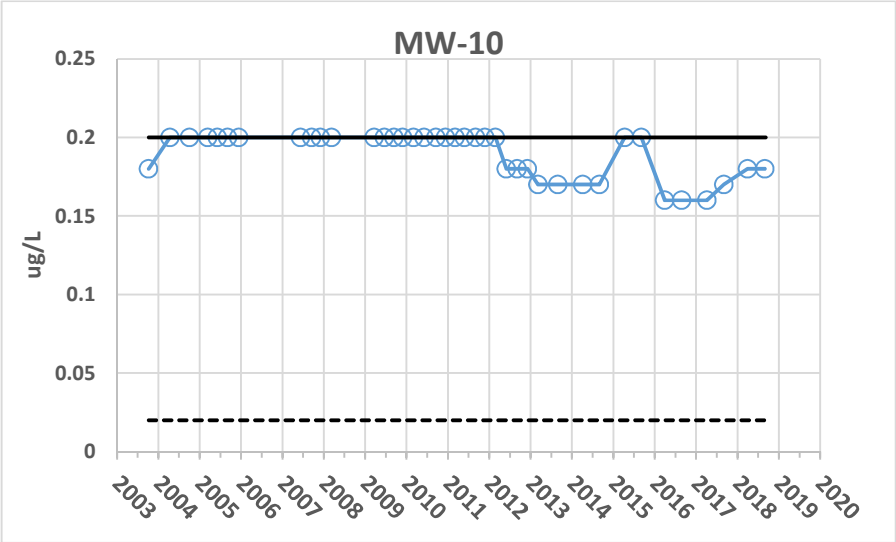

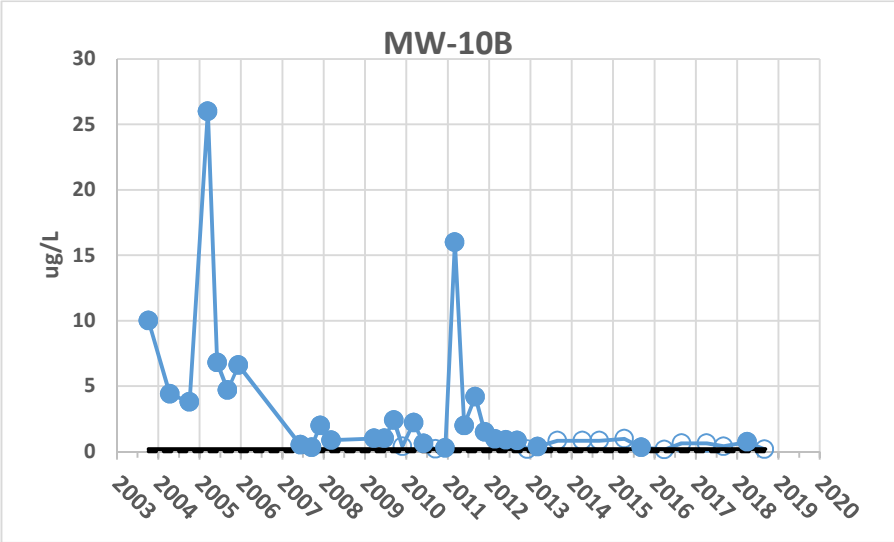

Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

WEST AVENUE LANDFILL		
FIGURE 4C HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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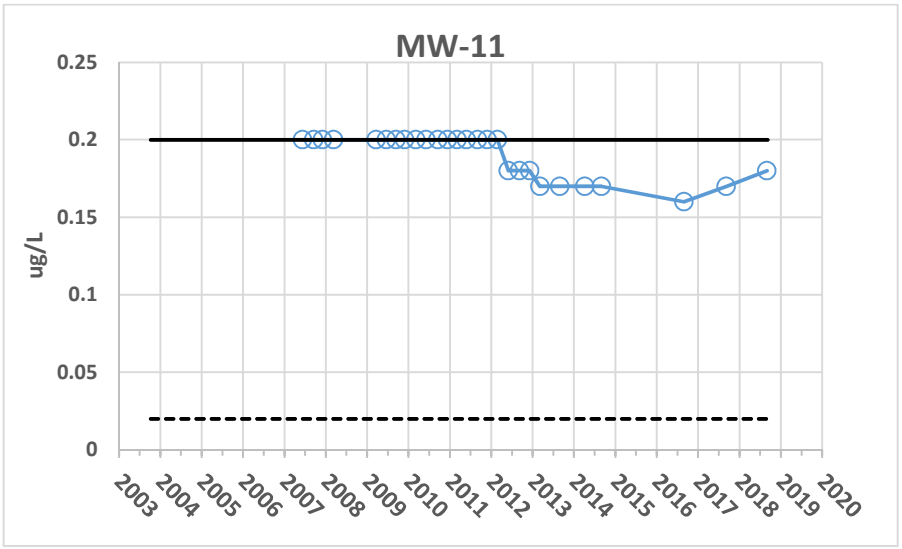

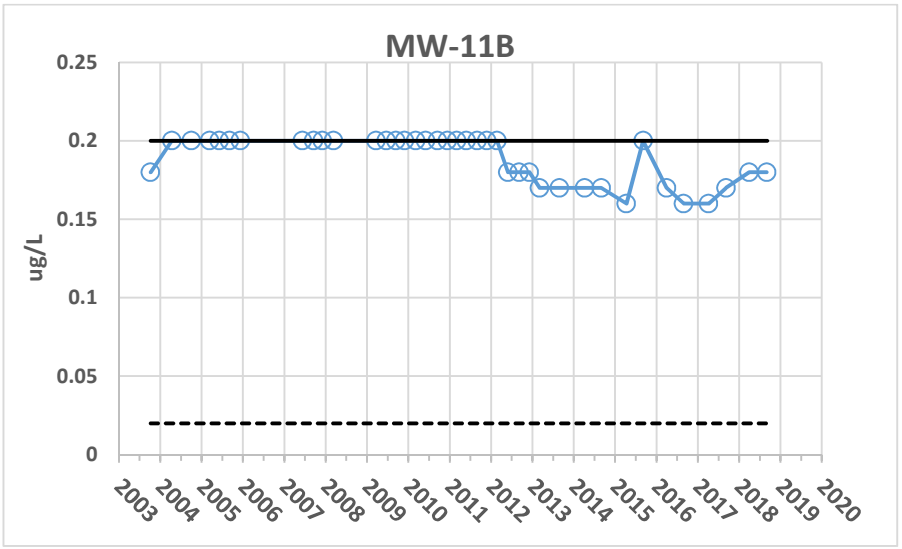

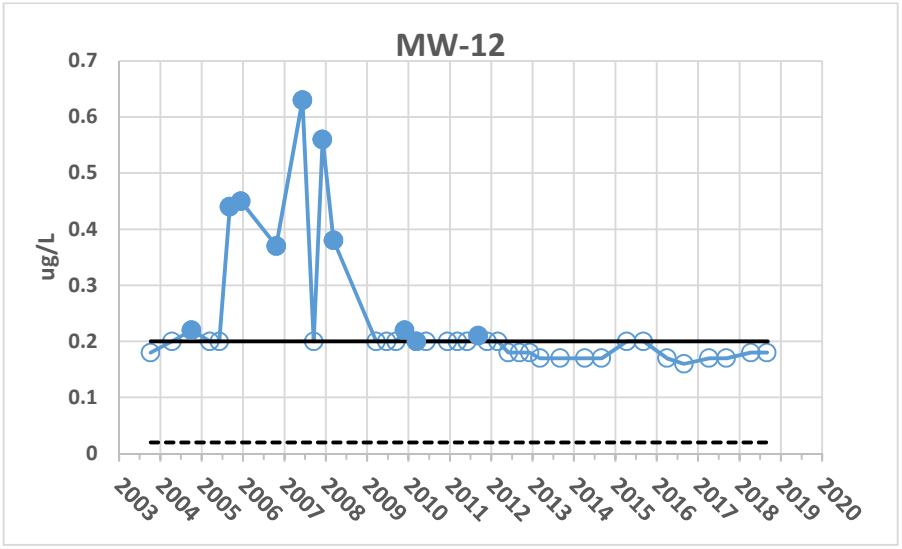

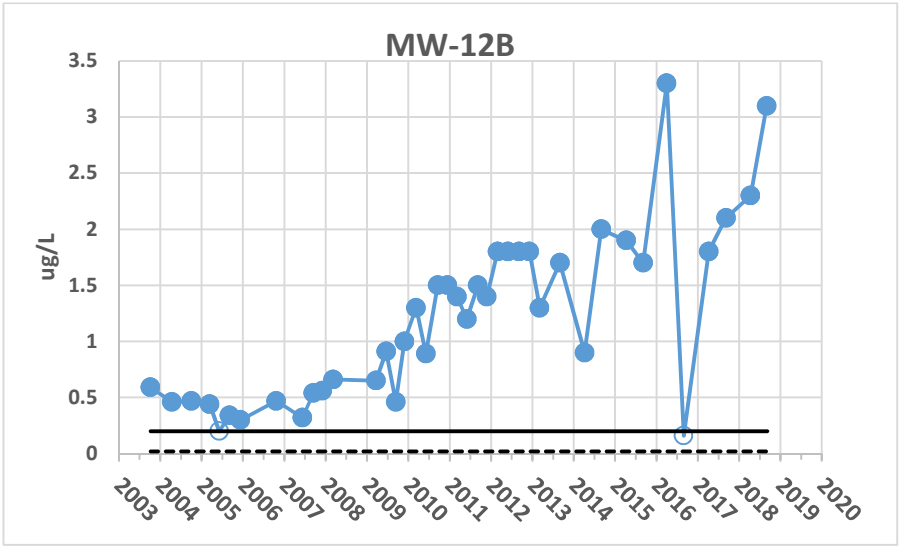

Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

WEST AVENUE LANDFILL		
FIGURE 4D HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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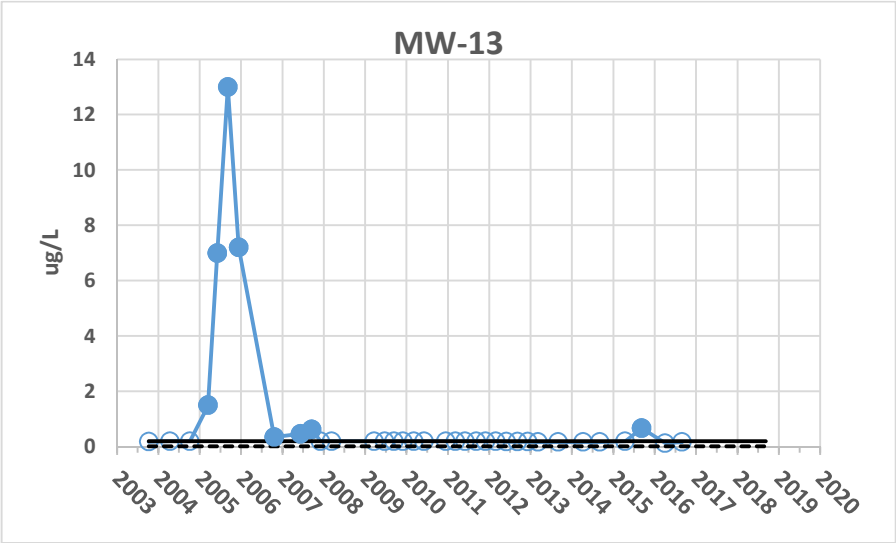

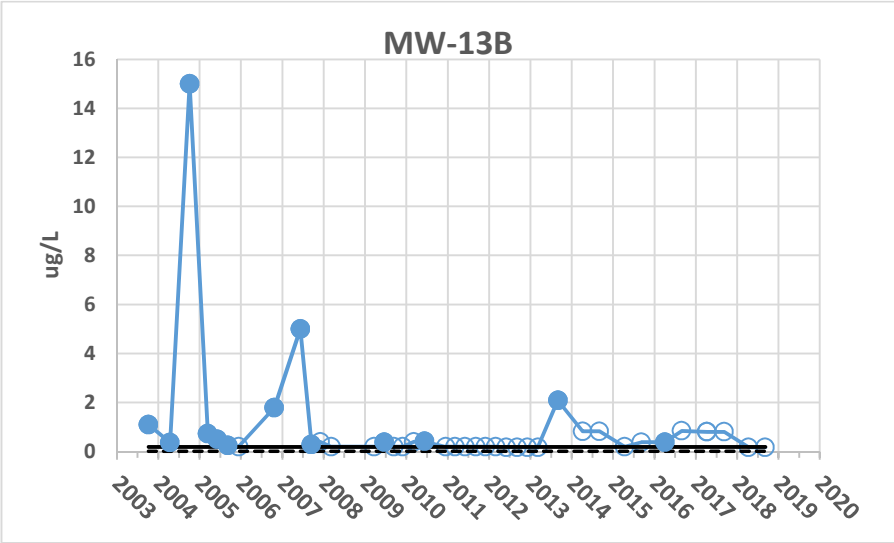

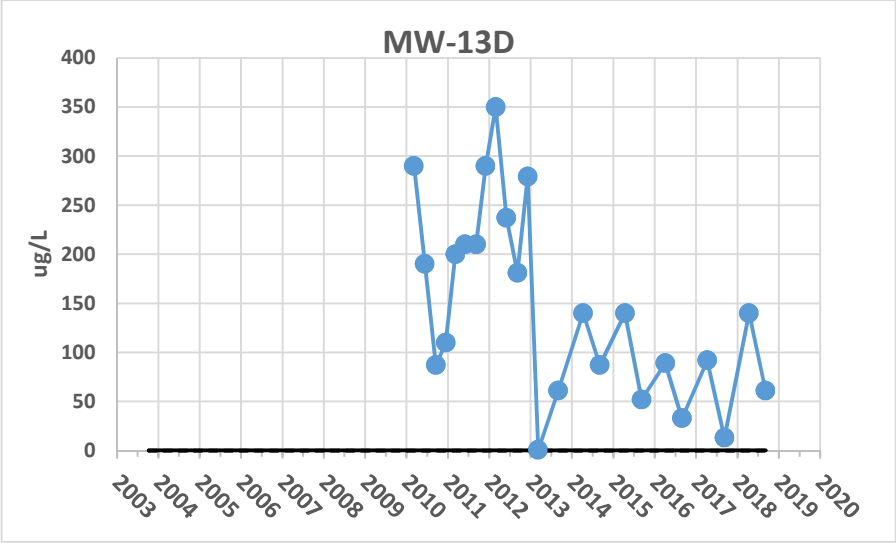

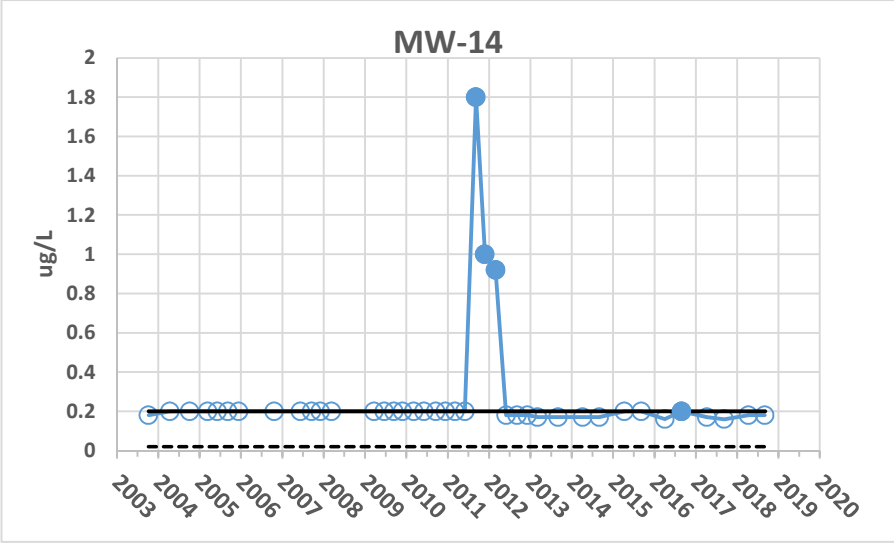

Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

WEST AVENUE LANDFILL		
FIGURE 4E HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

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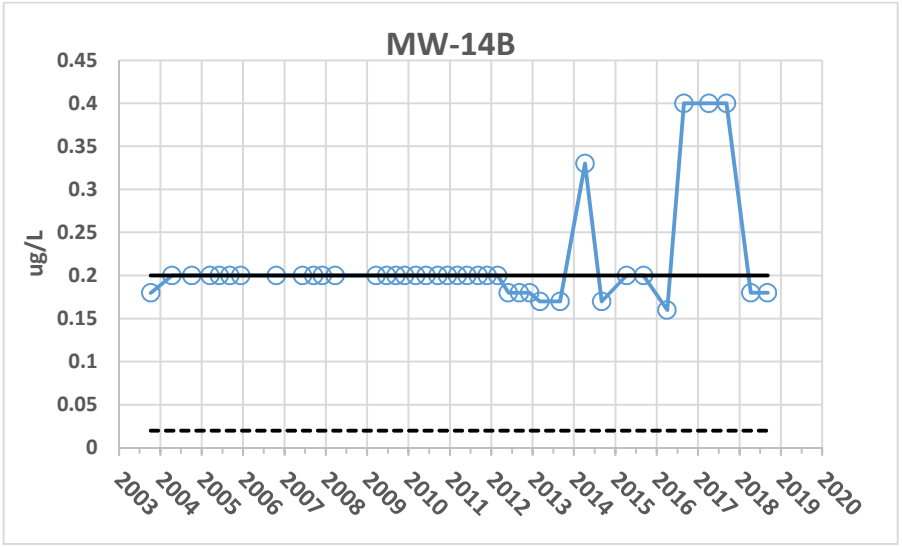
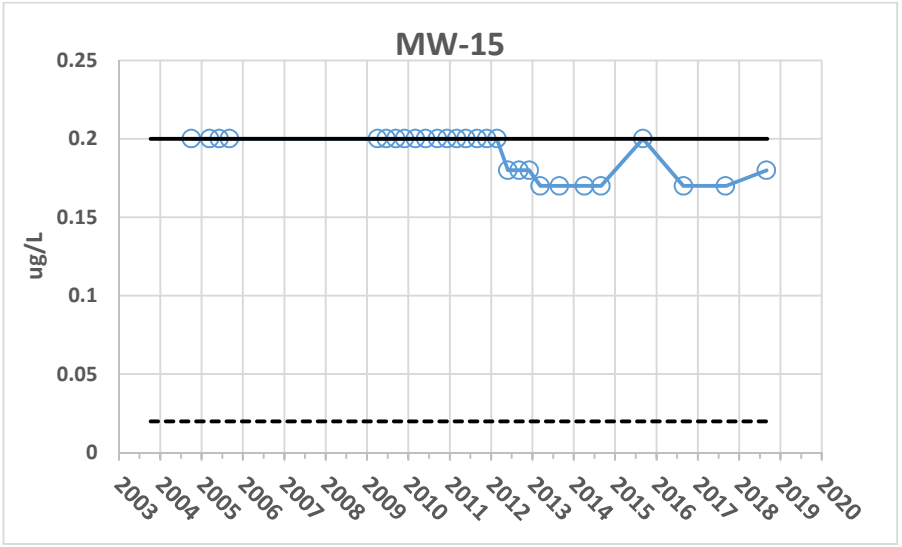
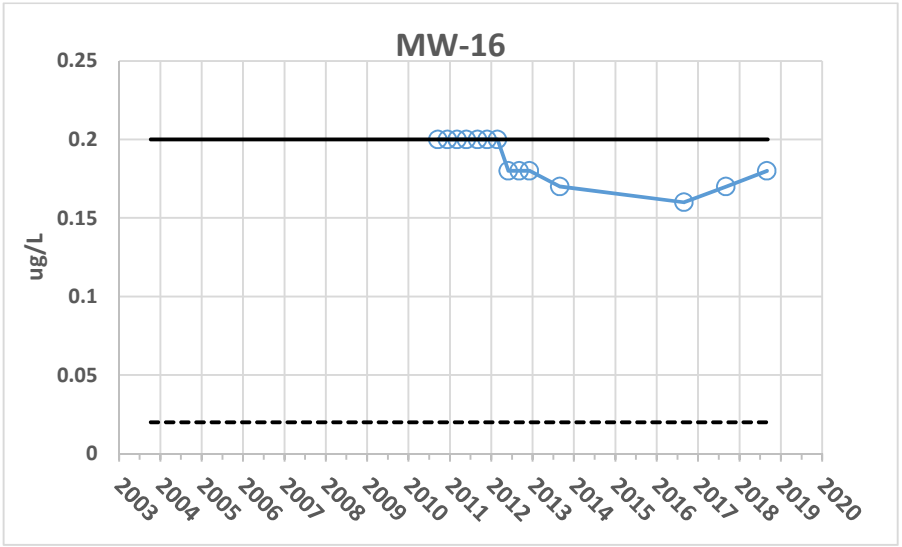
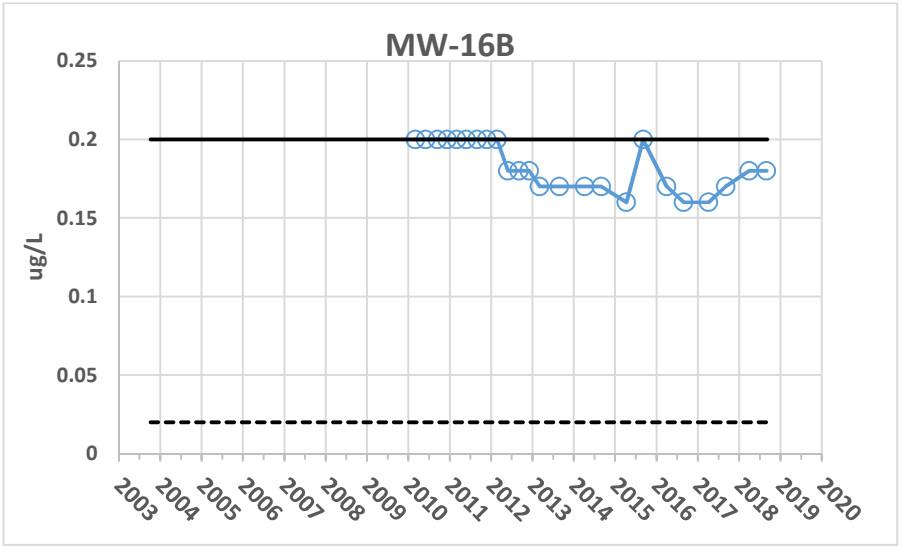








Legend

Nondetects — Detects

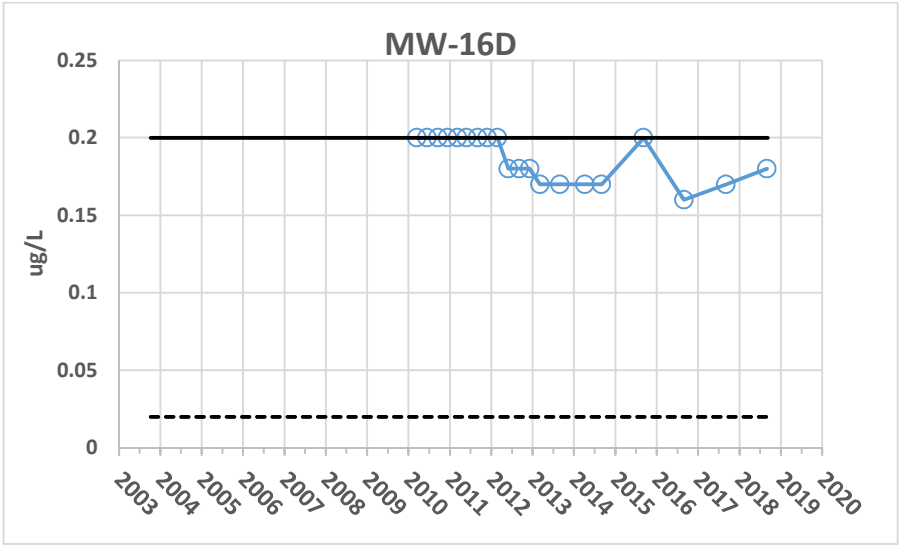
NR140 PAL — NR140 ES

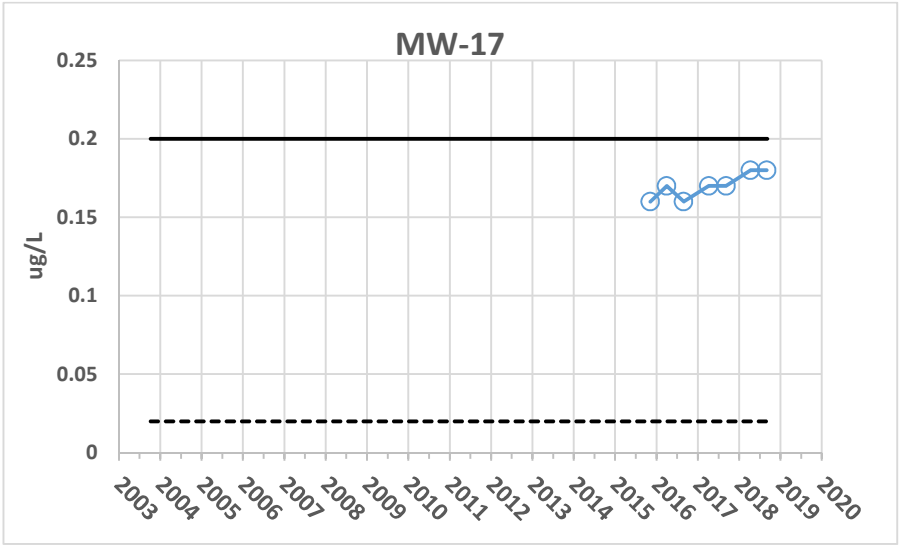
Note: Nondetected data illustrated at MDL if available, otherwise illustrated at zero.

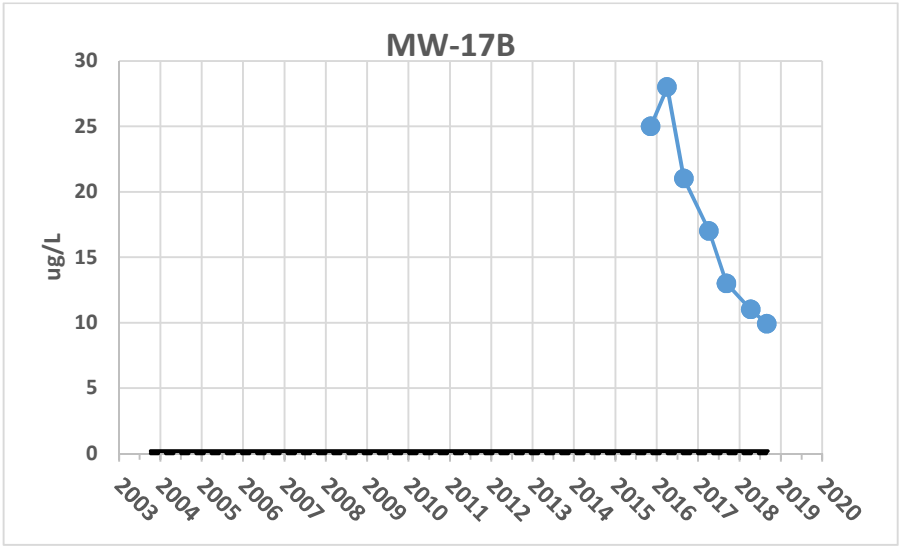
Foth

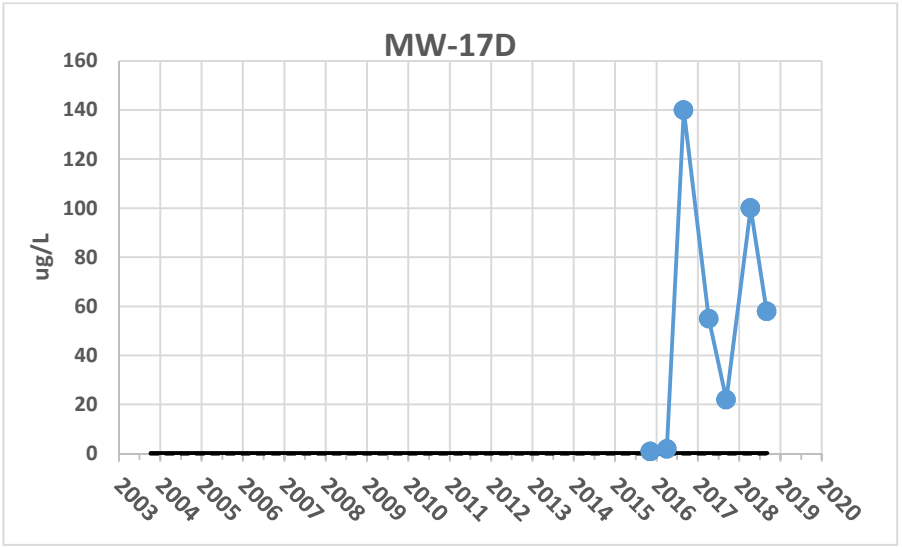
WEST AVENUE LANDFILL		
FIGURE 4F HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx









Legend

Nondetects — Detects

NR140 PAL — NR140 ES

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

Foth

WEST AVENUE LANDFILL		
FIGURE 4G HISTORICAL TREND GRAPHS VINYL CHLORIDE		
Date: FEBRUARY 2019	Revision Date:	
Drawn By: SGL	Checked By: JAR5	Scope: 19W013

pw:\\Clients\Waukesha WI C\0019W013.00\12000 Design Data and Calculations\Statistical Modeling\COC Historical Trend Graphs.xlsx

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COC	MW-3	Chloride		0.0119	-213	0.12	0.31	36	None		0.0384	-1305	0.56	0.03	10	Inc.		ES/PAL
COC	MW-3B	Chloride		0.0223	-610	0.48	0.00	36	Inc.		0.0662	-2463	0.69	0.01	10	Inc.		ES/PAL
COC	MW-3D	Chloride		0.0000	140	-0.02	0.92	24	None		0.0000	120	0.09	0.77	10	None		PAL
COC	MW-4BR	Chloride		0.0057	66.1	0.23	0.05	36	Inc.		-0.0023	408	-0.09	0.79	10	None		ES/PAL
COC	MW-7	Chloride		-0.0168	801	-0.37	0.07	14	None		0.0230	-869	0.00	1.00	5	None		PAL
COC	MW-7B	Chloride		0.0159	-549	0.76	0.00	18	Inc.		0.0306	-1173	0.90	0.04	5	Inc.		PAL
COC	MW-8	Chloride		0.0225	-637	0.34	0.01	32	Inc.		0.0153	-304	0.16	0.58	10	None		ES/PAL
COC	MW-8B	Chloride		0.0000	270	0.04	0.76	36	None		0.0111	-205	0.31	0.23	10	None		ES/PAL
COC	MW-9B	Chloride		0.0157	-407	0.23	0.05	36	Inc.		0.0006	224	0.02	1.00	10	None		ES/PAL
COC	MW-9R	Chloride		0.0285	-921	0.24	0.04	36	Inc.		0.1480	-6070	0.42	0.11	10	None		ES/PAL
COC	MW-10	Chloride		0.0281	-842	0.24	0.04	35	Inc.		0.0517	-1825	0.27	0.32	10	None		ES/PAL
COC	MW-10B	Chloride		0.0430	-1418	0.49	0.00	35	Inc.		-0.5491	23862	-0.76	0.00	10	Dec.		ES/PAL
COC	MW-11	Chloride		0.0084	-42.6	0.15	0.31	23	None		0.0438	-1528	0.40	0.46	5	None		ES/PAL
COC	MW-11B	Chloride		0.0153	-403	0.55	0.00	35	Inc.		0.0191	-569	0.40	0.11	10	None		ES/PAL
COC	MW-12	Chloride		-0.0081	591	-0.13	0.26	36	None		-0.0382	1900	-0.02	1.00	10	None		PAL
COC	MW-12B	Chloride		0.0157	-398	0.66	0.00	36	Inc.		0.0346	-1199	0.44	0.08	10	None		ES/PAL
COC	MW-13	Chloride																
COC	MW-13B	Chloride		0.0223	-614	0.57	0.00	36	Inc.		-0.0129	899	-0.07	0.86	10	None		ES/PAL
COC	MW-13D	Chloride		0.0362	-1191	0.64	0.00	24	Inc.		0.0574	-2088	0.73	0.00	10	Inc.		ES/PAL
COC	MW-14	Chloride		0.0327	-957	0.40	0.00	36	Inc.		0.1341	-5258	0.62	0.02	10	Inc.		ES/PAL
COC	MW-14B	Chloride		0.0240	-675	0.49	0.00	36	Inc.		-0.0456	2283	-0.38	0.14	10	None		ES/PAL
COC	MW-15	Chloride		0.0304	-982	0.47	0.05	11	None		0.5625	-23754	1.00	0.30	3	None		ES/PAL
COC	MW-16	Chloride		0.0061	41.2	0.20	0.35	14	None		0.0177	-464	0.33	1.00	3	None		ES/PAL
COC	MW-16B	Chloride		0.0213	-566	0.25	0.09	24	None		0.0681	-2564	0.53	0.04	10	Inc.		ES/PAL
COC	MW-16D	Chloride		0.1229	-4869	0.33	0.04	20	Inc.		-0.2815	12511	-1.00	0.01	6	Dec.		ES/PAL
COC	MW-17	Chloride		0.0743	-2925	0.29	0.43	7	None		0.0743	-2925	0.29	0.43	7	None		ES/PAL
COC	MW-17B	Chloride		0.0808	-3203	0.86	0.01	7	Inc.		0.0808	-3203	0.86	0.01	7	Inc.		ES/PAL
COC	MW-17D	Chloride		0.2599	-10865	0.90	0.01	7	Inc.		0.2599	-10865	0.90	0.01	7	Inc.		ES/PAL
COC	MW-3	Iron		0.0000	8.10	0.02	0.88	36	None		0.0004	-10.0	0.31	0.24	10	None		ES/PAL
COC	MW-3B	Iron		-0.0015	63.3	-0.37	0.00	36	Dec.		-0.0069	297.3	-0.49	0.06	10	None		ES/PAL
COC	MW-3D	Iron		0.0000	1.36	-0.29	0.05	24	Dec.		0.0000	0.12	0.07	0.85	10	None		PAL
COC	MW-4BR	Iron		0.0006	-12.3	0.43	0.00	36	Inc.		0.0000	11.0	0.09	0.77	10	None		ES/PAL
COC	MW-7	Iron		0.0000	0.21	-0.02	0.96	15	None		0.0001	-4	0.40	0.36	5	None		None
COC	MW-7B	Iron		-0.0001	5.02	-0.14	0.41	18	None		0.0000	N/A	0.00	1.00	5	None		None
COC	MW-8	Iron		-0.0006	40.3	-0.14	0.27	32	None		-0.0022	110.7	-0.42	0.10	10	None		ES/PAL
COC	MW-8B	Iron		0.0001	2.53	0.07	0.58	36	None		0.0008	-30.1	0.31	0.24	10	None		ES/PAL
COC	MW-9B	Iron		0.0000	1.64	-0.23	0.05	36	Dec.		0.0001	-4	0.22	0.36	10	None		PAL
COC	MW-9R	Iron		-0.0003	14.0	-0.38	0.00	36	Dec.		0.0000	1.42	-0.04	0.93	10	None		ES/PAL
COC	MW-10	Iron		0.0000	1.36	-0.10	0.39	35	None		0.0000	-1.09	0.22	0.35	10	None		None
COC	MW-10B	Iron		-0.0001	2.86	-0.16	0.17	35	None		0.0000	0.74	-0.04	0.91	10	None		None
COC	MW-11	Iron		-0.0007	27.2	-0.51	0.00	23	Dec.		0.0000	N/A	0.00	1.00	5	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COC	MW-11B	Iron		-0.0003	12.1	-0.22	0.06	35	None		0.0000	N/A	0.00	1.00	10	None		None
COC	MW-12	Iron		0.0009	-32.8	0.28	0.02	36	Inc.		-0.0026	115	-0.51	0.05	10	Dec.		ES/PAL
COC	MW-12B	Iron		0.0009	-32.7	0.59	0.00	36	Inc.		0.0003	-6	0.38	0.14	10	None		ES/PAL
COC	MW-13	Iron																
COC	MW-13B	Iron		0.0000	11.00	0.07	0.57	36	None		0.0000	11	-0.11	0.70	10	None		ES/PAL
COC	MW-13D	Iron		-0.0001	5.75	-0.37	0.01	24	Dec.		0.0001	-2.48	0.11	0.71	10	None		PAL
COC	MW-14	Iron		-0.0003	17.0	-0.35	0.00	36	Dec.		0.0000	7.1	-0.09	0.79	10	None		ES/PAL
COC	MW-14B	Iron		0.0001	4.89	0.08	0.49	36	None		-0.0004	25.1	-0.18	0.53	10	None		ES/PAL
COC	MW-15	Iron		0.0000	0.92	-0.13	0.64	11	None		0.0000	0.72	-0.33	1.00	3	None		None
COC	MW-16	Iron		-0.0001	4.90	-0.16	0.40	14	None		0.0000	N/A	0.00	1.00	3	None		None
COC	MW-16B	Iron		-0.0004	18.4	-0.24	0.08	24	None		0.0000	-0.51	0.02	1.00	10	None		None
COC	MW-16D	Iron		0.0000	-0.10	0.04	0.85	20	None		0.0001	-3.9	0.47	0.26	6	None		ES/PAL
COC	MW-17	Iron		-0.0001	2.67	-0.19	0.52	7	None		-0.0001	2.67	-0.19	0.52	7	None		None
COC	MW-17B	Iron		0.0013	-53.6	0.86	0.01	7	Inc.		0.0013	-53.6	0.86	0.01	7	Inc.		ES/PAL
COC	MW-17D	Iron		0.0000	-1	0.05	1.00	7	None		0.0000	-1	0.05	1.00	7	None		None
COC	MW-3	Manganese		-0.0021	230	-0.08	0.48	36	None		-0.0137	722	-0.09	0.79	10	None		PAL
COC	MW-3B	Manganese		0.0512	-1764	0.49	0.00	36	Inc.		0.0579	-2137	0.22	0.42	10	None		ES/PAL
COC	MW-3D	Manganese		-0.0093	412	-0.28	0.06	24	None		-0.0070	311	-0.33	0.21	10	None		None
COC	MW-4BR	Manganese		0.0023	16.5	0.17	0.14	36	None		-0.0252	1196	-0.58	0.02	10	Dec.		PAL
COC	MW-7	Manganese		-0.0001	6.50	-0.08	0.72	15	None		0.0007	-29.5	0.10	1.00	5	None		None
COC	MW-7B	Manganese		-0.0039	173	-0.65	0.00	18	Dec.		0.0015	-57.3	0.40	0.46	5	None		None
COC	MW-8	Manganese		-0.0161	798	-0.30	0.02	32	Dec.		-0.0084	485	-0.09	0.79	10	None		PAL
COC	MW-8B	Manganese		0.0543	-1901	0.46	0.00	36	Inc.		-0.0517	2597	-0.31	0.24	10	None		ES/PAL
COC	MW-9B	Manganese		-0.0280	1218	-0.65	0.00	36	Dec.		-0.0065	317	-0.11	0.72	10	None		None
COC	MW-9R	Manganese		-0.0183	1035	-0.12	0.31	36	None		-0.0999	4534	-0.42	0.10	10	None		PAL
COC	MW-10	Manganese		0.0005	-18.9	0.28	0.02	35	Inc.		-0.0030	131	-0.36	0.18	10	None		None
COC	MW-10B	Manganese		0.0000	87.0	0.01	0.95	35	None		-0.0985	4293	-0.84	0.00	10	Dec.		None
COC	MW-11	Manganese		-0.0002	10.4	-0.13	0.38	23	None		0.0004	-14.0	0.00	1.00	5	None		None
COC	MW-11B	Manganese		-0.0060	252	-0.46	0.00	35	Dec.		0.0091	-385	0.31	0.20	10	None		None
COC	MW-12	Manganese		-0.0235	1127	-0.43	0.00	36	Dec.		-0.0027	244	-0.02	1.00	10	None		PAL
COC	MW-12B	Manganese		0.0028	-41.0	0.14	0.22	36	None		-0.0265	1205	-0.33	0.21	10	None		PAL
COC	MW-13	Manganese																
COC	MW-13B	Manganese		0.0040	-86.9	0.46	0.00	36	Inc.		0.0016	14.8	0.04	0.93	10	None		PAL
COC	MW-13D	Manganese		-0.0366	1775	-0.52	0.00	24	Dec.		-0.0182	993	-0.18	0.53	10	None		PAL
COC	MW-14	Manganese		-0.0244	1227	-0.25	0.03	36	Dec.		0.0465	-1756	0.38	0.15	10	None		PAL
COC	MW-14B	Manganese		0.0026	-41.5	0.26	0.03	36	Inc.		0.0004	49.2	0.09	0.79	10	None		PAL
COC	MW-15	Manganese		-0.0015	72.0	-0.22	0.39	11	None		-0.0034	152	-0.33	1.00	3	None		None
COC	MW-16	Manganese		-0.0016	68.6	-0.23	0.27	14	None		0.0030	-126	0.33	1.00	3	None		None
COC	MW-16B	Manganese		-0.0007	27.7	-0.23	0.09	24	None		-0.0005	21.6	-0.02	1.00	10	None		None
COC	MW-16D	Manganese		0.0270	-648	0.11	0.54	20	None		-0.1506	6930	-0.87	0.02	6	Dec.		ES/PAL
COC	MW-17	Manganese		-0.1467	6393	-0.29	0.45	7	None		-0.1467	6393	-0.29	0.45	7	None		PAL

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COC	MW-17B	Manganese		-0.1011	4376	-0.71	0.04	7	Dec.		-0.1011	4376	-0.71	0.04	7	Dec.		None
COC	MW-17D	Manganese		0.0450	-1671	0.29	0.45	7	None		0.0450	-1671	0.29	0.45	7	None		PAL
COC	MW-3	Vinyl Chloride		-0.0014	58.8	-0.17	0.02	76	Dec.		-0.0001	5.29	-0.09	0.64	16	None		None
COC	MW-3B	Vinyl Chloride		-0.0049	261	-0.10	0.21	76	None		0.0055	-219	0.13	0.49	16	None		ES/PAL
COC	MW-3D	Vinyl Chloride		-0.0004	22.1	-0.11	0.28	44	None		0.0009	-31.6	0.25	0.19	16	None		ES/PAL
COC	MW-4BR	Vinyl Chloride		-0.0030	126	-0.50	0.00	76	Dec.		0.0013	-52.4	0.37	0.04	16	Inc.		ES/PAL
COC	MW-7	Vinyl Chloride		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	8	None		None
COC	MW-7B	Vinyl Chloride		0.0000	N/A	0.00	1.00	34	None		0.0000	N/A	0.00	1.00	8	None		None
COC	MW-8	Vinyl Chloride		-0.0001	5.41	-0.08	0.35	60	None		-0.0006	24.2	-0.04	0.83	16	None		ES/PAL
COC	MW-8B	Vinyl Chloride		-0.0005	39.4	-0.12	0.15	68	None		0.0000	13.0	-0.04	0.85	16	None		ES/PAL
COC	MW-9B	Vinyl Chloride		0.0000	N/A	0.00	1.00	77	None		0.0000	N/A	0.00	1.00	17	None		None
COC	MW-9R	Vinyl Chloride		0.0000	N/A	0.00	1.00	78	None		0.0000	N/A	0.00	1.00	18	None		None
COC	MW-10	Vinyl Chloride		0.0000	N/A	0.00	1.00	74	None		0.0000	N/A	0.00	1.00	16	None		None
COC	MW-10B	Vinyl Chloride		-0.0016	64.8	-0.49	0.00	74	Dec.		0.0001	-4.56	0.01	1.00	16	None		ES/PAL
COC	MW-11	Vinyl Chloride		0.0000	N/A	0.00	1.00	52	None		0.0000	N/A	0.00	1.00	8	None		None
COC	MW-11B	Vinyl Chloride		0.0000	N/A	0.00	1.00	74	None		0.0000	N/A	0.00	1.00	16	None		None
COC	MW-12	Vinyl Chloride		-0.0001	5.53	-0.25	0.00	74	Dec.		0.0000	N/A	0.00	1.00	16	None		None
COC	MW-12B	Vinyl Chloride		0.0004	-16.5	0.63	0.00	76	Inc.		0.0006	-25.0	0.22	0.25	16	None		ES/PAL
COC	MW-13	Vinyl Chloride																
COC	MW-13B	Vinyl Chloride		-0.0007	28.1	-0.26	0.00	75	Dec.		0.0003	-10.6	0.03	0.89	17	None		None
COC	MW-13D	Vinyl Chloride		-0.0626	2755	-0.36	0.00	44	Dec.		-0.0532	2348	-0.30	0.11	16	None		ES/PAL
COC	MW-14	Vinyl Chloride		0.0005	-21.3	0.08	0.26	76	None		0.0000	-1.45	0.10	0.57	16	None		None
COC	MW-14B	Vinyl Chloride		0.0000	N/A	0.00	1.00	76	None		0.0000	N/A	0.00	1.00	16	None		None
COC	MW-15	Vinyl Chloride		0.0000	N/A	0.00	1.00	54	None		0.0000	N/A	0.00	1.00	10	None		None
COC	MW-16	Vinyl Chloride		0.0000	N/A	0.00	1.00	26	None		0.0000	N/A	0.00	1.00	4	None		None
COC	MW-16B	Vinyl Chloride		0.0000	N/A	0.00	1.00	44	None		0.0000	N/A	0.00	1.00	16	None		None
COC	MW-16D	Vinyl Chloride		0.0000	N/A	0.00	1.00	38	None		0.0000	N/A	0.00	1.00	10	None		None
COC	MW-17	Vinyl Chloride		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COC	MW-17B	Vinyl Chloride		-0.0162	712	-0.90	0.01	7	Dec.		-0.0162	712	-0.90	0.01	7	Dec.		ES/PAL
COC	MW-17D	Vinyl Chloride		0.0556	-2352	0.43	0.23	7	None		0.0556	-2352	0.43	0.23	7	None		ES/PAL
COI	MW-3	1,2,4-Trimethylbenzene		-0.0014	57.0	-0.04	0.64	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3B	1,2,4-Trimethylbenzene		0.0000	1.04	-0.02	0.87	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3D	1,2,4-Trimethylbenzene		-0.0042	175	-0.06	0.66	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-4BR	1,2,4-Trimethylbenzene		-0.1001	4294	-0.43	0.00	40	Dec.		0.0459	-1908	0.20	0.47	10	None		PAL
COI	MW-7	1,2,4-Trimethylbenzene		-0.0001	2.89	-0.04	0.84	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	1,2,4-Trimethylbenzene		0.0002	-8.66	0.04	0.73	32	None		0.0273	-1162	0.16	0.52	10	None		None
COI	MW-8B	1,2,4-Trimethylbenzene		-0.0001	2.19	-0.04	0.70	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-9B	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-10B	1,2,4-Trimethylbenzene		-0.0005	20.8	-0.01	0.90	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-11	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	1,2,4-Trimethylbenzene		-0.0003	13.8	-0.02	0.83	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12	1,2,4-Trimethylbenzene		-0.0003	10.5	-0.05	0.61	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12B	1,2,4-Trimethylbenzene		-0.0002	7.38	-0.05	0.61	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-13	1,2,4-Trimethylbenzene																
COI	MW-13B	1,2,4-Trimethylbenzene		0.0000	-0.20	0.01	0.97	40	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-13D	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14	1,2,4-Trimethylbenzene		-0.0001	3.51	-0.11	0.27	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14B	1,2,4-Trimethylbenzene		0.0000	1.06	-0.01	0.93	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-15	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	28	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-16	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-16D	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17D	1,2,4-Trimethylbenzene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-3	Arsenic		-0.0003	16.3	-0.18	0.12	36	None		-0.0012	53.2	-0.42	0.11	10	None		PAL
COI	MW-3B	Arsenic		0.0000	3.81	-0.02	0.85	36	None		-0.0024	107	-0.42	0.10	10	None		PAL
COI	MW-3D	Arsenic		-0.0003	12.5	-0.45	0.00	24	Dec.		0.0002	-6.24	0.20	0.43	10	None		PAL
COI	MW-4BR	Arsenic		0.0000	2.90	-0.01	0.97	36	None		0.0004	-13.9	0.33	0.21	10	None		PAL
COI	MW-7	Arsenic		0.0000	1.66	-0.02	0.95	15	None		0.0003	N/A	0.00	1.00	5	None		None
COI	MW-7B	Arsenic		-0.0001	3.90	-0.16	0.33	18	None		0.0003	N/A	0.00	1.00	5	None		None
COI	MW-8	Arsenic		-0.0013	59.6	-0.23	0.07	32	None		-0.0008	40.4	-0.22	0.42	10	None		PAL
COI	MW-8B	Arsenic		-0.0017	79.3	-0.52	0.00	36	Dec.		0.0017	-66.7	0.71	0.00	10	Inc.		PAL
COI	MW-9B	Arsenic		-0.0006	31.9	-0.21	0.08	36	None		0.0016	-63.6	0.31	0.24	10	None		PAL
COI	MW-9R	Arsenic		-0.0002	8.42	-0.24	0.04	36	Dec.		-0.0001	6.63	-0.07	0.79	10	None		None
COI	MW-10	Arsenic		-0.0001	3.38	-0.08	0.51	35	None		-0.0001	3.07	-0.02	1.00	10	None		None
COI	MW-10B	Arsenic		-0.0001	6.41	-0.25	0.03	35	Dec.		0.0000	2.09	-0.02	1.00	10	None		None
COI	MW-11	Arsenic		0.0000	-1.37	0.04	0.82	23	None		0.0003	N/A	0.00	1.00	5	None		None
COI	MW-11B	Arsenic		-0.0001	5.77	-0.17	0.14	35	None		0.0000	0.34	0.00	1.00	10	None		None
COI	MW-12	Arsenic		0.0008	-30.6	0.37	0.00	36	Inc.		-0.0034	146	-0.58	0.02	10	Dec.		PAL
COI	MW-12B	Arsenic		0.0001	-1.08	0.07	0.58	36	None		0.0000	3.30	0.07	0.85	10	None		PAL
COI	MW-13	Arsenic																
COI	MW-13B	Arsenic		-0.0004	22.1	-0.16	0.18	36	None		-0.0001	10.8	-0.04	0.93	10	None		PAL
COI	MW-13D	Arsenic		-0.0002	11.0	-0.32	0.03	24	Dec.		0.0000	1.19	-0.04	0.92	10	None		None
COI	MW-14	Arsenic		-0.0002	9.6	-0.15	0.20	36	None		0.0021	-88.4	0.33	0.02	10	Inc.		PAL
COI	MW-14B	Arsenic		-0.0001	10.8	-0.07	0.59	36	None		0.0000	4.30	-0.02	1.00	10	None		PAL
COI	MW-15	Arsenic		0.0023	-85.0	0.60	0.01	11	Inc.		-0.0015	73.1	-0.33	1.00	3	None		PAL
COI	MW-16	Arsenic		0.0000	2.20	-0.04	0.86	14	None		0.0003	-14.7	0.00	1.00	3	None		None
COI	MW-16B	Arsenic		0.0000	1.53	-0.06	0.68	24	None		0.0001	-5.23	0.02	1.00	10	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-16D	Arsenic		-0.0005	19.7	-0.46	0.01	20	Dec.		0.0001	-2.45	0.60	0.13	6	None		None
COI	MW-17	Arsenic		-0.0002	7.69	-0.05	1.00	7	None		-0.0002	7.69	-0.05	1.00	7	None		None
COI	MW-17B	Arsenic		0.0006	-21.7	0.24	0.55	7	None		0.0006	-21.7	0.24	0.55	7	None		ES/PAL
COI	MW-17D	Arsenic		0.0000	0.37	0.00	1.00	7	None		0.0000	0.37	0.00	1.00	7	None		None
COI	MW-3	Benzene		-0.0030	122	-0.51	0.00	40	Dec.		0.0000	-1.07	0.02	1.00	10	None		None
COI	MW-3B	Benzene		-0.0056	241	-0.64	0.00	40	Dec.		-0.0044	191	-0.71	0.01	10	Dec.		PAL
COI	MW-3D	Benzene		-0.0001	2.87	-0.30	0.04	24	Dec.		0.0000	0.68	-0.02	1.00	10	None		None
COI	MW-4BR	Benzene		-0.0037	161	-0.54	0.00	40	Dec.		0.0037	-151	0.42	0.09	10	None		ES/PAL
COI	MW-7	Benzene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	Benzene		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	Benzene		-0.0017	73.8	-0.55	0.00	32	Dec.		0.0014	-55.6	0.33	0.20	10	None		PAL
COI	MW-8B	Benzene		-0.0006	27.9	-0.58	0.00	36	Dec.		0.0002	-7.71	0.20	0.47	10	None		PAL
COI	MW-9B	Benzene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	Benzene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	Benzene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-10B	Benzene		-0.0005	18.7	-0.39	0.00	39	Dec.		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-11	Benzene		0.0000	0.35	-0.01	0.93	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	Benzene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12	Benzene		0.0000	1.69	-0.07	0.45	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12B	Benzene		0.0000	0.24	0.13	0.22	40	None		0.0005	-21.2	0.44	0.09	10	None		PAL
COI	MW-13	Benzene																
COI	MW-13B	Benzene		-0.0014	60.0	-0.72	0.00	40	Dec.		-0.0001	6.23	-0.04	0.94	11	None		PAL
COI	MW-13D	Benzene		-0.0051	220	-0.54	0.00	24	Dec.		-0.0003	12.3	0.00	1.00	10	None		PAL
COI	MW-14	Benzene		-0.0001	3.59	-0.21	0.06	40	None		0.0002	-7.17	0.24	0.33	10	None		PAL
COI	MW-14B	Benzene		-0.0013	54.3	-0.56	0.00	40	Dec.		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-15	Benzene		-0.0001	4.24	-0.21	0.08	28	None		0.0001	-2.26	0.07	1.00	6	None		None
COI	MW-16	Benzene		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	Benzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-16D	Benzene		-0.0101	416	-0.09	0.54	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	Benzene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	Benzene		-0.0021	95.1	-0.81	0.02	7	Dec.		-0.0021	95.1	-0.81	0.02	7	Dec.		PAL
COI	MW-17D	Benzene		0.0011	-45.3	0.05	1.00	7	None		0.0011	-45.3	0.05	1.00	7	None		PAL
COI	MW-3	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3B	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3D	Bromodichloromethane		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-4BR	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-7	Bromodichloromethane		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	Bromodichloromethane		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	Bromodichloromethane		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-8B	Bromodichloromethane		0.0000	N/A	0.00	1.00	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-9B	Bromodichloromethane		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-9R	Bromodichloromethane		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	Bromodichloromethane		-0.0003	12.5	-0.06	0.56	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-10B	Bromodichloromethane		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-11	Bromodichloromethane		0.0000	N/A	0.00	1.00	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	Bromodichloromethane		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12	Bromodichloromethane		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12B	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-13	Bromodichloromethane																
COI	MW-13B	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-13D	Bromodichloromethane		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14B	Bromodichloromethane		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-15	Bromodichloromethane		0.0003	-12.9	0.03	0.79	28	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-16	Bromodichloromethane		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	Bromodichloromethane		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-16D	Bromodichloromethane		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	Bromodichloromethane		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	Bromodichloromethane		-0.0006	N/A	-0.10	0.84	7	None		-0.0006	N/A	-0.10	0.84	7	None		None
COI	MW-17D	Bromodichloromethane		-0.0104	447	-0.43	0.16	7	None		-0.0104	447	-0.43	0.16	7	None		None
COI	MW-3	Cadmium		-0.0001	5.11	-0.08	0.45	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3B	Cadmium		0.0000	1.84	-0.12	0.30	36	None		0.0001	N/A	0.11	0.64	10	None		None
COI	MW-3D	Cadmium		0.0000	2.12	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-4BR	Cadmium		-0.0010	39.8	-0.10	0.36	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-7	Cadmium		0.0000	1.38	-0.21	0.28	15	None		-0.0002	8.06	-0.80	0.07	5	None		None
COI	MW-7B	Cadmium		0.0000	0.82	-0.09	0.59	18	None		-0.0002	8.62	-0.40	0.36	5	None		None
COI	MW-8	Cadmium		-0.0001	2.64	-0.19	0.12	32	None		-0.0003	14.3	-0.27	0.22	10	None		None
COI	MW-8B	Cadmium		-0.0002	8.07	-0.20	0.07	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-9B	Cadmium		-0.0001	3.46	-0.14	0.22	36	None		-0.0008	33.5	-0.62	0.01	10	Dec.		None
COI	MW-9R	Cadmium		0.0000	0.12	-0.01	0.94	36	None		0.0000	0.12	0.02	1.00	10	None		None
COI	MW-10	Cadmium		0.0000	0.67	-0.09	0.46	35	None		-0.0001	4.76	-0.38	0.14	10	None		None
COI	MW-10B	Cadmium		-0.0001	2.53	-0.21	0.07	35	None		-0.0001	3.76	-0.42	0.10	10	None		None
COI	MW-11	Cadmium		0.0000	0.77	-0.06	0.72	23	None		0.0000	0.96	-0.10	1.00	5	None		None
COI	MW-11B	Cadmium		0.0000	0.36	-0.01	0.93	35	None		0.0004	-17.7	0.38	0.15	10	None		PAL
COI	MW-12	Cadmium		0.0000	-0.63	0.08	0.50	36	None		-0.0001	3.31	-0.24	0.36	10	None		None
COI	MW-12B	Cadmium		0.0030	-122	0.17	0.14	36	None		-0.0498	2142	-0.27	0.31	10	None		None
COI	MW-13	Cadmium																
COI	MW-13B	Cadmium		0.0000	0.11	0.00	0.99	36	None		-0.0248	1055	-0.36	0.12	10	None		None
COI	MW-13D	Cadmium		0.0000	-1.07	0.10	0.47	24	None		-0.0002	9.7	-0.29	0.22	10	None		None
COI	MW-14	Cadmium		0.0000	-1.44	0.01	0.93	36	None		0.0016	-69.2	0.20	0.32	10	None		None
COI	MW-14B	Cadmium		0.0005	-21.1	0.19	0.09	36	None		-0.0001	5.23	-0.24	0.36	10	None		None
COI	MW-15	Cadmium		-0.0001	6.53	-0.38	0.11	11	None		-0.0001	4.38	-0.33	1.00	3	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-16	Cadmium		0.0000	0.93	-0.12	0.54	14	None		-0.0001	N/A	-0.33	1.00	3	None		None
COI	MW-16B	Cadmium		0.0000	-0.49	0.02	0.91	24	None		-0.0005	19.9	-0.16	0.51	10	None		None
COI	MW-16D	Cadmium		0.0000	2.14	-0.12	0.44	20	None		0.0003	-10.9	0.07	1.00	6	None		None
COI	MW-17	Cadmium		-0.0004	15.2	-0.43	0.16	7	None		-0.0004	15.2	-0.43	0.16	7	None		None
COI	MW-17B	Cadmium		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17D	Cadmium		-0.0021	91.4	-0.52	0.08	7	None		-0.0021	91.4	-0.52	0.08	7	None		None
COI	MW-3	Chlorobenzene		-0.0025	108	-0.82	0.00	40	Dec.		-0.0001	8.03	-0.11	0.72	10	None		None
COI	MW-3B	Chlorobenzene		-0.0093	416	-0.40	0.00	40	Dec.		-0.0173	758	-0.42	0.11	10	None		PAL
COI	MW-3D	Chlorobenzene		-0.0004	15.6	-0.08	0.59	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-4BR	Chlorobenzene		-0.0025	133	-0.23	0.03	40	Dec.		0.0082	-322	0.36	0.18	10	None		PAL
COI	MW-7	Chlorobenzene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	Chlorobenzene		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	Chlorobenzene		-0.0284	1307	-0.27	0.03	32	Dec.		0.0160	-583	0.27	0.32	10	None		ES/PAL
COI	MW-8B	Chlorobenzene		-0.0185	848	-0.59	0.00	36	Dec.		0.0138	-519	0.47	0.07	10	None		PAL
COI	MW-9B	Chlorobenzene		-0.0001	5.04	-0.38	0.00	41	Dec.		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	Chlorobenzene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	Chlorobenzene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-10B	Chlorobenzene		-0.0001	4.56	-0.01	0.91	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-11	Chlorobenzene		0.0000	N/A	0.00	1.00	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	Chlorobenzene		0.0000	1.83	-0.04	0.72	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12	Chlorobenzene		-0.0004	16.6	-0.28	0.01	39	Dec.		-0.0016	70.9	-0.56	0.03	10	Dec.		None
COI	MW-12B	Chlorobenzene		-0.0008	44.2	-0.33	0.00	40	Dec.		0.0024	-93.8	0.49	0.06	10	None		None
COI	MW-13	Chlorobenzene																
COI	MW-13B	Chlorobenzene		-0.0096	467	-0.22	0.04	40	Dec.		0.0197	-783	0.69	0.00	11	Inc.		PAL
COI	MW-13D	Chlorobenzene		-0.0136	582	-0.51	0.00	24	Dec.		-0.0015	68.5	-0.04	0.93	10	None		None
COI	MW-14	Chlorobenzene		0.0009	-28.3	0.16	0.16	40	None		0.0043	-179	0.29	0.28	10	None		None
COI	MW-14B	Chlorobenzene		-0.0046	233	-0.21	0.05	40	None		0.0136	-549	0.53	0.04	10	Inc.		PAL
COI	MW-15	Chlorobenzene		-0.0013	54.4	-0.57	0.00	28	Dec.		-0.0005	20.9	-0.13	0.85	6	None		None
COI	MW-16	Chlorobenzene		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	Chlorobenzene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-16D	Chlorobenzene		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	Chlorobenzene		-0.0059	254	-0.29	0.34	7	None		-0.0059	254	-0.29	0.34	7	None		None
COI	MW-17B	Chlorobenzene		0.0072	-296	0.29	0.45	7	None		0.0072	-296	0.29	0.45	7	None		PAL
COI	MW-17D	Chlorobenzene		0.0074	-313	0.48	0.17	7	None		0.0074	-313	0.48	0.17	7	None		None
COI	MW-3	cis-1,2-Dichloroethene		-0.0010	40.3	-0.30	0.00	40	Dec.		-0.0005	23.2	-0.27	0.29	10	None		None
COI	MW-3B	cis-1,2-Dichloroethene		-0.0102	519	-0.10	0.38	40	None		0.0204	-845	0.69	0.01	10	Inc.		ES/PAL
COI	MW-3D	cis-1,2-Dichloroethene		-0.0110	491	-0.58	0.00	24	Dec.		0.0027	-94.6	0.16	0.59	10	None		PAL
COI	MW-4BR	cis-1,2-Dichloroethene		-0.0012	51.8	-0.29	0.01	40	Dec.		0.0023	-93.6	0.53	0.03	10	Inc.		None
COI	MW-7	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	cis-1,2-Dichloroethene		-0.0003	11.1	-0.13	0.28	32	None		0.0009	N/A	0.02	1.00	10	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-8B	cis-1,2-Dichloroethene		-0.0072	327	-0.59	0.00	36	Dec.		0.0050	-195	0.40	0.13	10	None		PAL
COI	MW-9B	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	cis-1,2-Dichloroethene		-0.0011	44.5	-0.48	0.00	39	Dec.		-0.0002	7.38	-0.40	0.11	10	None		None
COI	MW-10B	cis-1,2-Dichloroethene		-0.0302	1319	-0.63	0.00	39	Dec.		-0.0076	366	-0.33	0.21	10	None		PAL
COI	MW-11	cis-1,2-Dichloroethene		0.0122	-494	0.03	0.81	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	cis-1,2-Dichloroethene		-0.0022	99.5	-0.73	0.00	39	Dec.		-0.0010	51.2	-0.16	0.59	10	None		None
COI	MW-12	cis-1,2-Dichloroethene		-0.0001	4.73	-0.11	0.30	39	None		-0.0001	2.27	-0.04	0.92	10	None		None
COI	MW-12B	cis-1,2-Dichloroethene		0.0027	-102	0.60	0.00	40	Inc.		0.0000	12.0	0.00	1.00	10	None		PAL
COI	MW-13	cis-1,2-Dichloroethene																
COI	MW-13B	cis-1,2-Dichloroethene		-0.0023	93.4	-0.17	0.09	40	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-13D	cis-1,2-Dichloroethene		-0.2746	11962	-0.52	0.00	24	Dec.		-0.1883	8149	-0.40	0.13	10	None		ES/PAL
COI	MW-14	cis-1,2-Dichloroethene		0.0001	-5.41	0.08	0.46	40	None		-0.0001	3.29	0.00	1.00	10	None		None
COI	MW-14B	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-15	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	28	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-16	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	cis-1,2-Dichloroethene		-0.0006	28.6	-0.33	0.03	24	Dec.		-0.0006	27.0	-0.56	0.03	10	Dec.		None
COI	MW-16D	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	cis-1,2-Dichloroethene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	cis-1,2-Dichloroethene		-0.0238	1037	-0.90	0.01	7	Dec.		-0.0238	1037	-0.90	0.01	7	Dec.		PAL
COI	MW-17D	cis-1,2-Dichloroethene		0.1826	-7722	0.43	0.23	7	None		0.1826	-7722	0.43	0.23	7	None		ES/PAL
COI	MW-3	Methylene Chloride		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3B	Methylene Chloride		0.0048	-193	0.06	0.54	40	None		-0.0672	2856	-0.20	0.40	10	None		None
COI	MW-3D	Methylene Chloride		0.0007	-26.9	0.03	0.84	24	None		-0.0261	1111	-0.20	0.40	10	None		None
COI	MW-4BR	Methylene Chloride		0.0056	-224	0.03	0.78	40	None		-0.0112	478	-0.18	0.45	10	None		None
COI	MW-7	Methylene Chloride		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	Methylene Chloride		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	Methylene Chloride		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-8B	Methylene Chloride		-0.0013	55.8	0.00	0.97	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-9B	Methylene Chloride		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	Methylene Chloride		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	Methylene Chloride		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-10B	Methylene Chloride		0.0145	-587	0.02	0.81	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-11	Methylene Chloride		0.0000	N/A	0.00	1.00	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	Methylene Chloride		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12	Methylene Chloride		-0.0004	14.9	-0.03	0.75	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12B	Methylene Chloride		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-13	Methylene Chloride																
COI	MW-13B	Methylene Chloride		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-13D	Methylene Chloride		0.0504	-2074	0.03	0.82	24	None		-0.1248	5315	-0.11	0.67	10	None		None
COI	MW-14	Methylene Chloride		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-14B	Methylene Chloride		0.0018	-70.4	0.03	0.77	40	None		-0.0178	756	-0.20	0.39	10	None		None
COI	MW-15	Methylene Chloride		0.0000	N/A	0.00	1.00	28	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-16	Methylene Chloride		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	Methylene Chloride		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-16D	Methylene Chloride		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	Methylene Chloride		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	Methylene Chloride		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17D	Methylene Chloride		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-3	Naphthalene		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3B	Naphthalene		0.0000	1.56	-0.01	0.94	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3D	Naphthalene		-0.0075	312	-0.07	0.62	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-4BR	Naphthalene		-0.0398	1693	-0.43	0.00	40	Dec.		0.0120	-500	0.11	0.72	10	None		None
COI	MW-7	Naphthalene		-0.0008	32.4	-0.07	0.67	17	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-7B	Naphthalene		-0.0001	3.39	-0.04	0.83	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	Naphthalene		-0.0001	4.57	-0.01	0.96	32	None		0.0370	-1576	0.20	0.40	10	None		None
COI	MW-8B	Naphthalene		-0.0006	26.3	-0.02	0.86	36	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-9B	Naphthalene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	Naphthalene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	Naphthalene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-10B	Naphthalene		0.0004	-14.6	0.01	0.91	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-11	Naphthalene		0.0000	N/A	0.00	1.00	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	Naphthalene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12	Naphthalene		0.0001	-2.67	0.01	0.89	39	None		0.0011	-48.1	0.16	0.52	10	None		None
COI	MW-12B	Naphthalene		-0.0009	37.3	-0.05	0.64	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-13	Naphthalene																
COI	MW-13B	Naphthalene		-0.0001	6.16	-0.13	0.22	40	None		0.0000	0.58	0.00	1.00	11	None		None
COI	MW-13D	Naphthalene		0.0004	-14.2	0.02	0.91	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14	Naphthalene		-0.0001	3.18	-0.02	0.85	41	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14B	Naphthalene		0.0000	1.30	-0.04	0.74	41	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-15	Naphthalene		0.0000	N/A	0.00	1.00	28	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-16	Naphthalene		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	Naphthalene		0.0000	N/A	0.00	1.00	24	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-16D	Naphthalene		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	Naphthalene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	Naphthalene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17D	Naphthalene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-3	Trichloroethene		-0.0007	28.9	-0.15	0.12	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-3B	Trichloroethene		-0.0001	3.90	-0.06	0.56	40	None		0.0022	-95.2	0.22	0.34	10	None		PAL
COI	MW-3D	Trichloroethene		-0.0023	94.2	-0.45	0.00	24	Dec.		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-4BR	Trichloroethene		-0.0008	34.0	-0.17	0.11	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-7	Trichloroethene		0.0000	N/A	0.00	1.00	17	None		0.0000	N/A	0.00	1.00	5	None		None

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

				Long-Term Trend Results (2003 Through 2018)							5-Year Trend Results (2014 Through 2018)							2018
Analyte Type	Well	Analyte		Slope	Intercept	Tau	p-Level	n	Trend		Slope	Intercept	Tau	p-Level	n	Trend		Exceedance
COI	MW-7B	Trichloroethene		0.0000	N/A	0.00	1.00	18	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-8	Trichloroethene		0.0000	N/A	0.00	1.00	32	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-8B	Trichloroethene		-0.0029	118	-0.58	0.00	36	Dec.		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-9B	Trichloroethene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-9R	Trichloroethene		0.0000	N/A	0.00	1.00	41	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-10	Trichloroethene		-0.0004	15.4	-0.35	0.00	39	Dec.		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-10B	Trichloroethene		-0.0022	98.0	-0.65	0.00	39	Dec.		-0.0001	7.93	-0.09	0.79	10	None		PAL
COI	MW-11	Trichloroethene		0.0016	-63.5	0.03	0.80	27	None		0.0000	N/A	0.00	1.00	5	None		None
COI	MW-11B	Trichloroethene		-0.0004	16.1	-0.67	0.00	39	Dec.		-0.0001	6.94	-0.27	0.32	10	None		PAL
COI	MW-12	Trichloroethene		0.0000	N/A	0.00	1.00	39	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-12B	Trichloroethene		0.0000	-0.29	0.01	0.89	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-13	Trichloroethene																
COI	MW-13B	Trichloroethene		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	11	None		None
COI	MW-13D	Trichloroethene		-0.0019	82.4	-0.42	0.00	24	Dec.		0.0001	-1.42	0.00	1.00	10	None		PAL
COI	MW-14	Trichloroethene		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-14B	Trichloroethene		0.0000	N/A	0.00	1.00	40	None		0.0000	N/A	0.00	1.00	10	None		None
COI	MW-15	Trichloroethene		-0.0017	70.5	-0.22	0.08	28	None		0.0242	-1033	0.60	0.09	6	None		ES/PAL
COI	MW-16	Trichloroethene		0.0000	N/A	0.00	1.00	14	None		0.0000	N/A	0.00	1.00	3	None		None
COI	MW-16B	Trichloroethene		0.0000	2.04	-0.15	0.30	24	None		-0.0002	9.38	-0.24	0.33	10	None		None
COI	MW-16D	Trichloroethene		0.0000	N/A	0.00	1.00	20	None		0.0000	N/A	0.00	1.00	6	None		None
COI	MW-17	Trichloroethene		0.0000	N/A	0.00	1.00	7	None		0.0000	N/A	0.00	1.00	7	None		None
COI	MW-17B	Trichloroethene		-0.0008	36.3	-0.48	0.14	7	None		-0.0008	36.3	-0.48	0.14	7	None		None
COI	MW-17D	Trichloroethene		0.0019	-81.1	0.33	0.29	7	None		0.0019	-81.1	0.33	0.29	7	None		PAL

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Well ID	Chemical_Name Units Sample Date (Year-Month)	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-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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
MW-10	2016-09	370	0.89	5	7.9	2,012	45
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-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
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

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	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 (Year-Month)						
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	2295	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	1902	71
MW-10B	2017-09	390	< 0.5	1.8	7.3	2058	77
MW-10B	2018-04	462	2.0	0.7	7.9	2043	86.2
MW-10B	2018-09	283	1.5	1.9	7.1	3668	91.7
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
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	1957	38
MW-11	2018-09	320	1.4	6.6	7.3	3902	37.1
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
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

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Well ID	Chemical_Name Units Sample Date (Year-Month)	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-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	1551	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	1643	57
MW-11B	2017-09	250	< 0.5	0	7.2	1665	59
MW-11B	2018-04	270	1.6	1.6	8.0	1458	54.0
MW-11B	2018-09	238	1.3	0.2	7.1	3464	58.7
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
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	2159	11
MW-12	2016-09	340	2	1.9	7.3	2,078	37
MW-12	2017-04	330	2.1	0	6.9	2219	< 13
MW-12	2017-09	320	3.5	0	7.1	2224	41
MW-12	2018-04	47.8	1.5	0.0	7.8	920	105
MW-12	2018-09	214	2.7	0.5	7.2	3461	42.4
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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
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	1780	10
MW-12B	2016-09	250	4	5.4	7.4	1,712	< 13
MW-12B	2017-04	410	3.1	0	6.9	2342	< 13
MW-12B	2017-09	290	4.2	0	7.2	1932	8.2
MW-12B	2018-04	288	6.7	0.0	7.6	1938	8.5
MW-12B	2018-09	322	5.8	1.9	7.1	3722	8.6
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	

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Historical Groundwater Data - Indicator Parameters

	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	2103	< 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	

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
MW-13B	2007-09			0.82	8.5	1,900	
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	2492	< 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	2394	< 13
MW-13B	2017-09	320	8.7	0	6.8	1835	< 13
MW-13B	2018-04	323	8.9	1.0	7.6	2283	0.19
MW-13B	2018-09	345	8.1	1.1	6.9	4424	0.43
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	1968	42
MW-13D	2016-09	350	1.6	2.1	7.6	2,025	43
MW-13D	2017-04	340	1.7	0	7	1949	42
MW-13D	2017-09	380	1	2	7.2	2030	43
MW-13D	2018-04	405	4.6	0.0	7.8	2099	55.5
MW-13D	2018-09	403	2.3	0.3	7.3	4140	43.6
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	2367	29
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	2672	< 13
MW-14	2017-09	400	1.5	0	7.1	2443	< 25
MW-14	2018-04	489	5.0	0.0	7.8	2671	4.5
MW-14	2018-09	626	2.5	0.0	7.2	4693	10
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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
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	7.0	2395	< 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	2273	< 13
MW-14B	2017-09	280	5.4	0	7	2007	< 13
MW-14B	2018-04	313	6.9	2.1	8.1	2142	0.11
MW-14B	2018-09	313	6.5	0.0	7.1	4221	0.11
MW-15	2004-10	180	4.8	2.3	7.7	1,450	49

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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
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	2070	49
MW-15	2018-09	634	2.9	0.8	7.6	4556	75.2
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

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	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 (Year-Month)						
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
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	1798	34
MW-16	2018-09	303	1.1	5.0	7.3	3513	38.5
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	1983	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	1990	42

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
MW-16B	2017-09	350	< 0.5	5.7	7.6	1895	43
MW-16B	2018-04	394	2.0	4.4	8.0	1787	48.3
MW-16B	2018-09	343	1.2	5.3	7.4	3633	45.7
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	1953	74
MW-16D	2018-09	366	1.4	0.0	7.4	3619	76.2
MW-17	2015-11	220	3.4	0	6.6	1,765	35
MW-17	2016-04	220	3	1	6.9	1783	32
MW-17	2016-09	260	3.6	0	7.2	1,883	18
MW-17	2017-04	310	2.5	0	7	2094	< 13
MW-17	2017-09	270	3	0	7.3	2001	14
MW-17	2018-04	304	4.9	0.0	7.7	2091	8.7
MW-17	2018-09	220	3.4	0.0	7.2	3461	43.9
MW-17B	2015-11	230	4	0	6.6	1,667	31
MW-17B	2016-04	230	3.8	2.7	7.1	1970	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	1780	15

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Historical Groundwater Data - Indicator Parameters

Well ID	Chemical_Name Units Sample Date (Year-Month)	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-17B	2017-09	270	3.5	0	7.1	1819	17
MW-17B	2018-04	306	6.6	0.0	7.8	1938	8.9
MW-17B	2018-09	305	5.2	0.0	7.0	3694	13.7
MW-17D	2015-11	73	1.1	10.8	7.1	913	100
MW-17D	2016-04	93	0.62	5.6	7.1	1304	90
MW-17D	2016-09	300	2.1	0	7.3	1,760	40
MW-17D	2017-04	330	0.74	0	6.9	1938	40
MW-17D	2017-09	370	0.58	0	7.3	2019	38
MW-17D	2018-04	367	2.9	0.0	7.9	2064	35.1
MW-17D	2018-09	396	2.1	0.0	7.0	3886	40.5
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

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Historical Groundwater Data - Indicator Parameters

Well ID	Chemical_Name Units Sample Date (Year-Month)	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	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
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	2318	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	2240	< 13
MW-3	2017-09	320	3.5	0	7	2268	< 13
MW-3	2018-04	412	5.9	0.8	7.7	2273	
MW-3	2018-09	352	5.3	0.0	7.0	4424	0.70
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
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	

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Historical Groundwater Data - Indicator Parameters

Well ID	Chemical_Name Units Sample Date (Year-Month)	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-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	1447	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	2146	27
MW-3B	2017-09	360	< 0.5	0	7.1	2056	43
MW-3B	2018-04	417	5.5	1.4	7.7	2179	20.4
MW-3B	2018-09	430	1.7	0.0	7.1	4291	43.6
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	1046	25
MW-3D	2016-09	130	1.3	2.4	7.4	1,080	23
MW-3D	2017-04	120	1.1	0	7	1415	21
MW-3D	2017-09	120	0.74	0	7.3	1076	22
MW-3D	2018-04	185	2.0	0.4	7.8	1183	25.0
MW-3D	2018-09	172	1.6	0.0	7.3	3275	26.3
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	

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Historical Groundwater Data - Indicator Parameters

	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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
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	2367	< 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	2280	< 13
MW-4BR	2017-09	310	14	0	6.9	2445	< 13
MW-4BR	2018-04	337	15.2	2.0	7.7	2339	
MW-4BR	2018-09	306	11.8	0.0	7.4	4493	0.12
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	7.0	3079	18.7
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	1218	71
MW-7B	2018-09	161	1.1	0.2	7.2	2074	75.4
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

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	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
MW-8	2009-12	270	16.1	1.6	7.7	2,000	< 1.5
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	2554	14
MW-8	2016-09	350	5.3	2.6	8.1	2,487	< 5
MW-8	2017-04	350	4	0	6.6	2488	< 13
MW-8	2017-09	320	11	0	7	2502	< 13
MW-8	2018-04	376	12.8	1.8	7.5	2518	14.0
MW-8	2018-09	349	9.0	0.5	7.0	4585	0.92
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
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

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Historical Groundwater Data - Indicator Parameters

	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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	1865	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	1880	17
MW-8B	2017-09	260	6.6	0	7.2	1931	15
MW-8B	2018-04	315	7.4	1.0	7.7	1728	16.5
MW-8B	2018-09	278	6.8	0.0	7.3	3918	17.8
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

Appendix D

Historical Groundwater Data - Indicator Parameters

	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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
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	3259	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	1513	26
MW-9B	2017-09	190	0.87	2.2	7.8	728	23
MW-9B	2018-04	279	1.9	0.0	7.8	1408	23.6
MW-9B	2018-09	251	1.5	0.0	6.9	3298	22.6

Appendix D

Historical Groundwater Data - Indicator Parameters

	Chemical_Name Units	Chloride mg/L	Dissolved Organic Carbon mg/L	Dissolved Oxygen mg/L	pH s.u.	Specific Conductance µmhos/cm @25 C	Sulfate mg/L
Well ID	Sample Date (Year-Month)						
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
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

Appendix D

Historical Groundwater Data - Indicator Parameters

Well ID	Chemical_Name Units Sample Date (Year-Month)	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-9R	2016-04	140	1.9	0	7.1	1320	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	1832	36
MW-9R	2017-09	690	0.53	0	7.1	3310	29
MW-9R	2018-04	416	2.9	0.0	7.3	2168	38.8
MW-9R	2018-09	235	2.9	1.4	6.9	3425	29.7

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

Prepared By: JAR5
Checked By: DJM4

Appendix E

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

Appendix E

Historical Groundwater Data - Indicator Parameters

Well ID	Chemical_Name Report_Result_Unit / Sample Date (Year-Month)	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-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
Median		130	1.7	5.4	7.2	1,166	30
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
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

Appendix E

Historical Groundwater Data - Indicator Parameters

Well ID	Chemical_Name Report_Result_Unit / Sample Date (Year-Month)	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	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
Median		255	5.3	0.6	7	2,025	13

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

s.u. = standard pH units

mg/L = milligram per liter

Prepared By: JAR5

Checked By: DJM4