



May 29, 2018

Ms. Jennifer Borski
Hydrogeologist
Remediation & Redevelopment Program
Wisconsin Dept. of Natural Resources
625 E. Cty. Road Y, Ste. 700
Oshkosh, WI 54901

Subject: Transmittal of 2017 Annual Groundwater Monitoring Report – Former We Energies Appleton MGP Site, 337 Water St., Appleton, WI

Dear Ms. Borski:

Enclosed for your information and file is the 2017 Annual Groundwater Monitoring Report for the above referenced site. Copies of the notifications to the abutting property owners are also attached. As noted in the current report and in previous correspondence, we are again requesting DNR's formal response and acknowledgement to our January, 2016 "Request for Technical Assistance" (with \$700 review fee), and subsequent technical memo report (submitted June 6, 2016) on the sub-slab sampling and vapor intrusion (VI) assessment, previously completed per the WDNR-approved workplan, at the Fox River Mills property adjacent to the former Appleton MGP site. As noted, we believe that this report clearly documents the absence of a complete VI pathway at the site.

Please do not hesitate to contact me at (414) 221-2156 or via email at frank.dombrowski@we-energies.com if you have any questions or if further information may be required.

Sincerely,

A handwritten signature in black ink that reads "Frank Dombrowski".

Frank Dombrowski
Principal Environmental Consultant
WEC Energy Group - Business Services
Environmental Dept.

enclosure

CC: Project File
W. Musekamp, We Energies
B. Hennings, NRT

2017 Annual Report
January 1, 2017 through December 31, 2017
Appleton City (Coal Tar), aka Appleton MGP
337 Water Street, Appleton, Wisconsin

WEC Business Services, LLC
We Energies

May 29, 2018



MAY 29, 2018 | PROJECT #67973

2017 Annual Report

January 1, 2017 through December 31, 2017

Appleton City (Coal Tar), aka Appleton MGP
337 Water Street, Appleton, Wisconsin

Prepared for:

WEC Business Services, LLC
We Energies
333 W Everett Street
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BRIAN G. HENNINGS, PG
Managing Hydrogeologist

"I, BRIAN G. HENNINGS, HEREBY CERTIFY THAT I AM A HYDROGEOLOGIST AS THAT TERM IS DEFINED IN S. NR 712.03 (1), WIS. ADM. CODE, AM REGISTERED IN ACCORDANCE WITH THE REQUIREMENTS OF CH. GHSS 2, WIS. ADM. CODE, OR LICENSED IN ACCORDANCE WITH THE REQUIREMENTS OF CH. GHSS 3, WIS. ADM. CODE, AND THAT, TO THE BEST OF MY KNOWLEDGE, ALL OF THE INFORMATION CONTAINED IN THIS DOCUMENT IS CORRECT AND THE DOCUMENT WAS PREPARED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS IN CHS. NR 700 TO 726, WIS. ADM. CODE."



KRISTEN L. THEESFELD
Hydrogeologist

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
cm	centimeters
DNAPL	dense non-aqueous phase liquid
ES	Enforcement Standard
ft	feet/foot
ISS	in-situ solidification
MGP	manufactured gas plant
NAPL	non-aqueous phase liquid
NRT	Natural Resource Technology, Inc.
NRT/OBG	Natural Resource Technology, an OBG Company
O&M	Operations and Maintenance
OBG	O'Brien & Gere Engineers, Inc.
ORP	oxidation-reduction potential
PAL	Preventative Action Limit
sec	second
WBS	WEC Business Services
yr	year

EXECUTIVE SUMMARY

Groundwater flow directions are consistent with previous years. Groundwater quality data collected during 2017 are also consistent with previous data collected at the site. Wells with the highest concentrations of contaminants are located in the lower till unit beneath the in-situ solidification (ISS) treatment area. Concentration trends in these wells are primarily flat or decreasing.

Concentrations of contaminants in groundwater south of the canal (Area 2) are lower than those observed within the former MGP site north of the Canal (Area 1). Trends in Area 2 wells vary between increasing, flat, and decreasing. Residual dense non-aqueous phase liquid (DNAPL) is measurable in two wells screened in the upper weathered bedrock unit of Area 2 and one well screened in the lower till unit of Area 1. DNAPL levels are stable and no more than 1-gallon of product has been recovered from wells during quarterly site visits.

The current program of quarterly and semi-annual monitoring is proposed to continue for 2018 for evaluation of concentration trends. DNAPL monitoring will also continue, however, DNAPL recovery will be discontinued.

1 2017 FIELD ACTIVITIES

Field activities covered in this report on the former MGP property (Figure 1) began in January 2017. Quarterly site visits were made in accordance with the 2017 Groundwater Monitoring Plan. Several wells were noted as damaged (Table 1) during the January and April 2017 sampling events, and water levels could not be collected. In August 2017, repairs were made to MW-23 by GESTRA Engineering, Inc. with oversight from O'Brien & Gere Engineers, Inc. (OBG). MW-23 was resurveyed on January 22, 2018.

2 GROUNDWATER FLOW

Due to differences in groundwater flow conditions between the former MGP property (Figure 2) to the north of the Fox River, and the island of land surrounding Building 415, the two areas have been considered to be separate groundwater flow (hydrogeologic) areas (Figure 3). Hydrogeologic Area 1 includes the former MGP property, completed remediation area, and surrounding areas to the north of the Fox River. Hydrogeologic Area 2 includes the island of land south of the Fox River Canal where Building 415 is located.

Area 1 is located entirely upstream of the Middle Appleton Dam and hydroelectric units. Groundwater in Area 1 is monitored in the lower till/weathered bedrock unit (the flow zone below and surrounding the ISS treatment area, referred to as the “lower till” in this report) and the bedrock unit (wells are screened in more competent rock 10 to 15 feet (ft) below the weathered bedrock). Surface water in Area 1 is monitored at staff gauge SG-3. (see conceptual model profiles in Appendix C).

Area 2 is located on an island that is part of a collection of dams and hydroelectric units that span the Fox River and are collectively referred to as the Middle Appleton Dam. Building 415 and the areas around the building within Area 2 are effectively an extension of the Middle Appleton Dam spanning the distance between the surface water control gates south of Building 415 and the Hydroelectric Unit between Buildings 415 and 405. Groundwater in Area 2 is monitored in the fill unit (water table) and the upper weathered bedrock unit that is equivalent to the lower till/weathered bedrock unit present in Area 1. Upstream surface water is monitored from SG-3 (the same as Area 1); downstream surface water is monitored from SG-4 which is the outflow of water from the hydroelectric unit between Buildings 415 and 405 (see conceptual model profiles in Appendix C). Surface water measured from SG-4 represents surface water elevation on the downstream side of the Middle Appleton Dam. Water levels observed at SG-4 are typically 10 ft lower than water levels observed at SG-3.

Summary tables of groundwater conditions provided in this report include: a groundwater elevation table (Table 1); vertical gradient calculations (Table 2); and, horizontal groundwater velocity calculations for Area 2 (Table 3). Tables 2 and 3 were not updated for 2017 since groundwater conditions in 2016 were similar to those during 2017. Piezometric surface maps for Areas 1 and 2 are presented on Figures 4a through 7.

2.1 LOWER TILL GROUNDWATER FLOW (AREA 1)

Groundwater measurements in Area 1 were taken on a semi-annual basis during the months of April and October 2017 (Table 1). Semi-annual piezometric surface maps (Figures 4a and 4b) were prepared to illustrate groundwater flow. Groundwater elevation readings from shallow wells MW-08, MW-09, MW-10, and MW-19S are provided for reference on the lower till groundwater figures, but are not included in the contouring because these wells are screened above the lower till.

The lower till piezometric surface maps continue to display two distinct regions of groundwater flow in the lower till:

- A western region, defined by the area between monitoring wells MW-02R, MW-12R, MW-13R, MW-19, MW-20, MW 21, and MW-25
- An eastern region, defined by the area between monitoring wells MW-20, MW-21, MW-22, and MW-24

The western region of the lower till is characterized by variable flow directions and hydraulic gradients. The change in head across the western region was approximately 1.0 ft, so the piezometric surface was contoured in tenths of a foot, when necessary, to illustrate flow direction. At this contour interval, peaks and troughs continue to occur in the western region without regular pattern or apparent seasonality. The variable flow patterns observed beneath the western portion of the site (including small scale flow reversals) are likely due to the convergence of upgradient recharge coming from the west and influx from the canal towards the site. Hydraulic gradients in this region continue to be lower than the eastern region. MW-25 has consistently higher groundwater elevations than neighboring wells and flow maps (Figures 4a and 4b) indicate this well is upgradient of the ISS treatment area.

The eastern region of the lower till is located closer to the Middle Appleton Dam and is characterized by consistent northeasterly flow direction. In proximity to MW-24, groundwater flow has a greater easterly component, towards the Fox River. The horizontal hydraulic gradient was calculated as approximately 0.0033. Horizontal groundwater flow velocity in this region is estimated to be around 50 ft/year (yr) (NRT, 2016). The more consistent flow direction and gradient is associated with closer proximity to the dam. Groundwater elevation readings collected from MW-24 downgradient of the site indicate the hydraulic gradients observed in the eastern region of the lower till continue toward the Middle Appleton Dam.

The surface water elevation measurements from SG-3 are consistently higher than the lower till groundwater elevation measurements from the wells on both sides of the canal (e.g., April 2017 MW-22 and PZ-23, Figures 4a and 7a); indicating that the canal is behaving as a losing stream.

2.2 BEDROCK GROUNDWATER FLOW (AREA 1)

Groundwater elevation measurements were collected from bedrock wells in April 2017. Bedrock groundwater flow direction continues to be northeasterly (Figure 5), consistent with previous measurements and similar to the large-scale lower till groundwater flow direction.

2.3 WATER TABLE GROUNDWATER FLOW (AREA 2)

Soil borings completed during installation of monitoring wells in this area indicate the presence of fill material over weathered bedrock. Water table wells (MW-23, MW-26, MW-27, and MW-28) monitor shallow groundwater flow and quality in Area 2. Groundwater flow maps were generated using quarterly groundwater data collected in January, April, July, and October 2017 (Figures 6a - 6d).

Water table groundwater flow is influenced by an historic needle dam structure, drains associated with Building 415, and a hydroelectric unit. The needle dam structure, located between wells MW-26 and MW-28 was identified through file searches and confirmed by the property manager (Figure 6a). Drains associated with Building 415 were identified through site visits and sub-slab investigation activities which indicate the presence of drains that redirect groundwater below Building 415 to the downstream side of the hydroelectric unit located between Buildings 415 and 405 (Figures 6a - 6d, and conceptual model profiles, Appendix C). File searches also indicate the infrastructure of the hydroelectric unit located between Buildings 405 and 415 was constructed with a flume that extends deep into the bedrock. The remnant of the needle dam, the western wall of Building 415, and the hydroelectric turbine infrastructure form a structural barrier to shallow groundwater flow indicated by the orange line on Figures 6a - 6d. Water table elevations collected from MW-26, immediately downgradient of the historic needle dam structure, are consistently 4 to 5 ft lower than water table elevations of the other wells. MW-26 is not believed to be directly connected with wells on the other side of this structural barrier as indicated in Figures 6a-6d.

Groundwater flows from southwest to northeast across Area 2 toward Building 415 where it is intercepted by drains and discharged in the Fox River near SG-4 on the downstream side of the hydroelectric unit (Figure 6a). Groundwater elevations observed at MW-26 have been stable around the elevation 712, which is about 8-ft lower than the surface water elevation of the Fox River upstream of the dam (SG-3) and about 2 ft higher than the surface water elevation of the Fox River downstream of the dam (SG-4). Note that the groundwater elevations at MW-26 remain stable even though the surface water downstream of the dam changes a few feet between sampling events (Figures 6a - 6d) which suggests that the water table around MW-26 is not strongly influenced by changes in downstream, or upstream, surface water elevation. Relatively stable groundwater elevations at MW-26 likely reflect controls by drains that run under Building 415 which also creates a consistent north and northeast groundwater flow.

Slug testing was completed at the new well locations screened in the fill material of Area 2 (MW-26, MW-27, and MW 28) on July 15, 2015 and included in the 2015 Annual Report. Calculated conductivity values ranged from a maximum of 1.0×10^{-2} cm/sec to a minimum of 1.8×10^{-3} cm/sec and a mean value of 5.1×10^{-3} cm/sec, which is within the expected range for sandy fill that was encountered in the area (NRT, 2015).

Groundwater flow had northeast and southeast components across Area 2 during the last four quarters of sampling, which is consistent with flow direction during previous sampling events. 2017 groundwater flow is consistent with previous flow in Area 2. Hydraulic gradients and vertical gradients were last calculated for the 2016 Annual Report (NRT/OBG, 2017). Hydraulic gradients were calculated to be 0.0486, much steeper than those of Area 1, due to the drains below Building 415. Flow velocity in Area 2 was calculated using slug test conductivity values, the hydraulic gradient near MW-27, and an effective porosity of 30% (Maidment, 1993). Groundwater velocity in the fill unit was calculated to be 862 ft/yr in Area 2 (Table 3).

Vertical gradients were calculated for all nested wells in Area 2. The vertical gradients are generally downward and range from 2.9×10^{-1} to 8.1×10^{-3} (Table 2) which is consistent for wells located upgradient of a dam. The most frequent exception is well nest 27 where vertical gradients have been consistently and strongly upward at around 2.3×10^{-1} . The upward gradients observed at this location are caused by the close proximity of these wells to the building drains which effectively lower the elevation of the water table (MW 27) relative to potentiometric head in the upper weathered bedrock below (PZ-27).

2.4 UPPER WEATHERED BEDROCK GROUNDWATER FLOW (AREA 2)

Area 2 weathered bedrock monitoring wells PZ-23, PZ-26, PZ-27, and PZ-28 (Figures 7a - 7d) are screened in material that is similar in origin to the lower till/weathered bedrock in Area 1. Wells are screened in the top 15 ft of weathered bedrock. The building drains and former needle dam structure do not extend into the weathered bedrock and do not influence groundwater flow in this unit, as reflected by the southerly groundwater flow direction.

Groundwater flow in the weathered bedrock was from northwest to southeast across Area 2 during the last four quarters of sampling (Figures 7a - 7d.), which is consistent with flow direction during previous sampling events. Groundwater flow in the weathered bedrock is roughly perpendicular to water table flow in Area 2.

Slug testing was completed at PZ-27 on July 15, 2015 and included in the 2015 Annual Report. Calculated conductivity values ranged from a maximum of 1.2×10^{-2} cm/sec to a minimum of 9.4×10^{-3} cm/sec and a mean value of 1.0×10^{-2} cm/sec, which is within the expected range for weathered or fractured bedrock (NRT, 2015).

Flow velocity through the bedrock in Area 2 was calculated using slug test conductivity values, the hydraulic gradient, and an effective porosity of 15% (Maidment, 1993). Groundwater velocity was calculated to be 5,089 ft/yr (Table 3) which is not unreasonable for groundwater flow through weathered or fractured rock. Groundwater flow velocities observed in the upper weathered bedrock of Area 2 appear to be driven by the steep gradient between headwaters of the dam (SG-3) and the tailwater (SG-4). Calculated flow velocities are limited to vicinity of the dam structures. Flow velocities outside the influence of the dam are expected to be similar to those in the lower till in Area 1.

3 GROUNDWATER QUALITY

Groundwater analytical results are summarized in Tables 4 to 7, presented on Figures 8 to 14, and included in Appendix B. BTEX and naphthalene have been identified as indicators of MGP constituents in groundwater, with benzene being the most frequently detected BTEX compound above the NR140 Enforcement Standard (ES) at the site. Benzene and naphthalene concentration versus time and concentration versus elevation trend graphs for locations with more than 4 rounds of data are included in Appendices D1 and D2 with trends summarized in Table 8. Arsenic results for Area 1 and Area 2 are also discussed in section 3.5 below.

3.1 LOWER TILL GROUNDWATER QUALITY (AREA 1)

Groundwater analytical results from MW-25 (upgradient) and MW-24 (downgradient) establish the lateral extents of the groundwater plume in the lower till of Area 1. The continued variable flow pattern in the lower till suggests that neither Mann Kendall nor Mann Whitney statistical analyses may be appropriate for trend analysis. Concentration versus time graphs, concentration versus groundwater level graphs, and isoconcentration contours provide the best means to evaluate concentration trends and plume stability.

Isoconcentration contours are generated using the annual data collected in April of each year for benzene and naphthalene (Figures 8 and 9). The isoconcentration lines fluctuate slightly from year to year but remain in the same general location over time; indicating the plume is stable. Groundwater data from wells MW-24 and MW-25 allow for isoconcentration lines to be drawn that estimate the limits of benzene and naphthalene concentrations in groundwater above their respective ESs in Area 1. Isoconcentration lines on Figures 8 and 9 indicate the limits of the plume are adequately defined by the monitoring well network.

The graphs of concentrations over time illustrate variable yet relatively stable trends in benzene and naphthalene concentrations at individual well locations. Concentration versus time and concentration versus groundwater elevation trend graphs for benzene and naphthalene in lower till wells were updated and illustrate that concentrations remain relatively stable over time (Appendix D1 and Table 8). Trends were also calculated using only data collected within the last 5 years (Appendix D2) to evaluate more recent groundwater trends. Examining both long and short timeframes, groundwater trends in Area 1 are primarily flat or decreasing. MW-12R exhibits long-term increasing benzene and naphthalene trends, however, 5-year trends of both parameters are flat. Long-term naphthalene trends at MW-13R are increasing while 5-year trends are flat. Within the last five years, benzene trends at MW-12R have shifted from decreasing to flat, and long-term trends at MW-13R show a shift from flat to decreasing. There were no changes of observed naphthalene trends within Area 1 Lower Till monitoring wells.

Upgradient well MW-25 continues to show an increasing trend for both benzene and naphthalene (Appendix D1 and Table 8). Concentrations of benzene and naphthalene at MW-25 have been detected above and below the ES and provide adequate upgradient definition of groundwater impacts in the lower till. Naphthalene was observed above the ES for the first time in October 2016, and have since decreased to below the ES. Benzene observations have been below the ES in 9 of 13 sampling events since the well was completed in 2013. This is consistent with the conceptual site model that MW-25 is located at the very upgradient edge of the benzene plume in the lower till. Neither benzene nor naphthalene show a strong correlation with groundwater elevations at MW-25.

3.2 BEDROCK GROUNDWATER QUALITY (AREA 1)

Benzene concentrations have decreased below the ES in Area 1 bedrock wells, and naphthalene concentrations have decreased below ES in Area 1 bedrock wells except for PZ 22B (Tables 4 and 5). Concentration graphs illustrate concentration trends in the bedrock at individual well locations (Figure 10). Concentration versus time and concentration versus groundwater elevation trend graphs for benzene and naphthalene were also updated and illustrate stable to decreasing long-term trends in all deep bedrock wells (Appendix D1 to D2 and Table 8). PZ-21B shifted from an increasing 5-year naphthalene trend to a flat trend. There was no change in long-term trends or 5-year benzene trend at PZ-21B. PZ-20B and PZ-22B have increasing 5-year naphthalene trends, but concentrations remain below the ES and long-term trends are stable. Benzene also has an increasing 5-year trend at PZ-22B, however, concentrations are below the ES and long-term trends are decreasing.

Isoconcentration lines were not generated for the bedrock wells due to the presence of benzene and naphthalene detections above the ES being limited to a single well (PZ-22B).

3.3 WATER TABLE GROUNDWATER QUALITY (AREA 2)

Of the four water table wells in Area 2, MW-28 and MW-23 contain very low to non-detectable concentrations of BTEX and naphthalene (Table 4). Analytical sampling of MW-23 ceased in 2012 after three sampling events with no naphthalene detections, and seven events with no BTEX detections. Monitoring of BTEX and naphthalene continues at MW-28 with no observable detections. MW-26 and MW-27 have exceeded the ES for benzene since their installation in 2015. MW-27 has also exceeded the ES for naphthalene since its installation. However, concentrations of benzene and naphthalene in wells MW-26 and MW-27 are lower than concentrations observed in the lower till wells MW-21 and MW-22 (Area 1). Results have been graphed and are presented on Figures 12 and 13. Concentration versus time and concentration versus groundwater elevation trend graphs were created for benzene and naphthalene in wells MW-26 and MW-27. The plots indicate increasing trends for benzene and naphthalene at MW-27, and decreasing trends for both parameters at MW-26 (Appendix D1 to D2 and Table 8). Neither benzene nor naphthalene show a strong correlation with groundwater elevations.

3.4 UPPER WEATHERED BEDROCK GROUNDWATER QUALITY (AREA 2)

Bedrock wells PZ-26 and PZ-28 contain measurable amounts of free product (Table 9). No groundwater analysis is completed when product is present. Further discussion of free product (NAPL observations) is provided below in Section 3.6. Remaining bedrock wells in Area 2, PZ-23 and PZ-27, have exceeded the ES for benzene and naphthalene during all sampling events since their installation, however, they remain lower than observed concentrations in lower till wells MW-21 and MW-22 (Area 1). Benzene and naphthalene concentrations have been graphed and presented on Figure 14. Long-term trend graphs produced for PZ-23 indicate flat trends for both benzene and naphthalene (Appendix D1) and decreasing 5-year trends (Appendix D2) for benzene, previously flat trending, and naphthalene, no change. PZ-27 exhibits flat trends for benzene and decreasing trends for naphthalene, which have shifted from increasing and flat, respectively (Appendix D1 to D2 and Table 8).

3.5 ARSENIC IN GROUNDWATER

Annual monitoring of arsenic was completed in Area 1 and Area 2 (Table 6). In Area 1, samples were taken at wells screened in the lower till. The highest arsenic concentrations continue to be observed in the lower till near the center of the site around MW-13R, MW-20, and MW-21, while concentrations at the upgradient and downgradient monitoring wells (MW-24 and MW-25) remain below the ES (Figure 11). Bedrock wells have been below the ES and are no longer being sampled for arsenic.

Area 2 wells are scheduled for annual arsenic sampling, contingent on the absence of NAPL, with the exception of MW-23. Sampling was discontinued at MW-23 in 2010, after six consecutive samples below the ES. Water table wells MW-26 and MW-28 contained arsenic concentrations that exceeded the ES during both sampling events (Table 6). MW-27 arsenic concentrations were above the PAL in April 2017 and above the ES in July 2017. Of the lower till/ weathered bedrock wells in Area 2, PZ-23 and PZ-27 had detections of arsenic above the PAL (Table 6). PZ-26 and PZ-28 have not been sampled recently, due to free product in both wells; however, neither well had arsenic detections when first installed in 2015.

Arsenic concentrations in Area 2 are lower than those observed in Area 1 lower till wells MW-21 and MW-22. Arsenic will continue to be monitored in Areas 1 and 2 to evaluate trends.

3.6 NAPL OBSERVATIONS (AREA 1 AND AREA 2)

In Area 1, non-aqueous phase liquid (NAPL) observations and thickness measurements (Table 9) indicate measurable amounts of dense NAPL (DNAPL) are present in lower till wells MW-20 and MW-21 ranging from 0.01 ft (trace quantities) to 0.25 ft. Despite the presence of DNAPL, benzene trend plots show flat and decreasing long-term trends at MW-20 and MW-21, respectively, and naphthalene trends are also flat.

In Area 2, measurable amounts of DNAPL are present in shallow bedrock wells PZ-26 and PZ-28. DNAPL thickness ranged from a 0.25 ft to up to 5.3 ft (Table 9). PZ-26 had an inconsistent NAPL thickness measurement of 14 ft in July of 2017, however, readings taken less than one month later indicate a thickness consistent with previous measurements.

NAPL was not observed in rock recovered during installation of wells PZ-26 and PZ-28 indicating that NAPL thicknesses observed in these wells represents accumulation in the well. Conversely, oil droplets and a strong MGP-like odor were noted in the rock recovered from 17-20 ft below ground surface (bgs) in PZ-27 of Area 2. This piezometer was constructed from across the zone of NAPL observations (15-20 ft bgs) with filter pack extending up to 15 ft bgs. Regardless of the well screen and filter pack overlapping with observations of NAPL in this boring location, no measurable NAPL has been observed in PZ-27.

DNAPL recovery was initiated in April 2015 at PZ-26 using small pump; however, recent attempts to remove product have not been successful as the pumps are not able to lift the DNAPL. The thickness of product measured and the volume of product removed from the well have remained relatively stable since the initial recovery in April 2015 (Table 9). Based on DNAPL thickness measurements, the calculated total volume of DNAPL in each well is approximately 2.5 to 3.0 gallons. However, no more than 1 gallon of product has been recovered from the well during quarterly sampling visits. Based on these observations, the thickness of DNAPL will continue to be monitored during future sampling events, but attempts will not be made to recover DNAPL from the wells.

3.7 LIMIT OF GROUNDWATER IMPACTS

Groundwater flow in the lower till in Area 1 is illustrated on Figures 4a and 4b. Topographic characteristics of the area immediately to the north of Water St. prevent the installation of monitoring wells which may otherwise be used to conclusively define lateral extent in this direction. To visualize groundwater flow outside of the well network north of the ISS area, a conceptual flow model was created for the 2014 Annual Report (Appendix C, Figure 11). Prior to the installation of the series of dams that span the Fox River in Appleton, groundwater would flow from upland areas (bluffs) toward the Fox River and discharge into the river, making the Fox River a gaining stream. Following the placement of the dam, groundwater flow upstream of the dam is locally reversed as increased surface water elevations caused a reversal of the hydraulic gradient and flow away from the canal, inland towards water flowing down from the bluffs (surface water recharge). This changed the river immediately upstream of the dam from a gaining stream (receiving groundwater) to a losing stream (discharging surface water into the ground) adjacent to the former MGP Site. Upland recharge is deflected downstream as it encounters the water flowing in from the river. Consequently, groundwater passing beneath the former MGP Site converges with the upland recharge and flows to the north around the dam (Appendix C, Figure 11). The flow from the upland bluffs creates a naturally occurring hydraulic barrier to further northward groundwater flow and contaminant migration beyond the area where these groundwater flow paths converge.

The information presented in the conceptual model was used to develop a line representing the limit of groundwater impacts (Figure 15). The limit of groundwater impacts (Figure 15) is based on groundwater data collected from site wells and the conceptual model which indicates groundwater flow paths converge between West Water Street and the top of the bluffs. Unclosed benzene contours from Figure 8 are included on this figure with examples of closed contours drawn using the limit of groundwater impacts. Exceedances of other constituents of concern (ethylbenzene, toluene, xylenes, and naphthalene) also occur within the limit of groundwater impacts.

NAPL and groundwater impacts observed in Area 2 are consistent with our conceptual site model (CSM) presented as a series of profiles in Appendix C. The conceptual model includes Area 1 and Area 2, including details of Building 415. Pre-remedial conditions are illustrated on CSM-1 where NAPL deposited in the Fox River (removed during remedial construction, CSM-2) may have been the source for NAPL observed in shallow bedrock of Area 2 (Appendix C). The CSM-3 and CSM-4 illustrate the location of soil vapor probes and the relationship between groundwater and Building 415. Investigation of Building 415 indicates drains are present that lower the water table below the lowest occupied level of the building which allows for sub-slab vapor investigation.

4 SUMMARY AND PROJECT DIRECTION

Data collected from 2017 groundwater monitoring indicate the following:

- The vapor intrusion pathway is incomplete. We Energies requests WDNR provide formal acknowledgement that vapor intrusion has been adequately assessed at the site.
- In Area 1, with the exception PZ-22B, benzene and naphthalene concentrations in the deep bedrock have declined below their corresponding ESs. Long-term analysis of benzene and naphthalene at PZ-22B indicate stable to decreasing trends. In the lower till, variable groundwater flow patterns continue to be present in the western portion of the site, though they are only apparent when contoured to tenths of a foot. The extent of the area of variable flow is defined by MW-25. Residual DNAPL is stable in wells MW-20 and MW-21. Concentrations of benzene and naphthalene in the lower till wells are variable, but generally flat or decreasing, with the exception of wells MW-25, MW-12R and MW-13R. This may be indicative of plume behavior at this site. “Hot spots” may appear and disappear within the plume, while the plume remains in the same relative location (as indicated by isoconcentration lines). The presence of a groundwater hydraulic barrier located between West Water Street and the top of the bluffs allows for the limit of groundwater impacts north of the Fox River to be estimated and closed concentration contour lines to be drawn. MW-24 defines the downgradient limit of impacts.
- In Area 2, the presence of DNAPL has been observed in wells (PZ-26 and PZ-28) screened in upper weathered bedrock. DNAPL measurements are relatively stable and no more than 1-gallon of product has been removed during quarterly sampling events. Monitoring wells PZ-23 and PZ-27 have ES exceedances of benzene and naphthalene with flat or decreasing trends. In the water table zone, no DNAPL has been observed. Monitoring wells MW-26 and MW-27 contain benzene and naphthalene concentrations above the ES. Monitoring wells MW-23 and MW-28 have significantly lower (to non-detectable) benzene and naphthalene concentrations. Water table wells exhibit benzene and naphthalene trends that are close to stable. All Area 2 water table and upper weathered bedrock wells have lower concentrations than the lower till wells MW-21 and MW-22 in Area 1. These results are consistent with the conceptual site model where trace amounts of MGP residual are contained within lower till/upper weathered bedrock. The upland and river sources of MGP residuals were removed during remedial construction.

4.1 GROUNDWATER MONITORING PROGRAM

Semi-annual monitoring (Table 10) is proposed to continue for Area 1 monitoring wells (north of the Fox River canal) similar to 2017.

Shallow bedrock piezometers and water table wells located south of the Fox River Canal (Area 2) will continue to be sampled quarterly (Table 10) similar to 2017, including the following:

- DNAPL monitoring will continue quarterly at PZ-26 and PZ-28. Frequency of DNAPL monitoring and removal will be re-evaluated annually.
- Based on the results of quarterly monitoring and analysis of trend graphs through 2017, Area 2 will move into a semi-annual monitoring schedule commencing in 2018.
- Arsenic monitoring will continue on an annual basis.

4.2 FUTURE REPORTING

We propose to submit the following documents in 2018:

- A semi-annual progress report will be submitted electronically in July 2018 that will incorporate activities between January 1 and June 30.
- The 2018 Annual Report will be prepared in early 2019 and will include:
 - » Summary tables and figures of the groundwater sampling events.

- » Operation and Maintenance reporting form 4400-194 will be submitted.
- The property associated with hydrogeologic Area 1 is planned for redevelopment by the City of Appleton for recreational use (i.e., park grounds) in 2019. Continuing obligations for materials management, cover maintenance and Operations and Maintenance (O&M) of the property are being developed in consultation with WDNR, WEC Energy Group, and the City of Appleton.
- 10-Day notification letters and data summaries will be prepared for the Fox River Mills Apartments as required by regulation following groundwater monitoring events.

REFERENCES

Maidment, D., 1993, Handbook of Hydrogeology, section 6.3.1, page 6.9, McGraw-Hill Inc.

Natural Resource Technology, Inc., April 2016, 2015 Annual Groundwater Report, Dated April 8, 2016. Table 3a.

Natural Resource Technology, Inc., December 2015, December 2015 Technical Memorandum. Dated December 23, 2015.

Natural Resource Technology, an OBG Company, April 2017, 2016 Annual Update report, Dated April 13, 2017.



Tables

Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-02	727.34	726.01	721.94		02/18/02	721.06	6.28
					05/07/02	721.45	5.89
					08/19/02	720.15	7.19
					9/6/2002	720.78	6.56
					11/12/02	720.84	6.50
					02/20/03	719.78	7.56
					05/22/03	722.15	5.19
					08/01/03	722.96	4.38
Well Abandoned, replaced with MW-2R							
MW-02R	743.93 D	741.41	706.00	43.02	10/19/04	720.26	23.67
					11/30/04	720.43	23.50
					01/11/05	720.62	23.31
					02/08/05	720.36	23.57
					03/08/05	720.47	23.46
					04/18/05	720.56	23.37
					07/05/05	720.35	23.58
					10/17/05	720.32	23.61
					01/10/06	720.45	23.48
					04/19/06	720.64	23.29
					07/19/06	720.27	23.66
					08/28/06	720.31	23.62
					10/24/06	720.27	23.66
					03/08/07	720.35	23.58
					04/25/07	720.43	23.50
					10/08/07	720.45	23.48
					04/07/08	721.16	22.77
					10/20/08	720.43	23.50
					04/20/09	720.65	23.28
					09/15/09	720.51	23.42
					10/07/09	720.45	23.48
					04/06/10	720.56	23.37
					10/04/10	720.72	23.21
					01/18/11	720.60	23.33
					04/11/11	721.58	22.35
					07/13/11	720.63	23.30
					10/03/11	720.62	23.31



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<i>MW-02R cont.</i>					10/10/11	718.75	25.18
					10/14/11	718.77	25.16
					10/20/11	718.52	25.41
					11/17/11	719.23	24.70
					01/04/12	720.11	23.82
					04/23/12	720.66	23.27
					06/26/12	720.12	23.81
					09/12/12	719.99	23.94
					01/28/13	720.41	23.52
					04/23/13	721.85	22.08
					07/16/13	720.61	23.32
					10/15/13	719.97	23.96
					04/29/14	721.43	22.50
					10/13/14	720.33	23.60
					04/21/15	720.72	23.21
					10/19/15	720.49	23.44
					04/21/16	721.25	22.68
					10/04/16	720.75	23.18
					04/19/17	721.28	22.65
					10/23/17	719.14	24.79
MW-08	726.19	724.51			02/18/03	720.37	5.82
					05/07/02	720.20	5.99
					08/19/02	719.88	6.31
					9/6/2002	719.77	6.42
					11/12/02	719.93	6.26
					02/20/03	719.98	6.21
					05/22/03	721.64	4.55
					08/01/03	720.89	5.30
					10/18/04	720.90	5.29
					12/02/04	720.08	6.11
					01/11/05	719.98	6.21
					02/10/05	720.12	6.07
					03/10/05	719.96	6.23
					04/19/05	720.21	5.98
					07/07/05	719.91	6.28
					10/17/05	719.94	6.25
					01/11/06	720.00	6.19
					04/20/06	720.04	6.15
					07/20/06	719.88	6.31
					08/28/06	719.92	6.27
					10/24/06	719.80	6.39
					03/08/07	719.97	6.22
					04/26/07	720.01	6.18
					10/09/07	720.28	5.91
					04/08/08	721.54	4.65
					10/20/08	719.90	6.29



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2017 Annual Update

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<i>MW-08 cont.</i>					04/20/09	720.11	6.08
					09/15/09	720.08	6.11
					10/08/09	719.94	6.25
					04/07/10	720.33	5.86
					10/05/10	720.27	5.92
					01/18/11	720.10	6.09
					04/12/11	720.78	5.41
					07/13/11	720.01	6.18
					10/03/11	720.28	5.91
					10/10/11	718.88	7.31
					10/14/11	718.91	7.28
					10/20/11	718.41	7.78
					11/17/11	719.71	6.48
					01/04/12	719.57	6.62
					04/23/12	720.14	6.05
					06/26/12	719.70	6.49
					09/12/12	719.62	6.57
					01/28/13	720.01	6.18
					04/23/13	721.37	4.82
					07/16/13	720.31	5.88
					10/15/13	719.60	6.59
					04/29/14	721.06	5.13
					10/13/14	720.03	6.16
					04/21/15	720.34	5.85
					10/19/15	720.15	6.04
					04/21/16	720.80	5.39
					10/04/16	720.50	5.69
					04/19/17	720.78	5.41
					10/23/17	719.90	6.29
MW-09	727.47	725.46			02/18/03	721.00	6.47
					05/07/02	721.17	6.30
					08/19/02	720.60	6.87
					9/6/2002	720.47	7.00
					11/12/02	720.75	6.72
					02/20/03	720.62	6.85
					05/22/03	721.38	6.09
					08/01/03	721.13	6.34
					10/18/04	720.52	6.95
					12/02/04	721.34	6.13
					01/11/05	720.65	6.82
					02/08/05	720.75	6.72
					03/10/05	720.59	6.88
					04/20/05	720.79	6.68
					07/07/05	720.53	6.94
					10/17/05	720.59	6.88
					01/11/06	720.89	6.58



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2017 Annual Update

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MW-09 cont.					04/20/06	720.59	6.88
					07/20/06	720.49	6.98
					08/28/06	720.57	6.90
					10/24/06	720.66	6.81
					03/08/07	720.51	6.96
					04/26/07	720.77	6.70
					10/09/07	720.83	6.64
					04/08/08	721.44	6.03
					10/20/08	720.63	6.84
					04/20/09	721.07	6.40
					09/15/09	720.77	6.70
					10/08/09	720.71	6.76
					04/07/10	721.04	6.43
					10/05/10	721.23	6.24
					01/18/11	720.96	6.51
					04/12/11	721.57	5.90
					07/13/11	Not Accessible	
					10/04/11	720.77	6.70
					10/10/11	719.94	7.53
					10/14/11	719.78	7.69
					10/20/11	719.32	8.15
					11/17/11	720.11	7.36
					01/04/12	720.29	7.18
					04/23/12	721.09	6.38
					06/26/12	720.61	6.86
					09/12/12	720.35	7.12
					01/28/13	720.66	6.81
					04/23/13	722.30	5.17
					07/16/13	721.18	6.29
					10/15/13	720.49	6.98
					04/29/14	721.95	5.52
					10/13/14	720.94	6.53
					04/21/15	720.98	6.49
					10/19/15	720.78	6.69
					04/21/16	721.48	5.99
					10/04/16	721.35	6.12
					04/19/17	721.62	5.85
					10/23/17	720.14	7.33
MW-10	740.66	738.96			02/18/02	727.10	13.56
					05/07/02	726.69	13.97
					08/19/02	725.73	14.93
					9/6/2002	725.78	14.88
					11/12/02	726.14	14.52
					02/20/03	726.24	14.42
					05/22/03	725.53	15.13
					08/01/03	724.69	15.97



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Well Relocated after WWTP Demolition in 2012							
MW-10 cont.					01/28/13	722.72	17.94
					04/23/13	725.14	15.52
					07/16/13	723.72	16.94
					10/15/13	722.52	18.14
					04/29/14	Well Damaged	
					04/21/15	Well Damaged	
					10/19/15	Well Damaged	
					04/21/16	Well Damaged	
					10/04/16	Well Damaged	
					04/19/17	Well Damaged	
					10/23/17	722.81	17.85
MW-12D	727.58	725.68	713.08		02/18/02	720.98	6.60
					05/07/02	721.04	6.54
					08/19/02	720.53	7.05
					09/06/02	720.59	6.99
					11/12/02	720.79	6.79
					02/20/03	720.66	6.92
					05/20/03	721.12	6.46
					08/05/03	717.55	10.03
Well Abandoned, replaced with MW-12R							
MW-12R	728.31 D	725.71	710.71	25.10	10/21/04	720.48	7.83
					11/30/04	720.60	7.71
					01/11/05	720.57	7.74
					02/10/05	720.70	7.61
					03/08/05	720.61	7.70
					04/20/05	720.79	7.52
					07/07/05	720.48	7.83
					10/19/05	720.57	7.74
					01/12/06	720.62	7.69
					04/20/06	720.63	7.68
					07/20/06	720.47	7.84
					08/28/06	720.52	7.79
					10/23/06	720.54	7.77
					03/08/07	720.57	7.74
					04/26/07	720.67	7.64
					10/09/07	720.67	7.64
					04/08/08	721.12	7.19
					10/20/08	719.66	8.65
					04/20/09	720.60	7.71
					09/15/09	719.68	8.63
					10/08/09	720.52	7.79
					04/07/10	720.79	7.52
					10/04/10	720.85	7.46
					01/18/11	720.70	7.61
					04/12/11	721.44	6.87
					07/13/11	720.63	7.68
					10/03/11	720.73	7.58



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<i>MW-12R cont.</i>					10/10/11	719.07	9.24
					10/14/11	719.08	9.23
					10/20/11	718.56	9.75
					11/17/11	719.42	8.89
					01/04/12	720.08	8.23
					04/24/12	720.63	7.68
					06/26/12	720.12	8.19
					09/12/12	720.17	8.14
					01/28/13	720.53	7.78
					01/28/13	720.53	7.78
					04/23/13	721.74	6.57
					07/16/13	720.62	7.69
					10/15/13	719.87	8.44
					04/29/14	721.33	6.98
					10/13/14	720.54	7.77
					04/21/15	720.77	7.54
					10/20/15	720.64	7.67
				04/21/16	721.17	7.14	
				10/04/16	720.99	7.32	
				04/19/17	721.16	7.15	
				10/23/17	719.09	9.22	
PZ-12B	727.41	725.02	694.02	45.89	10/21/04	711.99	15.42
					11/30/04	712.31	15.10
					01/11/05	712.66	14.75
					02/10/05	712.74	14.67
					03/08/05	712.81	14.60
					04/20/05	712.78	14.63
					07/07/05	712.31	15.10
					10/19/05	712.19	15.22
					01/12/06	712.47	14.94
					04/20/06	713.34	14.07
					07/20/06	711.81	15.60
					08/28/06	711.49	15.92
					10/23/06	712.39	15.02
					03/08/07	711.95	15.46
					04/26/07	712.22	15.19
					10/09/07	712.53	14.88
					04/08/08	713.41	14.00
					10/20/08	711.97	15.44
					04/20/09	713.24	14.17
					09/15/09	711.78	15.63
				10/08/09	712.23	15.18	
				04/07/10	713.40	14.01	
				10/04/10	712.98	14.43	
				01/18/11	712.83	14.58	
				04/12/11	713.93	13.48	
				07/13/11	713.29	14.12	
				10/03/11	713.71	13.70	



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<i>PZ-12B cont.</i>					10/10/11	713.32	14.09
					10/14/11	713.32	14.09
					10/20/11	712.93	14.48
					11/17/11	713.06	14.35
					01/04/12	713.34	14.07
					04/24/12	713.77	13.64
					06/26/12	713.48	13.93
					09/12/12	712.90	14.51
					04/23/13	714.56	12.85
					07/16/13	713.44	13.97
					10/15/13	712.81	14.60
					04/29/14	714.45	12.96
					10/13/14	713.36	14.05
					04/21/15	713.56	13.85
					10/19/15	713.25	14.16
					04/21/16	714.22	13.19
					10/04/16	713.60	13.81
					04/19/17	714.23	13.18
MW-13D	726.07	723.99	710.57		02/18/02	720.97	5.10
					05/07/02	720.86	5.21
					08/19/02	720.46	5.61
					9/6/2002	720.35	5.72
					11/12/02	720.82	5.25
					02/20/03	720.58	5.49
					05/20/03	720.95	5.12
					08/05/03	717.24	8.83
Well Abandoned, replaced with MW-13R							
MW-13R	726.72	724.22	707.22	25.00	10/20/04	720.20	6.52
					12/02/04	720.68	6.04
					01/12/05	720.42	6.30
					02/09/05	720.62	6.10
					03/10/05	720.49	6.23
					04/19/05	720.68	6.04
					07/06/05	720.29	6.43
					10/19/05	720.35	6.37
					01/10/06	720.59	6.13
					04/19/06	720.69	6.03
					07/19/06	720.44	6.28
					08/28/06	720.44	6.28
					10/24/06	720.30	6.42
					03/08/07	720.47	6.25
					04/25/07	720.37	6.35
					10/08/07	720.55	6.17
					04/08/08	721.08	5.64
					10/20/08	720.05	6.67



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<i>MW-13R cont.</i>					04/20/09	721.24	5.48
					09/15/09	720.63	6.09
					10/07/09	720.33	6.39
					04/06/10	720.60	6.12
					10/04/10	720.79	5.93
					01/18/11	720.67	6.05
					04/11/11	721.24	5.48
					07/13/11	720.63	6.09
					10/03/11	720.69	6.03
					10/10/11	718.41	8.31
					10/14/11	718.44	8.28
					10/20/11	718.08	8.64
					11/17/11	719.06	7.66
					01/04/12	720.13	6.59
					04/23/12	720.65	6.07
					06/26/12	720.09	6.63
					09/13/12	720.13	6.59
					01/28/13	720.47	6.25
					04/23/13	721.55	5.17
					07/16/13	720.58	6.14
					10/15/13	719.84	6.88
					04/29/14	721.22	5.50
					10/13/14	720.43	6.29
					04/21/15	720.66	6.06
					10/20/15	720.49	6.23
					04/21/16	720.87	5.85
					10/04/16	720.81	5.91
					04/19/17	720.90	5.82
					10/23/17	718.85	7.87



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MW-19S	746.81	744.21	729.71	29.6	10/19/04	722.94	23.87
					12/01/04	723.58	23.23
					01/12/05	724.62	22.19
					02/09/05	724.94	21.87
					03/10/05	720.72	26.09
					04/20/05	726.32	20.49
					07/06/05	724.19	22.62
					10/17/05	723.61	23.20
					01/11/06	725.04	21.77
					04/19/06	Well damaged	
					08/28/06	Well damaged	
					10/23/06	Well damaged	
	743.59	744.10	729.7	29.6	03/08/07	Well under 3-ft of snow	
Well surveyed 05/11/07					04/26/07	727.02	16.57
					10/09/07	723.69	19.9
					04/08/08	730.46	13.13
					10/20/08	723.72	19.87
					04/20/09	727.48	16.11
					09/15/09	723.74	19.85
					10/08/09	723.61	19.98
					04/07/10	726.65	16.94
					10/05/10	725.90	17.69
					01/18/11	Not Accessible	
					04/12/11	734.82	8.77
					07/13/11	726.29	17.3
					10/04/11	724.27	19.32
					10/10/11	724.36	19.23
					10/14/11	724.49	19.1
					10/20/11	724.47	19.12
					11/17/11	725.36	18.23
					01/04/12	725.64	17.95
					04/23/12	727.41	16.18
					06/26/12	724.71	18.88
					09/12/12	723.27	20.32
					01/28/13	724.75	18.84
					04/23/13	732.74	10.85
					07/16/13	726.78	16.81
					10/15/13	723.74	19.85
					04/29/14	729.70	13.89
					10/13/14	724.93	18.66
					04/21/15	726.94	16.65
					10/19/15	725.09	18.50
					04/21/16	731.22	12.37
					10/04/16	725.73	17.86
					04/19/17	731.14	12.45
					10/23/17	724.79	18.80



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-19D	746.40	744.09	708.09	45.81	10/19/04	720.16	26.24
					12/01/04	720.37	26.03
					01/11/05	720.26	26.14
					02/09/05	720.35	26.05
					03/10/05	720.42	25.98
					04/20/05	720.54	25.86
					07/06/05	720.13	26.27
					10/17/05	720.25	26.15
					01/11/06	720.38	26.02
					04/19/06	Well damaged	
					07/20/06	n/a	23.22
					08/28/06	n/a	23.45
					10/23/06	n/a	23.11
	743.35	744.10	708.1		03/08/07	Well under 3-ft of snow	
Well surveyed 05/11/07					04/26/07	720.43	22.92
					10/09/07	720.34	23.01
					04/08/08	720.97	22.38
					10/20/08	720.25	23.10
					04/20/09	720.58	22.77
					09/15/09	720.20	23.15
					10/08/09	720.29	23.06
					04/07/10	720.57	22.78
					10/05/10	720.62	22.73
					01/18/11	Well under ice and snow	
					04/12/11	721.43	21.92
					07/13/11	720.52	22.83
					10/04/11	720.59	22.76
					10/10/11	718.85	24.50
					10/14/11	718.91	24.44
					10/20/11	718.58	24.77
					11/17/11	719.24	24.11
					01/04/12	719.90	23.45
					04/23/12	720.56	22.79
					06/26/12	719.97	23.38
					09/12/12	719.93	23.42
					01/28/13	720.28	23.07
					04/23/13	721.77	21.58
					07/16/13	720.48	22.87
					10/15/13	719.78	23.57
					04/29/14	721.32	22.03
					10/13/14	720.25	23.10
					04/21/15	720.60	22.75
					10/19/15	720.37	22.98
					04/21/16	721.22	22.13
					10/04/16	720.70	22.65
					04/19/17	721.15	22.20
					10/23/17	719.03	24.32



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-20	739.06	736.46	710.46	36.1	10/20/04	720.38	18.68
					11/30/04	720.52	18.54
					01/11/05	720.52	18.54
					02/08/05	720.47	18.59
					03/09/05	720.44	18.62
					04/18/05	720.65	18.41
					07/05/05	720.47	18.59
					10/17/05	719.95	19.11
					01/10/06	720.54	18.52
					04/19/06	720.69	18.37
					07/20/06	720.36	18.70
					08/28/06	720.45	18.61
					10/24/06	720.12	18.94
					03/08/07	720.49	18.57
					04/25/07	720.41	18.65
					10/08/07	720.57	18.49
					04/09/08	721.13	17.93
					10/20/08	720.55	18.51
					04/20/09	720.64	18.42
					09/15/09	720.62	18.44
					10/07/09	720.51	18.55
					04/06/10	720.62	18.44
					10/04/10	720.79	18.27
					01/18/11	720.63	18.43
					04/11/11	721.18	17.88
					07/13/11	720.40	18.66
					10/03/11	720.67	18.39
					10/10/11	717.04	22.02
					10/14/11	717.12	21.94
					10/20/11	716.91	22.15
					11/17/11	719.03	20.03
					01/04/12	720.12	18.94
					04/23/12	720.66	18.40
					06/26/12	720.09	18.97
					09/12/12	720.12	18.94
					01/28/13	720.47	18.59
					04/23/13	721.52	17.54
					07/16/13	720.63	18.43
					10/15/13	719.95	19.11
					04/29/14	721.22	17.84
					10/13/14	720.43	18.63
					04/21/15	720.77	18.29
					10/19/15	720.57	18.49
					04/21/16	720.88	18.18
					10/04/16	720.96	18.10
					04/19/17	721.08	17.98
					10/23/17	719.07	19.99



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
PZ-20B	739.31	736.49	692.49	59.32	10/20/04	711.96	27.35
					11/30/04	712.27	27.04
					01/11/05	712.45	26.86
					02/08/05	712.55	26.76
					03/09/05	712.64	26.67
					04/18/05	712.69	26.62
					07/05/05	712.29	27.02
					10/17/05	712.05	27.26
					01/10/06	712.27	27.04
					04/19/06	713.19	26.12
					07/20/06	711.78	27.53
					08/28/06	711.45	27.86
					10/24/06	711.27	28.04
					03/08/07	711.92	27.39
					04/25/07	712.09	27.22
					10/08/07	712.47	26.84
					04/07/08	713.41	25.90
					10/20/08	712.23	27.08
					04/20/09	712.62	26.69
					09/15/09	711.67	27.64
					10/07/09	712.14	27.17
					04/06/10	712.92	26.39
					10/04/10	712.82	26.49
					01/18/11	712.59	26.72
					04/11/11	713.83	25.48
					07/13/11	713.17	26.14
					10/03/11	713.64	25.67
					10/10/11	713.23	26.08
					10/14/11	713.16	26.15
					10/20/11	712.86	26.45
					11/17/11	713.01	26.30
					01/04/12	713.24	26.07
					04/23/12	713.68	25.63
					06/26/12	713.35	25.96
					09/12/12	712.79	26.52
					04/23/13	714.51	24.80
					07/16/13	713.40	25.91
					10/15/13	712.71	26.60
					04/29/14	714.37	24.94
					10/13/14	713.27	26.04
					04/21/15	713.51	25.80
					10/19/15	713.05	26.26
					04/21/16	714.06	25.25
					10/04/16	713.51	25.80
					04/19/17	714.11	25.20



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-21	728.20	726.09	712.09	24.11	10/20/04	720.45	7.75
					12/02/04	720.52	7.68
					01/12/05	720.43	7.77
					02/09/05	720.51	7.69
					03/09/05	720.52	7.68
					04/19/05	720.79	7.41
					07/06/05	720.28	7.92
					10/18/05	720.33	7.87
					01/11/06	720.60	7.60
					04/20/06	720.72	7.48
					07/19/06	720.46	7.74
					08/28/06	720.50	7.70
					10/24/06	720.33	7.87
					03/08/07	720.49	7.71
					04/26/07	720.68	7.52
					10/08/07	720.67	7.53
					04/09/08	721.58	6.62
					10/20/08	720.45	7.75
					04/20/09	720.63	7.57
					09/15/09	720.66	7.54
					10/07/09	720.53	7.67
					04/06/10	720.62	7.58
					10/04/10	720.90	7.30
					01/18/11	720.68	7.52
					04/11/11	721.65	6.55
					07/13/11	720.65	7.55
					10/03/11	720.73	7.47
					10/10/11	716.59	11.61
					10/14/11	716.63	11.57
					10/20/11	716.33	11.87
					11/17/11	719.47	8.73
					01/04/12	720.20	8.00
					04/23/12	720.84	7.36
					06/26/12	720.11	8.09
					09/12/12	720.15	8.05
					01/28/13	720.52	7.68
					04/23/13	721.92	6.28
					07/16/13	720.72	7.48
					10/15/13	719.93	8.27
					04/29/14	721.50	6.70
					07/21/14	720.05	8.15
					10/13/14	720.46	7.74
					04/21/15	720.92	7.28
					10/19/15	720.76	7.44
					04/21/16	721.19	7.01
					10/04/16	721.07	7.13
					04/19/17	721.36	6.84
					10/23/17	719.19	9.01



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
PZ-21B	728.13	725.70	694.20	46.43	10/20/04	711.93	16.20
					12/02/04	712.32	15.81
					01/12/05	712.63	15.50
					02/09/05	712.66	15.47
					03/09/05	712.64	15.49
					04/19/05	712.69	15.44
					07/06/05	712.22	15.91
					10/18/05	712.15	15.98
					01/10/06	712.40	15.73
					04/20/06	713.19	14.94
					07/19/06	711.80	16.33
					08/28/06	711.47	16.66
					10/24/06	711.38	16.75
					03/08/07	711.93	16.20
					04/26/07	712.21	15.92
					10/08/07	712.52	15.61
					04/09/08	713.53	14.60
					10/20/08	712.15	15.98
					04/20/09	712.96	15.17
					09/15/09	711.66	16.47
					10/07/09	712.16	15.97
					04/06/10	712.24	15.89
					10/04/10	712.81	15.32
					01/18/11	712.55	15.58
					04/11/11	713.83	14.30
					07/13/11	713.12	15.01
					10/03/11	713.64	14.49
					10/10/11	713.23	14.90
					10/14/11	713.25	14.88
					10/20/11	712.91	15.22
					11/17/11	713.02	15.11
					01/04/12	713.21	14.92
					04/24/12	713.66	14.47
					06/26/12	713.36	14.77
					09/12/12	712.78	15.35
					04/23/13	714.51	13.62
					07/16/13	713.41	14.72
					10/15/13	712.72	15.41
					04/29/14	714.34	13.79
					10/13/14	713.24	14.89
					04/21/15	713.51	14.62
					10/19/15	713.04	15.09
					04/21/16	714.06	14.07
					10/04/16	713.45	14.68
					04/19/17	714.09	14.04



Table 1 - Groundwater Elevation Summary

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We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-22	728.42	725.88	707.88	25.54	10/18/04	719.34	9.08
					12/01/04	719.50	8.92
					01/11/05	719.51	8.91
					02/08/05	719.45	8.97
					03/09/05	719.45	8.97
					04/19/05	719.85	8.57
					07/06/05	719.35	9.07
					10/18/05	719.33	9.09
					01/10/06	719.51	8.91
					04/19/06	719.80	8.62
					07/19/06	719.38	9.04
					08/28/06	719.39	9.03
					10/24/06	719.19	9.23
					03/08/07	719.23	9.19
					04/25/07	719.40	9.02
					10/09/07	719.64	8.78
					04/09/08	720.36	8.06
					10/20/08	719.50	8.92
					04/20/09	719.82	8.60
					09/15/09	719.58	8.84
					10/07/09	719.79	8.63
					04/06/10	719.79	8.63
					10/04/10	720.01	8.41
					01/18/11	719.67	8.75
					04/11/11	720.69	7.73
					07/13/11	719.84	8.58
					10/03/11	719.78	8.64
					10/10/11	714.51	13.91
					10/14/11	714.50	13.92
					10/20/11	714.54	13.88
					11/17/11	719.10	9.32
					01/04/12	719.33	9.09
					04/23/12	719.95	8.47
					06/26/12	719.30	9.12
					09/13/12	719.18	9.24
					01/28/13	719.40	9.02
					04/23/13	720.76	7.66
					07/16/13	719.77	8.65
					10/15/13	719.25	9.17
					04/29/14	720.37	8.05
					10/13/14	719.51	8.91
					04/21/15	719.76	8.66
					10/19/15	719.44	8.98
					04/21/16	720.08	8.34
					10/04/16	719.83	8.59
					04/19/17	719.74	8.68
					10/23/17	718.50	9.92



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
PZ-22B	727.63	725.02	693.72	46.51	10/18/04	711.82	15.81
					12/01/04	712.10	15.53
					01/11/05	712.21	15.42
					02/08/05	712.32	15.31
					03/09/05	712.40	15.23
					04/19/05	712.53	15.10
					07/06/05	711.95	15.68
					10/18/05	711.79	15.84
					01/10/06	712.11	15.52
					04/19/06	712.85	14.78
					07/19/06	711.58	16.05
					08/28/06	711.23	16.40
					10/24/06	711.23	16.40
					03/08/07	711.69	15.94
					04/25/07	711.90	15.73
					10/09/07	712.25	15.38
					04/09/08	712.77	14.86
					10/20/08	711.90	15.73
					04/20/09	712.59	15.04
					09/15/09	710.91	16.72
					10/07/09	711.82	15.81
					04/06/10	712.55	15.08
					10/04/10	712.37	15.26
					01/18/11	712.15	15.48
					04/11/11	713.39	14.24
					07/13/11	712.67	14.96
					10/03/11	713.29	14.34
					10/10/11	712.88	14.75
					10/14/11	712.87	14.76
					10/20/11	712.55	15.08
					11/17/11	712.76	14.87
					01/04/12	712.80	14.83
					04/23/12	713.31	14.32
					06/26/12	712.95	14.68
					09/12/12	712.41	15.22
					04/23/13	714.24	13.39
					07/16/13	713.15	14.48
					10/15/13	712.40	15.23
					04/29/14	714.05	13.58
					10/13/14	712.92	14.71
					04/21/15	713.29	14.34
					10/19/15	712.65	14.98
					04/21/16	713.78	13.85
					10/04/16	713.22	14.41
					04/19/17	713.75	13.88



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-23	Well Installed 9/15/2008						
	723.65	724.1	712.6	16.05	10/20/08	719.92	3.73
					02/19/09	719.67	3.98
					04/20/09	719.87	3.78
					09/15/09	719.62	4.03
	Well surveyed 10/9/2009				10/08/09	719.57	4.08
	723.65	724.07	712.6	16.08	11/12/09	719.66	3.99
					04/07/10	719.41	4.24
					10/05/10	719.69	3.96
					01/18/11	719.34	4.31
					04/12/11	719.74	3.91
					07/13/11	719.53	4.12
					10/04/11	719.66	3.99
					10/10/11	714.13	9.52
					10/14/11	714.03	9.62
					10/20/11	Not Accessible	
					11/17/11	718.34	5.31
					01/04/12	718.81	4.84
					04/24/12	719.37	4.28
					06/26/12	718.98	4.67
					09/12/12	719.27	4.38
					01/28/13	719.24	4.41
					04/23/13	719.88	3.77
					07/16/13	719.37	4.28
					10/15/13	719.17	4.48
					04/29/14	719.67	3.98
					05/14/14	719.89	3.76
					10/13/14	Not Accessible	
					01/28/15	718.77	4.88
					04/22/15	718.92	4.73
					07/14/15	718.62	5.03
					10/19/15	719.19	4.46
					01/07/16	718.77	4.88
					04/21/16	719.29	4.36
					07/14/16	Not Accessible	
					10/04/16	719.31	4.34
					04/19/17	719.19	4.46
	Well surveyed 1/22/2018				07/12/17	718.87	4.78
	723.433	724.025			10/23/17	718.25	5.18



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
PZ-23	Well Installed 10/05/2009						
	723.56	723.94	703.94	24.62	10/08/09	719.56	4.00
					11/12/09	719.59	3.97
					02/02/10	719.28	4.28
					04/07/10	719.30	4.26
					10/05/10	719.59	3.97
					01/18/11	719.17	4.39
					04/12/11	719.67	3.89
					07/13/11	719.39	4.17
					10/04/11	719.50	4.06
					10/10/11	713.78	9.78
					10/14/11	713.76	9.80
					10/20/11	713.67	9.89
					11/17/11	718.14	5.42
					01/04/12	718.68	4.88
					04/24/12	719.18	4.38
					06/26/12	718.84	4.72
					09/12/12	718.96	4.60
					01/29/13	718.90	4.66
					04/23/13	719.88	3.68
					07/17/13	719.19	4.37
					10/15/13	718.67	4.89
					04/29/14	719.42	4.14
					05/12/14	719.64	3.92
					05/14/14	719.62	3.94
					07/21/14	718.78	4.78
					10/13/14	718.92	4.64
					01/28/15	718.67	4.89
					04/22/15	718.61	4.95
					07/14/15	718.23	5.33
					10/20/15	718.46	5.10
					01/07/16	718.21	5.35
					04/21/16	718.58	4.98
					07/14/16	718.34	5.22
					10/04/16	718.64	4.92
					01/08/17	718.25	5.31
					04/19/17	718.41	5.15
	Well surveyed 1/22/2018				07/12/17	718.17	5.39
	736.71	734.375			10/23/17	717.23	6.33
MW-24	Well Installed 1/14/2013						
	736.87	734.6	709.31	32.56	01/29/13	718.33	18.54
					04/23/13	720.19	16.68
					07/17/13	718.43	18.44
					10/15/13	718.02	18.85
					04/29/14	719.79	17.08
					10/14/14	718.45	18.42
					04/22/15	719.27	17.60
					10/20/15	718.68	18.19
					04/22/16	720.41	16.46
					10/05/16	719.65	17.22
					04/19/17	720.42	16.45
					10/23/17	719.15	17.72



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-25	Well Installed 1/15/2013						
	730.30	727.73	709.05	26.25	01/28/13	720.89	9.41
					04/23/13	722.83	7.47
					07/16/13	721.32	8.98
					10/15/13	720.44	9.86
					04/29/14	722.36	7.94
					10/14/14	720.69	9.61
					04/21/15	721.28	9.02
					10/20/15	720.72	9.58
					04/21/16	722.19	8.11
					10/05/16	721.21	9.09
					04/19/17	722.29	8.01
					10/23/17	720.30	10.00
MW-26	Well Installed 04/06/2015						
	722.87	723.26	718.26	14.85	04/22/15	712.07	10.80
					07/14/15	712.07	10.80
					10/19/15	712.51	10.36
					01/07/16	712.13	10.74
					04/22/16	712.61	10.26
					07/14/16	711.84	11.03
					10/05/16	717.56*	5.31*
					01/08/17	712.23	10.64
					04/19/17	712.49	10.38
					07/12/17	712.09	10.78
					10/23/17	711.90	10.97
PZ-26	Well Installed 04/15/2014						
	723.26	723.28	703.30	24.78	04/29/14	712.84	10.42
					05/12/14	713.01	10.25
					05/14/14	712.95	10.31
					07/21/14	711.88	11.38
					10/14/14	711.71	11.55
					01/28/15	711.96	11.30
					04/21/15	712.62	10.64
					07/14/15	711.96	11.30
					10/19/15	712.19	11.07
					01/07/16	712.24	11.02
					04/21/16	712.27	10.99
					07/14/16	712.57	10.69
					10/05/16	713.60	9.66
					01/18/17	712.43	10.83
					04/19/17	712.81	10.45
					07/12/17	712.14	11.12
					10/23/17	710.84	12.42
MW-27	Well Installed 04/07/2015						
	722.76	723.03	720.03	12.73	04/22/15	715.05	7.71
					07/14/15	715.07	7.69
					10/20/15	715.08	7.68
					01/07/16	715.11	7.65
					04/22/16	715.40	7.36
					07/14/16	715.29	7.47
					10/05/16	715.22	7.54
					01/08/17	715.15	7.61



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
MW-27 cont.					04/19/17	715.36	7.40
					07/12/17	715.28	7.48
					10/23/17	715.09	7.67
PZ-27	Well Installed 04/07/2015						
	722.69	723.00	704.00	23.69	04/22/15	718.38	4.31
					07/14/15	718.07	4.62
					10/20/15	718.33	4.36
					01/07/16	718.08	4.61
					04/22/16	718.37	4.32
					07/14/16	718.20	4.49
					10/05/16	718.48	4.21
					01/08/17	718.03	4.66
					04/19/17	718.19	4.50
					07/12/17	718.00	4.69
					10/23/17	717.23	5.46
MW-28	Well Installed 04/06/2015						
	722.11	722.48	719.48	14.63	04/22/15	717.16	4.95
					07/14/15	716.06	6.05
					10/20/15	716.48	5.63
					01/07/16	716.52	5.59
					04/22/16	717.25	4.86
					07/14/16	716.43	5.68
					10/05/16	716.80	5.31
					01/08/17	716.75	5.36
					04/19/17	717.13	4.98
					07/12/17	716.37	5.74
					10/23/17	715.92	6.19
PZ-28	Well Installed 04/06/2015						
	722.38	722.66	702.86	24.5	04/22/15	716.23	6.15
					07/14/15	712.90	9.48
					10/19/15	712.82	9.56
					01/07/16	713.09	9.29
					04/21/16	713.15	9.23
					07/14/16	712.78	9.60
					10/05/16	712.72	9.66
					01/18/17	712.82	9.56
					04/19/17	714.28	8.10
					07/12/17	712.67	9.71
					10/23/17	712.26	10.12
SG-3		724.12			04/23/13	721.79	2.33
					07/16/13	720.55	3.57
					10/15/13	719.80	4.32
					04/29/14	721.60	2.52
					05/12/14	721.94	2.18
					05/14/14	721.75	2.37
					07/21/14	720.22	3.90
					10/13/14	720.42	3.70
					01/28/15	720.31	3.81
					04/21/15	720.77	3.35
					07/14/15	720.21	3.91
					10/19/15	720.28	3.84
					01/07/16	720.56	3.56



Table 1 - Groundwater Elevation Summary

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Well	TOC ^A Elevation (feet) ^B	Ground Elevation (feet) ^B	Top of Screen Elevation (feet) ^B	Well Depth from TOC (feet)	Monitoring Date	Groundwater Elevation (feet) ^B	Depth to Groundwater (feet)
SG-3 cont.					04/21/16	721.16	2.96
					07/14/16	720.67	3.45
					10/04/16	721.04	3.08
					01/08/17	720.80	3.32
					04/19/17	1.00	3.10
					07/12/17	720.63	3.49
					10/23/17	719.11	5.01
SG-4		715.36			04/21/15	710.61	4.75
					07/14/15	709.41	5.95
					09/09/15	709.06	6.30
					10/19/15	708.51	6.85
					01/07/16	Not accessible	
					04/21/16	711.25	4.11
					07/14/16	709.62	5.74
					10/04/16	710.01	5.35
					01/08/17	710.04	5.32
					04/19/17	710.63	4.73
					07/12/17	709.91	5.45
				10/23/17	709.89	5.47	

[JTB/RH 5/05][PAR/JTB 11/05][PAR/JTB 9/06][RJG/JTB 10/07][BGH/RMW 6/08][RJG/BGH 1/09][BGH/RJG 3/09][RMN/BGH 5/10][AMM/KJB 2/11][KJB/RJG 05/11]
 [CJM/AMM 1/12][AMM/JJW 5/12][AMM/ANS 7/12][AMM/RJG 10/12][RJG/ 3/13][ETO/RJG 5/13][PMH/NDK 9/13][ETE/NDK 10/13][U-ECK 06/14][U-KLT 1/29/15, C- PMH 2/15]
 [U: KLT 11/12/15, C:PMH 11/18/15] [U: PMH 2/17, C: ANS 2/3/17] [U: KLT 11/20/17, C:KJK 11/21/17]

Notes:

A: TOC-Top of Well Casing

B: Elevations relative to National Geodetic Vertical Datum.

C: Well drawdown due to slow recharge rate after well was purged / sampled.

D: TOC elevation was found to be incorrectly reported and was updated August 2011 by Natural Resource Technology, Inc.

The TOC elevation at MW-2R was incorrectly entered on the table, this resulted in approximately 1-foot change in elevation.

The error was tracked to a data table which contained a summary of post-construction survey data used to create Table 1.

The error was corrected using data from the original post-construction survey drawing.

1. MW-19 and MW-19S repaired October 27, 2006; surveyed by Martenson & Eisele May 11, 2007.

2. MW-23 surveyed by Martenson & Eisele September 18, 2008.

3. MW-23 and PZ-23 surveyed by Martenson & Eisele October 9, 2009.

4. MW-24 and MW-25 surveyed by Martenson & Eisele January 30, 2013

5. MW-23, PZ-23, MW-26, PZ-26, MW-27, PZ-27, MW-28, PZ-28, SG-3, and SG-4 were all surveyed/resurveyed by Martenson and Eisele April

*Depth to water significantly deviates from normal measurement. Well under pressure prior to depth measurement.



Table 2 - Vertical Gradient Table for Area 2 Wells

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Date	MW-23 Groundwater Elevation (ft.)	PZ-23 Groundwater Elevation (ft.)	Head Change (dH)	Dist. Change (dL)	Vertical Hydraulic Gradient (dH/dL)*	
10/08/2009	719.57	719.56	0.01	8.66	1.2E-03	flat
11/12/2009	719.66	719.59	0.07	8.66	8.1E-03	down
04/07/2010	719.41	719.30	0.11	8.66	1.3E-02	down
10/05/2010	719.69	719.59	0.10	8.66	1.2E-02	down
01/18/2011	719.34	719.17	0.17	8.66	2.0E-02	down
04/11/2011	719.74	719.67	0.07	8.66	8.1E-03	down
07/13/2011	719.53	719.39	0.14	8.66	1.6E-02	down
10/04/2011	719.66	719.50	0.16	8.66	1.8E-02	down
10/10/2011	714.13	713.78	0.35	8.66	4.0E-02	down
10/14/2011	714.03	713.76	0.27	8.66	3.1E-02	down
11/17/2011	718.34	718.14	0.20	8.66	2.3E-02	down
01/04/2012	718.81	718.68	0.13	8.66	1.5E-02	down
04/24/2012	719.37	719.18	0.19	8.66	2.2E-02	down
06/26/2012	718.98	718.84	0.14	8.66	1.6E-02	down
09/12/2012	719.27	718.96	0.31	8.66	3.6E-02	down
01/28/2013	719.24	718.90	0.34	8.66	3.9E-02	down
04/23/2013	719.88	719.88	0.00	8.66	0.0E+00	flat
07/16/2013	719.37	719.19	0.18	8.66	2.1E-02	down
10/15/2013	719.17	718.67	0.50	8.66	5.8E-02	down
04/29/2014	719.67	719.42	0.25	8.66	2.9E-02	down
05/14/2014	719.89	719.62	0.27	8.66	3.1E-02	down
10/13/2014	Vertical gradient not calculated--MW-23 not accessible.					
04/22/2015	718.92	718.61	0.31	8.66	3.6E-02	down
07/14/2015	718.62	718.23	0.39	8.66	4.5E-02	down
10/19/2015	719.19	718.46	0.73	8.66	8.4E-02	down
10/28/2015	718.77	718.67	0.10	8.66	1.2E-02	down
01/07/2016	718.77	718.21	0.56	8.66	6.5E-02	down
04/21/2016	719.29	718.58	0.71	8.66	8.2E-02	down
10/04/2016	719.31	718.64	0.67	8.66	7.7E-02	down
Middle of screen elevation (MW-23)						710.1
Middle of screen elevation (PZ-23)						701.4



Table 2 - Vertical Gradient Table for Area 2 Wells

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Date	MW-26 Groundwater Elevation (ft.)	PZ-26 Groundwater Elevation (ft.)	Head Change (dH)	Dist. Change (dL)	Vertical Hydraulic Gradient (dH/dL)*	
04/22/2015	712.07	712.62	-0.55	9.37	-5.9E-02	up
07/14/2015	712.07	711.96	0.11	9.37	1.2E-02	down
10/19/2015	712.51	712.19	0.32	9.59	3.3E-02	down
01/07/2016	712.13	712.24	-0.11	9.39	-1.2E-02	up
04/22/2016	712.61	712.27	0.34	9.63	3.5E-02	down
07/14/2016	711.84	712.57	-0.73	9.25	-7.9E-02	up
10/05/2016	Not calculated due to abnormal groundwater elevation reading from MW-26					
Middle of screen elevation (MW-26)					713.3	
Middle of screen elevation (PZ-26)					700.8	

Date	MW-27 Groundwater Elevation (ft.)	PZ-27 Groundwater Elevation (ft.)	Head Change (dH)	Dist. Change (dL)	Vertical Hydraulic Gradient (dH/dL)*	
04/22/2015	715.05	718.38	-3.33	13.53	-2.5E-01	up
07/14/2015	715.07	718.07	-3.00	13.53	-2.2E-01	up
10/20/2015	715.08	718.33	-3.25	13.53	-2.4E-01	up
01/07/2016	715.11	718.08	-2.97	13.53	-2.2E-01	up
04/22/2016	715.40	718.37	-2.97	13.53	-2.2E-01	up
07/14/2016	715.29	718.20	-2.91	13.53	-2.2E-01	up
10/05/2016	715.22	718.48	-3.26	13.53	-2.4E-01	up
Middle of screen elevation (MW-27)					715.0	
Middle of screen elevation (PZ-27)					701.5	

Date	MW-28 Groundwater Elevation (ft.)	PZ-28 Groundwater Elevation (ft.)	Head Change (dH)	Dist. Change (dL)	Vertical Hydraulic Gradient (dH/dL)*	
04/22/2015	717.16	716.23	0.93	14.12	6.6E-02	down
07/14/2015	716.06	712.90	3.16	14.12	2.2E-01	down
10/19/2015	716.48	712.82	3.66	14.12	2.6E-01	down
01/07/2016	716.52	713.09	3.43	14.12	2.4E-01	down
04/22/2016	717.25	713.15	4.10	14.12	2.9E-01	down
07/14/2016	716.43	712.78	3.65	14.12	2.6E-01	down
10/05/2016	716.80	712.72	4.08	14.12	2.9E-01	down
Middle of screen elevation (MW-28)					714.5	
Middle of screen elevation (PZ-28)					700.4	

[BGH/RMN 5/10][AMM/KJB 2/11][NDK/BGH 08/11][CJM/AMM 01/12][AMM/JJW 5/12][AMM/ANS 7/12][BGH/NDK 10/12][ETO/NDK 5/13][GFF/BGH 02/13][U-AJS 06/14][U-KLT, 1/29/2014, C-PMH 2/15][U-PMH 11/15 C-KLT 12/8/15][U: PMH 2/17, C:KJS 2/7/17]

Notes:

- Distance between wells was calculated from midpoint of each well screen, unless the water level was below the midpoint of the screen, then the midpoint of the saturated screen was used.
 - Vertical gradients were last calculated for the 2016 Annual Update Report.
- *: Vertical gradients less than ±0.0015 are considered flat, and they typically have less than 0.02 foot difference between wells



Table 3 - Water Table and Weathered Bedrock Horizontal Groundwater Velocity Calculations (Area 2)

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

$$V = K i / n_e$$

V = Groundwater Velocity

i = Hydraulic Gradient (unitless value)

K = Hydraulic Conductivity

n_e = Effective Porosity

Fill Material/ Water Table		Date	Elevation	Distance
		Change		Change
		(ft)		(ft)
K =	5325 ft/yr.			
i =	0.0486			
n_e =	30 %			
V =	$\frac{5325 * 0.0486}{0.30}$	Apr 2015	1 / 28	0.0357
		Jul 2015	1 / 23	0.0435
		Oct 2015	2 / 42	0.0476
		Jan 2016	2 / 37	0.0541
		April 2016	2 / 40	0.0500
		July 2016*	-- / --	--
		Oct 2016	2 / 33	0.0606
V = 862 feet/year		AVE Gradient 0.0486		

Lower Till/ Weathered Bedrock		Date	Elevation	Distance
		Change		Change
		(ft)		(ft)
K =	10579 ft/yr.			
i =	0.0722			
n_e =	15 %			
V =	$\frac{10579 * 0.0722}{0.15}$	Apr 2015**	-- / --	--
		Jul 2015	2 / 30	0.0667
		Oct 2015	2 / 27	0.0741
		Jan 2016	2 / 30	0.0667
		April 2016	2 / 27	0.0741
		July 2016	2 / 28	0.0714
		Oct 2016	2 / 25	0.0800
V = 5,089 feet/year		AVE Gradient 0.0722		

- Hydraulic Gradient measurements were made from water table surface contour maps between MW-23 and MW-27
 - Hydraulic Gradient measurements were made from piezometric surface contour maps between PZ-27 and PZ-28
 - The hydraulic conductivity values "K" for both the fill material and the bedrock were determined by slug testing performed by Natural Resource Technology, Inc. in 2015
 - Porosity percentages are taken from Handbook of Hydrogeology, David R. Maidment
 - Horizontal groundwater velocities were last calculated for the 2016 Annual Update Report.
- *MW-23 was not measured and therefore only one groundwater elevation contour could be drawn.
 **Month not used due to an outlier water elevation at PZ-28



Table 4 - Groundwater Analytical Results-VOCs
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														Total VOCs ^{1,5}	
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride		
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																	
Groundwater Monitoring Wells																	
<i>Preventive Action Limit:</i>		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS	
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS	
MW-02R	10/19/2004	710	260	12	110	1092	< 12	< 3.3	< 2.0	< 1.8	< 1.2	--	< 4.3	< 2.4	< 0.90	1092	
	11/30/2004	770	290	10	110	1180	< 23	< 6.6	< 4.1	< 3.7	< 2.4	--	< 8.6	< 4.8	< 1.8	1180	
	01/11/2005	650	250	11	100	1011	< 23	< 6.6	< 4.1	< 3.7	< 2.4	--	< 8.6	< 4.8	< 1.8	1011	
	02/08/2005	590	230	9.7	83	912.7	< 23	--	--	< 3.7	< 2.4	--	--	--	--	912.7	
	03/08/2005	650	290	13	106	1059	--	--	--	--	--	--	--	--	--	--	1059
	04/18/2005	700	290	15	65	1070	--	--	--	--	--	--	--	--	--	--	1070
	07/05/2005	800	320	20	129	1269	--	--	--	--	--	--	--	--	--	--	1269
	10/17/2005	890	340	33	147	1410	--	--	--	--	--	--	--	--	--	--	1410
	01/10/2006	850	350	30	156	1386	--	--	--	--	--	--	--	--	--	--	1386
	04/19/2006	790	370	41	215	1416	--	--	--	--	--	--	--	--	--	--	1416
	07/19/2006	840	300	51	175	1366	--	--	--	--	--	--	--	--	--	--	1366
	10/24/2006	930	400	57	250	1637	--	--	--	--	--	--	--	--	--	--	1637
	04/25/2007	780	380	34	240	1434	--	--	--	--	--	--	--	--	--	--	1434
	10/08/2007	980	440	< 27	270	1690	--	--	--	--	--	--	--	--	--	--	1690
	04/07/2008	658	372	36.1	285	1351.1	--	--	--	--	--	--	2280	--	--	--	3631.1
	10/20/2008	618	325	28.3	222.1	1193.4	--	--	--	--	--	--	1500	--	--	--	2693.4
	04/20/2009	638	305	28.8	217.7	1189.5	--	--	--	--	--	--	1430	--	--	--	2619.5
	10/07/2009	819	402	28.3	289	1538.3	--	--	--	--	--	--	1460	--	--	--	2998.3
	04/06/2010	680	298	32.5	220.4	1230.9	--	--	--	--	--	--	1240	--	--	--	2470.9
	10/04/2010	598	308	36.2	248	1190.2	--	--	--	--	--	--	1340	--	--	--	2530.2
	01/18/2011	732	365	33.2	242.2	1372.4	--	--	--	--	--	--	1210	--	--	--	2582.4
	04/11/2011	737	380	53.8	326	1496.8	--	--	--	--	--	--	2070	--	--	--	3566.8
	07/13/2011	528	196	30.4	91.7	846.1	--	--	--	--	--	--	1140	--	--	--	1986.1
	10/03/2011	602	278	30.4	205.8	1116.2	--	--	--	--	--	--	1150	--	--	--	2266.2
	01/04/2012	620	282	31.9	218.1	1152	--	--	--	--	--	--	1170	--	--	--	2322
	01/28/2013	949	301	19.4	168.9	1438.3	--	--	--	--	--	--	1010	--	--	--	2448.3
	04/23/2013	587	269	37	205.2	1098.2	--	--	--	--	--	--	1240	--	--	--	2338.2
	07/16/2013	814	369	30.4	235.1	1448.5	--	--	--	--	--	--	1170	--	--	--	2618.5
	10/15/2013	1500	493	36.3	349	2378.3	--	--	--	--	--	--	1540	--	--	--	3918.3
	04/23/2012	568	267	29.4	180.6	1045	--	--	--	--	--	--	1070	--	--	--	2115
	Dup (QC-1)	04/23/2012	229	104	9.4	74.4	416.8	--	--	--	--	--	442	--	--	--	858.8
		06/26/2012	831	318	27.3	196.8	1373.1	--	--	--	--	--	1150	--	--	--	2523.1
	Dup (QC-1)	06/26/2012	847	353	29.4	249	1478.4	--	--	--	--	--	1170	--	--	--	2648.4
	09/12/2012	984	363	25.6	265	1637.6	--	--	--	--	--	1310	--	--	--	2947.6	
Dup (QC-1)	09/12/2012	719	375	23.6	274	1391.6	--	--	--	--	--	1220	--	--	--	2611.6	
	01/28/2013	949	301	19.4	168.9	1438.3	--	--	--	--	--	1010	--	--	--	2448.3	
	04/23/2013	578	269	37	205.2	1089.2	--	--	--	--	--	1240	--	--	--	2329.2	
	07/16/2013	814	369	30.4	235.1	1448.5	--	--	--	--	--	1170	--	--	--	2618.5	
	10/15/2013	1500	493	36.3	349	2378.3	--	--	--	--	--	1540	--	--	--	3918.3	
	04/29/2014	736	309	25.1	159.8	1229.9	--	--	--	--	--	805	--	--	--	2034.9	
	10/13/2014	1040	446	17.1	221	1724.1	--	--	--	--	--	1110	--	--	--	2834.1	
	04/21/2015	653	361	13.2	203.7	1230.9	--	--	--	--	--	668	--	--	--	1898.9	
	10/19/2015	1030	433	20.7	251.6	1735.3	--	--	--	--	--	855	--	--	--	2590.3	
	04/21/2016	422	223	28.7	163.5	837.2	--	--	--	--	--	784	--	--	--	1621.2	
	10/04/2016	718	304	9.8	162.8	1194.6	--	--	--	--	--	621	--	--	--	1815.6	
	04/19/2017	602	238	21.9	147.3	1009.2	--	--	--	--	--	503	--	--	--	1512.2	
Dup (QC-1)	04/19/2017	543	219	18.8	139.7	920.5	--	--	--	--	--	474	--	--	--	1394.5	
	10/24/2017	890	305	10.8	143.3	1349.1	--	--	--	--	--	352	--	--	--	1701.1	
MW-08*	07/15/1996	< 0.5	< 0.5	< 0.8	< 1.9	< 3.7	< 1.4	< 0.5	< 0.4	< 0.8	--	--	< 0.6	--	--	< 7.4	
	09/09/1997	< 0.4	< 0.4	< 0.32	< 1	< 2.12	< 3.3	< 0.45	< 0.29	< 0.5	--	--	< 0.23	--	--	< 6.89	
	10/05/2010	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	< 0.89	--	--	< 1.3	
	01/18/2011	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	< 0.89	--	--	< 1.3	
	04/12/2011	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	< 0.89	--	--	< 1.3	
	07/13/2011	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	< 0.89	--	--	< 1.3	
	10/03/2011	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	< 0.89	--	--	< 1.3	
	01/04/2012	1.8	--	--	--	1.8	--	--	--	--	--	--	< 0.89	--	--	1.8	



Table 4 - Groundwater Analytical Results-VOCs

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																
Groundwater Monitoring Wells																
<i>Preventive Action Limit:</i>		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS
MW-09*	07/15/1996	< 0.5	< 0.5	< 0.8	< 1.9	< 3.7	< 1.4	< 0.5	< 0.4	< 0.8	--	--	< 0.6	--	--	< 7.4
	09/09/1997	< 0.4	< 0.4	< 0.32	< 1	< 2.12	< 3.3	< 0.45	< 0.29	< 0.5	--	--	< 0.23	--	--	< 6.89
MW-10*	07/15/1996	< 0.5	< 0.5	< 0.8	< 1.9	< 3.7	< 1.4	< 0.5	< 0.4	11	--	--	< 0.6	--	--	11
	09/09/1997	< 0.4	< 0.4	< 0.32	< 1	< 2.12	< 3.3	< 0.45	< 0.29	< 0.5	--	--	< 0.23	--	--	< 6.89
MW-12R	10/21/2004	15	66	6.3	61	148.3	4.6	< 0.66	< 0.41	< 0.37	0.59	--	< 0.86	< 0.48	< 0.18	153.49
	11/30/2004	12	47	3.9	39	101.9	9.8	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	111.7
	01/13/2005	11	39	3	33	86	6.6	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	92.6
	02/10/2005	11	43	4	34	92	< 12	--	--	< 1.8	< 1.2	--	--	--	--	92
	03/08/2005	8.9	37	< 3.4	30	75.9	--	--	--	--	--	--	--	--	--	75.9
	04/20/2005	9.4	29	< 3.4	12	50.4	--	--	--	--	--	--	--	--	--	50.4
	07/07/2005	7.2	25	< 3.4	11	43.2	--	--	--	--	--	--	--	--	--	43.2
	10/19/2005	7	21	< 3.4	9.3	37.3	--	--	--	--	--	--	--	--	--	37.3
	01/12/2006	5.9	24	2	17.1	49	--	--	--	--	--	--	--	--	--	49
	04/20/2006	9.8	32	3.6	24.9	70.3	--	--	--	--	--	--	--	--	--	70.3
	07/20/2006	8.7	25	< 3.4	9	42.7	--	--	--	--	--	--	--	--	--	42.7
	10/23/2006	5.4	--	--	--	5.4	--	--	--	--	--	--	--	--	--	5.4
	04/26/2007	10	--	--	--	10	--	--	--	--	--	--	--	--	--	10
	10/09/2007	5	--	--	--	5	--	--	--	--	--	--	--	--	--	5
	04/08/2008	20.8	--	--	--	20.8	--	--	--	--	--	--	--	--	--	20.8
	10/20/2008	5.2	--	--	--	5.2	--	--	--	--	--	--	--	--	--	5.2
	04/21/2009	26	--	--	--	26	--	--	--	--	--	1130	--	--	--	1156
	10/08/2009	8.8	--	--	--	8.8	--	--	--	--	--	291	--	--	--	299.8
	04/07/2010	27.1	75	9.9	57	169	--	--	--	--	--	968	--	--	--	1137
	10/04/2010	27.2	--	--	--	27.2	--	--	--	--	--	790	--	--	--	817.2
	01/18/2011	22.2	--	--	--	22.2	--	--	--	--	--	568	--	--	--	590.2
	04/12/2011	56.4	--	--	--	56.4	--	--	--	--	--	2090	--	--	--	2146.4
	07/13/2011	46.6	89.7	14.3	72.6	223.2	--	--	--	--	--	1790	--	--	--	2013.2
Dup (QC-1)	07/13/2011	52.3	99.6	15.1	39.6	206.6	--	--	--	--	--	1870	--	--	--	2076.6
	10/03/2011	19.4	--	--	--	19.4	--	--	--	--	--	554	--	--	--	573.4
	01/04/2012	30.6	--	--	--	30.6	--	--	--	--	--	799	--	--	--	829.6
	04/24/2012	36.4	--	--	--	36.4	--	--	--	--	--	885	--	--	--	921.4
	06/26/2012	22.9	--	--	--	22.9	--	--	--	--	--	588	--	--	--	610.9
	09/12/2012	19.7	--	--	--	19.7	--	--	--	--	--	357	--	--	--	376.7
	01/28/2013	19.6	--	--	--	19.6	--	--	--	--	--	453	--	--	--	472.6
	04/24/2013	36.3	--	--	--	36.3	--	--	--	--	--	1350	--	--	--	1386.3
	07/16/2013	24	--	--	--	24	--	--	--	--	--	673	--	--	--	697
	10/15/2013	16.3	--	--	--	16.3	--	--	--	--	--	402	--	--	--	418.3
	04/29/2014	30.2	68.7	9.6	46	154.5	--	--	--	--	--	1000	--	--	--	1154.5
	10/13/2014	12.5	28.3	< 5.0	< 10	40.8	--	--	--	--	--	515	--	--	--	555.8
	04/21/2015	13.9	44.1	6.2	31.8	96	--	--	--	--	--	487	--	--	--	583
	10/20/2015	14.7	43	6.6	34.1	98.4	--	--	--	--	--	530	--	--	--	628.4
	04/21/2016	26.7	73.2	10.8	57.2	167.9	--	--	--	--	--	961	--	--	--	1128.9
	10/04/2016	11	43.4	5.9	39.1	99.4	--	--	--	--	--	758	--	--	--	857.4
	04/19/2017	44.3	85	12.9	66.8	209	--	--	--	--	--	1110	--	--	--	1319
Dup (QC-1)	10/24/2017	14.8	36.1	6.4	24.7	82	--	--	--	--	--	604	--	--	--	686
	10/24/2017	12.2	33.5	< 5.0	28.8	74.5	--	--	--	--	--	658	--	--	--	732.5
PZ-12B	10/21/2004	0.99	0.56	< 0.67	< 2.6	1.55	< 2.3	< 0.66	< 0.41	1.4	0.54	--	< 0.86	< 0.48	< 0.18	3.49
	11/30/2004	0.77	< 0.54	< 0.67	< 2.6	0.77	< 2.3	< 0.66	< 0.41	1.3	< 0.24	--	< 0.86	< 0.48	< 0.18	2.07
	01/13/2005	0.86	< 0.54	< 0.67	< 2.6	0.86	2.7	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	3.56
	02/10/2005	0.93	< 0.54	< 0.67	< 1.8	0.93	< 2.3	--	--	< 0.37	< 0.24	--	--	--	--	0.93
Dup (QC-1)	02/10/2005	0.93	< 0.54	< 0.67	< 1.8	0.93	< 2.3	--	--	< 0.37	< 0.24	--	--	--	--	0.93
	03/08/2005	0.58	< 0.54	< 0.67	< 1.8	0.58	--	--	--	--	--	--	--	--	--	0.58
	04/20/2005	0.86	< 0.54	< 0.67	< 1.8	0.86	--	--	--	--	--	--	--	--	--	0.86
	07/07/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
Dup (QC-1)	07/07/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
	10/19/2005	0.54	< 0.54	< 0.67	< 1.8	0.54	--	--	--	--	--	--	--	--	--	0.54
	01/12/2006	0.68	< 0.54	< 0.67	< 1.8	0.68	--	--	--	--	--	--	--	--	--	0.68
	04/20/2006	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
	07/20/2006	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
	04/26/2007	1.2	--	--	--	1.2	--	--	--	--	--	--	--	--	--	1.2
	04/08/2008	1.5	--	--	--	1.5	--	--	--	--	--	--	< 0.74	--	--	1.5
	04/21/2009	0.44	--	--	--	0.44	--	--	--	--	--	--	< 2.5	--	--	0.44



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We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														Total VOCs ^{1,5}	
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride		
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																	
Groundwater Monitoring Wells																	
<i>Preventive Action Limit:</i>		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS	
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS	
PZ-12B cont.	04/07/2010	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
	04/24/2012	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	--	< 0.89	--	< 1.3	
	04/24/2013	< 0.50	--	--	--	< 0.5	--	--	--	--	--	--	--	< 2.5	--	< 3	
	04/29/2014	< 0.50	< 2.5	--	--	< 3	--	--	--	--	--	--	--	< 2.5	--	< 5.5	
	04/21/2015	< 0.50	--	--	--	< 0.5	--	--	--	--	--	--	--	< 2.5	--	< 3	
	04/21/2016	< 0.5	--	--	--	< 0.5	--	--	--	--	--	--	--	< 2.5	--	< 3	
	04/19/2017	< 0.50	--	--	--	< 0.5	--	--	--	--	--	--	--	< 2.5	--	< 3	
MW-13R	10/20/2004	2500	350	54	300	3204	< 58	< 16	< 10	< 9.2	< 6.0	--	< 22	22	< 4.5	3226	
	12/02/2004	2700	410	48	340	3498	< 58	< 16	< 10	< 9.2	< 6.0	--	< 22	< 12	< 4.5	3498	
	01/12/2005	3000	430	42	340	3812	< 58	< 16	< 10	< 9.2	< 6	--	< 22	< 12	< 4.5	3812	
	02/09/2005	2200	350	< 34	258	2808	< 120	--	--	< 18	< 12	--	--	< 24	< 9	2808	
	03/10/2005	2300	360	29	270	2959	--	--	--	--	--	--	--	--	--	2959	
	04/19/2005	2200	310	< 34	237	2747	--	--	--	--	--	--	--	--	--	2747	
	07/06/2005	2200	320	< 34	228	2748	--	--	--	--	--	--	--	--	--	2748	
	10/19/2005	2100	290	17	153	2560	--	--	--	--	--	--	--	--	--	2560	
	01/10/2006	2400	340	42	227	3009	--	--	--	--	--	--	--	--	--	3009	
	04/19/2006	3700	500	160	560	4920	--	--	--	--	--	--	--	--	--	4920	
	07/19/2006	3300	440	100	360	4200	--	--	--	--	--	--	--	--	--	4200	
	10/24/2006	1700	250	28	144	2122	--	--	--	--	--	--	--	--	--	2122	
	04/25/2007	3700	580	240	820	5340	--	--	--	--	--	--	--	--	--	5340	
	Dup (QC-1)	04/25/2007	3600	560	230	780	5170	--	--	--	--	--	--	--	--	--	5170
		10/08/2007	2000	290	29	186	2505	--	--	--	--	--	--	--	--	--	2505
		04/08/2008	2260	362	234	552	3408	--	--	--	--	--	3180	--	--	--	6588
	10/20/2008	1800	334	29.7	238	2401.7	--	--	--	--	--	1850	--	--	--	4251.7	
	04/21/2009	2020	406	253	643	3322	--	--	--	--	--	2930	--	--	--	6252	
	10/07/2009	2190	399	34.8	304	2927.8	--	--	--	--	--	2120	--	--	--	5047.8	
	04/06/2010	3440	492	245	707	4884	--	--	--	--	--	3270	--	--	--	8154	
	10/04/2010	2710	536	293	759	4298	--	--	--	--	--	3890	--	--	--	8188	
	Dup (QC-1)	01/18/2011	3920	724	372	1080	6096	--	--	--	--	--	4710	--	--	--	10806
		01/18/2011	3680	664	332	981	5657	--	--	--	--	--	4840	--	--	--	10497
		04/11/2011	2010	504	408	931	3853	--	--	--	--	--	4750	--	--	--	8603
	Dup (QC-1)	07/13/2011	3100	514	441	825	4880	--	--	--	--	--	5500	--	--	--	10380
		10/03/2011	1970	406	140	516	3032	--	--	--	--	--	3440	--	--	--	6472
		01/04/2012	3150	632	452	1046	5280	--	--	--	--	--	4950	--	--	--	10230
01/04/2012		3070	605	432	1016	5123	--	--	--	--	--	4840	--	--	--	9963	
04/23/2012		4240	668	590	1175	6673	--	--	--	--	--	6520	--	--	--	13193	
06/26/2012		4710	690	418	1175	6993	--	--	--	--	--	4600	--	--	--	11593	
09/13/2012		2640	417	78.2	460	3595.2	--	--	--	--	--	3070	--	--	--	6665.2	
Dup (QC-1)	01/28/2013	4450	570	477	669	6166	--	--	--	--	--	5600	--	--	--	11766	
	04/23/2013	2180	511	469	989	4149	--	--	--	--	--	4900	--	--	--	9049	
	04/23/2013	1200	276	277	523	2276	--	--	--	--	--	2760	--	--	--	5036	
	07/16/2013	3150	557	496	3792	7995	--	--	--	--	--	4820	--	--	--	12815	
	10/15/2013	3230	530	103	589	4452	--	--	--	--	--	4250	--	--	--	8702	
	04/29/2014	1780	403	381	775	3339	--	--	--	--	--	4630	--	--	--	7969	
	04/29/2014	1430	435	376	837	3078	--	--	--	--	--	4540	--	--	--	7618	
Dup (QC-1)	10/13/2014	2740	438	112	341.9	3631.9	--	--	--	--	--	4390	--	--	--	8021.9	
	04/21/2015	1190	424	280	746	2640	--	--	--	--	--	4330	--	--	--	6970	
	10/20/2015	1930	463	135	601	3129	--	--	--	--	--	4700	--	--	--	7829	
	04/21/2016	1090	345	251	553	2239	--	--	--	--	--	3240	--	--	--	5479	
	10/04/2016	1130	353	107	446	2036	--	--	--	--	--	4300	--	--	--	6336	
	04/19/2017	2390	459	438	922	4209	--	--	--	--	--	4900	--	--	--	9109	
	10/24/2017	1320	277	97.5	300	1994.5	--	--	--	--	--	2970	--	--	--	4964.5	
MW-195	10/19/2004	0.95	< 0.54	< 0.67	< 2.6	0.95	< 2.3	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	0.95	
	12/01/2004	0.41	< 0.54	< 0.67	< 2.6	0.41	< 2.3	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	0.41	
	01/12/2005	< 0.41	< 0.54	< 0.67	< 2.6	< 4.22	< 2.3	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	< 9.72	
	02/09/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	< 2.3	--	--	< 0.37	< 0.24	--	--	--	--	< 6.33	
	03/10/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
	04/20/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
	07/06/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
	10/17/2005	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	



Table 4 - Groundwater Analytical Results-VOCs

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														Total VOCs ^{1,5}
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																
Groundwater Monitoring Wells																
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS
MW-195 cont.	01/11/2006	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
Well damaged, scheduled for repair or abandonment	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/26/2007	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	--	--	--	< 0.41
	10/09/2007	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	--	--	--	< 0.41
	04/08/2008	< 0.41	--	--	--	< 0.41	--	--	--	--	--	< 0.74	--	--	--	< 1.15
	10/21/2008	< 0.41	--	--	--	< 0.41	--	--	--	--	--	< 0.89	--	--	--	< 1.3
	04/21/2009	< 0.41	--	--	--	< 0.41	--	--	--	--	--	< 0.89	--	--	--	< 1.3
	10/08/2009	< 0.41	--	--	--	< 0.41	--	--	--	--	--	< 0.89	--	--	--	< 1.3
	04/07/2010	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	< 0.89	--	--	--	< 4.31	
MW-19	10/19/2004	390	72	3.9	36	501.9	11	< 1.6	< 1	< 0.92	< 0.60	--	< 2.2	< 1.2	< 0.45	512.9
Dup (QC-1)	12/01/2004	390	86	4.3	53	533.3	< 12	< 3.3	< 2.0	< 1.8	< 1.2	--	< 4.3	< 2.4	< 0.9	533.3
	12/01/2004	420	80	3.6	45	548.6	< 5.8	< 1.6	< 1	< 0.92	< 0.60	--	< 2.2	< 1.2	< 0.45	548.6
	01/12/2005	370	86	2.8	48	506.8	< 4.6	< 1.3	< 0.82	< 0.74	< 0.48	--	< 1.7	< 0.96	< 0.36	506.8
	02/09/2005	370	84	3	51	508	< 4.6	--	--	< 0.74	< 0.48	--	--	--	--	508
	03/10/2005	400	89	3.1	50	542.1	--	--	--	--	--	--	--	--	--	542.1
	04/20/2005	440	74	1.9	38.3	554.2	--	--	--	--	--	--	--	--	--	554.2
	07/06/2005	440	77	2.3	41.3	560.6	--	--	--	--	--	--	--	--	--	560.6
	10/17/2005	430	62	< 3.4	25	517	--	--	--	--	--	--	--	--	--	517
	01/11/2006	310	81	2.7	42.5	436.2	--	--	--	--	--	--	--	--	--	436.2
	Well damaged, scheduled for repair	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--
07/20/2006		360	51	< 3.4	18	429	--	--	--	--	--	--	--	--	--	429
10/23/2006		320	--	--	--	320	--	--	--	--	--	--	--	--	--	320
04/26/2007		250	--	--	--	250	--	--	--	--	--	--	--	--	--	250
10/09/2007		210	--	--	--	210	--	--	--	--	--	--	--	--	--	210
04/08/2008		153	--	--	--	153	--	--	--	--	--	157	--	--	--	310
10/21/2008		521	--	--	--	521	--	--	--	--	--	104	--	--	--	625
04/21/2009		635	--	--	--	635	--	--	--	--	--	118	--	--	--	753
10/08/2009		648	--	--	--	648	--	--	--	--	--	32.4	--	--	--	680.4
04/07/2010		926	55.6	< 3.4	27.5	1009.1	--	--	--	--	--	73.9	--	--	--	1083
10/05/2010		1330	--	--	--	1330	--	--	--	--	--	62	--	--	--	1392
04/12/2011		158	--	--	--	158	--	--	--	--	--	241	--	--	--	399
07/13/2011		1640	--	--	--	1640	--	--	--	--	--	17.8	--	--	--	1657.8
10/04/2011		820	--	--	--	820	--	--	--	--	--	11.9	--	--	--	831.9
01/04/2012		1010	--	--	--	1010	--	--	--	--	--	< 8.9	--	--	--	1010
04/23/2012		1110	--	--	--	1110	--	--	--	--	--	37.8	--	--	--	1147.8
06/26/2012		977	--	--	--	977	--	--	--	--	--	< 8.9	--	--	--	977
09/12/2012		520	--	--	--	520	--	--	--	--	--	5.6	--	--	--	525.6
01/28/2013		686	--	--	--	686	--	--	--	--	--	< 8.9	--	--	--	686
04/23/2013	173	--	--	--	173	--	--	--	--	--	57	--	--	--	230	
07/16/2013	1080	--	--	--	1080	--	--	--	--	--	< 25.0	--	--	--	1080	
10/15/2013	495	--	--	--	495	--	--	--	--	--	32.8	--	--	--	527.8	
04/29/2014	197	98.2	4.2	47.7	347.1	--	--	--	--	--	30.8	--	--	--	377.9	
10/13/2014	< 2.5	220	< 2.5	1279	1499	--	--	--	--	--	105	--	--	--	1604	
04/21/2015	523	47.4	< 2.5	3.1	573.5	--	--	--	--	--	< 12.5	--	--	--	573.5	
10/19/2015	396	49.5	< 1.2	11.2	456.7	--	--	--	--	--	< 6.2	--	--	--	456.7	
04/21/2016	116	62.5	3.2	30.4	212.1	--	--	--	--	--	21.4	--	--	--	233.5	
10/04/2016	303	27.8	< 1.2	7.3	338.1	--	--	--	--	--	< 6.2	--	--	--	338.1	
04/19/2017	637	67	3.3	32.1	739.4	--	--	--	--	--	12.1	--	--	--	751.5	
10/23/2017	2.4	< 0.50	< 0.50	< 1.0	2.4	--	--	--	--	--	< 2.5	--	--	--	2.4	
MW-20	10/20/2004	490	680	170	860	2200	< 12	< 3.3	< 2.0	< 1.8	< 1.2	--	< 4.3	< 2.4	< 0.90	2200
	11/30/2004	1900	690	370	870	3830	< 58	< 16	< 10	< 9.2	< 6	--	< 22	< 12	< 4.5	3830
	01/11/2005	2100	640	580	840	4160	< 58	< 16	< 10	< 9.2	< 6	--	< 22	< 12	< 4.5	4160
	02/08/2005	1500	650	450	860	3460	< 120	--	--	< 18	< 12	--	--	--	--	3460
	03/09/2005	2000	720	600	880	4200	< 230	--	--	--	--	--	--	--	--	4200
	04/18/2005	2500	700	850	910	4960	--	--	--	--	--	--	--	--	--	4960
	07/05/2005	890	500	280	550	2220	--	--	--	--	--	--	--	--	--	2220
	10/17/2005	1300	470	310	510	2590	--	--	--	--	--	--	--	--	--	2590
	01/10/2006	3700	710	1200	1000	6610	--	--	--	--	--	--	--	--	--	6610
	04/19/2006	3400	660	1200	1160	6420	--	--	--	--	--	--	--	--	--	6420
	07/20/2006	3000	470	1200	830	5500	--	--	--	--	--	--	--	--	--	5500
	10/24/2006	2800	610	630	840	4880	--	--	--	--	--	--	--	--	--	4880
Dup (QC-1)	10/24/2006	2700	650	700	990	5040	--	--	--	--	--	--	--	--	--	5040



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2017 Annual Update

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Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														Total VOCs ^{1,5}	
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride		
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																	
Groundwater Monitoring Wells																	
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS	
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS	
MW-20 cont.	04/25/2007	3400	880	880	1120	6280	--	--	--	--	--	--	--	--	--	6280	
	10/08/2007	3100	880	800	1170	5950	--	--	--	--	--	--	--	--	--	5950	
	04/07/2008	3020	779	1040	1179	6018	--	--	--	--	--	--	6720	--	--	12738	
	10/20/2008	2740	866	956	1243	5805	--	--	--	--	--	7350	--	--	--	13155	
	04/20/2009	3280	872	837	1163	6152	--	--	--	--	--	6620	--	--	--	12772	
	Dup (QC-1)	04/20/2009	2920	771	742	1020	5453	--	--	--	--	--	5670	--	--	--	11123
		10/07/2009	2890	878	841	1139	5748	--	--	--	--	--	6290	--	--	--	12038
	Dup (QC-1)	04/06/2010	3660	1020	997	1299	6976	--	--	--	--	--	7510	--	--	--	14486
		04/06/2010	3510	982	953	1260	6705	--	--	--	--	--	7300	--	--	--	14005
	Dup (QC-1)	10/04/2010	3250	957	1050	1191	6448	--	--	--	--	--	6770	--	--	--	13218
		10/04/2010	3150	837	958	987	5932	--	--	--	--	--	6660	--	--	--	12592
	Dup (QC-1)	04/11/2011	3140	1020	1100	1329	6589	--	--	--	--	--	8270	--	--	--	14859
		10/03/2011	2500	759	807	1033	5099	--	--	--	--	--	6170	--	--	--	11269
	Dup (QC-1)	10/03/2011	2500	767	807	956	5030	--	--	--	--	--	6000	--	--	--	11030
		04/23/2012	2460	794	899	1076	5229	--	--	--	--	--	7280	--	--	--	12509
	PZ-20B	06/26/2012	2650	702	846	789	4987	--	--	--	--	--	5260	--	--	--	10247
		09/12/2012	3000	870	810	1139	5819	--	--	--	--	--	6900	--	--	--	12719
		01/28/2013	2950	785	963	584	5282	--	--	--	--	--	7760	--	--	--	13042
		04/23/2013	2430	823	975	643	4871	--	--	--	--	--	6540	--	--	--	11411
		07/16/2013	2050	698	872	955	4575	--	--	--	--	--	5680	--	--	--	10255
10/15/2013		2250	715	795	568	4328	--	--	--	--	--	5520	--	--	--	9848	
04/29/2014		2470	841	986	1100	5397	--	--	--	--	--	7420	--	--	--	12817	
10/13/2014		2810	878	1150	1088	5926	--	--	--	--	--	7290	--	--	--	13216	
04/21/2015		2160	791	971	943	4865	--	--	--	--	--	6290	--	--	--	11155	
10/19/2015		2180	822	950	1132	5084	--	--	--	--	--	7310	--	--	--	12394	
04/21/2016		1780	616	822	853	4071	--	--	--	--	--	4730	--	--	--	8801	
10/04/2016		1560	537	767	844	3708	--	--	--	--	--	5260	--	--	--	8968	
04/19/2017		2080	606	930	939	4555	--	--	--	--	--	5660	--	--	--	10215	
10/24/2017		1750	457	787	695	3689	--	--	--	--	--	4370	--	--	--	8059	
MW-21		10/20/2004	110	15	2.2	21	148.2	< 2.3	< 0.66	< 0.41	< 0.37	0.36	--	< 0.86	< 0.48	< 0.18	148.56
		11/30/2004	100	19	2.3	27	148.3	< 2.3	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	148.3
		01/11/2005	62	15	1.9	21	99.9	< 2.3	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	99.9
		02/08/2005	47	14	1.7	18.6	81.3	< 2.3	--	--	< 0.37	< 0.24	--	--	--	--	81.3
		03/09/2005	43	14	1.6	17.2	75.8	--	--	--	--	--	--	--	--	--	75.8
		04/18/2005	28	7.6	1	8.8	45.4	--	--	--	--	--	--	--	--	--	45.4
	07/05/2005	18	6.6	< 0.67	7.1	31.7	--	--	--	--	--	--	--	--	--	31.7	
	10/17/2005	14	6.1	< 0.67	5.6	25.7	--	--	--	--	--	--	--	--	--	25.7	
	01/10/2006	15	6	< 0.67	5.8	26.8	--	--	--	--	--	--	--	--	--	26.8	
	04/19/2006	10	3.9	< 0.67	2.6	16.5	--	--	--	--	--	--	--	--	--	16.5	
	07/20/2006	8.4	4	< 0.67	2.2	14.6	--	--	--	--	--	--	--	--	--	14.6	
	04/25/2007	13	--	--	--	13	--	--	--	--	--	--	--	--	--	13	
	04/07/2008	2.8	--	--	--	2.8	--	--	--	--	--	23.8	--	--	--	26.6	
	04/20/2009	1.2	--	--	--	1.2	--	--	--	--	--	12.6	--	--	--	13.8	
	04/06/2010	0.85	< 0.54	< 0.67	< 1.8	0.85	--	--	--	--	--	5.3	--	--	--	6.15	
	04/12/2011	< 0.41	--	--	--	< 0.41	--	--	--	--	--	2.4	--	--	--	2.4	
	04/23/2012	0.47	--	--	--	0.47	--	--	--	--	--	1.4	--	--	--	1.87	
04/23/2013	0.51	--	--	--	0.51	--	--	--	--	--	5.3	--	--	--	5.81		
04/29/2014	0.84	--	--	--	0.84	--	--	--	--	--	16	--	--	--	16.84		
04/21/2015	< 0.50	--	--	--	< 0.5	--	--	--	--	--	11.4	--	--	--	11.4		
04/21/2016	< 0.5	--	--	--	< 0.5	--	--	--	--	--	15.9	--	--	--	15.9		
04/19/2017	0.640	--	--	--	0.640	--	--	--	--	--	11.40	--	--	--	12		
MW-21	10/20/2004	8900	1200	2400	1600	14100	500	< 66	< 41	< 37	< 24	--	< 86	< 48	< 18	14600	
	12/02/2004	12000	1400	3900	1900	19200	< 230	< 66	< 41	< 37	< 24	--	< 86	< 48	< 18	19200	
	01/12/2005	9300	1400	3600	2000	16300	< 230	< 66	< 41	< 37	< 24	--	< 86	< 48	< 18	16300	
	02/09/2005	9100	1300	3700	1950	16050	< 230	--	--	< 37	< 24	--	--	--	--	16050	
	03/09/2005	8300	1400	3900	1900	15500	< 230	--	--	--	--	--	--	--	--	15500	
	04/19/2005	6800	1300	3400	2030	13530	170	--	--	--	--	--	--	--	--	13700	
	07/06/2005	6600	1100	3100	1720	12520	--	--	--	--	--	--	--	--	--	12520	
	10/18/2005	7300	1100	3000	1580	12980	--	--	--	--	--	--	--	--	--	12980	
	01/11/2006	4500	850	2700	1530	9580	--	--	--	--	--	--	--	--	--	9580	
	04/20/2006	3200	590	1900	1230	6920	--	--	--	--	--	--	--	--	--	6920	
	07/19/2006	4300	650	2200	1220	8370	--	--	--	--	--	--	--	--	--	8370	
	10/24/2006	4900	700	2100	1250	8950	--	--	--	--	--	--	--	--	--	8950	



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Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																
Groundwater Monitoring Wells																
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS
MW-21 cont.	04/26/2007	3500	620	2100	1340	7560	--	--	--	--	--	--	--	--	--	7560
	10/09/2007	4300	640	2400	1300	8640	--	--	--	--	--	--	--	--	--	8640
	04/09/2008	2300	434	1780	1283	5797	--	--	--	--	--	--	9980	--	--	15777
	10/21/2008	3230	625	2160	1452	7467	--	--	--	--	--	--	10400	--	--	17867
	04/20/2009	2350	322	1630	923	5225	--	--	--	--	--	--	9120	--	--	14345
	10/07/2009	3170	597	1970	1379	7116	--	--	--	--	--	--	9910	--	--	17026
	04/06/2010	2660	469	1820	1207	6156	--	--	--	--	--	--	10800	--	--	16956
	10/04/2010	2550	326	1900	982	5758	--	--	--	--	--	--	9700	--	--	15458
	04/11/2011	1480	353	1380	1132	4345	--	--	--	--	--	--	10200	--	--	14545
	10/03/2011	2030	392	1460	1028	4910	--	--	--	--	--	--	8910	--	--	13820
	04/24/2012	1280	256	1240	856	3632	--	--	--	--	--	--	9730	--	--	13362
	06/26/2012	1950	275	1460	804	4489	--	--	--	--	--	--	7710	--	--	12199
	09/12/2012	2450	364	1500	1003	5317	--	--	--	--	--	--	9180	--	--	14497
	01/28/2013	2140	287	1550	888	4865	--	--	--	--	--	--	10800	--	--	15665
	04/23/2013	1240	256	1180	963	3639	--	--	--	--	--	--	9010	--	--	12649
	07/16/2013	1440	244	1280	800	3764	--	--	--	--	--	--	8200	--	--	11964
	10/15/2013	2140	334	1390	1009	4873	--	--	--	--	--	--	9250	--	--	14123
Dup (QC-1)	10/15/2013	1950	308	1290	938	4486	--	--	--	--	--	--	8620	--	--	13106
	04/29/2014	1180	197	1100	750	3227	--	--	--	--	--	--	9660	--	--	12887
	10/13/2014	2080	231	1510	<544	3821	--	--	--	--	--	--	10400	--	--	14221
	04/21/2015	1520	272	1400	765	3957	--	--	--	--	--	--	10300	--	--	14257
	10/19/2015	1670	308	1420	986	4384	--	--	--	--	--	--	10700	--	--	15084
	04/21/2016	1040	225	995	785	3045	--	--	--	--	--	--	7370	--	--	10415
	10/04/2016	1240	267	1150	964	3621	--	--	--	--	--	--	10700	--	--	14321
	04/19/2017	1190	224	1040	912	3366	--	--	--	--	--	--	9320	--	--	12686
	10/24/2017	1660	212	1160	751	3783	--	--	--	--	--	--	8950	--	--	12733
PZ-21B	10/20/2004	38	10	1.7	12	61.7	<2.3	<0.66	<0.41	<0.37	0.42	--	<0.86	<0.48	<0.18	62.12
Dup (QC-1)	10/20/2004	39	9.8	1.7	12	62.5	<2.3	<0.66	<0.41	<0.37	0.73	--	<0.86	<0.48	<0.18	63.23
	12/02/2004	32	10	1.7	13	56.7	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	56.7
	01/12/2005	24	12	1.6	13	50.6	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	50.6
	02/09/2005	15	7.2	1.1	7.8	31.1	<2.3	--	--	<0.37	<0.24	--	--	--	--	31.1
	03/09/2005	13	7	0.84	7.4	28.24	--	--	--	--	--	--	--	--	--	28.24
	04/19/2005	9.7	4.1	<0.67	4.2	18	--	--	--	--	--	--	--	--	--	18
Dup (QC-1)	04/19/2005	9.8	4.3	<0.67	2.2	16.3	--	--	--	--	--	--	--	--	--	16.3
	07/06/2005	6.4	3.4	<0.67	1.9	11.7	--	--	--	--	--	--	--	--	--	11.7
	10/18/2005	5.3	2.2	<0.67	1.4	8.9	--	--	--	--	--	--	--	--	--	8.9
Dup (QC-1)	01/10/2006	6.2	2.3	<0.67	3.5	12	--	--	--	--	--	--	--	--	--	12
Dup (QC-1)	01/11/2006	6.5	2.4	<0.67	1.7	10.6	--	--	--	--	--	--	--	--	--	10.6
	04/20/2006	2.2	1.2	<0.67	0.9	4.3	--	--	--	--	--	--	--	--	--	4.3
Dup (QC-1)	04/20/2006	2.2	1.2	<0.67	0.94	4.34	--	--	--	--	--	--	--	--	--	4.34
	07/19/2006	1.5	1.2	<0.67	<1.8	2.7	--	--	--	--	--	--	--	--	--	2.7
Dup (QC-1)	07/19/2006	1.6	1.2	<0.67	<1.8	2.8	--	--	--	--	--	--	--	--	--	2.8
	04/26/2007	2.3	--	--	--	2.3	--	--	--	--	--	--	--	--	--	2.3
	04/09/2008	1.3	1.6	<0.67	0.9	3.8	--	--	--	--	--	--	52.1	--	--	55.9
	04/20/2009	0.5	--	--	--	0.5	--	--	--	--	--	--	22.6	--	--	23.1
	04/06/2010	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	24	--	--	24
	04/12/2011	<0.41	--	--	--	<0.41	--	--	--	--	--	--	15.3	--	--	15.3
	04/24/2012	<0.41	--	--	--	<0.41	--	--	--	--	--	--	5.6	--	--	5.6
	04/23/2013	<0.50	--	--	--	<0.5	--	--	--	--	--	--	4.5	--	--	4.5
	04/29/2014	<0.50	--	--	--	<0.5	--	--	--	--	--	--	22.6	--	--	22.6
	04/21/2015	<0.50	--	--	--	<0.5	--	--	--	--	--	--	10.9	--	--	10.9
	04/21/2016	<0.5	--	--	--	<0.5	--	--	--	--	--	--	23.6	--	--	23.6
	04/19/2017	<0.50	--	--	--	<0.5	--	--	--	--	--	--	4.40	--	--	4.40
MW-22	10/18/2004	2700	480	<17	190	3370	<58	<16	<10	<9.2	<6.0	--	<22	<12	<4.5	3370
	12/01/2004	2600	440	<34	160	3200	<120	<33	<20	<18	<12	--	<43	<24	<9	3200
	01/11/2005	2700	480	<34	170	3350	<120	<33	<20	<18	<12	--	<43	<24	<9	3350
	02/08/2005	2600	480	<17	158	3238	<58	--	--	<9.2	<6.0	--	--	--	--	3238
	03/09/2005	2600	510	16	169	3295	--	--	--	--	--	--	--	--	--	3295
	04/19/2005	2900	490	<34	160	3550	--	--	--	--	--	--	--	--	--	3550
	07/06/2005	2900	570	<34	210	3680	--	--	--	--	--	--	--	--	--	3680
	10/18/2005	3300	600	<34	220	4120	--	--	--	--	--	--	--	--	--	4120
	01/10/2006	3300	680	<17	250	4230	--	--	--	--	--	--	--	--	--	4230
	04/19/2006	3400	680	<34	230	4310	--	--	--	--	--	--	--	--	--	4310
	07/19/2006	3700	760	<34	242	4702	--	--	--	--	--	--	--	--	--	4702
	10/24/2006	3500	690	<67	100	4290	--	--	--	--	--	--	--	--	--	4290



Table 4 - Groundwater Analytical Results-VOCs

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)															
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																	
Groundwater Monitoring Wells																	
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS	
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS	
MW-22 cont.	04/25/2007	2900	580	<17	187	3667	--	--	--	--	--	--	--	--	--	3667	
	10/09/2007	3000	590	<34	175	3765	--	--	--	--	--	--	--	--	--	3765	
	Dup (QC-1)	10/09/2007	2800	550	<34	174	3524	--	--	--	--	--	--	--	--	3524	
	Dup (QC-1)	04/09/2008	2300	512	20.2	165.9	2998.1	--	--	--	--	2370	--	--	--	5368.1	
	Dup (QC-1)	04/09/2008	2460	542	45.4	190.4	3237.8	--	--	--	--	2680	--	--	--	5917.8	
	Dup (QC-1)	10/21/2008	2050	543	<67	<180	2593	--	--	--	--	3930	--	--	--	6523	
	Dup (QC-1)	10/21/2008	2150	564	<33.5	206.2	2920.2	--	--	--	--	2800	--	--	--	5720.2	
	Dup (QC-1)	04/20/2009	1980	524	<13.4	177.7	2681.7	--	--	--	--	2220	--	--	--	4901.7	
	Dup (QC-1)	10/07/2009	1960	538	<16.8	162.9	2660.9	--	--	--	--	2340	--	--	--	5000.9	
	Dup (QC-1)	04/06/2010	2040	532	<16.8	146.7	2718.7	--	--	--	--	2290	--	--	--	5008.7	
	Dup (QC-1)	10/04/2010	2190	524	<16.8	120.4	2834.4	--	--	--	--	2670	--	--	--	5504.4	
	Dup (QC-1)	04/11/2011	1920	601	<16.8	160.3	2681.3	--	--	--	--	3270	--	--	--	5951.3	
	Dup (QC-1)	04/11/2011	1730	535	<16.8	149.6	2414.6	--	--	--	--	2650	--	--	--	5064.6	
	Dup (QC-1)	10/03/2011	1970	445	<16.8	87.9	2502.9	--	--	--	--	2220	--	--	--	4722.9	
	Dup (QC-1)	04/23/2012	1600	458	<16.8	33.3	2091.3	--	--	--	--	2110	--	--	--	4201.3	
	Dup (QC-1)	06/26/2012	1820	474	<16.8	23	2317	--	--	--	--	1470	--	--	--	3787	
	Dup (QC-1)	09/13/2012	2070	452	<16.8	33.1	2555.1	--	--	--	--	1750	--	--	--	4305.1	
	Dup (QC-1)	01/28/2013	2230	481	<16.8	25.9	2736.9	--	--	--	--	2320	--	--	--	5056.9	
	Dup (QC-1)	04/23/2013	1840	509	<11.0	47.5	2396.5	--	--	--	--	1850	--	--	--	4246.5	
	Dup (QC-1)	07/16/2013	1810	524	<11.0	43.1	2377.1	--	--	--	--	2400	--	--	--	4777.1	
	Dup (QC-1)	07/16/2013	1670	520	<8.8	78.5	2268.5	--	--	--	--	2400	--	--	--	4668.5	
	Dup (QC-1)	10/15/2013	2630	574	<11.0	105.4	3309.4	--	--	--	--	2890	--	--	--	6199.4	
	Dup (QC-1)	04/30/2014	1860	454	<12.5	26.5	2340.5	--	--	--	--	2500	--	--	--	4840.5	
	Dup (QC-1)	10/13/2014	2450	522	<12.5	<25	2972	--	--	--	--	3440	--	--	--	6412	
	Dup (QC-1)	04/21/2015	1690	444	<12.5	<25.0	2134	--	--	--	--	2170	--	--	--	4304	
Dup (QC-1)	10/19/2015	1450	432	<12.5	35.4	1917.4	--	--	--	--	2570	--	--	--	4487.4		
Dup (QC-1)	04/21/2016	1310	399	<12.5	32.5	1741.5	--	--	--	--	1710	--	--	--	3451.5		
Dup (QC-1)	04/21/2016	1430	472	<10	70.1	1972.1	--	--	--	--	2220	--	--	--	4192.1		
Dup (QC-1)	10/04/2016	1380	409	<12.5	38.1	1827.1	--	--	--	--	2070	--	--	--	3897.1		
Dup (QC-1)	04/19/2017	1770	489	<12.5	77.7	2336.7	--	--	--	--	2660	--	--	--	4996.7		
Dup (QC-1)	10/24/2017	1860	368	<12.5	26.5	2254.5	--	--	--	--	2050	--	--	--	4304.5		
PZ-22B	10/18/2004	25	19	2.6	19	65.6	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	65.6	
	12/01/2004	35	23	3.1	22	83.1	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	83.1	
	01/11/2005	55	26	3.5	25	109.5	3.8	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	113.3	
	02/08/2005	48	23	<6.7	12	83	<23	--	--	<3.7	<2.4	--	--	--	--	83	
	03/09/2005	59	27	4.3	28	118.3	--	--	--	--	--	--	--	--	--	118.3	
	Dup (QC-1)	03/09/2005	53	26	3.9	26	108.9	--	--	--	--	--	--	--	--	108.9	
	Dup (QC-1)	04/19/2005	41	14	<6.7	<18	55	--	--	--	--	--	--	--	--	55	
	Dup (QC-1)	07/06/2005	61	15	<6.7	<18	76	--	--	--	--	--	--	--	--	76	
	Dup (QC-1)	10/18/2005	38	12	<3.4	5.5	55.5	--	--	--	--	--	--	--	--	55.5	
	Dup (QC-1)	10/18/2005	37	12	<3.4	5.4	54.4	--	--	--	--	--	--	--	--	54.4	
	Dup (QC-1)	01/10/2006	34	10	<3.4	4.8	48.8	--	--	--	--	--	--	--	--	48.8	
	Dup (QC-1)	04/19/2006	36	24	<6.7	9.2	69.2	--	--	--	--	--	--	--	--	69.2	
	Dup (QC-1)	07/19/2006	22	6.9	<3.4	<9.0	28.9	--	--	--	--	--	--	--	--	28.9	
	Dup (QC-1)	04/25/2007	20	--	--	--	20	--	--	--	--	--	--	--	--	20	
	Dup (QC-1)	04/09/2008	10.9	7.9	<3.4	<9	18.8	--	--	--	--	314	--	--	--	332.8	
	Dup (QC-1)	04/20/2009	7.4	--	--	--	7.4	--	--	--	--	530	--	--	--	537.4	
	Dup (QC-1)	04/06/2010	6.7	12.1	<3.4	5.2	24	--	--	--	--	--	--	--	--	24	
	Dup (QC-1)	04/12/2011	6.1	--	--	--	6.1	--	--	--	--	816	--	--	--	822.1	
	Dup (QC-1)	04/23/2012	2.9	--	--	--	2.9	--	--	--	--	364	--	--	--	366.9	
	Dup (QC-1)	04/23/2013	2.8	--	--	--	2.8	--	--	--	--	420	--	--	--	422.8	
Dup (QC-1)	04/30/2014	5.1	--	--	--	5.1	--	--	--	--	530	--	--	--	535.1		
Dup (QC-1)	04/21/2015	3.2	--	--	--	3.2	--	--	--	--	493	--	--	--	496.2		
Dup (QC-1)	04/21/2016	4	--	--	--	4	--	--	--	--	481	--	--	--	485		
Dup (QC-1)	04/19/2017	4.8	--	--	--	4.8	--	--	--	--	678	--	--	--	682.8		
MW-23 Well Installed 9/15/2008	10/21/2008	<0.41	<0.54	0.94	<1.8	0.94	--	--	--	--	--	3.3	--	--	--	4.24	
	02/19/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	1.1	--	--	--	1.1	
	04/21/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	1.2	--	--	--	1.2	
	Dup (QC-1)	10/08/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<1.3	<0.24	0.097	<0.86	<0.48	<0.18	0.097
	Dup (QC-1)	10/08/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<1.3	<0.24	1.1	<0.86	<0.48	<0.18	1.1
	Dup (QC-1)	11/12/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<1.3	<0.24	<0.89	<0.86	<0.48	<0.18	<7.78
	Dup (QC-1)	04/07/2010	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	Dup (QC-1)	04/24/2012	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31



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We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)															
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																	
Groundwater Monitoring Wells																	
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS	
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS	
PZ-23 Well Installed 10/5/2009	10/08/2009	189	22	< 3.4	33.8	244.8	--	--	< 2.0	< 6.5	< 1.2	537	< 4.3	< 2.4	< 0.90	781.8	
	11/12/2009	292	28.6	4.3	38	362.9	--	--	< 2.0	< 6.5	< 1.2	672	< 4.3	< 2.4	< 0.90	1034.9	
	04/07/2010	551	45.3	11.6	49.3	657.2	--	--	--	--	--	895	--	--	--	1552.2	
	10/05/2010	1090	63	< 6.7	36.1	1189.1	--	--	--	--	--	1260	--	--	--	2449.1	
	01/18/2011	655	60.5	< 6.7	13	728.5	--	--	--	--	--	962	--	--	--	1690.5	
	04/12/2011	1030	88.2	26.7	48.4	1193.3	--	--	--	--	--	1190	--	--	--	2383.3	
	07/13/2011	1160	86.4	< 6.7	12.1	1258.5	--	--	--	--	--	1600	--	--	--	2858.5	
	10/04/2011	537	52.1	< 6.7	9.2	598.3	--	--	--	--	--	899	--	--	--	1497.3	
	01/04/2012	1160	83.3	18.6	20.6	1282.5	--	--	--	--	--	944	--	--	--	2226.5	
	04/24/2012	1200	90.3	< 6.7	21.8	1312.1	--	--	--	--	--	1070	--	--	--	2382.1	
	06/26/2012	1110	69.2	< 6.7	11.3	1190.5	--	--	--	--	--	886	--	--	--	2076.5	
	09/12/2012	934	71.7	< 6.7	16	1021.7	--	--	--	--	--	957	--	--	--	1978.7	
	01/29/2013	889	52.8	8.2	13.3	963.3	--	--	--	--	--	854	--	--	--	1817.3	
	04/24/2013	1050	85.5	26.3	46.8	1208.6	--	--	--	--	--	1160	--	--	--	2368.6	
	07/16/2013	971	81.3	5	39.1	1096.4	--	--	--	--	--	1180	--	--	--	2276.4	
	10/16/2013	806	70.1	< 4.4	34.5	910.6	--	--	--	--	--	1030	--	--	--	1940.6	
	PZ-23 (continued)	04/30/2014	893	73.7	18.2	33.3	1018.2	--	--	--	--	--	1000	--	--	--	2018.2
		07/21/2014	952	82.2	5.6	35.6	1075.4	--	--	--	--	--	1160	--	--	--	2235.4
		10/13/2014	931	62.1	< 5.0	< 15.0	993.1	--	--	--	--	--	1210	--	--	--	2203.1
		04/22/2015	512	55.9	5.3	23.6	596.8	--	--	--	--	--	619	--	--	--	1215.8
		04/22/2015	452	50.3	5.5	11.1	518.9	--	--	--	--	--	508	--	--	--	1026.9
		07/14/2015	567	48.4	< 5.0	10.6	626	--	--	--	--	--	488	--	--	--	1114
		10/20/2015	542	55.4	< 5.0	10.7	608.1	--	--	--	--	--	838	--	--	--	1446.1
		01/07/2016	840	74.5	8.8	15.8	939.1	--	--	--	--	--	721	--	--	--	1660.1
		04/21/2016	728	59.1	6.4	10.9	804.4	--	--	--	--	--	488	--	--	--	1292.4
07/14/2016		783	75.8	< 5	14.3	873.1	--	--	--	--	--	831	--	--	--	1704.1	
Dup (QC-1)	10/04/2016	693	61.2	< 5	10.1	764.3	--	--	--	--	--	854	--	--	--	1618.3	
	01/18/2017	694	58.5	2.4	9.5	764.4	--	--	--	--	--	669	--	--	--	1433.4	
	04/20/2017	819	55.4	< 5.0	10.9	885.3	--	--	--	--	--	507	--	--	--	1392.3	
	07/12/2017	702	69.4	< 5.0	23.8	795.2	--	--	--	--	--	720	--	--	--	1515.2	
	10/23/2017	498	36.5	< 5.0	8.1	542.6	--	--	--	--	--	669	--	--	--	1211.6	
	MW-24 Well Installed 1/14/2013	01/29/2013	2.4	< 0.54	2.7	< 1.8	5.1	--	--	< 0.41	< 1.3	< 0.24	< 0.89	< 0.86	< 0.48	< 0.18	5.1
		04/24/2013	< 0.5	< 0.5	< 0.44	< 0.82	< 2.6	--	--	< 0.36	< 0.69	< 0.39	< 2.5	< 0.35	< 0.43	< 0.18	< 7.16
		07/16/2013	1	< 0.50	< 0.44	< 0.82	1	--	--	--	--	--	< 2.5	--	--	--	1
		10/15/2013	1.4	< 0.50	< 4.4	< 0.82	1.4	--	--	--	--	--	< 2.5	--	--	--	1.4
		04/29/2014	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5
10/14/2014		< 0.50	< 0.50	< 0.50	< 1.5	< 3	--	--	--	--	--	< 2.5	--	--	--	< 5.5	
04/22/2015		< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
10/20/2015		< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
04/22/2016		< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
10/05/2016		< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
04/20/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5		
10/23/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5		
MW-25 Well Installed 1/15/2013	01/28/2013	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	< 0.41	< 1.3	< 0.24	< 0.89	< 0.86	< 0.48	< 0.18	< 7.78	
	04/24/2013	1.1	0.71	< 0.44	< 0.82	1.81	--	--	< 0.36	< 0.69	< 0.39	< 2.5	< 0.35	< 0.47	< 0.18	1.81	
	07/16/2013	1	< 0.50	< 0.44	< 0.82	1	--	--	--	--	--	< 2.5	--	--	--	1	
	10/15/2013	1.4	< 0.5	< 0.44	< 0.82	1.4	--	--	--	--	--	< 2.5	--	--	--	1.4	
	04/29/2014	5.9	9.1	3	14	32	--	--	--	--	--	70.4	--	--	--	102.4	
	10/14/2014	3.6	1.7	0.74	< 1.9	6.04	--	--	--	--	--	9.9	--	--	--	15.94	
	04/21/2015	2.8	3.9	1.5	5.8	14	--	--	--	--	--	28.6	--	--	--	42.6	
	10/20/2015	6.1	6.4	1.9	9.3	23.7	--	--	--	--	--	63.5	--	--	--	87.2	
	04/21/2016	2.3	5.2	1.1	6.8	15.4	--	--	--	--	--	68.5	--	--	--	83.9	
	10/04/2016	6.7	10.3	2.5	14.6	34.1	--	--	--	--	--	149	--	--	--	183.1	
Dup (QC-1)	10/04/2016	6.6	10.4	2.6	14.4	34	--	--	--	--	--	149	--	--	--	183	
	04/20/2017	3.7	9	1.8	13.4	27.9	--	--	--	--	--	141	--	--	--	168.9	
	10/24/2017	3.9	3.7	1.2	5.4	14.2	--	--	--	--	--	86.2	--	--	--	100.4	
	04/22/2015	18.9	2.4	1	3.4	25.7	--	--	--	--	--	19.8	--	--	--	45.5	
MW-26	07/14/2015	71.1	6.5	0.57	6.1	84.27	--	--	< 0.50	< 2.5	< 0.50	53.1	< 0.50	< 0.33	< 0.18	137.37	
	10/19/2015	58.9	5.9	0.75	5.8	71.35	--	--	< 0.50	< 2.5	< 0.50	70.3	< 0.50	< 0.33	< 0.18	141.65	
	01/07/2016	58.7	4.7	< 0.5	6	69.4	--	--	--	--	--	45.8	--	--	--	115.2	
	04/22/2016	27.1	1.5	< 0.5	1.4	30	--	--	--	--	--	16.7	--	--	--	46.7	
	07/14/2016	32.1	< 0.5	< 0.5	1.3	33.4	--	--	--	--	--	15.6	--	--	--	49	
	10/05/2016	70.2	0.74	< 0.5	4	74.94	--	--	--	--	--	--	--	--	--	74.94	
	01/18/2017	56.9	< 0.50	< 0.50	2.5	59.4	--	--	--	--	--	34.9	--	--	--	94.3	
	04/20/2017	24.7	< 0.50	< 0.50	0.95	25.65	--	--	--	--	--	10.0	--	--	--	35.65	
	07/12/2017	8.0	< 0.50	< 0.50	< 1.0	8	--	--	--	--	--	4.5	--	--	--	12.5	



Table 4 - Groundwater Analytical Results-VOCs

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)															
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																	
Groundwater Monitoring Wells																	
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS	
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS	
PZ-26	04/30/2014	6890	814	1020	1032	9756	--	--	< 50.0	< 250	< 50.0	6480	< 15.3	< 33.1	< 17.6	16236	
	Well Installed 04/15/2014	14700	1150	2440	1493	19783	--	--	< 50.0	< 250	< 50.0	7630	< 15.3	< 33.1	< 17.6	27413	
MW-27	04/22/2015	207	47.8	2.1	13.5	270.4	--	--	--	--	--	382	--	--	--	652.4	
	07/14/2015	474	91.2	2.2	20.5	587.9	--	--	< 2.0	< 10.0	< 2.0	633	< 2.0	< 1.3	< 0.70	1220.9	
	07/14/2015	436	80.1	< 5.0	9.2	525.3	--	--	< 5.0	< 25.0	< 5.0	615	< 5.0	< 3.3	< 1.8	1140.3	
	10/20/2015	404	63.1	2.1	15.8	485	--	--	< 2.0	< 10.0	< 2.0	691	< 2.0	< 1.3	< 0.70	1176	
	01/07/2016	526	113	3.8	27	669.8	--	--	--	--	--	734	--	--	--	1403.8	
	04/22/2016	556	107	4.1	24	691.1	--	--	--	--	--	605	--	--	--	1296.1	
	07/14/2016	597	115	2.8	26.7	741.5	--	--	--	--	--	894	--	--	--	1635.5	
	07/14/2016	597	121	< 5	31.8	749.8	--	--	--	--	--	998	--	--	--	1747.8	
	10/05/2016	560	111	< 2.5	22.9	693.9	--	--	--	--	--	1100	--	--	--	1793.9	
	01/18/2017	529	118	2.8	25.8	675.6	--	--	--	--	--	828	--	--	--	1503.6	
MW-27	04/20/2017	569	94.4	2.8	23.3	689.5	--	--	--	--	--	620	--	--	--	1309.5	
	07/12/2017	420	88.5	< 2.5	21.4	529.9	--	--	--	--	--	727	--	--	--	1256.9	
	04/22/2015	259	40.4	3.4	19	321.8	--	--	--	--	--	527	--	--	--	848.8	
	07/14/2015	439	46.5	2.2	17.9	505.6	--	--	< 2.0	< 10.0	< 2.0	543	< 2.0	< 1.3	< 0.70	1048.6	
	10/20/2015	381	48.2	2.1	20.3	451.6	--	--	< 2.0	< 10.0	< 2.0	812	< 2.0	< 1.3	< 0.70	1263.6	
	10/20/2015	425	39.7	< 5.0	9.1	473.8	--	--	< 5.0	< 25.0	< 5.0	700	< 5.0	< 3.3	< 1.8	1173.8	
	01/07/2016	455	49.1	< 5	12.2	516.3	--	--	--	--	--	598	--	--	--	1114.3	
	04/22/2016	512	47.5	6.3	9.9	575.7	--	--	--	--	--	401	--	--	--	976.7	
	07/14/2016	537	52.5	< 5	17.3	606.8	--	--	--	--	--	547	--	--	--	1153.8	
	10/05/2016	487	53	< 5	11.3	551.3	--	--	--	--	--	687	--	--	--	1238.3	
MW-27	01/18/2017	252	23	1.4	14.1	290.5	--	--	--	--	--	227	--	--	--	517.5	
	04/20/2017	506	45.7	< 5.0	11.5	563.2	--	--	--	--	--	438	--	--	--	1001.2	
	07/12/2017	398	48.5	< 5.0	12.9	459.4	--	--	--	--	--	485	--	--	--	944.4	
	07/12/2017	394	46	< 5.0	11	451	--	--	--	--	--	473	--	--	--	924	
	10/23/2017	469	34	< 5.0	7.4	510.4	--	--	--	--	--	398	--	--	--	908.4	
	MW-28	04/22/2015	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5
		07/14/2015	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	< 0.50	< 2.5	< 0.50	< 2.5	< 0.50	< 0.33	< 0.18	< 9.51
		10/20/2015	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	< 0.50	< 2.5	< 0.50	< 2.5	< 0.50	< 0.33	< 0.18	< 9.51
		01/07/2016	< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5
		01/07/2016	< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5
04/22/2016		< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
07/14/2016		< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
10/04/2016		< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
01/18/2017		< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
01/18/2017		< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
04/20/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5		
MW-28	07/12/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5	
	10/23/2017	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	PZ-28	04/22/2015	4880	748	721	1025	7374	--	--	--	--	--	3720	--	--	--	11094
	QCFB	02/20/2002	< 0.44	< 0.5	< 0.4	< 1.2	< 2.54	< 3.1	< 0.4	< 0.43	< 0.41	--	--	< 0.37	< 0.49	< 0.17	< 7.91
		05/13/2002	< 0.44	< 0.5	< 0.4	< 1.2	< 2.54	6.5	< 0.4	< 0.43	< 0.41	--	--	< 0.37	< 0.49	< 0.17	6.5
		08/20/2002	< 0.44	< 0.5	< 0.4	< 1.2	< 2.54	3.8	< 0.4	< 0.43	< 0.41	--	--	< 0.37	< 0.49	< 0.17	3.8
		11/14/2002	< 0.25	< 0.53	< 0.84	< 1.9	< 3.52	< 3.3	< 0.5	< 0.58	< 0.45	--	--	< 0.62	< 0.39	< 0.11	< 9.47
		02/20/2003	< 0.25	< 0.53	< 0.84	< 1.9	< 3.52	< 3.3	< 0.5	< 0.58	< 0.45	--	--	< 0.62	< 0.39	< 0.11	< 9.47
		10/19/2004	< 0.41	< 0.54	< 0.67	< 2.6	< 4.22	4.3	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	4.3
		12/02/2004	< 0.41	< 0.54	< 0.67	< 2.6	< 4.22	3.1	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	3.1
01/13/2005		< 0.41	< 0.54	< 0.67	< 2.6	< 4.22	3.4	< 0.66	< 0.41	< 0.37	< 0.24	--	< 0.86	< 0.48	< 0.18	3.4	
02/10/2005		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	< 2.3	--	--	< 0.37	< 0.24	--	--	--	--	< 6.33	
03/10/2005		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
04/20/2005		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
07/07/2005		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
10/19/2005		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
01/12/2006		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
04/19/2006		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
07/20/2006		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	
10/24/2006		< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42	



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Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																
Groundwater Monitoring Wells																
Preventive Action Limit:		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS
QCFB (continued)	04/26/2007	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	10/09/2007	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	04/09/2008	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.74	--	--	--	<4.16
	10/21/2008	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	04/21/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	10/08/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<1.3	<0.24	<0.89	<0.86	<0.45	<0.18	<7.75
	04/07/2010	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	10/05/2010	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	01/18/2011	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	04/12/2011	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	07/13/2011	<0.41	<0.54	<0.67	<1.9	<3.52	--	--	--	--	--	<0.89	--	--	--	<4.41
	10/03/2011	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	01/04/2012	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	04/24/2012	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	06/26/2012	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	09/13/2012	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31
	01/29/2013	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<1.3	<0.24	<0.89	<0.86	<0.48	<0.18	<7.78
	04/23/2013	<0.50	<0.50	<0.44	<0.50	<1.94	--	--	<0.36	<0.69	<0.39	<2.5	<0.35	<0.43	<0.18	<6.84
	07/16/2013	<0.50	<0.50	<0.44	<0.82	<2.26	--	--	--	--	--	<2.5	--	--	--	<4.76
	10/15/2013	<0.50	<0.50	<0.44	<0.82	<2.26	--	--	--	--	--	<2.5	--	--	--	<4.76
	04/30/2014	<0.50	<0.50	<0.50	<1	<2.5	--	--	<0.50	<2.5	<0.50	--	<0.15	<0.33	<0.18	<6.66
	10/14/2014	<0.50	<0.50	<0.50	<1.5	<3	--	--	<0.50	<2.5	<0.50	<2.5	<0.05	<0.33	<0.18	<9.56
	04/21/2015	<0.50	<0.50	<0.50	<1.0	<2.5	--	--	--	--	--	<2.5	--	--	--	<5
	07/14/2015	<0.50	<0.50	<0.50	<1.0	<2.5	--	--	<0.50	<2.5	<0.50	<2.5	<0.50	<0.33	<0.18	<9.51
	10/19/2015	<0.50	<0.50	<0.50	<1.0	<2.5	--	--	<0.50	<2.5	<0.50	<2.5	<0.50	<0.33	<0.18	<9.51
	01/07/2016	<0.5	<0.5	<0.5	<1	<2.5	--	--	--	--	--	<2.5	--	--	--	<5
04/21/2016	<0.5	<0.5	<0.5	<1	<2.5	--	--	--	--	--	<2.5	--	--	--	<5	
07/14/2016	<0.5	<0.5	<0.5	<1	<2.5	--	--	--	--	--	<2.5	--	--	--	<5	
10/04/2016	<0.5	<0.5	<0.5	<1	<2.5	--	--	--	--	--	<2.5	--	--	--	<5	
01/18/2017	1.2	<0.50	<0.50	<1.0	1.2	--	--	--	--	--	<2.5	--	--	--	1.2	
07/12/2017	<0.50	<0.50	<0.50	<1.0	<2.5	--	--	--	--	--	<2.5	--	--	--	<5	
10/23/2017	<0.50	<0.50	<0.50	<1.0	<2.5	--	--	--	--	--	<2.5	--	--	--	<5	
10/24/2017	<0.50	<0.50	<0.50	<1.0	<2.5	--	--	--	--	--	<2.5	--	--	--	<5	
Trip Blank	02/20/2002	<0.44	<0.5	<0.4	<1.2	<2.54	<3.1	<0.4	<0.43	<0.41	--	--	<0.37	<0.49	<0.17	<7.91
	05/13/2002	<0.44	<0.5	<0.4	<1.2	<2.54	<3.1	<0.4	<0.43	<0.41	--	--	<0.37	<0.49	<0.17	<7.91
	08/20/2002	<0.44	<0.5	<0.4	<1.2	<2.54	<3.1	<0.4	<0.43	<0.41	--	--	<0.37	<0.49	<0.17	<7.91
	11/12/2002	<0.25	<0.53	<0.84	<1.9	<3.52	<3.3	<0.5	<0.58	<0.45	--	--	<0.62	<0.39	<0.11	<9.47
	02/20/2003	<0.25	<0.53	<0.84	<1.9	<3.52	<3.3	<0.5	<0.58	<0.45	--	--	<0.62	<0.39	<0.11	<9.47
	10/19/2004	<0.41	<0.54	<0.67	<2.6	<4.22	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	<9.72
	11/30/2004	<0.41	<0.54	<0.67	<2.6	<4.22	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	<9.72
	12/02/2004	<0.41	<0.54	<0.67	<2.6	<4.22	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	<9.72
	01/12/2005	<0.41	<0.54	<0.67	<2.6	<4.22	<2.3	<0.66	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	<9.72
	02/09/2005	<0.41	<0.54	<0.67	<1.8	<3.42	<2.3	--	--	<0.37	<0.24	--	--	<0.48	<0.18	<6.99
	03/09/2005	<0.41	<0.54	<0.67	<1.8	<3.42	<2.3	--	--	--	--	--	--	--	--	<5.72
	04/19/2005	<0.41	<0.54	<0.67	<1.8	<3.42	<2.3	--	--	--	--	--	--	--	--	<5.72
	07/05/2005	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	07/07/2005	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	10/18/2005	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	10/19/2005	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	01/10/2006	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	04/19/2006	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	04/20/2006	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	07/19/2006	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	07/20/2006	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<0.37	<0.24	--	<0.86	<0.48	<0.18	<5.96
	04/25/2007	<0.41	<0.54	<0.67	<1.9	<3.52	--	--	--	--	--	--	--	--	--	<3.52
	10/08/2007	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	10/09/2007	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	04/07/2008	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
	04/08/2008	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42
04/09/2008	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.74	--	--	--	<4.16	
10/21/2008	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	<0.89	--	--	--	<4.31	
10/08/2009	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	<0.41	<1.3	<0.24	<0.89	<0.86	<0.45	<0.18	<7.75	
04/07/2010	<0.41	<0.54	<0.67	<1.8	<3.42	--	--	--	--	--	--	--	--	--	<3.42	



Table 4 - Groundwater Analytical Results-VOCs

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Volatile Organic Compounds (VOCs-µg/L)														
		Benzene	Ethyl benzene	Toluene	Xylene, Total ³	Total BTEX ^{1,4}	Acetone	Carbon Disulfide	Chloro benzene	Chloroform	Chloro methane	Naphthalene ²	Styrene	Trichloro ethene	Vinyl Chloride	Total VOCs ^{1,5}
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																
Groundwater Monitoring Wells																
<i>Preventive Action Limit:</i>		0.5	140	160	400	NS	1800	200	NS	0.6	3	10	10	0.5	0.02	NS
Enforcement Standard:		5	700	800	2000	NS	9000	1000	NS	6	30	100	100	5	0.2	NS
<i>Trip blank cont.</i>																
	10/04/2010	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
	01/18/2011	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	--	--	--	--	< 3.42
	04/11/2011	< 0.41	--	--	--	< 0.41	--	--	--	--	--	--	< 0.89	--	--	< 1.3
	07/13/2011	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	< 0.89	--	--	--	< 4.31
	10/03/2011	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	< 0.89	--	--	--	< 4.31
	01/04/2012	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	< 0.89	--	--	--	< 4.31
	04/24/2012	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	< 0.89	--	--	--	< 4.31
	09/12/2012	< 0.41	< 0.54	< 0.67	< 1.8	< 3.42	--	--	--	--	--	< 0.89	--	--	--	< 4.31
	04/23/2013	< 0.50	--	--	--	< 0.5	--	--	--	--	--	< 2.5	--	--	--	< 3.0
	07/16/2013	< 0.50	< 0.50	< 0.44	< 0.82	< 2.26	--	--	--	--	--	< 2.5	--	--	--	< 4.76
	10/15/2013	< 0.50	< 0.50	< 0.44	< 0.82	< 2.26	--	--	--	--	--	< 2.5	--	--	--	< 4.76
	04/30/2014	< 0.50	< 0.50	< 0.50	--	< 1.5	--	--	--	--	--	< 2.5	--	--	--	< 4.0
	10/14/2014	< 0.50	< 0.50	< 0.50	< 1.5	< 3	--	--	< 0.50	< 2.5	< 0.50	< 2.5	< 0.05	< 0.33	< 0.18	< 9.56
	04/21/2015	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	07/14/2015	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	< 0.50	< 2.5	< 0.50	< 2.5	< 0.50	< 0.33	< 0.18	< 9.51
	10/19/2015	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	< 0.50	< 2.5	< 0.50	< 2.5	< 0.50	< 0.33	< 0.18	< 9.51
	01/07/2016	< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	04/21/2016	< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	10/04/2016	< 0.5	< 0.5	< 0.5	< 1	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	01/18/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	04/19/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	07/12/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0
	10/24/2017	< 0.50	< 0.50	< 0.50	< 1.0	< 2.5	--	--	--	--	--	< 2.5	--	--	--	< 5.0

[JTB/RH 5/05][PAR/JTB 11/05][PAR/JTB 9/06][RUG/JTB 10/07][BGH/RMW 6/08][RMW/KRM 1/09][BGH/RUG 3/09][RMW/BGH 5/10][AMM/KJB 2/11][KJB/RUG 5/11][OK/BGH 8/11][CJM/AMM 1/12][AMM/JW 5/12][AMM/ANS 7/12][AMM/RUG 10/12][ETE/RUG 3/13][ETO/RUG 5/13][EPK/nrk 9/13][ETE/nrk 10/13][U-ECK 6/14][U-KLT 1/30/2015, C-PMH 2/15][U-AIS 12/10/15, C-PMH 12/14/15][Format:ECK 4/11/16][U-ECK 1/30/17][CSGW 1/31/17 U-KIS 2/17/17][U-KLT 1/29/17, C-TWL 12/15/17]

Notes:

Italic Constituent concentrations that attain or exceed a preventive action limit (PAL) are italicized.

BOLD Constituent concentrations that attain or exceed an enforcement standard (ES) are bold.

< : Constituent was not identified above the limit of detection shown.

-- : Analysis was not performed.

Dup (QA/QC): Field Duplicate sample, field identification indicated in parentheses.

µg/L : Micrograms per liter.

*: Laboratory data for wells MW-8, MW-9, and MW-10 were originally presented in the March 25, 2002 URS SI report

nd : all components of total calculation were non-detects

NS : NR 140 groundwater quality standard has not been established.

- 1) Non-detects were not included in the calculated sums.
- 2) Naphthalene data 2007 and earlier were analyzed as a SVOC and appear on the SVOCs table.
- 3) Total Xylenes were calculated by OBG as follows:
 - a. Where no detections were observed, the sum of the reporting limits is presented.
 - b. Where detections were observed, the detected results were added together for the total summation.
 - c. The list of analytes used for the calculation are: Xylene-o and Xylene-m+p.
- 4) Total BTEX were calculated by OBG as follows:
 - a. Where no detections were observed, the sum of the reporting limits is presented.
 - b. Where detections were observed, the detected results were added together for the total summation.
 - c. The list of analytes used for the calculation are: Benzene, Toluene, Ethylbenzene and Total Xylene.
- 5) Total VOCs were calculated by OBG as follows:
 - a. Where no detections were observed, the sum of the reporting limits is presented.
 - b. Where detections were observed, the detected results were added together for the total summation.
 - c. Analytes as shown on this VOC table were used for the calculations.

Nitrite + Nitrate, Total was analyzed 2009 to 2016 as "Nitrate as N" (analytic method EPA 300.0)

See lab reports for data qualifiers

NR 140 groundwater quality standard revised effective February 2017. Data prior to this date are also compared to revised 2017 standards.



Table 5 - Groundwater Analytical Results-SVOCs
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Semi-Volatile Organic Compounds (SVOCs-µg/L)																									
		1-Methylnaphthalene	2,4-Dimethylphenol	2-Methylnaphthalene	3- & 4-Methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl) phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene ¹	Pentachlorophenol	Phenanthrene	Phenol ³	Pyrene	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																											
Groundwater Monitoring Wells																											
Preventive Action Limit:		NS	NS	NS	NS	NS	NS	600	NS	0.02	0.02	NS	NS	0.6	NS	0.02	NS	NS	80	80	NS	10	0.1	NS	400	50	
Enforcement Standard:		NS	NS	NS	NS	NS	NS	3000	NS	0.2	0.2	NS	NS	6	NS	0.2	NS	NS	400	400	NS	100	1	NS	2000	250	
MW-02R	10/19/2004	200	< 29	78	< 23	36	29	< 66	< 62	< 63	< 65	< 85	< 63	< 22	< 25	< 24	< 64	< 20	< 21	< 20	< 56	1200	< 37	< 21	< 24	< 71	
	12/10/2004	260	< 29	86	< 22	46	39	< 65	< 61	< 62	< 64	< 83	< 62	< 21	< 25	< 23	< 63	< 19	< 21	20	< 55	1400	< 36	24	< 24	< 70	
	01/11/2005	290	< 14	70	< 11	40	38	< 32	< 31	< 31	< 32	< 41	< 31	< 11	19	< 12	< 31	< 9.6	< 11	22	< 27	1000	< 18	19	< 12	< 35	
	02/08/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	1100	--	--	< 12	--	
	03/08/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	800	--	--	--	--	
	04/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	830	--	--	--	--	
	07/05/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1000	--	--	--	--	
	10/17/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1300	--	--	--	--	
	01/10/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	780	--	--	--	--	
	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	760	--	--	--	--	
	07/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1100	--	--	--	--	
	10/24/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1400	--	--	--	--	
04/25/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1400	--	--	--	--		
10/08/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1600	--	--	--	--		
MW-08**	07/15/1996	--	< 2.7	< 8.5	--	< 8.5	< 0.6	< 1.1	< 1.5	< 0.8	< 0.9	< 1	< 1.7	2.5	< 1.3	< 1	< 0.9	< 0.7	< 2	< 1	< 1.3	< 0.5	--	< 1.1	< 1.1	< 1.6	
	09/09/1997	--	< 1.1	< 1.4	--	< 1.4	< 1.6	< 1.2	< 0.63	< 1.4	< 2.4	< 2.1	< 2.6	< 1.3	< 1	< 0.49	< 2.4	< 1	< 0.97	< 1.7	< 2.3	< 2.2	--	< 0.77	< 0.53	< 0.73	
MW-09**	07/15/1996	--	< 2.7	< 8.5	--	< 8.5	< 0.6	< 1.1	< 1.5	< 0.8	< 0.9	< 1	< 1.7	8.5	< 1.3	< 1	< 0.9	< 0.7	< 2	< 1	< 1.3	< 0.5	--	< 1.1	< 1.1	< 1.6	
	09/09/1997	--	< 1.1	< 1.4	--	< 1.4	< 1.5	< 1.2	< 0.61	< 1.4	< 2.4	< 2	< 2.5	< 1.3	< 1	< 0.47	< 2.4	< 1	< 0.94	< 1.6	< 2.3	< 2.2	--	< 0.74	< 0.52	< 0.71	
MW-10**	07/15/1996	--	< 2.7	< 8.5	--	< 8.5	< 0.6	< 1.1	< 1.5	< 0.8	< 0.9	< 1	< 1.7	< 2.1	< 1.3	< 1	< 0.9	< 0.7	< 2	< 1	< 1.3	< 0.5	--	< 1.1	< 1.1	< 1.6	
	09/09/1997	--	< 1.1	< 1.4	--	< 1.4	< 1.6	< 1.2	< 0.63	< 1.4	< 2.4	< 2.1	< 2.6	< 1.3	< 1	< 0.49	< 2.4	< 1	< 0.97	< 1.7	< 2.3	< 2.2	--	< 0.77	< 0.53	< 0.73	
MW-12R *	10/21/2004	420	< 7.2	160	< 5.6	90	29	< 16	< 15	< 15	< 16	< 21	< 16	< 5.4	< 6.2	< 5.8	< 16	8.4	< 5.3	33	< 14	650	< 9	44	< 5.9	< 17	
	12/10/2004	440	< 7.3	94	< 5.6	91	37	< 16	< 15	< 16	< 16	< 21	< 16	< 5.4	< 6.3	< 5.9	< 16	8.4	< 5.3	39	< 14	420	< 9.1	49	< 6.0	< 18	
	01/13/2005	470	< 7.2	120	< 5.6	89	30	< 16	< 15	< 15	< 16	< 21	< 16	< 5.4	< 6.2	< 5.8	< 16	8	< 5.3	37	< 14	510	< 9	46	< 5.9	< 17	
	02/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	37	--	--	--	--	--	< 6.0	--
PZ-12 *	10/21/2004	< 0.49	< 0.72	< 1.9	< 0.56	3.9	0.95	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	0.79	< 1.4	< 0.60	2.9	< 0.50	< 0.59	< 1.7	
	12/10/2004	3.9	< 0.73	< 1.9	< 0.56	4.1	1.3	< 1.6	< 1.5	< 1.6	< 1.6	< 2.1	< 1.6	< 0.54	< 0.63	< 0.59	< 1.6	< 0.49	< 0.53	1.2	< 1.4	0.95	< 0.91	0.68	< 0.60	< 1.8	
	01/13/2005	< 0.49	< 0.72	< 1.9	< 0.56	2	< 0.5	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	< 0.5	< 1.4	< 0.6	< 0.9	< 0.5	< 0.59	< 1.7	
	02/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.95	--	1.2	--	--	< 0.60	--	
	02/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.1	--	1.2	--	--	< 0.60	--	
	03/08/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.18	--	--	--	--	
	04/20/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.23	--	--	--	--	
	07/07/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.2	--	--	--	--	
	07/07/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.3	--	--	--	--	
	10/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.24	--	--	--	--	
	01/12/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.15	--	--	--	--	
	04/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.16	--	--	--	--	
	07/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.091	--	--	--	--	
	04/26/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.42	--	--	--	--	
MW-13R *	10/20/2004	100	62	< 74	< 22	54	< 20	< 65	< 61	< 62	< 64	< 83	< 62	< 21	29	< 23	< 63	< 19	< 21	< 20	< 55	3000	< 36	< 20	< 24	< 70	
	12/02/2004	94	< 58	< 150	< 45	49	< 40	< 130	< 120	< 120	< 130	< 170	< 120	< 43	< 50	< 46	< 130	< 39	< 42	< 40	< 110	2900	< 72	< 40	< 47	< 140	
	01/12/2005	120	< 58	< 150	< 45	56	< 40	< 130	< 120	< 120	< 130	< 170	< 120	< 43	< 50	< 46	< 130	< 39	< 42	< 40	< 110	2800	< 72	< 40	< 47	< 140	
	02/09/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 25	--	2700	--	--	< 30	--
	03/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2200	--	--	--	--	



Table 5 - Groundwater Analytical Results-SVOCs
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Semi-Volatile Organic Compounds (SVOCs-µg/L)																									
		1-Methylnaphthalene	2,4-Dimethylphenol	2-Methylnaphthalene	3- & 4-Methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl) phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene ¹	Pentachlorophenol	Phenanthrene	Phenol ³	Pyrene	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																											
Groundwater Monitoring Wells																											
Preventive Action Limit:		NS	NS	NS	NS	NS	NS	600	NS	0.02	0.02	NS	NS	0.6	NS	0.02	NS	NS	80	80	NS	10	0.1	NS	400	50	
Enforcement Standard:		NS	NS	NS	NS	NS	NS	3000	NS	0.2	0.2	NS	NS	6	NS	0.2	NS	NS	400	400	NS	100	1	NS	2000	250	
MW-13R cont.	04/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1600	--	--	--	--	
	07/06/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1800	--	--	--	--	
	10/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	870	--	--	--	--	
	01/10/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1800	--	--	--	--	
	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2400	--	--	--	--	
	07/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1500	--	--	--	--	
	10/24/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1600	--	--	--	--	
	04/25/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2300	--	--	--	--	
	10/08/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1100	--	--	--	--	
MW-19S	10/19/2004	< 0.54	< 0.80	< 2.0	< 0.62	< 0.58	< 0.55	< 1.8	< 1.7	< 1.7	< 1.8	< 2.3	< 1.7	< 0.59	< 0.69	< 0.64	< 1.7	< 0.53	< 0.58	< 0.55	< 1.5	< 0.66	< 1	< 0.56	< 0.65	< 1.9	
	12/01/2004	< 0.5	< 0.73	< 1.9	< 0.56	< 0.53	< 0.5	< 1.6	< 1.5	< 1.6	< 1.6	< 2.1	< 1.6	< 0.54	< 0.63	< 0.59	< 1.6	< 0.49	< 0.53	< 0.5	< 1.4	< 0.6	< 0.91	< 0.51	< 0.6	< 1.8	
	01/12/2005	< 0.91	< 1.3	< 3.4	< 1.0	< 0.98	< 0.92	< 3	< 2.8	< 2.9	< 3	< 3.9	< 2.9	< 1	< 1.2	< 1.1	< 2.9	< 0.9	< 0.98	< 0.92	< 2.5	< 1.1	< 1.7	< 0.94	< 1.1	< 3.2	
	02/08/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50	--	< 0.60	--	--	< 0.59	--
	03/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.26	--	--	--	--	
	04/20/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.051	--	--	--	--	
	07/06/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.4	--	--	--	--	
	10/17/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.14	--	--	--	--	
	01/11/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	
	Well damaged, scheduled for repair or abandonment	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Well damaged, scheduled for repair or abandonment	10/23/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		04/26/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.48	--	--	--	--	--
		10/09/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.02	--	--	--	--	--
MW-19 <i>Dup (QC-1)</i>	10/19/2004	96	5.5	< 2.0	< 0.62	15	26	< 1.8	< 1.7	< 1.7	< 1.8	< 2.3	< 1.7	0.94	6.1	< 0.64	< 1.7	0.77,	< 0.58	0.89	< 1.5	98	< 1	0.91	0.92	< 1.9	
	12/01/2004	82	2	< 3.7	< 1.1	12	19	< 3.2	< 3.1	< 3.1	< 3.2	< 4.1	< 3.1	< 1.1	4	< 1.2	< 3.1	< 0.96	< 1.1	2.9	< 2.7	92	< 1.8	1.2	< 1.2	< 3.5	
	12/01/2004	150	6.8	< 7.5	< 2.3	22	33	< 6.5	< 6.2	< 6.2	< 6.4	< 8.4	< 6.3	< 2.2	7.1	< 2.3	< 6.3	< 1.9	< 2.1	5.1	< 5.5	160	< 3.6	2.1	< 2.4	< 7	
	01/12/2005	160	2.3	< 3.8	< 1.1	24	33	< 3.3	< 3.1	< 3.2	< 3.2	< 4.2	< 3.2	< 1.1	6.7	< 1.2	< 3.2	1.5	< 1.1	9.2	< 2.8	170	< 1.8	3.1	1.6	< 3.6	
	02/09/2005	--	--	--	--	--	--	--	--	--	--	--	--	< 2.1	--	--	--	--	--	7	--	170	--	--	< 2.4	--	
	03/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	110	--	--	--	--	
	04/20/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81	--	--	--	--	
	07/06/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100	--	--	--	--	
	10/17/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	37	--	--	--	--	
	01/11/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	--	--	--	
	Well damaged, scheduled for repair	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		07/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28	--	--	--	--	--
		10/23/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28	--	--	--	--	--
		04/26/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48	--	--	--	--	--
		10/09/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22	--	--	--	--	--
Well not accessible, covered with ice and snow	01/18/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	



Table 5 - Groundwater Analytical Results-SVOCs
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Semi-Volatile Organic Compounds (SVOCs-µg/L)																									
		1-Methylnaphthalene	2,4-Dimethylphenol	2-Methylnaphthalene	3- & 4-Methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl) phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene ¹	Pentachlorophenol	Phenanthrene	Phenol ³	Pyrene	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																											
Groundwater Monitoring Wells																											
Preventive Action Limit:		NS	NS	NS	NS	NS	NS	600	NS	0.02	0.02	NS	NS	0.6	NS	0.02	NS	NS	80	80	NS	10	0.1	NS	400	50	
Enforcement Standard:		NS	NS	NS	NS	NS	NS	3000	NS	0.2	0.2	NS	NS	6	NS	0.2	NS	NS	400	400	NS	100	1	NS	2000	250	
MW-21 cont.	01/11/2006	--	--	--	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11,000	--	--	910	--	
	04/20/2006	--	--	--	920	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,100	--	--	560	--	
	07/19/2006	--	--	--	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,700	--	--	380	--	
	10/24/2006	--	--	--	910	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7,800	--	--	540	--	
	04/26/2007	--	--	--	420	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9,700	--	--	260	--	
	10/09/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6,300	--	--	--	--	
	04/09/2008	--	--	--	366	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	243	--	
	10/21/2008	--	--	--	375	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 322	--	
	04/20/2009	--	--	--	254	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	167	--	
	10/07/2009	--	--	--	344	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	225	--	
	04/06/2010	--	--	--	213	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	150	--	
	10/04/2010	--	--	--	370	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	257	--	
	04/11/2011	--	--	--	137	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98.8	--	
	10/03/2011	--	--	--	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 205	--	
04/24/2012	--	--	--	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	115	--		
PZ-21B	* Dup (QC-1)	10/20/2004	0.8	< 0.73	< 1.9	< 0.56	7.1	2.4	< 1.6	< 1.5	< 1.6	< 1.6	< 2.1	< 1.6	< 0.54	< 0.63	< 0.59	< 1.6	< 0.49	< 0.53	4.2	< 1.4	< 0.60	< 0.91	< 0.51	< 0.60	< 1.8
		10/20/2004	1.9	< 0.72	< 1.9	< 0.56	8.2	2.9	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	4.2	< 1.4	< 0.60	< 0.9	< 0.50	< 0.59	< 1.7
	12/02/2004	6.2	1.7	< 1.9	< 0.56	8.3	2.7	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	4	< 1.4	< 0.60	< 0.9	2.5	< 0.59	< 1.7	
	01/12/2005	17	< 0.73	2	< 0.57	13	3.8	< 1.6	< 1.6	< 1.6	< 1.6	< 2.1	< 1.6	< 0.55	< 0.63	< 0.59	< 1.6	0.61	< 0.54	6.1	< 1.4	46	< 0.92	4.4	< 0.6	< 1.8	
	02/09/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.3	--	36	--	--	< 0.59	--	
	03/09/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19	--	--	--	--	
	04/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	--	--	--	--	
	* Dup (QC-1)	04/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	--	--	--	--
		07/06/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23	--	--	--	--
		10/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	--	--	--	--
	* Dup (QC-1)	01/10/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	--	--	--	--
		01/11/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	--	--	--	--
	* Dup (QC-1)	04/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.7	--	--	--	--
		04/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.2	--	--	--	--
	* Dup (QC-1)	07/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.5	--	--	--	--
		07/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.8	--	--	--	--
		04/26/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	--	--	--	--
MW-22	10/18/2004	300	< 29	240	39	120	< 20	< 65	< 61	< 62	< 64	< 83	< 62	< 21	< 25	< 23	< 63	87	< 21	61	< 55	2,600	< 36	61	< 24	< 70	
	12/01/2004	210	< 9	24	< 7	68	< 6.2	< 20	< 19	< 19	< 20	< 26	< 19	< 6.7	8.1	< 7.2	< 20	< 6	< 6.6	16	< 17	590	< 11	6.6	< 7.4	< 22	
	01/11/2005	300	32	100	< 22	84	< 20	< 65	< 61	< 62	< 64	< 83	< 62	< 21	< 25	< 23	< 63	51	< 21	39	< 55	2,100	< 36	38	< 24	< 70	
	02/08/2005	--	--	--	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	46	--	1,600	--	--	< 12	--
	03/09/2005	--	--	--	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,200	--	--	4.3	--	
	04/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,900	--	--	--	--	
	07/06/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,600	--	--	--	--	
	10/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,800	--	--	--	--	
	01/10/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,700	--	--	--	--	
	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,800	--	--	--	--	



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2017 Annual Update
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Sample Location	Sample Date	Semi-Volatile Organic Compounds (SVOCs-µg/L)																									
		1-Methylnaphthalene	2,4-Dimethylphenol	2-Methylnaphthalene	3- & 4-Methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl) phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene ¹	Pentachlorophenol	Phenanthrene	Phenol ³	Pyrene	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																											
Groundwater Monitoring Wells																											
Preventive Action Limit:		NS	NS	NS	NS	NS	NS	600	NS	0.02	0.02	NS	NS	0.6	NS	0.02	NS	NS	80	80	NS	10	0.1	NS	400	50	
Enforcement Standard:		NS	NS	NS	NS	NS	NS	3000	NS	0.2	0.2	NS	NS	6	NS	0.2	NS	NS	400	400	NS	100	1	NS	2000	250	
MW-22 cont.	07/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,800	--	--	--	--	
	10/24/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,200	--	--	--	--	
	04/25/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,100	--	--	--	--	
	10/09/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,300	--	--	--	--	
Dup (QC-1)	10/09/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,300	--	--	--	--	
PZ-22B	10/18/2004	190	< 7.3	< 19	< 5.6	65	< 5.0	< 16	< 15	< 16	< 16	< 21	< 16	< 5.4	< 6.3	< 5.9	< 16	5.1	< 5.3	15	< 14	510	< 9.1	6.2	< 6.0	< 18	
	12/01/2004	240	< 29	130	< 22	89	< 20	< 65	< 61	< 62	< 64	< 83	< 62	< 21	25	< 23	< 63	60	< 21	47	< 55	2,000	< 36	46	< 24	< 70	
	01/11/2005	350	< 14	< 37	< 11	95	< 9.9	< 32	< 31	< 31	< 32	< 41	< 31	< 11	< 12	< 12	< 31	< 9.6	< 11	23	< 27	700	< 18	< 10	< 12	< 35	
	02/08/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22	--	580	--	--	< 5.9	--	
	03/09/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	570	--	--	--	--	
Dup (QC-1)	03/09/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	510	--	--	--	--	
	04/19/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	330	--	--	--	--	
	07/06/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	490	--	--	--	--	
	10/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	370	--	--	--	--	
Dup (QC-1)	10/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	380	--	--	--	--	
	01/10/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	190	--	--	--	--	
	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	370	--	--	--	--	
	07/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	--	--	--	--	
	04/25/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	200	--	--	--	--	
QCFB	02/20/2002	< 2.6	< 2.1	< 2	--	< 2.2	< 1.8	< 1.9	< 2.3	< 2.8	< 3	< 3.5	< 2.4	< 4.2	< 1.9	< 2.2	< 3.1	< 1.7	< 2.2	< 2	< 3.5	< 2.7	< 5.2	< 2.2	< 2.5	< 2.4	
	05/13/2002	< 2.7	< 2.2	< 2	--	< 2.3	< 1.9	< 1.9	< 2.4	< 2.8	< 3.1	< 3.6	< 2.5	< 4.3	< 1.9	< 2.3	< 3.2	< 1.7	< 2.2	< 2	< 3.6	< 2.7	< 5.3	< 2.2	< 2.6	< 2.5	
	08/20/2002	< 2.6	< 2.2	< 2	--	< 2.2	< 1.8	< 1.9	< 2.4	< 2.8	< 3	< 3.5	< 2.4	< 4.2	< 1.9	< 2.2	< 3.2	< 1.7	< 2.2	< 2	< 3.5	< 2.7	< 5.2	< 2.2	< 2.6	< 2.5	
	11/14/2002	< 4.2	< 2.9	< 3.9	--	< 4.6	< 4.7	< 2.8	< 1.7	< 1.5	< 2.2	< 2.1	< 2.4	< 1.4	< 1.4	< 1.8	< 2.4	< 4.7	< 1.6	< 4.7	< 1.6	< 3.8	< 0.78	< 2.1	< 1	< 1.8	
	02/20/2003	< 4.2	< 2.9	< 3.9	--	< 4.6	< 4.7	< 2.8	< 1.7	< 1.5	< 2.2	< 2.1	< 2.4	< 1.4	< 1.4	< 1.8	< 2.4	< 4.7	< 1.6	< 4.7	< 1.6	< 3.8	< 0.78	< 2.1	< 1	< 1.8	
	10/19/2004	< 0.49	< 0.72	< 1.9	< 0.56	< 0.53	< 0.50	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	< 0.50	< 1.4	< 0.60	< 0.9	< 0.50	< 0.59	< 1.7	
	12/02/2004	< 0.49	< 0.72	< 1.9	< 0.56	< 0.53	< 0.50	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	< 0.50	< 1.4	< 0.60	< 0.9	< 0.50	< 0.59	< 1.7	
	01/13/2005	< 0.49	< 0.72	< 1.9	< 0.56	< 0.53	< 0.5	< 1.6	< 1.5	< 1.5	< 1.6	< 2.1	< 1.6	< 0.54	< 0.62	< 0.58	< 1.6	< 0.48	< 0.53	< 0.50	< 1.4	< 0.60	< 0.9	< 0.5	< 0.59	< 1.7	
	02/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.50	--	< 0.60	--	--	0.87	--
	03/10/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.082	--	--	--	--	
	04/20/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.054	--	--	--	--	
	07/07/2005	--	--	--	< 0.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.3	--	--	< 0.56	--	
	10/19/2005	--	--	--	< 0.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.3	--	--	< 0.56	--	
	01/12/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.019	--	--	--	--	
	04/19/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.8	--	--	--	--	
	07/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.44	--	--	--	--	
	10/24/2006	--	--	--	< 0.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.5	--	--	< 0.63	--	



Table 5 - Groundwater Analytical Results-SVOCs
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Semi-Volatile Organic Compounds (SVOCs-µg/L)																								
		1-Methylnaphthalene	2,4-Dimethylphenol	2-Methylnaphthalene	3- & 4-Methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2ethylhexyl) phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene ¹	Pentachlorophenol	Phenanthrene	Phenol ³	Pyrene
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)																										
Groundwater Monitoring Wells																										
Preventive Action Limit:		NS	NS	NS	NS	NS	NS	600	NS	0.02	0.02	NS	NS	0.6	NS	0.02	NS	NS	80	80	NS	10	0.1	NS	400	50
Enforcement Standard:		NS	NS	NS	NS	NS	NS	3000	NS	0.2	0.2	NS	NS	6	NS	0.2	NS	NS	400	400	NS	100	1	NS	2000	250
QCFB cont.	04/26/2007	--	--	--	< 0.71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.3	--	--	< 0.58	--
	10/09/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.021	--	--	--	--
	10/21/2008	--	--	--	< 0.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.98	--
	04/21/2009	--	--	--	< 0.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.99	--
	10/08/2009	--	--	--	< 0.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.98	--

[JT/PA 4/05][JT/RH 5/05][PA/TB 11/05][PA/TB 9/06][RJG/TB 10/07][BGH/RMW 6/08][RMW/KRM 1/09][BGH/RJG 3/09][RMN/BGH 5/10][AMM/KJB 2/11][KJB/RJG 5/11][BGH/BGH 8/11][CJM/AMM 01/12][AMM/JJW 5/12][AMM/ANS 7/12][AMM/RJG 10/12][ETE/RJG 3/13][ETO/RJG 5/13][EPK/NDK 9/13][ETE/NDK 10/13][U-ECK 06/14][U-KLT 1/30/15, C-PMH 2/15][U-AIS 12/10/15, C-PMH 12/14/16][Format ECK 4/11/16][U-ECK 2/1/2017, C-ANS 2/13/17][LuEck 12/14/17]

Notes:

Italic Constituent concentrations that attain or exceed a preventive action limit (PAL) are *italicized*.

BOLD Constituent concentrations that attain or exceed an enforcement standard (ES) are **bold**.

< : Constituent was not identified above the limit of detection shown.

-- : Analysis was not performed.

Dup (QA/QC): Field Duplicate sample, field identification indicated in parentheses.

µg/L : Micrograms per liter.

*: Laboratory data for wells MW-8, MW-9, and MW-10 were originally presented in the March 25, 2002 URS SI report

NS : NR 140 groundwater quality standard has not been established.

SVOCs: Semi-Volatile Organic Compounds.

1) Naphthalene data 2008 and after were analyzed as a VOC and appear on the VOCs table.

 See lab reports for data qualifiers

NR 140 groundwater quality standard revised effective February 2017. Data prior to this date are also compared to revised 2017 standards.



Table 6 - Groundwater Analytical Results - Inorganics
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW-02R	10/19/2004	< 0.0035	0.57	< 0.00030	--	0.00075	--	--	0.071	--	0.68	< 0.0011	< 0.000028	< 0.0048	< 0.00076
	11/30/2004	--	--	--	--	--	--	--	0.082	--	0.47	--	--	--	--
	01/11/2005	--	--	--	--	--	0.6	0.018	0.055	0.013	0.6	--	--	--	--
	02/08/2005	< 0.0035	0.56	--	--	--	0.54	< 0.0053	0.18	0.0065	0.64	--	--	--	--
	03/08/2005	--	--	--	--	--	--	--	--	0.013	0.69	--	--	--	--
	04/18/2005	< 0.0035	0.64	--	--	--	0.51	--	--	0.011	0.78	--	--	--	--
	07/05/2005	--	--	--	--	--	0.6	--	--	0.017	--	--	--	--	--
	10/17/2005	0.00084	0.92	--	--	--	0.62	--	--	0.0079	1	--	--	--	--
	01/10/2006	--	--	--	--	--	0.53	--	--	< 0.0050	--	--	--	--	--
	04/19/2006	0.0013	0.84	--	--	--	0.92	--	--	0.0054	1.2	--	--	--	--
	07/19/2006	--	--	--	--	--	0.8	--	--	0.0136	--	--	--	--	--
	10/24/2006	0.00096	0.96	--	--	--	0.87	--	--	< 0.0050	--	--	--	--	--
	04/25/2007	0.0019	0.9	--	--	--	1.2	--	--	0.00776	--	--	--	--	--
	10/08/2007	--	--	--	--	--	1.3	--	--	0.0085	--	--	--	--	--
	04/07/2008	0.0077	1.12	--	--	--	1.6	--	--	1.2	--	--	--	--	--
	10/20/2008	0.0048	0.895	--	--	--	1	--	--	--	0.89	--	--	--	--
	04/20/2009	0.0082	0.86	--	--	--	1.4	--	--	< 0.002	1.03	--	--	--	--
	10/07/2009	0.006	0.848	--	--	--	1.7	--	--	< 0.002	--	--	--	--	--
	04/06/2010	0.0073	0.812	--	--	--	1.8	--	--	0.003	--	--	--	--	--
	10/04/2010	0.0105	0.588	--	--	--	1.7	--	--	0.0053	--	--	--	--	--
	04/11/2011	0.0089	0.59	--	--	--	0.31	--	--	< 0.002	--	--	--	--	--
	10/03/2011	0.0084	0.415	--	--	--	1.8	--	--	< 0.00030	--	--	--	--	--
	04/23/2012	0.0046	0.462	--	--	--	1.5	--	--	--	32	--	--	--	--
	Dup (QC-1)	04/23/2012	0.0044	0.448	--	--	1.5	--	--	--	38	--	--	--	--
		06/26/2012	--	--	--	--	0.38	--	--	--	11	--	--	--	--
	Dup (QC-1)	06/26/2012	--	--	--	--	1.6	--	--	--	2.9	--	--	--	--
		*** 09/12/2012	0.0039	0.208	--	--	1.8	--	--	0.03	--	--	--	--	--
	Dup (QC-1)	* 09/12/2012	0.0038	0.204	--	--	1.6	--	--	0.14	--	--	--	--	--
	04/23/2013	0.0063	--	--	--	1.7	--	--	0.002	--	--	--	--	--	
	10/15/2013	--	--	--	--	1.4	--	--	0.0038	--	--	--	--	--	
	04/29/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	
	04/21/2015	0.0084	--	--	--	--	--	--	--	--	--	--	--	--	
	04/21/2016	0.003	--	--	--	--	--	--	--	--	--	--	--	--	
	04/19/2017	0.002	--	--	--	--	--	--	--	--	--	--	--	--	
	04/19/2017	0.002	--	--	--	--	--	--	--	--	--	--	--	--	



Table 6 - Groundwater Analytical Results - Inorganics
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW-08	10/31/2001	--	--	--	29	--	0.018	< 0.0022	--	--	--	--	--	--	--
	02/20/2002	--	--	--	21	--	0.11	< 0.0022	--	--	--	--	--	--	--
	05/13/2002	--	--	--	22	--	0.14	< 0.0022	--	--	--	--	--	--	--
	08/20/2002	--	--	--	21	--	0.82	< 0.0084	--	--	--	--	--	--	--
	11/14/2002	--	--	--	18	--	0.066	0.006	--	--	--	--	--	--	--
	02/19/2003	--	--	--	19	--	0.072	0.012	--	--	--	--	--	--	--
	05/22/2003	--	--	--	--	--	0.098	< 0.002	--	--	--	--	--	--	--
	08/01/2003	--	--	--	--	--	0.044	< 0.002	--	--	--	--	--	--	--
	10/18/2004	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--
	02/10/2005	--	--	--	--	--	0.086	< 0.0053	0.53	< 0.0053	--	--	--	--	--
	04/19/2005	--	--	--	--	--	0.066	--	--	< 0.0050	--	--	--	--	--
	07/07/2005	--	--	--	--	--	0.071	--	--	< 0.0050	--	--	--	--	--
	10/19/2005	--	--	--	--	--	--	--	--	< 0.0050	--	--	--	--	--
01/11/2006	--	--	--	--	--	0.041	--	--	< 0.0050	--	--	--	--	--	
MW-09	10/31/2001	--	--	--	457	--	0.01	< 0.0022	--	--	--	--	--	--	--
	02/20/2002	--	--	--	486	--	0.0064	< 0.0022	--	--	--	--	--	--	--
	05/13/2002	--	--	--	348	--	0.0047	< 0.0022	--	--	--	--	--	--	--
	08/20/2002	--	--	--	331	--	0.01	< 0.0084	--	--	--	--	--	--	--
	11/14/2002	--	--	--	295	--	0.009	< 0.0027	--	--	--	--	--	--	--
	02/19/2003	--	--	--	273	--	0.0083	0.0075	--	--	--	--	--	--	--
	05/22/2003	--	--	--	--	--	0.008	< 0.002	--	--	--	--	--	--	--
08/01/2003	--	--	--	--	--	0.005	< 0.002	--	--	--	--	--	--	--	
MW-10	10/31/2001	--	--	--	20	--	0.011	< 0.0022	--	--	--	--	--	--	--
	02/20/2002	--	--	--	20	--	0.0086	0.0023	--	--	--	--	--	--	--
	05/13/2002	--	--	--	22	--	0.0078	< 0.0022	--	--	--	--	--	--	--
	08/20/2002	--	--	--	20	--	< 0.0023	< 0.0084	--	--	--	--	--	--	--
	11/14/2002	--	--	--	18	--	0.003	< 0.0027	--	--	--	--	--	--	--
	02/19/2003	--	--	--	21	--	0.01	0.0046	--	--	--	--	--	--	--
	05/22/2003	--	--	--	--	--	0.005	0.002	--	--	--	--	--	--	--
	08/01/2003	--	--	--	--	--	0.003	< 0.002	--	--	--	--	--	--	--



Table 6 - Groundwater Analytical Results - Inorganics
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW-12R	10/21/2004	< 0.0035	--	< 0.00030	--	0.00097	--	--	2.3	--	0.19	< 0.0011	< 0.000028	0.0012	< 0.00076
	11/30/2004	--	--	--	--	--	--	--	1.2	--	0.12	--	--	--	--
	01/13/2005	--	--	--	--	--	0.45	0.053	2.1	0.011	0.17	--	--	--	--
	02/10/2005	--	--	--	--	--	0.33	0.044	5.4	0.0088	0.16	--	--	--	--
	03/08/2005	--	--	--	--	--	--	--	--	< 0.0050	0.16	--	--	--	--
	04/20/2005	--	--	--	--	--	0.35	--	--	< 0.0050	0.18	--	--	--	--
	07/07/2005	--	--	--	--	--	0.26	--	--	< 0.0050	--	--	--	--	--
	10/19/2005	--	--	--	--	--	0.19	--	--	< 0.050	0.15	--	--	--	--
	01/12/2006	--	--	--	--	--	0.37	--	--	< 0.0050	--	--	--	--	--
	04/20/2006	--	--	--	--	--	0.31	--	--	< 0.0050	0.27	--	--	--	--
	07/20/2006	--	--	--	--	--	0.3	--	--	< 0.00500	--	--	--	--	--
	10/23/2006	0.00083	--	--	--	--	0.12 H	--	--	< 0.00500	--	--	--	--	--
	04/26/2007	--	--	--	--	--	--	--	--	--	0.24	--	--	--	--
	04/08/2008	0.00097	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/20/2008	--	--	--	--	--	--	--	--	--	0.128	--	--	--	--
	04/21/2009	--	--	--	--	--	--	--	--	--	0.18	--	--	--	--
	10/08/2009	--	--	--	--	--	--	--	--	--	0.116	--	--	--	--
	09/12/2012	0.0014	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/24/2013	< 0.0044	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/29/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
04/21/2015	< 0.0068	--	--	--	--	--	--	--	--	--	--	--	--	--	
04/21/2016	0.0023	--	--	--	--	--	--	--	--	--	--	--	--	--	
04/19/2017	0.0022	--	--	--	--	--	--	--	--	--	--	--	--	--	
Dup (QC-1)	10/24/2017	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-12B	10/21/2004	< 0.0035	--	< 0.00030	--	0.0012	--	--	< 0.0050	--	0.026	< 0.0011	< 0.000028	0.0014	< 0.00076
	11/30/2004	--	--	--	--	--	--	--	0.032	--	0.035	--	--	--	--
	01/13/2005	--	--	--	--	--	0.0058	< 0.0053	< 0.025	< 0.0050	0.037	--	--	--	--
	02/10/2005	--	--	--	--	--	0.0052	< 0.0053	< 0.0050	< 0.0050	0.043	--	--	--	--
	Dup (QC-1)	02/10/2005	--	--	--	--	0.0049	< 0.0053 N*	0.037	< 0.0050	0.044	--	--	--	--
	03/08/2005	--	--	--	--	--	--	--	--	< 0.0050	0.031	--	--	--	--
	04/20/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	0.026	--	--	--	--
	07/07/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
Dup (QC-1)	07/07/2005	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--	



Table 6 - Groundwater Analytical Results - Inorganics

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)														
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)																
Groundwater Monitoring Wells																
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01	
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05	
PZ-12B cont.	10/19/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	0.098	--	--	--	--	
	01/12/2006	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--	
	04/20/2006	--	--	--	--	--	< 0.0094	--	--	< 0.0050	< 0.05	--	--	--	--	
	07/20/2006	--	--	--	--	--	< 0.0094	--	--	0.0058	--	--	--	--	--	
	04/26/2007	--	--	--	--	--	--	--	--	--	0.065	--	--	--	--	
	04/08/2008	0.00051	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2009	--	--	--	--	--	--	--	--	--	0.0086	--	--	--	--	
MW-13R	10/20/2004	0.017	--	< 0.00030	--	0.0023	--	--	1.1	--	0.55	< 0.0011	--	0.0024	< 0.00076	
	12/02/2004	--	--	--	--	--	--	--	6.2	--	0.51	--	--	--	--	
	01/12/2005	--	--	--	--	--	0.99	0.029	1.1	0.32	0.48	--	--	--	--	
	02/09/2005	0.0084	--	--	--	--	0.9	0.022	4.6	0.012	0.43	--	--	--	--	
	03/10/2005	--	--	--	--	--	--	--	--	2.1	0.4	--	--	--	--	
	04/19/2005	0.012	--	--	--	--	0.58	--	--	0.31	0.42	--	--	--	--	
	07/06/2005	--	--	--	--	--	0.78 N	--	--	0.0052	--	--	--	--	--	
	10/19/2005	0.0031	--	--	--	--	0.81	--	--	< 0.050	0.46	--	--	--	--	
	01/10/2006	--	--	--	--	--	0.83	--	--	0.061	--	--	--	--	--	
	04/19/2006	0.028	--	--	--	--	0.61	--	--	0.4	0.54	--	--	--	--	
	07/19/2006	--	--	--	--	--	0.85	--	--	< 0.100	--	--	--	--	--	
	10/24/2006	0.012	--	--	--	--	0.91	--	--	0.734	--	--	--	--	--	
	04/25/2007	0.032	--	--	--	--	0.68	--	--	0.00663	--	--	--	--	--	
	Dup (QC-1)	04/25/2007	0.033	--	--	--	0.49	--	--	< 0.00500	0.49	--	--	--	--	--
		10/08/2007	--	--	--	--	0.93	--	--	< 0.0020	--	--	--	--	--	--
		04/08/2008	0.0406	--	--	--	0.96	--	--	0.0059	--	--	--	--	--	--
		10/20/2008	0.0095	--	--	--	0.76	--	--	--	0.497	--	--	--	--	--
		04/21/2009	0.057	--	--	--	1	--	--	0.0024	0.587	--	--	--	--	--
		10/07/2009	0.0211	--	--	--	1.2	--	--	< 0.002	0.644	--	--	--	--	--
		04/06/2010	0.0413	--	--	--	0.051	--	--	0.0027	--	--	--	--	--	--
	10/04/2010	0.0557	--	--	--	0.032	--	--	0.044	--	--	--	--	--	--	
Dup (QC-1)	01/18/2011	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	04/11/2011	0.0496	--	--	--	0.027	--	--	0.0038	--	--	--	--	--	--	
	10/03/2011	0.0521	--	--	--	0.032	--	--	0.004	--	--	--	--	--	--	
	04/23/2012	0.0679	--	--	--	0.14	--	--	70	--	--	--	--	--	--	



Table 6 - Groundwater Analytical Results - Inorganics
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW-13R cont.	06/26/2012	--	--	--	--	--	0.016	--	--	28	--	--	--	--	--
	09/12/2012	0.0235	--	--	--	--	1	--	--	0.037	--	--	--	--	--
	04/23/2013	0.055	--	--	--	--	1.8	--	--	0.007	--	--	--	--	--
Dup (QC 1)	04/23/2013	0.0523	--	--	--	--	0.3	--	--	0.004	--	--	--	--	--
	10/15/2013	--	--	--	--	--	1.2	--	--	0.0062	--	--	--	--	--
	04/29/2014	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--
Dup (QC-1)	04/29/2014	0.0501	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/13/2014	0.0289	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	0.0408	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	0.0486	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/19/2017	0.056	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-19S	10/19/2004	< 0.0035	--	< 0.00030	--	0.0077	--	--	< 0.0050	--	5.9	< 0.0011	< 0.000028	< 0.0048	< 0.00076
	12/01/2004	--	--	--	--	--	--	--	< 0.0050	--	9.2	--	--	--	--
	01/12/2005	--	--	--	--	--	0.033	< 0.0053	< 0.010	< 0.0050	5.8	--	--	--	--
	02/09/2005	--	--	--	--	--	0.027	< 0.0053	< 0.0050	< 0.0050	2.6	--	--	--	--
	03/10/2005	--	--	--	--	--	--	--	--	< 0.0050	2	--	--	--	--
	04/20/2005	--	--	--	--	--	0.016	--	--	< 0.0050	2.6	--	--	--	--
	07/06/2005	--	--	--	--	--	0.0095	--	--	< 0.0050	--	--	--	--	--
	10/17/2005	--	--	--	--	--	0.01	--	--	0.018	2.6	--	--	--	--
	01/11/2006	--	--	--	--	--	0.015	--	--	< 0.0050	--	--	--	--	--
	04/26/2007	--	--	--	--	--	< 0.006	--	--	< 0.00500	0.28	--	--	--	--
	10/09/2007	--	--	--	--	--	< 0.006	--	--	0.0032	--	--	--	--	--
	04/08/2008	0.0005	--	--	--	--	0.019	--	--	< 0.002	--	--	--	--	--
	10/21/2008	--	--	--	--	--	0.0096	--	--	--	0.0141	--	--	--	--
	04/21/2009	--	--	--	--	--	0.011	--	--	< 0.002	0.068	--	--	--	--
	10/08/2009	--	--	--	--	--	< 0.008	--	--	< 0.002	0.0184	--	--	--	--
MW-19	10/19/2004	< 0.0035	--	< 0.00030	--	< 0.00065	--	--	0.33	--	0.72	< 0.0011	< 0.000028	< 0.0048	< 0.00076
	12/01/2004	--	--	--	--	--	--	--	0.37	--	0.73	--	--	--	--
	12/01/2004	--	--	--	--	--	--	--	0.23	--	0.69	--	--	--	--
Dup (QC-1)	01/12/2005	--	--	--	--	--	0.73	0.018	1.2	0.027	0.47	--	--	--	--
	02/09/2005	--	--	--	--	--	0.57	0.018	3.3	0.0051	0.42	--	--	--	--



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2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW - 19 cont.	03/10/2005	--	--	--	--	--	--	--	--	0.011	0.44	--	--	--	--
	04/20/2005	--	--	--	--	--	0.63	--	--	< 0.0050	0.45	--	--	--	--
	07/06/2005	--	--	--	--	--	0.53	--	--	< 0.0050	--	--	--	--	--
	10/17/2005	--	--	--	--	--	0.46	--	--	0.0057	0.52	--	--	--	--
Well damaged, scheduled for repair or abandonment	01/11/2006	--	--	--	--	--	0.49	--	--	< 0.0050	--	--	--	--	--
	07/20/2006	--	--	--	--	--	0.6	--	--	< 0.00500	--	--	--	--	--
	10/23/2006	0.00074	--	--	--	--	0.56	--	--	< 0.00500	--	--	--	--	--
	04/26/2007	--	--	--	--	--	--	--	--	--	0.68	--	--	--	--
	04/08/2008	0.0017	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/21/2008	--	--	--	--	--	--	--	--	--	1.36	--	--	--	--
	04/20/2009	--	--	--	--	--	--	--	--	--	0.833	--	--	--	--
	10/08/2009	--	--	--	--	--	--	--	--	--	1.02	--	--	--	--
	09/12/2012	0.0016	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/23/2013	< 0.0044	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/29/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	0.0013	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/19/2017	0.0016	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-20	10/20/2004	0.013	--	< 0.00030	--	0.0012	--	--	1.6	--	0.11	< 0.0011	< 0.000028	0.00081	< 0.00076
	11/30/2004	--	--	--	--	--	--	--	3.9	--	0.18	--	--	--	--
	01/11/2005	--	--	--	--	--	0.088	0.011	6.1	0.014	0.16	--	--	--	--
	02/08/2005	0.1	--	--	--	--	0.12	< 0.0053	3.7	0.012	0.12	--	--	--	--
	03/09/2005	--	--	--	--	--	--	--	--	2.9	0.14	--	--	--	--
	04/18/2005	0.17	--	--	--	--	0.17	--	--	< 0.050	0.14	--	--	--	--
	07/05/2005	--	--	--	--	--	0.044	--	--	< 0.0050	--	--	--	--	--
	10/17/2005	0.06	--	--	--	--	0.064	--	--	< 0.050	0.17	--	--	--	--
	01/10/2006	--	--	--	--	--	0.27	--	--	0.013	--	--	--	--	--
	04/19/2006	0.091	--	--	--	--	0.28	--	--	0.35	0.28	--	--	--	--
	07/20/2006	--	--	--	--	--	0.24	--	--	< 0.100	--	--	--	--	--
	10/24/2006	0.13	--	--	--	--	0.22	--	--	0.842	--	--	--	--	--
Dup (QC-1)	10/24/2006	0.11	--	--	--	--	0.24	--	--	< 0.50	--	--	--	--	--



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Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW - 20 cont.	04/25/2007	0.17	--	--	--	--	0.26	--	--	0.00642	--	--	--	--	--
	10/08/2007	--	--	--	--	--	0.23	--	--	0.093	--	--	--	--	--
	04/07/2008	0.136	--	--	--	--	0.27	--	--	0.031	--	--	--	--	--
	10/21/2008	0.152	--	--	--	--	0.19	--	--	--	0.169	--	--	--	--
	04/20/2009	0.119	--	--	--	--	0.26	--	--	0.04	0.157	--	--	--	--
Dup (QC-1)	04/20/2009	0.121	--	--	--	--	0.12	--	--	0.19	0.164	--	--	--	--
	10/07/2009	0.0939	--	--	--	--	0.24	--	--	< 0.002	0.147	--	--	--	--
	04/06/2010	0.0915	--	--	--	--	0.35	--	--	0.0079	--	--	--	--	--
Dup (QC-1)	04/06/2010	0.101	--	--	--	--	0.34	--	--	0.0042	--	--	--	--	--
	10/04/2010	0.0287	--	--	--	--	0.34	--	--	0.065	--	--	--	--	--
Dup (QC-1)	10/04/2010	0.0437	--	--	--	--	0.34	--	--	0.0047	--	--	--	--	--
	04/11/2011	0.103	--	--	--	--	0.28	--	--	0.0064	--	--	--	--	--
	10/03/2011	0.138	--	--	--	--	0.29	--	--	0.002	--	--	--	--	--
Dup (QC-1)	10/03/2011	0.136	--	--	--	--	0.28	--	--	0.002	--	--	--	--	--
	04/23/2012	--	--	--	--	--	0.24	--	--	6.8	--	--	--	--	--
	06/26/2012	--	--	--	--	--	0.21	--	--	0.0034	--	--	--	--	--
	*** 09/12/2012	0.12	--	--	--	--	0.23	--	--	0.045	--	--	--	--	--
	04/23/2013	0.358	--	--	--	--	0.27	--	--	0.002	--	--	--	--	--
	10/15/2013	--	--	--	--	--	0.19 0	0.0022	--	0.002	--	--	--	--	--
	04/29/2014	0.331	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/13/2014	0.261	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	0.177	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	0.16	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/19/2017	0.139	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-20B	10/20/2004	< 0.0035	--	< 0.00030	--	0.00092	--	--	1.4	--	0.062	< 0.0011	< 0.000028	< 0.00047	< 0.00076
	11/30/2004	--	--	--	--	--	--	--	2.5	--	0.026	--	--	--	--
	01/11/2005	--	--	--	--	--	< 0.0037	< 0.0053	1.1	< 0.0050	< 0.018	--	--	--	--
	02/08/2005	--	--	--	--	--	< 0.0037	< 0.0053	2.5	< 0.006	< 0.018	--	--	--	--
	03/09/2005	--	--	--	--	--	--	--	--	< 0.0050	< 0.018	--	--	--	--
	04/18/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	< 0.018	--	--	--	--
	07/05/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
	10/17/2005	--	--	--	--	--	0.0054	--	--	< 0.0050	0.1	--	--	--	--
	01/10/2006	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--



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Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
<i>Preventive Action Limit:</i>		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
PZ- 20 cont.	04/19/2006	--	--	--	--	--	< 0.0094	--	--	< 0.0050	< 0.05	--	--	--	--
	07/20/2006	--	--	--	--	--	< 0.0094	--	--	< 0.00500	--	--	--	--	--
	04/07/2008	0.00034	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2009	--	--	--	--	--	--	--	--	--	0.0113	--	--	--	--
MW-21	10/20/2004	0.51	--	< 0.00030	--	0.0012	--	--	4.3	--	0.2	< 0.0011	< 0.000028	0.002	< 0.00076
	12/02/2004	--	--	--	--	--	--	--	9.4	--	0.32	--	--	--	--
	01/12/2005	--	--	--	--	--	0.6	0.022	17	0.84	0.39	--	--	--	--
	02/09/2005	0.67	--	--	--	--	0.46	0.053	14	0.63	0.38	--	--	--	--
	03/09/2005	--	--	--	--	--	--	--	--	3.3	0.35	--	--	--	--
	04/19/2005	0.51	--	--	--	--	0.33	--	--	1	0.38	--	--	--	--
	07/06/2005	--	--	--	--	--	0.23	--	--	0.095	--	--	--	--	--
	10/18/2005	0.4	--	--	--	--	0.22	--	--	0.15	0.77	--	--	--	--
	01/11/2006	--	--	--	--	--	0.31	--	--	0.012	--	--	--	--	--
	04/20/2006	0.48	--	--	--	--	0.29	--	--	0.012	0.7	--	--	--	--
	07/19/2006	--	--	--	--	--	0.31	--	--	0.0212	--	--	--	--	--
	10/24/2006	0.37	--	--	--	--	0.32	--	--	0.00882	--	--	--	--	--
	04/26/2007	0.31	--	--	--	--	0.39	--	--	0.0138	--	--	--	--	--
	10/09/2007	--	--	--	--	--	0.22	--	--	0.01	--	--	--	--	--
	04/09/2008	0.238	--	--	--	--	0.36	--	--	0.042	--	--	--	--	--
	10/21/2008	0.392	--	--	--	--	0.18	--	--	--	0.455	--	--	--	--
	04/20/2009	0.204	--	--	--	--	0.31	--	--	0.015	0.296	--	--	--	--
	10/07/2009	0.211	--	--	--	--	0.26	--	--	< 0.002	0.387	--	--	--	--
	04/06/2010	0.237	--	--	--	--	0.43	--	--	0.0044	--	--	--	--	--
	10/04/2010	0.231	--	--	--	--	0.29	--	--	0.006	--	--	--	--	--
	04/11/2011	0.156	--	--	--	--	0.36	--	--	0.024	--	--	--	--	--
	10/03/2011	0.271	--	--	--	--	0.26	--	--	0.002	--	--	--	--	--
	04/24/2012	0.181	--	--	--	--	0.23	--	--	0.038	--	--	--	--	--
	06/26/2012	--	--	--	--	--	0.25	--	--	0.005	--	--	--	--	--
***	09/12/2012	0.239	--	--	--	0.28	--	--	0.011	--	--	--	--	--	
	04/23/2013	0.129	--	--	--	0.27	--	--	< 0.002	--	--	--	--	--	
	10/15/2013	--	--	--	--	0.23	--	--	< 0.002	--	--	--	--	--	
	10/15/2013	--	--	--	--	0.21	< 0.002	--	--	--	--	--	--	--	



Table 6 - Groundwater Analytical Results - Inorganics
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
<i>Preventive Action Limit:</i>		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW-21 cont.	04/29/2014	0.128	--	--	--	--	0.23	--	--	--	--	--	--	--	--
	10/13/2014	0.4	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	0.166	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	0.139	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/19/2017	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-21B <i>Dup (QC-1)</i>	10/20/2004	< 0.0035	--	< 0.00030	--	0.0013	--	--	1.4	--	0.062	< 0.0011	< 0.000028	0.00099	0.00097
	10/20/2004	< 0.0035	--	< 0.00030	--	0.0013	--	--	1.6	--	0.065	< 0.0011	< 0.000028	< 0.00047	< 0.00076
	12/02/2004	--	--	--	--	--	--	--	3.2	--	0.021	--	--	--	--
	01/12/2005	--	--	--	--	--	0.0041	< 0.0053	0.79	< 0.0050	< 0.018	--	--	--	--
	02/09/2005	--	--	--	--	--	< 0.0037	< 0.0053	0.86	0.013	< 0.018	--	--	--	--
	03/09/2005	--	--	--	--	--	--	--	--	< 0.0050	< 0.018	--	--	--	--
	04/19/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	< 0.018	--	--	--	--
	04/19/2005	--	--	--	--	--	< 0.0037	--	--	0.0076	< 0.018	--	--	--	--
	07/06/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
	10/18/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	0.082	--	--	--	--
	01/10/2006	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
	<i>Dup (QC-1)</i>	01/11/2006	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--
	<i>Dup (QC-1)</i>	04/20/2006	--	--	--	--	--	< 0.0094	--	--	< 0.0050	--	--	--	--
	<i>Dup (QC-1)</i>	04/20/2006	--	--	--	--	--	< 0.0094	--	--	< 0.0050	--	--	--	--
	<i>Dup (QC-1)</i>	07/19/2006	--	--	--	--	--	< 0.0094	--	--	< 0.00500	--	--	--	--
	<i>Dup (QC-1)</i>	07/19/2006	--	--	--	--	--	< 0.0094	--	--	0.0092	--	--	--	--
		04/26/2007	--	--	--	--	--	--	--	--	--	< 0.050	--	--	--
		04/09/2008	0.00022	--	--	--	--	--	--	--	--	--	--	--	--
		04/20/2009	--	--	--	--	--	--	--	--	--	< 0.005	--	--	--
	04/12/2011	< 0.0013	--	--	--	--	--	--	--	--	--	--	--	--	
MW-22	10/18/2004	0.0044	--	< 0.00030	--	< 0.00065	--	--	0.76	--	0.49	< 0.0011	< 0.000028	< 0.0048	< 0.00076
	12/01/2004	--	--	--	--	--	--	--	0.92	--	0.39	--	--	--	--
	01/11/2005	--	--	--	--	--	0.074	0.012	0.29	< 0.0050	0.43	--	--	--	--
	02/08/2005	0.0072	--	--	--	--	0.094	0.01	0.22	< 0.0050	0.41	--	--	--	--
	03/09/2005	--	--	--	--	--	--	--	--	< 0.0050	0.43	--	--	--	--
	04/19/2005	0.0042	--	--	--	--	--	0.099 N	--	< 0.0050	0.51	--	--	--	--
	07/06/2005	--	--	--	--	--	--	0.099	--	< 0.0050	--	--	--	--	--
10/18/2005	0.0053	--	--	--	--	--	0.1	--	< 0.0050	0.64	--	--	--	--	



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Sample Location	Sample Date	Inorganic Compounds (mg/L)														
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)																
Groundwater Monitoring Wells																
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01	
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05	
MW-22 cont.	01/10/2006	--	--	--	--	--	0.11	--	--	< 0.0050	--	--	--	--	--	
	04/19/2006	0.0077	--	--	--	--	0.1	--	--	< 0.0050	0.52	--	--	--	--	
	07/19/2006	--	--	--	--	--	< 0.0094	--	--	0.036	--	--	--	--	--	
	10/24/2006	0.012	--	--	--	--	0.097	--	--	< 0.00500	--	--	--	--	--	
	04/25/2007	0.011	--	--	--	--	0.1	--	--	< 0.00500	--	--	--	--	--	
	10/09/2007	--	--	--	--	--	0.07	--	--	0.0032	--	--	--	--	--	
	Dup (QC-1)	10/09/2007	--	--	--	--	--	0.08	--	--	0.0033	--	--	--	--	--
		04/09/2008	0.0086	--	--	--	--	0.04	--	--	0.0081	--	--	--	--	--
		04/09/2008	0.0084	--	--	--	--	0.04	--	--	< 0.002	--	--	--	--	--
	Dup (QC-1)	10/21/2008	0.0088	--	--	--	--	0.047	--	--	--	0.519	--	--	--	--
		10/21/2008	0.0086	--	--	--	--	0.051	--	--	--	0.515	--	--	--	--
		04/20/2009	0.0067	--	--	--	--	0.024	--	--	0.0025	0.451	--	--	--	--
		10/07/2009	0.0076	--	--	--	--	--	--	--	--	0.532	--	--	--	--
		04/06/2010	--	--	--	--	--	0.037	--	--	< 0.002	--	--	--	--	--
		10/04/2010	0.0111	--	--	--	--	--	--	--	--	--	--	--	--	--
		04/11/2011	0.0071	--	--	--	--	--	--	--	--	--	--	--	--	--
	Dup (QC-1)	04/11/2011	0.0071	--	--	--	--	--	--	--	--	--	--	--	--	--
		10/03/2011	0.0118	--	--	--	--	--	--	--	--	--	--	--	--	--
		04/23/2012	0.005	--	--	--	--	--	--	--	--	--	--	--	--	--
		09/13/2012	0.0056	--	--	--	--	--	--	--	--	--	--	--	--	--
		04/24/2013	0.0078	--	--	--	--	--	--	--	--	--	--	--	--	--
		04/30/2014	0.0085	--	--	--	--	--	--	--	--	--	--	--	--	--
		04/21/2015	0.0098	--	--	--	--	--	--	--	--	--	--	--	--	--
Dup (QC-1)	04/21/2016	0.0039	--	--	--	--	--	--	--	--	--	--	--	--	--	
	04/21/2016	0.0037	--	--	--	--	--	--	--	--	--	--	--	--	--	
	04/19/2017	0.0057	--	--	--	--	--	--	--	--	--	--	--	--	--	
PZ-22B	10/18/2004	< 0.0035	--	< 0.00030	--	< 0.00065	--	--	1.2	--	0.057	< 0.0011	< 0.000028	< 0.0048	< 0.00076	
	12/01/2004	--	--	--	--	--	--	--	1.8	--	0.042	--	--	--	--	
	01/11/2005	--	--	--	--	--	0.0061	< 0.0053	1.1	< 0.0050	< 0.018	--	--	--	--	
	02/08/2005	--	--	--	--	--	0.0056	< 0.0053	3.6	< 0.0050	< 0.018	--	--	--	--	
	03/09/2005	--	--	--	--	--	--	--	--	< 0.0050	< 0.018	--	--	--	--	
	Dup (QC-1)	03/09/2005	--	--	--	--	--	--	--	0.01	< 0.018	--	--	--	--	
		04/19/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	< 0.018	--	--	--	--
		07/06/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
		10/18/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	0.08	--	--	--	--
	Dup (QC-1)	10/18/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	< 0.04	--	--	--	--



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Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
<i>Preventive Action Limit:</i>		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
PZ-22B cont.	01/10/2006	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
	04/19/2006	--	--	--	--	--	< 0.0094	--	--	< 0.0050	< 0.05	--	--	--	--
	07/19/2006	--	--	--	--	--	< 0.0094	--	--	0.0208	--	--	--	--	--
	04/25/2007	0.00019	--	--	--	--	< 0.0060	--	--	< 0.0050	--	--	--	--	--
	04/09/2008	0.00026	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2009	--	--	--	--	--	< 0.0060	--	--	< 0.002	< 0.005	--	--	--	--
	04/12/2011	< 0.0013	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-23 (Well Installed 9/15/2008) <i>Dup (QC-1)</i>	10/21/2008	--	--	--	--	--	< 0.0060	--	--	--	1.53	--	--	--	--
	02/19/2009	0.0045	--	--	--	--	< 0.0060	--	--	--	1.58	--	--	--	--
	04/21/2009	0.0043	--	--	--	--	< 0.0060	--	--	< 0.002	1.33	--	--	--	--
	10/08/2009	0.0056	--	--	--	--	< 0.0080	--	--	0.0057	1.36	--	--	--	--
	10/08/2009	0.0055	--	--	--	--	< 0.0080	--	--	< 0.002	1.39	--	--	--	--
	11/12/2009	0.0038	--	--	--	--	< 0.0080	--	--	< 0.002	--	--	--	--	--
	04/07/2010	0.0039	--	--	--	--	< 0.0061	--	--	< 0.002	--	--	--	--	--
PZ-23 (Well installed 10/5/09) <i>Dup (QC-1)</i>	10/08/2009	0.009	--	--	--	--	0.016	--	--	< 0.002	0.0307	--	--	--	--
	11/12/2009	--	--	--	--	--	0.021	--	--	< 0.002	--	--	--	--	--
	04/07/2010	0.0038	--	--	--	--	0.03	--	--	< 0.002	--	--	--	--	--
	01/18/2011	0.0087	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/13/2011	0.015	--	--	--	--	--	--	--	--	--	--	--	--	--
	09/12/2012	0.0114	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/24/2013	0.0057	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/30/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2015	0.0137	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2015	0.0097	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	0.0075	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.0068	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	0.0088	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-24 (Well installed 1/14/2013)	04/24/2013	< 0.0044	--	--	--	--	< 0.0038	< 0.002	--	--	--	--	--	--	--
	04/30/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2015	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2016	< 0.00073	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.00046	--	--	--	--	--	--	--	--	--	--	--	--	--



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Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
MW-25 (Well installed 1/15/2013)	04/24/2013	< 0.0044	--	--	--	--	0.091	--	--	0.003	--	--	--	--	--
	04/30/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	0.0021	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.0027	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-26	04/22/2015	0.0672	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2016	0.0781	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.0859	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	0.0939	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-26 (Well installed 04/15/14) Product in well, not sampled	04/30/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-27	04/22/2015	0.0077	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2016	0.0068	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.0069	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	0.0103	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-27 <i>Dup (QC-1)</i>	04/22/2015	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2016	0.0044	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.0035	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	0.0044	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	0.0046	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-28	04/22/2015	0.0345	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/22/2016	0.0238	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	0.0323	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	0.0413	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-28	04/22/2015	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--



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Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
Preventive Action Limit:		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
QCFB	02/20/2002	0.0009	--	< 0.00012	--	< 0.0018	< 0.0021	< 0.0022	--	--	0.0028	0.0014	< 0.00018	< 0.0011	< 0.0001
	05/13/2002	0.0008	--	< 0.00012	--	< 0.0011	0.0025	< 0.0022	--	--	< 0.0012	< 0.0007	< 0.00019	< 0.0055	< 0.0001
	08/20/2002	< 0.0008	--	< 0.00012	--	< 0.00021	0.0076	< 0.0084	--	--	0.002	< 0.0007	< 0.00019	< 0.0011	< 0.0001
	11/14/2002	< 0.0008	--	< 0.00012	--	0.00027	< 0.0027	< 0.0027	--	--	0.0029	< 0.0007	< 0.00019	< 0.0015	< 0.0001
	02/20/2003	< 0.0012	--	< 0.00004	--	0.00074	< 0.0014	0.0029	--	--	0.012	< 0.00083	< 0.00019	< 0.0015	< 0.00004
	10/19/2004	< 0.0035	--	< 0.00030	--	< 0.00065	--	--	< 0.0050	--	0.057	< 0.0011	< 0.000028	< 0.0048	< 0.00076
	12/02/2004	--	--	--	--	--	--	--	< 0.0050	--	< 0.018	--	--	--	--
	01/13/2005	--	--	--	--	--	< 0.0037	< 0.0053	< 0.0050	< 0.0050	< 0.018	--	--	--	--
	02/10/2005	< 0.0035	--	--	--	--	< 0.0037	0.0079	< 0.0050	< 0.0050	< 0.018	--	--	--	--
	03/10/2005	--	--	--	--	--	--	--	--	< 0.0050	< 0.018	--	--	--	--
	04/20/2005	< 0.0035	--	--	--	--	< 0.0037	--	--	< 0.0050	< 0.018	--	--	--	--
	07/07/2005	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
	10/19/2005	< 0.00040	--	--	--	--	< 0.0037	--	--	< 0.0050	0.22	--	--	--	--
	01/12/2006	--	--	--	--	--	< 0.0037	--	--	< 0.0050	--	--	--	--	--
	04/19/2006	< 0.00040	--	--	--	--	< 0.0094	--	--	< 0.0050	< 0.05	--	--	--	--
	07/20/2006	--	--	--	--	--	< 0.0094	--	--	< 0.00500	--	--	--	--	--
	10/24/2006	0.32	--	--	--	--	< 0.0094	--	--	< 0.00500	--	--	--	--	--
	04/26/2007	0.0004	--	--	--	--	< 0.006	--	--	< 0.00500	< 0.05	--	--	--	--
	10/09/2007	--	--	--	--	--	< 0.006	--	--	< 0.002	--	--	--	--	--
	04/09/2008	0.00024	--	--	--	--	< 0.006	--	--	< 0.002	--	--	--	--	--
	10/21/2008	< 0.00017	--	--	--	--	< 0.006	--	--	--	0.007	--	--	--	--
	04/21/2009	< 0.00017	--	--	--	--	< 0.0060	--	--	< 0.002	< 0.005	--	--	--	--
	10/08/2009	0.00038	--	--	--	--	< 0.0080	--	--	0.0032	< 0.004	--	--	--	--
	04/07/2010	< 0.0019	--	--	--	--	< 0.0061	--	--	--	--	--	--	--	--
	10/05/2010	< 0.0013	--	--	--	--	< 0.0061	--	--	< 0.002	--	--	--	--	--
	01/18/2011	< 0.0013	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/12/2011	< 0.0013	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/13/2011	< 0.002	--	--	--	--	--	--	--	--	--	--	--	--	--
10/03/2011	< 0.002	--	--	--	--	< 0.0061	--	--	< 0.0003	--	--	--	--	--	
04/24/2012	< 0.00019	--	--	--	--	< 0.0061	--	--	0.002	--	--	--	--	--	
06/26/2012	--	--	--	--	--	0.007	--	--	0.0037	--	--	--	--	--	
***	09/13/2012	< 0.00019	--	--	--	< 0.0043	--	--	0.002	--	--	--	--	--	
	04/24/2013	< 0.0044	--	--	--	< 0.0038	--	--	< 0.002	--	--	--	--	--	
	10/15/2013	--	--	--	--	--	0.0056	--	--	< 0.002	--	--	--	--	



Table 6 - Groundwater Analytical Results - Inorganics

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We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Inorganic Compounds (mg/L)													
		Arsenic ¹	Barium ¹	Cadmium, total	Chloride, total	Chromium, total	Cyanide, total	Cyanide, weak acid dissociable	Cyanide, available (Untreated)	Cyanide, available (PbCO ₃ Treated)	Iron, total	Lead, total	Mercury	Selenium, total	Silver, total
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, July 2015)															
Groundwater Monitoring Wells															
<i>Preventive Action Limit:</i>		0.001	0.4	0.0005	125	0.01	0.04	NS	0.04	0.04	0.15	0.0015	0.0002	0.01	0.01
Enforcement Standard:		0.01	2	0.005	250	0.1	0.2	NS	0.2	0.2	0.3	0.015	0.002	0.05	0.05
QCFB cont.	10/14/2014	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2015	< 0.0072	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	< 0.00073	--	--	--	--	--	--	--	--	--	--	--	--	--
	04/20/2017	< 0.000099	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/12/2017	< 0.00028	--	--	--	--	--	--	--	--	--	--	--	--	--

[O-PAH/MJR 4/03][U-PAR/JTB 12/04][JTB/EPK 01/05][JTB/PAR 3/05][JTB/PAR 4/05][JTB/RH 5/05][PAR/JTB 11/05][PAR/JTB 9/06][RUG/JTB 10/07][BGH/RMW 6/08][RMW/KRM 1/09][BGH/RJG 3/09][RMN/BGH 5/10][AMM/KJB 2/11][KJB/RJG 5/11][CJM/AMM 01/12][AMM/ANS 7/12][CAR 9/12][AMM/RJG 10/12]
 [CAR 12/12 cyanide updates][ETO/RJG 5/13][ETE/NDK 10/13][U-ECK 06/14][U-KLT 1/30/15, C-PMH 2/15][U-AJS 12/10/15, C-PMH 12/14/15][Format ECK 4/11/16][U-ECK 2/1/17, C:SGW 2/2/17; C:KJS 2/7/17][U-KLT 11/29/17, C: TWL 11/29/17]

Notes:

Italic Constituent concentrations that attain or exceed a preventive action limit (PAL) are italicized.

BOLD Constituent concentrations that attain or exceed an enforcement standard (ES) are bold.

< : Constituent was not identified above the limit of detection shown.

-- : Analysis was not performed.

Dup (QA/QC): Field Duplicate sample, field identification indicated in parentheses.

mg/L : Milligrams per liter.

*: Laboratory data for wells MW-8, MW-9, and MW-10 were originally presented in the March 25, 2002 URS SI report

nd : all components of total calculation were non-detects

NS : NR 140 groundwater quality standard has not been established.

Red Shading

Results within a red shaded cell indicate the result was not valid, and was assigned an "R-flag". Available cyanide reported at concentration greater than total cyanide, which is not valid by definition. The laboratory has indicated or suspects sulfide interference.

***: Highest detected result selected for reporting September 2012 cyanide and available cyanide results. Reference 2012 Annual Report dated December 14, 2012 for complete results.

1) Arsenic and Barium were initially analyzed for Total concentration. Starting in 2007, Arsenic and Barium were analyzed for Dissolved concentration.

 See lab reports for data qualifiers

NR 140 groundwater quality standard revised effective February 2017. Data prior to this date are also compared to revised 2017 standards.



Table 7 - Groundwater Analytical Results - RNA Parameters
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters					
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)													
Groundwater Monitoring Wells													
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS	
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS	
MW-02R	10/19/2004	690	0.47	0.19	< 0.031	52	2.1	7.7	16.8	1364	0.56	135	
	11/30/2004	690	0.43	--	< 0.031	30	1.9	7.5	--	1249	0.51	56	
	01/11/2005	650	0.53	0.17	0.096	24	1.5	7.6	12.5	1261	0.46	87	
	02/08/2005	640	0.62	0.2	< 0.031	12	2.2	7.5	12.9	1314	0.79	87	
	03/08/2005	600	0.67	0.17	< 0.031	5	1.6	7.5	13.5	1329	0.65	247	
	04/18/2005	610	0.69	0.17	< 0.078	3.3	1.6	7.6	19.0	992	0.51	297	
	07/05/2005	--	--	--	--	--	--	7.4	18.7	1376	0.57	218	
	10/17/2005	720	1.1	0.056	< 0.078	6.4	2.4	7.8	17.4	1397	0.63	337	
	01/10/2006	--	--	--	--	--	--	7.1	11.3	1433	0.76	9	
	04/19/2006	640	1.1	0.082	< 0.088	3.8	2.8	7.5	13.7	1430	0.62	-22	
	07/19/2006	--	--	--	--	--	--	7.5	19.2	1530	0.82	73	
	10/24/2006	710	1.1	0.043	< 0.20	4.4	2.3	7.4	13.7	1540	0.43	155	
	04/25/2007	630	1.1	0.063	< 0.085	6.6	1.8	7.4	13.4	1484	0.31	21	
	10/08/2007	740	< 0.026	--	< 0.085	6.4	2.1	7.7	17.4	1600	0.29	37	
	04/07/2008	574	1.36	0.0646	< 0.085	< 0.51	2.49	7.4	12.3	1690	0.43	-136	
	10/20/2008	594	0.59	0.0608	< 0.085	39.6	2.39	7.8	14.1	1960	0.44	-46	
	04/20/2009	609	0.91	0.0616	0.69	104	1.87	8.8	11.7	2150	0.54	-181	
	10/07/2009	675	0.826	0.0392	< 0.2	41.7	--	7.5	14.3	2020	0.51	-9	
	04/06/2010	568	1.07	0.085	0.20	127	2.53	7.8	11.9	2030	0.56	-71	
	10/04/2010	486	0.812	0.0378	0.21	182	2.76	6.4	14.8	2030	1.14	-63	
	01/18/2011	--	--	--	--	--	--	7.6	11.9	1930	2.57	-16	
	04/11/2011	427	0.832	0.0275	< 0.20	232	1.75	7.6	13.9	1810	3.99	-100	
	07/13/2011	--	--	--	--	--	--	7.6	14.4	1980	2.81	-145	
	10/03/2011	551	0.746	0.0317	< 0.20	192	2.49	7.6	14	2010	2.49	-46	
	01/04/2012	--	--	--	--	--	--	7.8	12.3	2000	3.4	-10	
	04/23/2012	504	0.837	0.0507	< 0.20	250	1.47	7.6	15.4	1880	0.36	-139	
	Dup (QC-1)	04/23/2012	513	0.879	0.0517	< 1.0	251	1.24	7.6	15.4	1880	0.36	-139
	Dup (QC-1)	06/26/2012	--	--	--	--	--	7.4	16.1	2030	0.31	-105	
	Dup (QC-1)	06/26/2012	--	--	--	--	--	7.4	16.1	2030	0.31	-105	
	Dup (QC-1)	09/12/2012	525	0.603	0.0118	0.44	165	2.26	7.7	16.2	2140	0.3	-110
	Dup (QC-1)	09/12/2012	531	0.628	0.0137	< 1.0	175	2.16	7.7	16.2	2140	0.3	-110
		01/28/2013	--	--	--	--	--	7.7	12.6	1910	0.64	9	
		04/13/2013	481	0.614	0.0331	< 1.5	258	1.49	7.7	12.3	-99	0.67	-99
	07/16/2013	--	--	--	--	--	7.6	19.6	2010	0.51	-73		
	10/15/2013	--	--	--	--	--	7.6	12.9	2270	1.11	-48		
	04/29/2014	455	0.5	0.0154	< 0.30	329	1.89	7.6	11.2	1900	0.54	-199	
	10/13/2014	--	--	--	--	--	7.8	12.6	1900	3.3	-282		
	04/21/2015	536	0.534	0.0031	< 0.75	188	0.708	7.7	11.0	2310	1.15	-250	
	10/19/2015	--	--	--	--	--	8.3	13.4	1930	0.53	-346		
	04/21/2016	475	0.619	0.0089	< 0.15	287	1.01	7.5	12.7	17	0.24	--	
	10/04/2016	--	--	--	--	--	7.7	13.6	1530	2.56	-30		
Dup (QC-1)	04/19/2017	461	0.54	0.01	< 0.075	234	0.371	7.65	12.8	1950	0.13	-330	
Dup (QC-1)	04/19/2017	366	0.54	0.0098	< 0.075	265	0.859	7.7	12.7	1670	0.44	-309	
Dup (QC-1)	10/24/2017	--	--	--	--	--	7.7	12.7	1670	0.44	-309		
MW-08	10/31/2001	--	--	--	--	45	--	--	--	--	--	--	
	02/20/2002	--	--	--	--	109	--	--	--	--	--	--	
	05/13/2002	--	--	--	--	171	--	--	--	--	--	--	
	08/20/2002	--	--	--	--	99	--	--	--	--	--	--	
	11/14/2002	--	--	--	--	45	--	7.2	12.4	442	0.5	44	
	02/19/2003	--	--	--	--	26	--	7	5.6	733	0.3	118	
	05/22/2003	--	--	--	--	74	--	8	10.9	593	0.5	24	
	08/01/2003	--	--	--	--	100	--	9	15.3	494	0.3	-10	
	10/18/2004	--	--	--	--	--	--	7.2	15.1	657	0.28	28	
	02/08/2005	--	--	--	--	--	--	7.2	6.6	433	0.46	41	
	04/19/2005	--	--	--	--	--	--	7.2	11.5	693	0.5	-33	
	07/07/2005	--	--	--	--	--	--	7.2	15.8	678	0.45	133	
	10/17/2005	--	--	--	--	--	--	10.1	16	750	0.43	87	
	01/11/2006	--	--	--	--	--	--	7	8.9	912	0.52	-23	
	10/05/2010	405	0.442	0.217	< 0.20	76.2	0.0836	5.8	15.6	872	1.21	216	



Table 7 - Groundwater Analytical Results - RNA Parameters
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Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters				
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
	01/18/2011	--	--	--	--	--	--	7	7.1	976	2.2	157
	04/12/2011	--	0.157	0.194	--	--	0.247	7.2	7.7	776	5.09	87
	07/13/2011	--	--	--	--	--	--	7.1	14.3	721	2.72	60
	10/03/2011	300	0.0985	0.177	< 0.20	58.3	0.123	7.3	16.5	694	1.68	106
	01/04/2012	--	--	--	--	--	--	7.9	6.9	809	3.8	45
MW-09	10/31/2001	--	--	--	--	170	--	--	--	--	--	--
	02/20/2002	--	--	--	--	190	--	--	--	--	--	--
	05/13/2002	--	--	--	--	168	--	--	--	--	--	--
	08/20/2002	--	--	--	--	215	--	--	--	--	--	--
	11/14/2002	--	--	--	--	225	--	7.1	12.7	598	0.3	128
	02/19/2003	--	--	--	--	241	--	6.9	8.9	1970	0.3	138
	05/22/2003	--	--	--	--	226	--	7.5	10.7	761	0.4	130
	08/01/2003	--	--	--	--	222	--	7.7	13.5	600	0.4	186
MW-10	10/31/2001	--	--	--	--	54	--	--	--	--	--	--
	02/20/2002	--	--	--	--	50	--	--	--	--	--	--
	05/13/2002	--	--	--	--	32	--	--	--	--	--	--
	08/20/2002	--	--	--	--	29	--	--	--	--	--	--
	11/14/2002	--	--	--	--	27	--	8.2	11.1	371	0.4	30
	02/19/2003	--	--	--	--	32	--	7.3	3.6	351	0.5	122
	05/22/2003	--	--	--	--	62	--	8.1	12.1	483	0.4	94
	08/01/2003	--	--	--	--	45	--	7.8	14.2	432	0.3	173
MW-12R	10/21/2004	170	0.13	0.065	0.15	42	0.27	9.2	15.6	365	0.45	-15
	11/30/2004	190	0.14	--	< 0.031	44	0.48	8.8	11.5	592	0.48	--
	01/13/2005	180	0.17	0.049	< 0.087	71	0.63	8.9	9.9	533	0.56	-34
	02/10/2005	170	0.15	0.048	< 0.031	76	0.56	8.8	8.7	480	0.39	-11
	03/08/2005	140	0.14	0.038	< 0.031	74	0.49	8.9	8.1	819	0.96	8
	04/20/2005	130	0.16	0.035	0.17	70	0.43	9.1	10.6	554	0.39	8
	07/07/2005	--	--	--	--	--	--	8.9	14.6	501	0.43	48
	10/19/2005	180	0.18	0.035	< 0.078	26	1.2	12.9	14.1	463	0.37	-91
	01/12/2006	--	--	--	--	--	--	8.5	9.5	696	0.57	-90
	04/20/2006	160	0.28	0.043	< 0.088	140	0.38	8.5	12.8	798	0.48	-74
	07/20/2006	--	--	--	--	--	--	8.7	17	1016	0.32	-48
	10/23/2006	200	0.078	0.039	< 0.20	69	1.9	8.6	13.4	638	0.33	-18
	04/26/2007	180	--	0.057	< 0.085	190	1.3	8.7	9.3	903	0.43	-26
	10/09/2007	180	< 0.026	--	< 0.085	260	1.2	8.6	14	1054	0.33	-94
	04/08/2008	279	0.386	0.0836	< 0.085	112	1.04	7.9	9.2	935	0.3	-50
	10/20/2008	253	0.118	0.069	4.1	251	1.23	8.6	14	1210	0.36	-48
	04/21/2009	335	0.175	0.0833	< 0.085	90.7	1.65	9.3	7.5	1080	0.35	-88
	10/08/2009	286	0.115	0.0839	0.25	305	--	8.1	13.5	1298	0.34	-5
	04/07/2010	376	0.199	0.102	< 0.20	190	2.03	8.4	11.2	1354	0.27	8
	10/04/2010	428	0.14	0.113	< 0.20	226	2.55	6.7	14.7	1610	0.37	-54
	01/18/2011	--	--	--	--	--	--	7.9	9.7	1500	0.32	61
	04/12/2011	195	0.3	0.0939	< 0.20	86.4	2	7.8	10.2	1215	4.4	32
	07/13/2011	--	--	--	--	--	--	7.9	12.7	1475	3.03	-112
	10/03/2011	351	0.234	0.0859	< 0.20	202	2.75	8	15.1	1372	1.58	-15
	01/04/2012	--	--	--	--	--	--	8.4	7.7	1560	3.25	41
	04/24/2012	448	0.24	0.0854	< 0.20	128	2.26	8	10.1	1470	0.32	-94
	09/12/2012	270	0.156	0.0348	< 0.20	35.4	1.94	8.5	16.5	877	0.32	20
	01/28/2013	--	--	--	--	--	--	9	10	1000	0.55	31
	04/24/2013	384	0.236	0.0524	< 0.75	21	2.33	8.3	9.7	1081	0.47	61
	07/16/2013	--	--	--	--	--	--	8.6	17.2	1183	0.52	-15
	10/15/2013	--	--	--	--	--	--	9.2	14.1	780	0.94	45
	04/29/2014	285	0.23	0.0083	< 0.15	107	5.91	8.9	9.1	990	0.44	-161
	10/13/2014	--	--	--	--	--	--	10	13.5	801	0.74	-228
04/21/2015	222	0.534	0.0025	< 1.5	85.7	4.41	10.2	8.9	1098	1.08	-162	
10/20/2015	--	--	--	--	--	--	11.2	13.2	748	0.38	-223	
04/21/2016	285	0.273	0.0082	< 0.15	118	4.32	8.7	11.5	1160	0.22	--	
10/04/2016	--	--	--	--	--	--	10.6	14.8	1007	0.12	-294	
04/19/2017	272	0.26	0.003	< 0.075	105	4.11	9.8	10.2	1119	0.22	-311	
10/24/2017	--	--	--	--	--	--	10.53	12.4	974	0.08	-274	
Dup (QC-1)	10/24/2017	--	--	--	--	--	10.53	12.4	974	0.08	-274	



Table 7 - Groundwater Analytical Results - RNA Parameters
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We Energies Appleton Former Manufactured Gas Plant Site

Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters				
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
PZ-12B	10/21/2004	250	0.023	0.12	< 0.031	30	0.45	7.8	14	669	0.61	219
	11/30/2004	250	0.036	--	< 0.031	22	0.85	7.5	11.3	827	4.5	195
	01/13/2005	220	0.036	0.17	< 0.087	10	0.62	7.7	10.8	687	0.61	262
	02/10/2005	220	0.034	0.14	< 0.031	9.6	0.21	7.7	9.5	461	0.62	255
	02/25/2005	220	0.038	0.14	< 0.031	9.7	0.15	--	--	--	--	--
	03/08/2005	210	< 0.018	0.17	0.21	11	0.084	7.6	9.3	549	0.76	284
	04/20/2005	220	0.026	0.16	0.23	9.5	0.19	7.8	11.5	425	1.11	326
	07/07/2005	--	--	--	--	--	--	7.6	13.5	464	0.68	314
	07/07/2005	--	--	--	--	--	--	--	--	--	--	--
	10/19/2005	210	0.13	0.15	< 0.078	3.1	0.76	11.6	12.7	416	0.48	-3
	01/12/2006	--	--	--	--	--	--	7.8	11	437	0.49	-67
	04/20/2006	190	< 0.05	0.18	0.2	20	0.016	7.4	13.5	439	0.85	21
	07/20/2006	--	--	--	--	--	--	7.9	14.7	460	0.41	61
	04/26/2007	220	--	0.24	< 0.085	9.3	0.37	8	10.4	463	0.72	27
	04/08/2008	221	0.156	0.297	0.16	10	0.367	7.5	10.9	485	0.35	11
	04/21/2009	227	< 0.005	0.133	0.21	14.2	0.249	8.9	9.9	499	0.73	66
	04/07/2010	229	0.023	0.106	0.23	14.3	0.0812	8	12	486	1.73	182
	04/24/2012	230	0.179	0.289	< 0.20	25.9	0.153	7.7	11.1	589	0.44	88
	04/24/2013	228	0.154	0.255	< 0.15	10.2	0.491	7.7	10.9	606	0.48	90
	04/29/2014	--	--	--	--	--	--	7.6	10.5	599	1.84	-75
	04/21/2015	207	0.0938	0.169	< 0.15	8.4	--	7.6	10.5	571	1.25	-162
	04/21/2016	--	--	--	--	--	--	7.2	12.2	572	0.33	--
	MW-13R	10/20/2004	450	0.5	0.65	< 0.031	210	4.6	7.9	17.1	1112	0.28
12/02/2004		470	0.5	0.49	< 0.031	200	4.3	7.6	12.5	1594	0.35	-81
01/12/2005		490	0.42	0.31	0.25	220	5.8	7.7	11.7	1730	0.26	-94
02/09/2005		480	0.4	0.31	< 0.031	180	3.7	7.7	10.6	1234	0.38	-79
03/10/2005		440	0.41	0.25	< 0.031	160	2.6	7.8	7.5	671	0.4	-71
04/19/2005		400	0.4	0.19	0.31	140	2.3	7.8	12.4	1121	0.34	-104
07/06/2005		--	--	--	--	--	--	7.9	14.7	1457	0.3	0
10/19/2005		410	0.52	0.13	< 0.078	53	2	12.1	15.3	835	0.37	-104
01/10/2006		--	--	--	--	--	--	7.6	10.7	1510	0.48	-152
04/19/2006		560	0.53	0.13	< 0.088	270	7	7.5	11.5	2380	0.34	-167
07/19/2006		--	--	--	--	--	--	7.6	14.9	2420	0.27	-170
10/24/2006		350	0.66	0.077	< 0.20	130	3.7	7.7	14.4	1770	0.26	-86
04/25/2007		500	0.52	0.085	< 0.085	350	5.5	7.5	10.5	25	0.16	-139
04/25/2007		500	0.49	0.087	< 0.085	350	6	7.5	10.5	25	0.16	-139
10/08/2007		430	0.12	--	< 0.085	350	4.4	8	16.9	2340	0.17	-180
04/08/2008		206	1.24	0.112	< 4.2	1030	3.26	7.5	10.1	3380	0.66	-161
10/20/2008		427	0.461	0.0751	14	378	4.66	7.7	15.1	2510	0.31	-98
04/21/2009		317	0.55	0.0779	< 0.085	1090	3	8.9	9.4	3590	0.4	-185
10/07/2009		586	0.641	0.0719	< 0.20	654	--	7.6	14.2	3020	0.34	-99
04/06/2010		395	0.604	0.075	< 0.20	917	3.06	8	11.2	3180	0.37	-86
10/04/2010		423	0.746	0.0629	0.22	902	4.14	6.5	15.1	3270	0.22	-87
01/18/2011		--	--	--	--	--	--	7.7	9.6	3020	2.04	-69
04/11/2011		180	0.626	0.0701	< 4.0	1180	1.47	7.9	16.7	2710	3.36	-94
07/13/2011		--	--	--	--	--	--	7.6	12.8	3040	2.29	-153
10/03/2011		315	0.674	0.0616	< 0.20	872	2.32	7.6	16.4	2840	1.6	-126
01/04/2012		--	--	--	--	--	--	8.2	11.1	2640	3.19	-58
01/04/2012		--	--	--	--	--	--	8.2	11.1	2640	3.19	-58
04/23/2012		291	0.582	0.0515	< 2.0	874	2.58	7.8	11.5	2610	0.15	-154
06/26/2012		--	--	--	--	--	--	7.5	14.6	2710	0.21	-113
09/12/2012		277	0.373	0.0457	< 0.20	519	2.04	7.8	14.6	2070	0.42	-58
01/28/2013		--	--	--	--	--	--	7.9	10.6	2630	0.43	-83
04/23/2013		163	0.718	0.066	< 1.5	1080	1.65	8.1	8.5	2730	0.48	-122
04/23/2013		173	0.704	0.0669	< 1.5	1070	0.654	8.1	8.5	2730	0.48	-122
07/16/2013		--	--	--	--	--	--	7.8	14.7	2710	0.67	-111
10/15/2013		--	--	--	--	--	--	7.8	14.1	2490	1.03	-85
04/29/2014		176	0.518	0.0488	< 0.30	2270	1.38	8.1	8.6	2490	0.55	-262
04/29/2014	190	0.523	0.0499	< 1.5	1050	1.05	8.1	8.6	2490	0.55	-262	



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Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters					
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)													
Groundwater Monitoring Wells													
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS	
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS	
MW - 13R cont.	10/13/2014	--	--	--	--	--	--	7.9	13.8	2280	4.58	-303	
	04/21/2015	216	0.522	0.0477	< 1.5	961	0.548	8.2	8.4	2800	1.80	-287	
	10/20/2015	--	--	--	--	--	--	8.6	13.8	2230	0.48	-345	
	04/21/2016	136	0.764	0.052	< 0.15	1080	1.1	7.6	10.7	2350	0.20	--	
	10/04/2016	--	--	--	--	--	--	8.0	14.7	2540	0.21	-327	
	04/19/2017	209	0.61	0.0492	< 1.5	1030	0.536	8.2	9.5	2320	0.19	-338	
10/24/2017	--	--	--	--	--	--	7.94	13.0	2572	0.09	-343		
MW-19S	10/19/2004	470	4.3	0.52	< 0.031	89	0.34	7.4	18.3	1293	1.17	375	
	12/01/2004	490	1.7	--	< 0.031	85	0.38	7.6	12.3	858	0.99	4	
	01/12/2005	580	1.2	0.55	< 0.087	120	0.28	7.2	11.3	635	0.92	321	
	02/09/2005	540	0.38	0.55	0.17	120	0.053	7.1	11.2	888	1.81	308	
	03/10/2005	520	0.54	0.25	0.31	150	0.12	7.2	9.9	627	1.91	127	
	04/20/2005	550	0.17	0.41	0.23	120	0.06	7.2	12.6	502	1.69	290	
	07/06/2005	--	--	--	--	--	--	7.1	14.5	1265	1.79	344	
	10/17/2005	480	1.1	0.22	< 0.078	98	0.046	7.8	15.4	751	0.72	313	
	01/11/2006	--	--	--	--	--	--	7.1	13.1	1494	1.16	193	
	Well damaged, scheduled for repair or abandonment	04/19/2006	--	--	--	--	--	--	--	--	--	--	
	Well damaged, scheduled for repair or abandonment	10/24/2006	--	--	--	--	--	--	--	--	--	--	
		04/26/2007	550	--	0.53	3.5	120	< 0.010	6.9	11.6	1404	0.49	295
		10/09/2007	570	< 0.026	--	< 0.085	120	0.014	7.4	16.7	1328	0.55	99
		04/08/2008	475	0.395	0.095	6.2	147	< 2	6.9	11.5	1520	0.66	197
		10/21/2008	510	0.0051	0.226	< 0.085	143	--	7.2	16.3	1520	0.62	213
		04/21/2009	482	< 0.005	0.154	5.9	130	< 0.0022	8.2	11.8	1570	0.35	-65
		10/08/2009	565	0.007	0.0887	0.2	149	--	6.9	15.5	1417	0.75	239
		04/07/2010	485	0.0039	0.231	8.6	114	< 0.0009	7.3	12.3	1369	0.35	36
		04/12/2011	354	< 0.0083	0.0861	5.2	170	< 0.0009	7	11.6	1288	5.49	204
		04/23/2012	481	0.27	0.0363	7	233	0.0008	7.2	15.2	1233	1.12	-30
MW-19 <i>Dup (QC-1)</i>	10/19/2004	460	0.6	0.24	< 0.031	300	0.78	7.7	18.7	182	0.8	129	
	12/01/2004	480	0.68	--	< 0.031	270	0.84	7.4	9.8	827	0.64	87	
	12/01/2004	480	0.68	--	< 0.031	270	0.95	--	--	--	--	--	
	01/12/2005	510	0.41	0.15	0.21	340	0.85	7.6	11.4	674	0.39	77	
	02/09/2005	530	0.39	0.14	< 0.031	320	0.99	7.5	9.4	924	0.66	24	
	03/10/2005	510	0.39	0.12	< 0.031	280	0.72	7.5	7.2	617	0.53	-11	
	04/20/2005	520	0.39	0.96	< 0.078	300	0.78	7.6	13	585	0.51	46	
	07/06/2005	--	--	--	--	--	--	7.4	15.1	2000	0.65	106	
	10/17/2005	470	0.54	0.044	< 0.078	270	1.1	10.7	14.9	1014	0.56	46	
	01/11/2006	--	--	--	--	--	--	7.1	10.7	2140	0.53	-58	
	Well damaged, scheduled for repair	04/19/2006	--	--	--	--	--	--	--	--	--	--	
		07/20/2006	--	--	--	--	--	--	7.4	19.4	2440	0.31	-105
		10/23/2006	570	0.36	0.027	< 0.20	250	1.6	7.4	13.6	2220	0.35	14
		04/26/2007	580	--	0.022	< 0.085	290	1.3	7.5	12.9	2230	0.25	-59
		10/09/2007	620	--	--	< 0.085	270	1.4	7.9	15.1	2340	0.29	-92
		04/08/2008	583	1.05	0.0196	< 0.085	440	0.322	7.3	12.1	2170	0.38	-123
		10/21/2008	563	0.771	0.0133	< 0.085	378	--	7.6	15	2640	0.34	-114
		04/21/2009	619	0.651	0.0129	0.085	310	1.81	8.6	12.1	2440	0.3	-166
		10/08/2009	618	1.59	0.0286	< 0.20	392	--	7.3	14.1	2680	0.33	-62
		04/07/2010	597	0.721	0.0083	< 0.20	373	1.73	7.7	14.7	2550	0.38	-63
		10/05/2010	494	0.693	0.0171	0.22	442	1.35	6.2	13.6	2600	0.55	-51
	Well not accessible, covered by ice and snow	01/18/2011	--	--	--	--	--	--	--	--	--	--	
		04/12/2011	398	0.598	0.0163	0.2	500	0.545	7.4	12.9	2060	5.7	-85
		07/13/2011	--	--	--	--	--	--	7.4	14.8	2490	2.48	-138
		10/04/2011	528	0.731	0.0113	< 0.20	445	1.34	7.2	14.1	2690	2.23	-114
		01/04/2012	--	--	--	--	--	--	8	10.4	2440	3.1	-72
		04/23/2012	498	0.649	0.0063	< 0.20	518	0.76	7.5	15	2490	0.48	-148
	06/26/2012	--	--	--	--	--	--	7	18.6	2600	0.37	-100	
	09/12/2012	489	0.521	0.0088	0.43	378	1.04	7.5	18.5	2740	0.42	-108	



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		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)	
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)													
Groundwater Monitoring Wells													
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS	
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS	
MW-19 cont.	01/28/2013	--	--	--	--	--	--	7.4	11.4	2510	0.8	6	
	04/23/2013	473	0.501	0.0135	< 1.5	363	0.492	7.4	12.5	2040	0.69	-120	
	07/16/2013	--	--	--	--	--	--	7.3	18.7	2710	1.07	-58	
	10/15/2013	--	--	--	--	--	--	7.3	14.2	2650	1.1	-49	
	04/29/2014	561	0.344	0.0073	< 0.15	529	1.09	7.4	12.4	2390	0.54	-228	
	10/13/2014	--	--	--	--	--	--	7.4	14.7	2590	1.56	-256	
	04/21/2015	491	0.424	0.0151	< 0.15	389	0.915	7.4	12.4	2907	0.83	-261	
	10/19/2015	--	--	--	--	--	--	8.0	14.3	2570	0.69	-314	
	04/21/2016	493	0.529	0.0107	< 0.15	612	1.11	7.2	14.0	2360	0.35	--	
	10/04/2016	--	--	--	--	--	--	7.3	14.7	2530	0.14	-251	
04/19/2017	474	0.59	0.0123	< 1.5	521	0.663	7.4	13.4	2180	0.41	-318		
10/23/2017	--	--	--	--	--	--	7.26	14.2	1596	0.31	-17		
MW-20	10/20/2004	230	0.065	0.21	< 0.031	2.2	2.2	7.9	20.1	872	0.36	12	
	11/30/2004	320	0.14	--	< 0.031	58	2.2	8.3	16.7	966	0.46	-23	
	01/11/2005	290	0.12	0.097	0.12	140	1.7	9.3	16.8	1323	0.29	-69	
	02/08/2005	280	0.11	0.12	0.21	110	1.4	9.2	14.8	1203	0.4	-83	
	03/09/2005	280	0.11	0.086	0.31	140	1.6	9.5	14.7	1376	0.3	-103	
	04/18/2005	340	0.12	0.09	0.19	170	2.1	9.3	19	1710	0.24	-98	
	07/05/2005	--	--	--	--	--	--	8.6	19.7	841	0.37	-55	
	10/17/2005	240	0.17	0.11	< 0.078	69	2.5	12.4	17.9	1293	0.33	-99	
	01/10/2006	--	--	--	--	--	--	9.5	12.1	2800	0.4	-180	
	04/19/2006	210	0.25	0.0093	0.23	420	0.87	9.8	14	3220	0.41	-223	
	07/20/2006	--	--	--	--	--	--	10	18.1	2730	0.63	-97	
	10/24/2006	250	0.22	0.034	< 0.20	240	1.7	8.7	13.1	2660	0.29	-106	
	10/24/2006	250	0.21	0.034	< 0.20	250	1.9	8.7	13.1	2660	0.29	-106	
	Dup (QC-1)	04/25/2007	200	0.2	0.023	< 0.085	460	0.81	9.4	13.7	2940	0.12	-161
		10/08/2007	210	< 0.026	--	< 0.085	370	0.61	9.6	16.1	3080	0.15	-191
	Dup (QC-1)	04/07/2008	135	0.575	0.0067	< 0.085	655	1.27	9.6	10.3	2910	0.3	-164
		10/20/2008	140	0.152	0.0069	0.88	580	1.67	9.4	13.3	2880	0.32	-106
	Dup (QC-1)	04/20/2009	158	0.156	0.0097	< 0.085	624	2.56	10.6	11.8	3160	0.27	-168
		04/20/2009	150	0.158	0.0168	< 0.085	617	2.19	10.6	11.8	3160	0.27	-168
	Dup (QC-1)	10/07/2009	140	0.141	0.0079	< 0.20	623	--	9.2	13.9	2700	0.58	71
		04/06/2010	123	0.164	0.0078	< 0.20	699	2.51	9.8	12.2	3080	0.29	11
	Dup (QC-1)	04/06/2010	132	0.169	0.0078	< 0.20	703	2.56	9.8	12.2	3080	0.29	11
		10/04/2010	149	0.15	0.0071	< 0.20	678	0.162	8.3	15.8	2650	0.4	-76
	Dup (QC-1)	10/04/2010	140	0.0983	0.0062	< 0.20	679	2.99	8.3	15.8	2650	0.4	-76
		04/11/2011	96.1	0.14	0.0052	< 2.0	668	1.67	9.3	15.3	2250	2.9	-26
	Dup (QC-1)	10/03/2011	145	0.123	0.0087	< 0.20	501	2.94	8.9	14.7	2240	1.87	5
		10/03/2011	129	0.122	0.0086	< 0.20	503	3.82	8.9	14.7	2240	1.87	5
	Dup (QC-1)	04/23/2012	153	0.131	0.0033	< 0.20	576	2.57	9.6	14.2	2100	0.24	-87
		06/26/2012	--	--	--	--	--	--	9.4	16.3	2112	0.24	8
	Dup (QC-1)	09/12/2012	200	0.112	0.0105	< 0.20	323	5.27	9.1	15.2	1850	0.36	-21
		01/28/2013	--	--	--	--	--	--	9.5	10.9	2090	0.47	89
	Dup (QC-1)	04/23/2013	106	0.238	0.0034	0.55	560	1.23	10.1	11.5	2140	0.6	115
		07/16/2013	--	--	--	--	--	--	9.4	17.9	2220	0.7	98
	Dup (QC-1)	10/15/2013	--	--	--	--	--	--	9.3	12.9	2030	0.91	69
		04/29/2014	84.6	0.309	0.0039	0.26	588	1.95	9.2	11.5	2200	0.46	-122
	Dup (QC-1)	10/13/2014	--	--	--	--	--	--	8.9	13.1	2030	0.9	-248
		04/21/2015	90.7	0.152	0.0024	< 0.15	511	1.24	9.6	11.5	2480	0.86	-173
	Dup (QC-1)	10/19/2015	--	--	--	--	--	--	10.1	12.7	1980	5.98	-299
		04/21/2016	95.9	0.135	0.0012	< 0.15	468	0.272	9.8	12.7	1730	0.27	--
	Dup (QC-1)	10/04/2016	--	--	--	--	--	--	10.0	13.6	1910	0.31	-143
04/19/2017		135	0.17	0.0014	< 0.075	510	0.319	10.6	12.4	1680	0.37	-246	
10/24/2017	--	--	--	--	--	--	9.69	12.8	1480	0.14	-222		
PZ-20B	10/20/2004	200	0.04	0.081	< 0.031	1.1	0.59	8	13	390	0.51	31	
	11/30/2004	220	0.021	--	< 0.031	1.7	1.1	7.7	12.3	389	0.76	128	
	01/11/2005	220	< 0.018	0.08	< 0.087	2.3	0.8	7.9	12.7	386	0.65	95	
	02/08/2005	200	< 0.018	0.095	< 0.031	9.3	0.25	7.6	11.8	411	0.75	70	



Table 7 - Groundwater Analytical Results - RNA Parameters
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Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters				
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
PZ - 20B cont.	03/09/2005	190	< 0.018	0.09	0.18	14	0.14	7.7	13	411	0.75	71
	04/18/2005	450	< 0.018	0.1	< 0.078	17	0.067	7.9	19.9	415	0.78	100
	07/05/2005	--	--	--	--	--	--	7.8	19.5	399	0.77	101
	10/17/2005	190	0.11	0.097	< 0.078	1.7	1.5	10	17.6	400	0.64	72
	01/10/2006	--	--	--	--	--	--	7.6	11.4	427	0.83	-83
	04/19/2006	170	< 0.05	0.11	< 0.088	23	0.04	7.5	14.1	421	0.84	-18
	07/20/2006	--	--	--	--	--	--	7.8	18.9	460	0.64	-17
	04/25/2007	210	--	0.11	< 0.085	5.1	0.46	7.8	13.3	435	0.49	-18
	04/07/2008	205	0.134	0.136	< 0.085	5.2	0.628	7.7	9.4	429	0.67	-89
	04/20/2009	208	< 0.005	0.15	< 0.085	13.5	0.127	8.9	12	478	0.48	-106
	04/06/2010	209	0.0086	0.159	< 0.20	9.9	0.346	7.8	12.4	466	0.53	76
	04/12/2011	--	--	--	--	--	--	7.6	13.85	404	3.52	50
	04/23/2012	204	0.0285	0.128	< 0.20	4.7	0.135	7.7	14.8	460	0.52	-26
	04/23/2013	208	< 0.014	0.15	< 0.15	2.4	0.746	7.7	11.8	434	0.74	98
	04/29/2014	--	--	--	--	--	--	7.6	11.2	1900	0.54	-199
04/21/2015	194	< 0.0129	0.131	< 0.15	3.3	--	7.5	10.2	509	1.70	-147	
04/21/2016	--	--	--	--	--	--	7.4	12.9	413	0.38	--	
MW-21	10/20/2004	190	0.14	0.027	< 0.031	75	2.3	8.6	18.1	1067	0.25	-75
	12/02/2004	490	0.28	0.011	0.96	300	1.3	9.9	14	2530	0.53	-124
	01/12/2005	700	0.33	0.0022	3.9	99	0.37	10.5	13.4	3040	0.21	-121
	02/09/2005	730	0.33	0.0011	2.2	450	0.78	10.6	11.5	3020	0.19	-168
	03/09/2005	920	0.3	0.0013	3.9	410	0.46	10.9	10.1	2980	0.15	-181
	04/19/2005	620	0.29	0.002	0.76	460	0.41	10.9	13.2	3520	0.17	-138
	07/06/2005	--	--	--	--	--	--	10.7	15.9	3870	0.21	-50
	10/18/2005	460	< 0.04	0.00052	0.16	320	0.23	13.7	16.8	4050	0.22	-129
	01/11/2006	--	--	--	--	--	--	10.7	12.5	3450	0.6	-134
	04/20/2006	600	0.72	0.017	0.77	520	0.045	11.1	12.6	3350	0.33	-159
	07/19/2006	--	--	--	--	--	--	11	15.6	3250	0.08	-47
	10/24/2006	500	0.38	0.00047	< 0.20	340	0.27	10.6	14.8	3480	0.18	1
	04/26/2007	--	--	--	--	--	--	11.4	9.7	3200	0.13	-121
	10/09/2007	560	0.2	--	< 0.085	330	0.099	11	14.8	3330	0.23	-87
	04/09/2008	368	1.25	0.0058	< 4.2	979	0.0411	10.9	8.9	3240	0.35	-64
	10/21/2008	375	0.41	< 0.00024	< 0.085	561	0.213	10.9	14	2960	0.24	-89
	04/20/2009	294	0.331	0.0071	0.16	894	0.084	12.1	10.9	3170	0.24	-112
	10/07/2009	290	0.427	0.0028	< 0.20	648	--	10.5	13.2	3030	0.3	-23
	04/06/2010	262	0.365	0.00015	< 0.20	946	0.115	11.2	11	3270	0.26	12
	10/04/2010	310	0.505	< 0.00014	< 0.20	653	0.162	9.7	15.6	2360	0.36	100
	04/11/2011	143	0.203	0.0012	< 2.0	891	0.0392	10.9	10.9	2370	2.94	39
	10/03/2011	156	0.418	< 0.000098	< 0.20	675	0.144	10.5	15.6	2370	1.58	44
	04/24/2012	164	0.293	0.0018	< 0.203	646	0.122	11	11.6	1970	0.26	-21
	06/26/2012	--	--	--	--	--	--	10.7	15.6	2170	0.17	28
	09/12/2012	169	0.436	0.0027	< 0.20	585	0.135	10.7	14.3	2470	0.42	51
	01/28/2013	--	--	--	--	--	--	11.6	11.1	2180	0.45	79
	04/23/2013	102	0.193	0.0013	9.1	662	0.0576	11.4	9.2	2270	0.42	104
	07/16/2013	--	--	--	--	--	--	10.6	16.9	1860	0.69	29
	10/15/2013	--	--	--	--	--	--	10.5	13.9	2230	0.85	-4
	10/15/2013	--	--	--	--	--	--	10.5	13.9	2230	0.85	-4
	04/29/2014	126	0.248	< 0.0014	2.2	715	0.0586	10.6	8.6	2360	0.76	-109
	10/13/2014	--	--	--	--	--	--	10.4	13.9	1870	0.82	-248
04/21/2015	113	0.33	< 0.0014	< 0.15	682	0.0742	11.2	9.1	2400	0.58	-227	
10/19/2015	--	--	--	--	--	--	11.5	14.0	1800	5.07	-242	
04/21/2016	97.6	0.22	< 0.098	< 0.15	500	0.0515	10.9	11.0	1470	0.33	--	
10/04/2016	--	--	--	--	--	--	11.1	14.9	1580	0.16	-266	
04/19/2017	130	0.25	0.00062	< 1.5	549	0.031	11.9	10.1	1510	0.23	-253	
10/24/2017	--	--	--	--	--	--	10.54	13.6	1408	2.39	-282	
Dup (QC-1)	10/15/2013	--	--	--	--	--	--	10.5	13.9	2230	0.85	-4
	04/29/2014	126	0.248	< 0.0014	2.2	715	0.0586	10.6	8.6	2360	0.76	-109
	10/13/2014	--	--	--	--	--	--	10.4	13.9	1870	0.82	-248
	04/21/2015	113	0.33	< 0.0014	< 0.15	682	0.0742	11.2	9.1	2400	0.58	-227
	10/19/2015	--	--	--	--	--	--	11.5	14.0	1800	5.07	-242
	04/21/2016	97.6	0.22	< 0.098	< 0.15	500	0.0515	10.9	11.0	1470	0.33	--
	10/04/2016	--	--	--	--	--	--	11.1	14.9	1580	0.16	-266
	04/19/2017	130	0.25	0.00062	< 1.5	549	0.031	11.9	10.1	1510	0.23	-253
	10/24/2017	--	--	--	--	--	--	10.54	13.6	1408	2.39	-282



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		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
PZ-21B <i>Dup (QC-1)</i>	10/20/2004	200	0.037	0.085	< 0.031	1	1	8	16.9	376	0.57	20
	10/20/2004	380	0.038	0.085	0.14	1	0.96	--	--	--	--	--
	12/02/2004	220	0.041	0.091	0.19	1.9	1.2	7.6	10.7	365	0.72	58
	01/12/2005	210	< 0.018	0.092	< 0.087	4.3	0.8	7.9	12	278	0.42	32
	02/09/2005	210	< 0.018	0.11	< 0.031	4.3	0.62	7.7	10.9	402	0.64	26
	03/09/2005	180	< 0.018	0.11	< 0.031	18	0.16	7.7	10.6	404	0.51	9
	04/19/2005	190	< 0.018	0.13	0.44	18	0.21	7.9	14.9	421	0.62	59
	04/19/2005	190	< 0.018	0.13	0.31	17	0.17	7.9	14.9	421	0.62	59
	07/06/2005	--	--	--	--	--	--	7.8	16.1	411	0.53	86
	10/18/2005	200	0.09	0.13	< 0.078	1.9	2.1	10.7	15	394	0.53	41
	01/10/2006	--	--	--	--	--	--	7.6	12	426	0.55	-66
	01/10/2006	--	--	--	--	--	--	7.6	12	426	0.55	-66
	04/12/2011	--	--	--	--	--	--	7.6	13.7	388	3.85	105
	04/20/2006	170	< 0.05	0.13	< 0.088	22	0.029	7.4	13.7	412	0.68	-16
	04/20/2006	170	< 0.05	0.14	< 0.088	22	0.017	7.4	13.7	412	0.68	-16
	07/19/2006	--	--	--	--	--	--	7.8	16.5	415	0.58	19
	07/19/2006	--	--	--	--	--	--	7.8	16.5	415	0.58	19
	04/26/2007	200	--	0.15	< 0.085	5.7	0.59	8	11.4	442	0.39	-47
	04/09/2008	202	0.0994	0.1	1.1	5.4	0.362	7.5	10	448	0.5	-37
	04/20/2009	211	< 0.005	0.164	< 0.085	15.1	0.236	8.9	11.4	483	0.38	-73
	04/06/2010	209	0.0101	0.167	< 0.20	11.2	0.119	7.9	13.5	475	0.43	62
	04/12/2011	190	< 0.0083	0.143	0.28	17.2	0.0512	7.6	13.7	388	3.85	105
	04/24/2012	197	0.0133	0.135	< 0.20	2.9	0.135	7.8	12.5	425	0.37	51
	04/23/2013	205	0.0159	0.161	< 0.15	2.4	0.711	7.8	10.6	434	0.53	136
04/29/2014	--	--	--	--	--	--	7.6	10.1	426	0.61	-101	
04/21/2015	190	< 0.0129	0.139	< 0.15	4.8	--	7.6	10.9	473	0.48	-153	
04/21/2016	--	--	--	--	--	--	7.3	12.4	415	0.32	--	
MW-22	10/18/2004	420	0.29	0.21	< 0.031	5.7	1.9	7.3	16.9	1870	0.81	50
	12/01/2004	500	0.37	--	< 0.031	17	3.8	7.4	19.8	1110	0.35	12
	01/11/2005	500	0.39	0.14	0.16	14	3.6	7.5	12.5	2130	0.37	9
	02/08/2005	470	0.36	0.12	0.38	20	5.5	7.4	11.8	1870	0.44	-13
	03/09/2005	420	0.4	0.1	0.2	12	3.4	7.1	10.4	1254	0.35	-18
	04/19/2005	440	0.46	0.11	< 0.078	9.5	4.9	7.6	14.9	740	0.37	37
	07/06/2005	--	--	--	--	--	--	7.5	15.5	2020	0.38	53
	10/18/2005	410	0.66	0.063	< 0.078	4.1	4.5	11.1	15.8	1044	0.24	-5
	01/10/2006	--	--	--	--	--	--	7.3	9.8	1870	0.6	-84
	04/19/2006	430	0.42	0.051	< 0.088	6	6.4	7.5	13.2	1990	0.38	-90
	07/19/2006	--	--	--	--	--	--	7.5	19.2	1530	0.82	73
	10/24/2006	420	0.53	0.061	< 0.20	3	5	7.5	13.2	1980	0.29	16
	04/25/2007	420	0.33	0.056	< 0.085	8	4.6	7.4	12.6	2150	0.21	-37
	10/09/2007	440	< 0.026	--	< 0.085	4.3	4	7.8	14.5	2210	0.34	-40
	10/09/2007	430	< 0.026	--	< 0.085	4.2	3.1	7.8	14.5	2210	0.34	-40
	04/09/2008	438	0.822	0.0607	0.98	4.8	2.89	7.2	10.2	2740	0.32	-52
	04/09/2008	443	0.78	0.05	7.5	4.5	3.4	7.2	10.2	2740	0.32	-52
	10/21/2008	428	0.469	0.0663	< 0.085	4.2	4.14	7.5	12.1	2780	0.5	-7
	10/21/2008	427	0.466	0.0655	< 0.085	3.9	4.4	7.5	12.1	2780	0.5	-7
	04/20/2009	450	0.462	0.0526	< 0.085	4.6	3.9	8.6	10.6	2950	0.29	-82
	10/07/2009	450	0.551	0.0545	< 0.20	3.2	--	7.3	13	2790	0.39	72
	04/06/2010	458	0.541	0.0536	< 0.20	3.9	3.33	7.6	12.1	2790	0.25	59
	10/04/2010	443	0.455	0.0449	< 0.20	3.7	3.75	6.2	14.9	2770	0.53	99
	04/11/2011	353	0.36	0.0472	< 0.20	5.2	2.33	7.4	12.7	2520	3.07	43
	04/11/2011	358	0.363	0.0469	< 0.20	5.2	2.22	--	--	--	--	--
	10/03/2011	445	0.329	0.0519	< 0.20	3.5	3.08	7.3	15	2670	2.13	84
	04/23/2012	439	0.256	0.0412	< 0.20	31.8	2.47	7.3	12.9	2640	0.7	-20
	06/26/2012	--	--	--	--	--	--	7.1	16.2	2550	0.55	-21
	09/13/2012	391	0.246	0.0503	0.51	2.7	4.13	7.5	12.9	2670	0.48	112
	01/28/2013	--	--	--	--	--	--	7.4	11.4	2420	0.47	105
	04/23/2013	443	0.261	0.0421	< 1.5	3.6	4.62	7.4	10.3	2430	0.51	97
	07/16/2013	--	--	--	--	--	--	7.3	16.5	2640	0.91	60
10/15/2013	--	--	--	--	--	--	7.4	13.5	2500	0.94	82	



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		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
MW-22 cont. Dup (QC-1)	04/29/2014	463	0.291	0.0366	0.34	23.5	5.33	7.3	10.6	2550	1.07	-123
	10/13/2014	--	--	--	--	--	--	7.3	15.7	2480	0.56	-152
	04/21/2015	434	0.413	0.0424	< 0.15	3.3	2.3	7.6	10.0	510	0.51	-184
	10/19/2015	--	--	--	--	--	--	7.7	13.2	2740	6.01	-220
	04/21/2016	446	0.398	0.0422	< 0.15	3.1	1.4	7.0	12.0	2810	0.30	--
	04/21/2016	477	0.376	0.04	< 0.15	3.1	2	7.0	12.0	2810	0.30	--
	10/04/2016	--	--	--	--	--	--	7.3	14.0	3040	0.20	-213
	04/19/2017	410	0.25	0.0403	< 0.075	4.5	2.26	7.3	11.3	2710	0.21	-203
10/24/2017	--	--	--	--	--	--	7.34	12.7	1354	0.18	-260	
PZ-22B Dup (QC-1) Dup (QC-1)	10/18/2004	220	0.024	0.073	< 0.031	1.3	0.35	7.8	14.3	394	0.34	-29
	12/01/2004	220	0.028	--	< 0.031	1.4	1.6	7.7	12.6	385	0.76	48
	01/11/2005	200	< 0.018	0.072	< 0.087	2	1.1	7.9	12.4	400	0.49	25
	02/08/2005	210	< 0.018	0.077	< 0.031	1.9	0.89	7.7	11.1	410	0.66	2
	03/09/2005	190	< 0.018	0.073	< 0.031	5.9	0.35	7.7	11	421	0.51	-14
	03/09/2005	190	< 0.018	0.075	0.65	5.7	0.39	7.7	11	421	0.51	-14
	04/19/2005	190	< 0.018	0.086	0.26	9	0.24	7.9	13.9	419	0.61	62
	07/06/2005	--	--	--	--	--	--	7.8	15	411	0.56	66
	10/18/2005	190	0.097	0.084	< 0.078	1.5	1.5	10.5	14.7	395	0.49	75
	10/18/2005	200	0.096	< 0.00040	< 0.078	1.4	1.1	--	--	--	--	--
	01/10/2006	--	--	--	--	--	--	7.6	10	421	0.48	-112
	04/19/2006	190	< 0.05	0.086	< 0.088	19	0.16	7.5	13.1	445	0.6	-66
	07/19/2006	--	--	--	--	--	--	7.8	15.3	419	0.51	19
	04/25/2007	200	< 0.050	0.094	< 0.085	5.3	0.59	8	12.3	438	0.37	-55
	04/09/2008	189	0.127	0.154	< 0.085	6.3	0.469	7.5	11.2	309	0.5	-43
	04/20/2009	211	< 0.005	0.1	0.17	11.7	0.36	8.8	11.7	476	0.38	-87
	04/06/2010	214	0.0046	0.104	< 0.20	5.2	0.211	7.8	12.6	459	0.38	75
	04/12/2011	193	< 0.0083	0.101	< 0.20	12	0.14	7.5	13.1	390	3.36	29
	04/23/2012	186	0.0259	0.102	< 0.20	6.8	0.147	7.6	12.9	416	0.43	-51
	04/23/2013	228	< 0.014	0.11	< 0.15	5.6	0.376	7.7	11.2	436	0.53	82
04/29/2014	--	--	--	--	--	--	7.6	11.7	449	1.41	-263	
04/21/2015	193	< 0.0129	0.096	< 0.15	4.7	--	7.6	10.7	510	0.51	-184	
04/21/2016	--	--	--	--	--	--	7.3	12.4	429	0.35	--	
MW-23 Well Installed 9/15/2008 Dup (QC-1)	10/21/2008	238	1.45	0.385	< 0.085	< 0.51	7.21	7.5	16.7	569	0.35	28
	02/19/2009	9080	1.48	0.408	< 0.085	4.7	4.65	8.1	5.2	579	0.58	49
	04/21/2009	247	1.32	0.439	< 0.085	4.4	4.08	8.6	6	548	0.33	36
	10/08/2009	279	1.42	0.48	< 0.20	2.8	--	7.1	17.3	563	0.52	103
	10/08/2009	278	1.48	0.49	< 0.20	2.8	--	7.1	17.3	563	0.52	103
	11/12/2009	241	1.27	0.461	< 0.20	2.8	--	7.2	14	500	0.36	96
	04/07/2010	250	1.29	0.529	< 0.20	4.2	4.03	7.8	7.5	531	0.39	99
	04/12/2011	230	1.03	0.48	< 0.20	4.5	2.56	7.5	6.5	448	4.2	89
	04/24/2012	237	1.58	0.493	< 0.20	11.9	2.96	7.5	8.5	539	0.39	58
PZ-23 Well Installed 10/5/2009	10/08/2009	238	0.0139	0.25	< 0.20	3	--	7.3	16.4	521	0.39	1
	11/12/2009	240	0.855	0.0921	< 0.20	2.1	--	7.4	14.6	533	0.34	169
	04/07/2010	231	1.18	0.0765	< 0.20	3	5.52	7.8	8.4	580	0.45	105
	10/05/2010	242	0.704	0.066	< 0.20	3.3	6.57	6.1	17.4	613	0.67	167
	01/18/2011	230	0.758	0.0643	< 0.20	3.5	--	7.5	7.6	591	2.12	115
	04/12/2011	215	0.77	0.0646	< 0.20	12.6	4.1	7.5	7.9	607	3.66	101
	07/13/2011	232	0.603	0.0666	< 0.20	7.5	2.02	7.3	13.8	633	3	82
	10/04/2011	214	0.749	0.0685	< 0.20	< 2.0	4.22	7.6	17	538	2.27	119
	01/04/2012	228	0.657	0.0705	< 0.20	9.8	5.4	8	10.4	784	3.03	106
	04/24/2012	221	0.52	0.061	< 0.20	10.9	3.98	7.6	9	714	0.44	73
	06/26/2012	200	0.401	0.0598	< 0.20	3.7	6.14	7	16.8	633	0.48	135
	09/12/2012	229	0.688	0.0645	< 0.20	< 2.0	3.61	7.5	21.2	626	0.47	5
	01/28/2013	--	--	--	--	--	--	7.5	9.62	627	0.57	95
	04/24/2013	233	0.568	0.0598	< 0.15	7.7	3.67	7.6	8.2	683	0.47	119
	07/17/2013	--	--	--	--	--	--	7.4	16.4	635	0.85	90
	10/15/2013	--	--	--	--	--	--	7.4	16.3	579	1.02	87
	04/30/2014	231	0.522	0.0626	< 0.15	6.8	3.28	7.5	7.4	638	2.78	96
	07/21/2014	221	0.518	0.0662	< 0.15	4.8	4.53	7.4	15.5	639	0.72	-98
10/14/2014	231	0.494	0.0635	0.15	2.2	6.57	7.4	15.7	577	0.45	-151	



Table 7 - Groundwater Analytical Results - RNA Parameters
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Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters				
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
PZ-23 cont. <i>Dup (QC-1)</i>	04/22/2015	222	0.646	0.107	< 0.15	5.3	2.94	7.6	7.0	693	0.49	-125
	04/22/2015	208	0.644	0.105	< 0.15	5.1	2.46	7.6	7.0	693	0.49	-125
	07/14/2015	235	0.599	0.111	< 0.15	2.8	2.95	7.7	15.0	412	1.00	-184
	10/20/2015	243	0.712	0.101	< 0.15	< 2.0	--	7.7	16.8	511	0.53	-214
	01/07/2016	227	0.462	0.0827	< 0.15	6.6	3.82	8.7	11.4	667	3.42	-152
	04/21/2016	217	0.427	0.099	< 0.15	13	2.91	7.1	9.9	606	0.34	--
	07/14/2016	243	0.362	0.0876	< 0.15	4	2.21	7.2	15.3	601	0.45	--
	10/04/2016	234	0.481	0.0932	< 0.15	< 2	3.03	7.4	17.5	615	0.16	-195
	01/18/2017	217	0.39	0.0863	< 0.075	< 1.0	3.88	7.78	9.4	690	0.11	-75
	04/20/2017	213	0.34	0.0756	< 0.075	6.6	--	7.7	8.7	595	0.32	-195
07/12/2017	229	0.41	0.0958	< 0.075	< 1.0	1.73	7.4	14.7	588	0.62	--	
10/23/2017	224	0.539	0.0894	< 0.075	< 1.0	2.7	7.45	16.3	583	0.19	-154	
MW-24	01/29/2013	487	3.47	0.519	< 0.20	107	0.0635	7.2	11	3220	0.68	115
	04/24/2013	454	4.25	0.628	< 0.15	106	0.139	7.1	11.7	3230	0.86	135
	07/17/2013	542	6.85	0.353	< 0.75	119	0.151	7	17.4	3650	0.84	108
	10/15/2013	512	6.4	0.27	< 0.15	117	131	7	12.7	4220	0.87	111
	04/29/2014	530	3.38	0.253	< 0.15	122	0.0808	7	11.6	2950	0.66	-58
	10/14/2014	--	--	--	--	--	--	6.9	12.9	3090	1.18	-79
	04/22/2015	465	2.81	0.128	< 0.15	112	0.0439	7.0	10.0	3880	1.11	-24
	10/20/2015	504	2.08	0.108	< 0.15	95.1	0.0246	7.2	13.6	2090	2.00	-96
	04/22/2016	442	0.708	0.117	< 0.15	85.4	0.0194	7.0	11.0	1560	0.82	--
	10/05/2016	473	0.738	0.0938	< 0.15	88.3	< 1.4	7.2	14.7	1399	1.93	56
04/20/2017	436	0.89	0.0935	0.44	96.3	0.0153	7.3	10.5	1352	1.66	-51	
10/23/2017	431	3	0.167	< 0.38	88.9	0.0131	7.15	13.4	1447	0.45	-69	
MW-25	01/28/2013	252	0.0609	0.0386	< 0.20	26.7	0.585	8.5	10.8	1191	0.47	98
	04/24/2013	222	0.107	0.0624	< 0.15	25	0.541	9.4	9.5	1129	0.51	164
	07/16/2013	247	0.0959	0.0444	< 0.15	16.6	0.296	8	17.2	1174	0.62	39
	10/15/2013	248	0.17	0.044	< 0.15	23	1130	8	14	1208	0.69	49
	04/29/2014	294	0.085	0.0044	< 0.15	25.7	0.665	10.2	9.2	1202	1.4	-120
	10/13/2014	--	--	--	--	--	--	10.1	13.6	1006	0.46	-184
	04/21/2015	239	0.113	< 0.0014	< 0.15	42.9	1.36	11.3	9.1	1424	1.25	-151
	10/20/2015	316	0.134	0.0011	< 0.15	45.3	1.52	12.6	12.5	1341	1.77	-158
	04/21/2016	385	0.0763	0.00017	1	59.9	0.876	11.9	12.2	2500	0.27	--
	10/04/2016	425	0.187	0.00024	< 0.15	42.7	0.899	12.6	15.1	3190	0.16	-321
10/04/2016	417	0.198	0.0002	< 0.15	42.8	1.62	12.6	15.1	3190	0.16	-321	
04/20/2017	497	0.086	0.00027	< 0.75	52.5	--	13.8	9.4	3520	0.32	-245	
10/24/2017	277	< 0.11	< 0.0027	< 0.38	88.2	2.01	11.91	12.8	1979	0.13	-241	
MW-26	04/22/2015	252	0.0665	0.379	< 0.15	41.4	2.92	7.5	8.1	1263	0.42	-50
	07/14/2015	284	0.378	0.317	< 0.15	21.4	2	7.7	15.8	1046	0.77	-127
	10/19/2015	284	0.723	0.265	< 0.15	6.7	3.29	7.7	18.0	733	0.33	-205
	01/07/2016	319	1.14	0.293	< 0.15	15.4	7.95	8.9	12.2	1034	1.22	-154
	04/22/2016	390	1.3	0.269	< 0.15	72.8	1.44	7.0	9.5	2200	0.36	--
	07/14/2016	341	0.942	0.165	< 0.15	28.9	3.58	7.4	15.9	1397	0.31	--
	10/05/2016	311	1.09	0.201	< 0.15	13.7	3.09	7.6	18.6	1139	0.20	-195
	01/18/2017	345	1.6	0.242	< 0.075	29.8	4.46	7.66	12.0	1519	0.09	-89
	04/20/2017	387	2.6	0.282	< 0.075	43.7	5.98	7.5	10.0	2010	0.21	-155
	07/12/2017	370	1.6	0.183	< 0.075	34.2	3.43	7.5	18.7	1550	0.41	--
10/23/2017	278	1.65	0.233	< 0.075	5.7	2.89	7.49	17.0	903	0.21	-110	
PZ-26	04/30/2014	278	0.018	0.188	< 0.15	6.5	14.9	7.1	9.5	764	1.16	50
MW-27	04/22/2015	222	0.511	0.105	< 0.15	7	2.03	7.6	7.4	800	0.51	-107
	07/14/2015	253	0.829	0.124	< 0.15	2.6	3.13	7.6	17.5	821	0.60	-153
	07/14/2015	253	0.803	0.122	< 0.15	2.6	3.84	7.6	17.5	821	0.60	-153
	10/20/2015	253	0.978	0.131	< 0.15	< 2.0	--	7.6	17.0	617	0.44	-185
	01/07/2016	248	0.837	0.12	< 0.15	4.3	4.28	8.5	10.0	798	1.32	-134
	04/22/2016	227	0.704	0.116	< 0.15	9.2	1.64	7.2	8.2	782	0.58	--
	07/14/2016	252	0.675	0.108	< 0.15	< 2	2.09	7.3	17.2	767	0.40	--
	07/14/2016	251	0.657	0.108	< 0.15	< 2	3.18	7.3	17.2	767	0.40	--
	10/05/2016	239	0.75	0.114	< 0.15	< 2	2.75	7.2	18.2	780	0.27	-211
	01/18/2017	236	0.73	0.115	< 0.075	< 1.0	1.65	7.71	7.8	811	0.93	-74
04/20/2017	225	1.0	0.0974	< 0.075	6.2	2.12	7.6	8.6	679	0.47	-158	
07/12/2017	236	0.66	0.106	< 0.075	1.5	2.01	7.4	17.3	676	0.42	--	
10/23/2017	238	0.857	0.123	< 0.075	< 1.0	2.58	7.36	16.5	680	0.14	-133	



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Sample Location	Sample Date	Laboratory Parameters (mg/L)						Field Parameters				
		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	NS
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	NS
PZ-27	04/22/2015	229	0.152	0.16	< 0.15	3.1	2.82	7.4	8.4	743	0.50	-58
	07/14/2015	233	0.681	0.165	< 0.15	2.4	3.38	7.5	16.2	738	0.50	-141
	10/20/2015	252	1.08	0.144	< 0.15	< 2.0	--	7.6	16.0	570	0.36	-168
	10/20/2015	253	1.01	0.139	< 0.15	< 2.0	--	7.6	16.0	570	0.36	-168
	01/07/2016	241	0.935	0.123	< 0.15	3.9	3.94	8.7	10.2	656	2.35	-143
	04/22/2016	220	0.831	0.118	< 0.15	8.8	3.2	7.2	8.9	641	0.31	--
	07/14/2016	239	0.785	0.0982	< 0.15	2.4	2.98	7.2	15.5	627	0.44	--
	10/05/2016	233	0.887	0.106	< 0.15	< 2	3.53	7.3	17.0	653	0.28	-203
	01/18/2017	188	1.5	0.296	< 0.075	35.9	2.48	7.51	8.1	10037	0.11	-70
	04/20/2017	224	0.84	0.109	< 0.075	2.9	2.15	7.6	8.6	614	0.31	-149
Dup (QC-1)	07/12/2017	236	0.82	0.105	< 0.075	< 1.0	3.73	7.4	16.3	541	0.49	--
	07/12/2017	235	0.83	0.106	< 0.075	< 1.0	3.12	7.4	16.3	541	0.49	--
	10/23/2017	233	1.19	0.121	< 0.075	< 1.0	3.1	7.37	15.7	564	0.16	-129
MW-28	04/22/2015	188	0.0646	0.149	< 0.15	12	2.47	8.3	6.4	2430	0.82	-99
	07/14/2015	210	0.224	0.15	< 0.15	5.3	1.09	8.2	16.7	1640	0.54	-190
	10/20/2015	233	0.322	0.125	< 0.15	3.7	3.31	8.3	17.9	1193	0.45	-206
	01/07/2016	212	0.335	0.124	< 0.15	5.4	3.66	9.0	12.1	1213	2.41	-182
	01/07/2016	217	0.336	0.123	< 0.15	5.1	4.48	9.0	12.1	1213	2.41	-182
	04/22/2016	174	0.197	0.214	< 0.15	19.8	1.92	7.5	8.9	3240	0.34	--
	07/14/2016	210	0.566	0.19	< 0.15	4.8	1.57	7.8	16.1	1900	0.34	--
	10/04/2016	219	0.556	0.174	< 0.15	3.9	2.65	7.9	18.9	1840	0.18	-200
	01/18/2017	208	0.68	0.208	< 0.075	3	2.07	7.73	10.4	1729	0.08	-98
	01/18/2017	207	0.66	0.202	< 0.075	2.7	4.37	7.73	10.4	1729	0.08	-98
Dup (QC-1)	04/20/2017	198	1.4	0.465	< 0.075	12.8	2.4	8.0	9.1	3980	0.22	-182
	07/12/2017	218	1.0	0.312	< 0.075	6.2	1.92	7.8	18.1	784	0.38	--
	10/23/2017	209	0.851	0.254	< 0.075	4.9	3.58	7.84	17.6	2837	0.15	-136
	10/23/2017	237	0.815	0.246	< 0.075	4.6	3.21	7.84	17.6	2837	0.15	-136
PZ-28	04/22/2015	302	0.224	0.059	< 0.15	4.8	5.48	7.8	7.9	900	0.42	-116
	07/14/2015	--	--	--	--	--	--	--	--	--	--	--
	10/19/2015	--	--	--	--	--	--	--	--	--	--	--
	01/07/2016	--	--	--	--	--	--	--	--	--	--	--
	04/21/2016	--	--	--	--	--	--	--	--	--	--	--
	07/14/2016	--	--	--	--	--	--	--	--	--	--	--
	10/05/2016	--	--	--	--	--	--	--	--	--	--	--
QCFB	02/20/2002	--	--	< 0.00042	0.44	--	--	--	--	--	--	--
	05/13/2002	--	--	< 0.00035	0.1	--	--	--	--	--	--	--
	08/20/2002	--	--	< 0.00035	0.31	--	--	--	--	--	--	--
	11/14/2002	--	--	< 0.00035	0.27	--	--	--	--	--	--	--
	02/20/2003	--	--	< 0.00045	< 0.135	--	--	--	--	--	--	--
	10/19/2004	< 8.3	< 0.018	0.0013	< 0.031	< 0.36	< 0.01	--	--	--	--	--
	12/01/2004	--	--	--	--	--	--	8.7	3.4	1	9.1	26
	12/02/2004	< 8.3	< 0.018	0.0012	< 0.031	< 0.36	< 0.010	--	--	--	--	--
	01/13/2005	< 8.3	< 0.018	< 0.00028	< 0.087	< 0.4	< 0.010	9.3	4.8	3	9.62	82
	02/10/2005	< 8.3	< 0.018	< 0.00028	< 0.031	< 0.36	< 0.01	8.7	4	2	12.7	137
	03/10/2005	< 8.3	< 0.018	< 0.00028	< 0.031	< 0.36	< 0.010	8.4	24.7	3	8.74	62
	04/20/2005	< 6.3	< 0.018	< 0.00028	0.18	< 0.83	< 0.010	8.7	19.3	2	8.4	176
	07/07/2005	--	--	--	--	--	--	8.1	23.8	2	6.1	73
	10/19/2005	< 6.3	< 0.04	0.00097	< 0.078	< 0.83	< 0.01	11.2	16.6	1	6.33	40
	01/12/2006	--	--	--	--	--	--	9	6.8	1	8.17	70
	04/19/2006	< 9.7	< 0.05	< 0.00022	< 0.088	< 0.77	< 0.01	5.9	17.2	1	7.6	211
	07/20/2006	--	--	--	--	--	--	8.1	26.9	2	6.35	25
	10/24/2006	< 9.7	< 50	< 0.22	< 0.20	< 0.77	< 10	9.1	11.4	1	6.23	132
	04/26/2007	--	--	--	--	--	--	9.3	12.8	1	7.14	125
	10/09/2007	< 0	< 0.026	--	< 0.085	< 0.51	< 10	9.7	28.6	2	5.36	124
	04/09/2008	< 0	0.009	0.00055	< 0.085	< 0.51	< 2	8.1	11.4	3	8.23	107
	10/21/2008	< 10	0.0076	0.00035	< 0.085	< 0.51	< 0.002	8.7	16.5	1	8.7	42
	04/21/2009	< 10	< 0.005	< 0.00024	< 0.085	< 0.51	< 0.002	9.5	11.7	2	7.35	-52
	10/08/2009	< 10	< 0.0062	< 0.000074	< 0.20	2	--	7.5	15.3	1	7.81	159



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		Alkalinity	Iron, dissolved	Manganese, dissolved	Nitrite + Nitrate, total	Sulfate	Methane	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Oxidation / Reduction Potential (mV)
Wisconsin Groundwater Quality Standards (Wisconsin Administrative Code NR 140, February 2017)												
Groundwater Monitoring Wells												
Preventive Action Limit:		NS	0.15	0.025	2	125	NS	NS	NS	NS	NS	
Enforcement Standard:		NS	0.3	0.05	10	250	NS	NS	NS	NS	NS	
<i>QCFB (continued)</i>	04/07/2010	< 10	0.0042	0.00012	< 0.20	< 2.0	--	7.6	13.7	1	8.6	141
	10/05/2010	< 10	< 0.0083	< 0.00014	< 0.20	< 2.0	< 0.00093	6.2	17	2	8.05	250
	01/18/2011	< 10	< 0.0083	< 0.00014	< 0.20	< 2.0	--	7.5	11.2	4	9.94	157
	04/12/2011	6360	< 0.0083	< 0.00014	< 0.20	< 2.0	< 0.00093	7.8	6.2	2	11.05	136
	07/13/2011	< 10	< 0.0033	< 0.000098	< 0.20	< 2.0	< 0.00093	8.6	25	2	7.58	-54
	10/03/2011	< 10	< 0.0033	< 0.000098	< 0.20	< 2.0	< 0.00064	7.8	29.1	2	6.1	149
	01/04/2012	< 10	< 0.0033	< 0.000098	< 0.20	< 2.0	< 0.00064	9.3	16.1	0.5	8.02	112
	04/24/2012	< 10	0.0197	< 0.00032	< 0.20	< 2.0	< 0.00064	7.4	17.9	4	6.8	105
	06/26/2012	< 10	< 0.0226	< 0.00014	< 0.20	< 2.0	< 0.00064	--	--	--	--	--
	09/13/2012	< 10	0.0142	0.00063	< 0.20	< 2.0	< 0.00064	5.5	21.5	7	8.01	202
	01/29/2013	< 8.6	< 0.0226	0.0002	< 0.20	< 2.0	< 0.00064	6.1	6.2	3	9	116
	04/24/2013	8.7	< 0.014	< 0.0006	< 0.15	< 2.0	< 0.00064	7.7	13.2	4	7.6	161
	07/16/2013	< 8.6	< 0.014	0.0016	< 0.15	< 2.0	< 0.00064	7.2	27.4	3	7.6	150
	10/15/2013	< 8.6	0.00078	< 0.00011	< 0.15	< 2.0	< 0.64	7.2	19.4	3	7.9	148
	04/30/2014	< 7.5	< 0.0129	< 0.0014	< 0.15	< 2.0	< 0.0014	7.3	13.4	4	5.68	74
	04/21/2015	< 7.5	< 0.0129	< 0.0014	< 0.15	< 2.0	< 0.0014	7.1	24.5	5	3.45	-150
	07/14/2015	< 7.5	< 0.010	< 0.00018	< 0.15	< 2.0	< 0.0014	8.6	18.0	5	9.80	--
	10/19/2015	< 7.5	< 0.0137	< 0.00024	< 0.15	< 2.0	< 0.0014	7.9	19.5	5	15.25	-95
	01/07/2016	< 7.5	< 0.0137	< 0.00024	< 0.15	< 2	< 0.0014	8.5	6.1	3	2.66	--
	04/21/2016	< 7	< 0.0066	< 0.00011	< 0.15	< 2	< 0.0014	7.7	18.7	16	6.74	--
07/14/2016	< 7	< 0.01	< 0.00018	< 0.15	< 2	< 0.0014	7.9	27.5	32	7.21	--	
10/04/2016	< 7	0.018	0.00019	< 0.15	< 2	< 0.0014	9.5	21.1	2	5.71	-117	
01/18/2017	9.1	0.061	0.00087	< 0.075	< 1.0	< 0.0014	--	--	--	--	--	
04/20/2017	7.4	0.027	0.00035	< 0.075	< 1.0	--	9.4	10.6	3	8.34	-144	
07/12/2017	< 7.0	< 0.11	< 0.0027	< 0.075	< 1.0	0.0023	--	--	--	--	--	
10/23/2017	--	--	--	--	--	--	--	--	--	--	--	
10/24/2017	--	--	--	--	--	--	--	--	--	--	--	

[PAR/ITB 11/05][PAR/ITB 9/06][RIG/ITB 10/07][RMW/BGH 6/08][RIG/RMW 1/09][BGH/RIG 3/09][RMN/BGH 5/10][AMM/KIB 2/11][KIB/RIG 5/11][BGH/BGH 8/11][CJM/AMM 01/12][AMM/JIW 5/12]
 [AMM/ANS 7/12][AMM/RIG 10/12][ETE/RIG 3/13][ETO/RIG 5/13][PMH/NDK 9/13][ETE/NDK 10/13][U-ECK 6/14][U-KLT 1/30/15, C-PMH 2/15] [U-AJS, C-PMH12/14/15][Format ECK 4/11/16]
 [U-ECK 2/2/17, C-SGW 2/2/17, C-KIS 2/7/17][U-KLT 11/29/17, C-TWL 11/29/17]

Notes:

Italic: Constituent concentrations that attain or exceed a preventive action limit (PAL) are italicized.

BOLD Constituent concentrations that attain or exceed an enforcement standard (ES) are bold.

< : Constituent was not identified above the limit of detection shown.

-- : Analysis was not performed.

Dup (QA/QC): Field Duplicate sample, field identification indicated in parentheses.

mg/L : Milligrams per liter.

*: Laboratory data for wells MW-8, MW-9, and MW-10 were originally presented in the March 25, 2002 URS SI report

nd : all components of total calculation were non-detects

NS : NR 140 groundwater quality standard has not been established.

*C : Degrees Celsius.

µmhos/cm : Micromhos per centimeter.

mV : Millivolts.

mg/L : Milligrams per liter.

Nitrite + Nitrate, Total was analyzed 2009 to 2016 as "Nitrate as N" (analytic method EPA 300.0)

See lab reports for data qualifiers

NR 140 groundwater quality standard revised effective February 2017. Data prior to this date are also compared to revised 2017 standards.



Table 8 - Groundwater Concentration Trends Summary - Benzene and Naphthalene
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site

Area	Well Location	Well	Benzene vs. Time				Naphthalene vs. Time				Benzene vs. Groundwater Elevation		Naphthalene vs. Groundwater Elevation	
			All Data R ² (coefficient of determination)	All Data General Trend ¹	Last 5 Years R ² (coefficient of determination)	Last Five Years General Trend ¹	All Data R ² (coefficient of determination)	All Data General Trend ¹	Last 5 Years R ² (coefficient of determination)	Last Five Years General Trend ¹	All Data R ²	Last 5 Years R ²	All Data R ²	Last 5 Years R ²
Area 1	Lower Till	MW-02R	0.0001	Flat	0.0919	Flat	0.1482	Flat	0.7701	Decreasing	0.2601	0.4521	0.02970	0.0561
		MW-12R	0.3110	Increasing	0.0241	Flat	0.2933	Increasing	0.0412	Flat	0.1356	0.309	0.1122	0.4319
		MW-13R	0.0649	Flat	0.4680	Decreasing	0.4662	Increasing	0.3993	Flat	0.0049	0.0002	0.0485	0.312
		MW-19	0.0655	Decreasing	0.1288	Decreasing	0.4894	Decreasing	0.3731	Decreasing	0.027	0.1793	0.104	0.2112
		MW-20	0.0133	Flat	0.5181	Decreasing	0.2772	Flat	0.3805	Flat	0.0317	0.0248	0.1508	0.1678
		MW-21	0.8145	Decreasing	0.1277	Flat	0.0448	Flat	0.0053	Flat	0.1991	0.4697	0.0167	0.0035
		MW-22	0.6458	Flat	0.2835	Flat	0.2009	Flat	0.0148	Flat	0.1162	0.0838	0.0515	0.065
		MW-24	0.3812	Decreasing*	0.3812	Decreasing*	ND	ND	ND	ND	0.4156	0.4156	NA	NA
	MW-25	0.4949	Increasing	All Data	All Data	0.7824	Increasing	All Data	All Data	0.00009	All Data	0.0019	All Data	
	Bedrock	PZ-20B	0.8086	Decreasing	0.0016	Flat	0.0171	Flat	0.2910	Increasing	0.6384	0.1632	0.011	0.1152
PZ-21B		0.7002	Decreasing	ND	ND	0.0049	Flat	0.0000	Flat	0.4417	NA	0.0054	0.0279	
PZ-22B		0.8355	Decreasing	0.2679	Increasing	0.0116	Flat	0.5972	Increasing	0.6373	0.001	0.0526	0.0014	
Area 2	Water Table	MW-26	0.1487	Decreasing	All Data	All Data	0.4773	Decreasing	All Data	0.0081	All Data	0.0094	All Data	
		MW-27	0.2868	Increasing	All Data	All Data	0.2714	Increasing	All Data	0.3248	All Data	0.0598	All Data	
	Upper Weathered Bedrock	PZ-23	0.0044	Flat	0.2837	Decreasing	0.1912	Flat	0.3937	Decreasing	0.0061	0.433	0.2713	0.3526
		PZ-27	0.0613	Flat	All Data	All Data	0.2188	Decreasing	All Data	0.0049	All Data	0.1517	All Data	

[O: KLT 1/11/18;C:KJK 1/11/18]

Notes:

ND : all data is non-detect

NA : not applicable, parameter vs. groundwater R² listed as NA if all data is ND

* : > 50% of the data used for trend analysis is non-detect

1. Trends were established as follows:

- a. Flat if $-0.0001 \leq \text{trendline slope} \leq 0.0001$
- b. Decreasing if trendline slope < -0.0001
- c. Increasing if trendline slope > 0.0001

Data from last five years includes any data collected from the beginning of 2013 through the end of 2017. If all data for a given well was only collected during the last five years only "All Data" is listed on the table.

Non-detect results were included in the regression plots using the full reporting limit (e.g., $<0.41 = 0.41$).

Wells where NAPL is present are not included in the trends summary.

Wells with non-detects of all benzene and naphthalene data are not included in the trends summary.



Table 9 - NAPL Observations

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Location	Date	NAPL Thickness ¹ (ft)	NAPL Recovered After Measurement (gal.)	Method of NAPL Observation				
				Visual inspection of purge water and groundwater sample	Visual inspection of tubing used for sample collection	Oil / Water Interface Probe (surface reading)	Oil / Water Interface Probe (bottom reading)	Bailer sent to bottom of well
MW-02R	04/23/2012	0.00	--	--	--	--	--	--
	04/23/2013	0.00	--	--	--	--	--	--
	04/29/2014	0.00	--	--	--	--	--	--
	04/21/2015	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
MW-12R	10/14/2011	--	--	--	--	ND,N	ND,N	--
	04/23/2012	0.00	--	--	--	--	--	--
	04/24/2013	0.00	--	--	--	--	--	--
	04/29/2014	0.00	--	--	--	--	--	--
	04/21/2015	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
PZ-12B	10/14/2011	--	--	--	--	ND,N	ND,N	--
	04/21/2016	0.00	--	--	--	--	--	--
MW-13R	04/23/2012	0.00	--	--	--	--	--	--
	04/23/2013	0.00	--	--	--	--	--	--
	04/29/2014	0.00	--	--	--	--	--	--
	04/21/2015	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
MW-19	04/23/2012	0.00	--	--	--	--	--	--
	04/23/2013	0.00	--	--	--	--	--	--
	04/29/2014	0.00	--	--	--	--	--	--
	04/21/2015	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
MW-20	10/14/2011	--	--	--	--	ND,N	ND,N	--
	04/23/2012	0.20	--	--	--	--	--	--
	06/26/2012	0.20	--	--	--	--	--	--
	09/12/2012	0.10	--	--	--	--	--	--
	01/28/2013	0.20	--	--	--	--	--	--
	04/23/2013	0.10	--	--	--	--	--	--
	07/16/2013	0.10	--	--	--	--	--	--
	10/15/2013	0.05	--	--	--	--	--	--
	04/29/2014	0.10	--	--	--	--	--	--
	04/29/2014	0.00	--	--	--	--	--	--
	04/21/2015	0.00	--	--	--	--	--	--
	10/19/2015	0.15	--	--	--	--	--	--
	04/21/2016	0.20	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	04/19/2017	0.25	--	--	oil/tar present	--	--	--
	10/23/2017	0.01	--	--	--	--	--	--
PZ-20B	04/21/2016	0.00	--	--	--	--	--	--



Table 9 - NAPL Observations

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Location	Date	NAPL Thickness ¹ (ft)	NAPL Recovered After Measurement (gal.)	Method of NAPL Observation				
				Visual inspection of purge water and groundwater sample	Visual inspection of tubing used for sample collection	Oil / Water Interface Probe (surface reading)	Oil / Water Interface Probe (bottom reading)	Bailer sent to bottom of well
MW-21	10/14/2011	--	--	--	--	ND,N	less than 1-foot	--
	10/20/2011	--	--	--	--	oil present, no meas.	--	--
	04/23/2012	0.25	--	--	--	--	--	--
	06/26/2012	0.25	--	--	--	--	--	--
	09/12/2012	0.35	--	--	--	--	--	--
	01/28/2013	0.20	--	--	--	--	--	--
	04/23/2013	0.25	--	--	--	--	--	--
	07/06/2013	0.20	--	--	--	--	--	--
	07/16/2013	0.20	--	--	--	--	--	--
	10/15/2013	0.25	--	--	--	--	--	--
	04/29/2014	0.38	--	--	--	--	--	--
	10/13/2014	0.35	--	--	--	--	--	--
	04/21/2015	0.25	--	--	--	--	--	--
	10/19/2015	0.25	--	--	--	--	--	--
	04/21/2016	0.25	--	--	--	--	--	--
	10/04/2016	0.25	--	--	--	--	--	--
	04/19/2017	0.25	--	--	--	oil/tar present	--	--
10/23/2017	0.00	--	--	--	--	--	--	
PZ-21B	10/14/2011	--	--	--	--	ND,N	ND,N	--
	04/21/2016	0.00	--	--	--	--	--	--
MW-22	10/14/2011	--	--	--	--	ND,N	ND,N	--
	04/23/2012	0.00	--	--	--	--	--	--
	04/23/2013	0.00	--	--	--	--	--	--
	04/29/2014	0.00	--	--	--	--	--	--
	04/21/2015	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
04/19/2017	0.00	--	--	--	--	--	--	
PZ-22B	10/14/2011	--	--	--	--	ND,N	ND,N	--
	04/21/2016	0.00	--	--	--	--	--	--
MW-23	04/23/2012	0.00	--	--	--	--	--	--
	01/07/2016	0.00	--	--	--	--	--	--
PZ-23	10/08/2009	--	--	N	N	--	--	--
	11/12/2009	--	--	N	N	--	--	--
	02/02/2010	--	--	--	--	ND, N	ND, N	N
	04/07/2010	--	--	N	N	ND, N	ND, N	--
	10/05/2010	--	--	N	N	ND, N	ND, N	--
	01/18/2011	--	--	N	N	--	--	--
	04/11/2011	--	--	N	N	ND, N	ND, N	--
	07/13/2011	--	--	N	N	ND, N	ND, N	--
	10/04/2011	--	--	N	N	ND, N	ND, N	--
	10/14/2011	--	--	--	--	ND, N	ND, N	--
	01/04/2012	--	--	--	--	ND, N	ND, N	--
	04/23/2012	0.00	--	--	--	--	--	--
	06/26/2012	0.00	--	--	--	--	--	--
	09/12/2012	0.00	--	--	--	--	--	--
	04/24/2013	0.00	--	--	--	--	--	--
04/29/2014	0.00	--	--	--	--	--	--	



Table 9 - NAPL Observations

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Location	Date	NAPL Thickness ¹ (ft)	NAPL Recovered After Measurement (gal.)	Method of NAPL Observation				
				Visual inspection of purge water and groundwater sample	Visual inspection of tubing used for sample collection	Oil / Water Interface Probe (surface reading)	Oil / Water Interface Probe (bottom reading)	Bailer sent to bottom of well
PZ-23 cont.	04/21/2015	0.00	--	--	--	--	--	--
	01/07/2016	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	07/14/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
MW-24	01/29/2013	0.00	--	--	--	--	--	--
	04/24/2013	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/05/2016	0.00	--	--	--	--	--	--
MW-25	01/28/2013	0.00	--	--	--	--	--	--
	04/24/2013	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
MW-26	04/21/2015	0.00	--	--	--	--	--	--
	07/14/2015	0.00	--	--	--	--	--	--
	10/19/2015	0.00	--	--	--	--	--	--
	01/07/2016	0.00	--	--	--	--	--	--
	04/22/2016	0.00	--	--	--	--	--	--
	07/14/2016	0.00	--	--	--	--	--	--
	10/05/2016	0.00	--	--	--	--	--	--
	01/18/2017	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
	10/23/2017	0.00	--	--	--	--	--	--
PZ-26	04/29/2014	0.30	--	--	--	--	--	--
	07/21/2014	NM	--	--	--	--	--	--
	10/13/2014	4.8	--	--	--	--	--	--
	01/28/2015	10.55	--	--	--	--	--	--
	04/21/2015	4.5	1.0	--	--	--	--	--
	07/14/2015	6.5	1.0	--	--	--	--	--
	10/19/2015	3.6	0.8	--	--	--	--	--
	01/07/2016	4.5	0.5	--	--	--	--	--
	04/21/2016	4.5	0.75	--	--	--	--	--
	07/14/2016	4.5	0.75	--	--	--	--	--
	10/05/2016	4.5	0.75	--	--	--	--	--
	01/18/2017	2	1	--	--	--	--	--
	04/19/2017	4.5	-- ²	--	--	--	--	--
	07/12/2017	14**	0.13	--	--	--	--	--
08/04/2017	5.3	0.5	--	--	--	--	--	
10/23/2017	4.5	-- ²	--	--	--	--	--	
MW-27	04/21/2015	0.00	--	--	--	--	--	--
	07/14/2015	0.00	--	--	--	--	--	--
	10/19/2015	0.00	--	--	--	--	--	--
	01/07/2016	0.00	--	--	--	--	--	--
	04/21/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--



Table 9 - NAPL Observations

2017 Annual Update

We Energies Appleton Former Manufactured Gas Plant Site

Location	Date	NAPL Thickness ¹ (ft)	NAPL Recovered After Measurement (gal.)	Method of NAPL Observation				
				Visual inspection of purge water and groundwater sample	Visual inspection of tubing used for sample collection	Oil / Water Interface Probe (surface reading)	Oil / Water Interface Probe (bottom reading)	Bailer sent to bottom of well
MW-27 cont.	01/18/2017	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
	07/12/2017	0.00	--	--	--	--	--	--
	10/23/2017	0.00	--	--	--	--	--	--
PZ-27	04/21/2015	0.00	--	--	--	--	--	--
	07/14/2015	0.00	--	--	--	--	--	--
	10/19/2015	0.00	--	--	--	--	--	--
	01/07/2016	0.00	--	--	--	--	--	--
	04/22/2016	0.00	--	--	--	--	--	--
	07/14/2016	0.00	--	--	--	--	--	--
	10/05/2016	0.00	--	--	--	--	--	--
	01/18/2017	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
	07/12/2017	0.00	--	--	--	--	--	--
10/23/2017	0.00	--	--	--	--	--	--	
MW-28	04/21/2015	0.00	--	--	--	--	--	--
	07/14/2015	0.00	--	--	--	--	--	--
	10/19/2015	0.00	--	--	--	--	--	--
	01/07/2016	0.00	--	--	--	--	--	--
	04/22/2016	0.00	--	--	--	--	--	--
	07/14/2016	0.00	--	--	--	--	--	--
	10/04/2016	0.00	--	--	--	--	--	--
	01/18/2017	0.00	--	--	--	--	--	--
	04/19/2017	0.00	--	--	--	--	--	--
	07/12/2017	0.00	--	--	--	--	--	--
10/23/2017	0.00	--	--	--	--	--	--	
PZ-28	04/21/2015	0.00	--	--	--	--	--	--
	07/14/2015	0.35	--	--	--	--	--	--
	10/19/2015	0.45	--	--	--	--	--	--
	01/07/2016	0.45	--	--	--	--	--	--
	04/21/2016	0.25	--	--	--	--	--	--
	07/14/2016	0.30	--	--	--	--	--	--
	10/04/2016	0.25	--	--	--	--	--	--
	01/18/2017	0.5	--	--	--	--	--	--
	04/19/2017	1	-- ²	--	--	--	--	--
	07/12/2017	1.75	0.40	--	--	--	--	--
	08/04/2017	0.6	--	--	--	--	--	--
10/23/2017	0.25	-- ²	--	--	--	--	--	

[BGH/RMN 5/10][AMM/KJB 02/11][NDK/BGH 08/11][CJM/AMM 01/12][AMM/JJW 5/12][AMM/ANS 7/12][AMM/NDK10/12][ETE/RIG 3/13] [ETO/RIG 5/13] [NDK/RIG 9/13][ETE/NDK 10/13][U-AJS 6/14]
[U-KLT 1/30/15, C-PMH 2/15][U-PMH 11/15, C-KLT 12/8/15 U:KJS 2/9/17; C: EMS 2/10/17][U: KLT 11/27/17, C: 11/27/17][U: KLT 2/20/17, C: KJK 2/20/18]

Notes:

- 1: Starting in April 2012, NAPL thickness was measured with weighted tape sent to bottom of well.
- 2: Pump broken
- ** : NAPL remeasured during well repair on August 4, 2017.
- N: No Visible Evidence in water or on equipment (e.g., tubing, probe, bailer).
- No reading
- ND: No detectible NAPL



**Table 10 - Groundwater Monitoring Plan (updated 4/25/18)
2017 Annual Update
We Energies Appleton Former Manufactured Gas Plant Site**

Proposed Monitoring Plan (starting April 2018)								
Monitoring Well Location	Analytical Parameters				RNA Parameters			
	BTEX (USEPA 8260B)	Benzene (USEPA 8260B)	Naphthalene (USEPA 8260B)	Arsenic (USEPA 6020)	Geochemical Parameters ¹ (Various)	Field Parameters ²	DNAPL Measurement	Water Levels
Site Monitoring Wells (Area 1 North of Fox River Canal)								
MW-2R	S		S	A	A	S	A	S
MW-8								S
MW-9								S
MW-10								S
MW-12R	S		S	A	A	S	A	S
MW-13R	S		S	A	A	S	A	S
MW-19	S		S	A	A	S	A	S
MW-19S								S
MW-20	S		S	A	A	S	S	S
MW-21	S		S	A	A	S	S	S
MW-22	S		S	A	A	S	A	S
MW-24	S		S	A	S	S		S
MW-25	S		S	A	S	S		S
Site Bedrock Piezometers (Area 1 North of Fox River Canal)								
PZ-12B		A	A			A		A
PZ-20B		A	A			A		A
PZ-21B		A	A			A		A
PZ-22B		A	A			A		A
Fox River Apartment Wells (Area 2 South of Fox River Canal)								
MW-23								Q
PZ-23	Q		Q	A	Q	Q	A	Q
PZ-26 ³	Q		Q	A	Q	Q	Q ³	Q
MW-26	Q		Q	A	Q	Q	Q	Q
MW-27	Q		Q	A	Q	Q	Q	Q
PZ-27	Q		Q	A	Q	Q	Q	Q
MW-28	Q		Q	A	Q	Q	Q	Q
PZ-28 ³	Q		Q	A	Q	Q	Q ³	Q
Staff Gauges								
SG-3								Q
SG-4								Q

(BGH 3/4/14)(PMH 3/20/14)(U-PMH 2/15)(U-BGH 3/17)(u-KLT 4/25/18)

Notes:

BTEX = Benzene, ethylbenzene, toluene, xylenes (total)

RNA = Remediation by Natural Attenuation

A = Annual Sampling Frequency (Apr)

S = Semi-Annual Sampling Frequency (Apr, Oct)

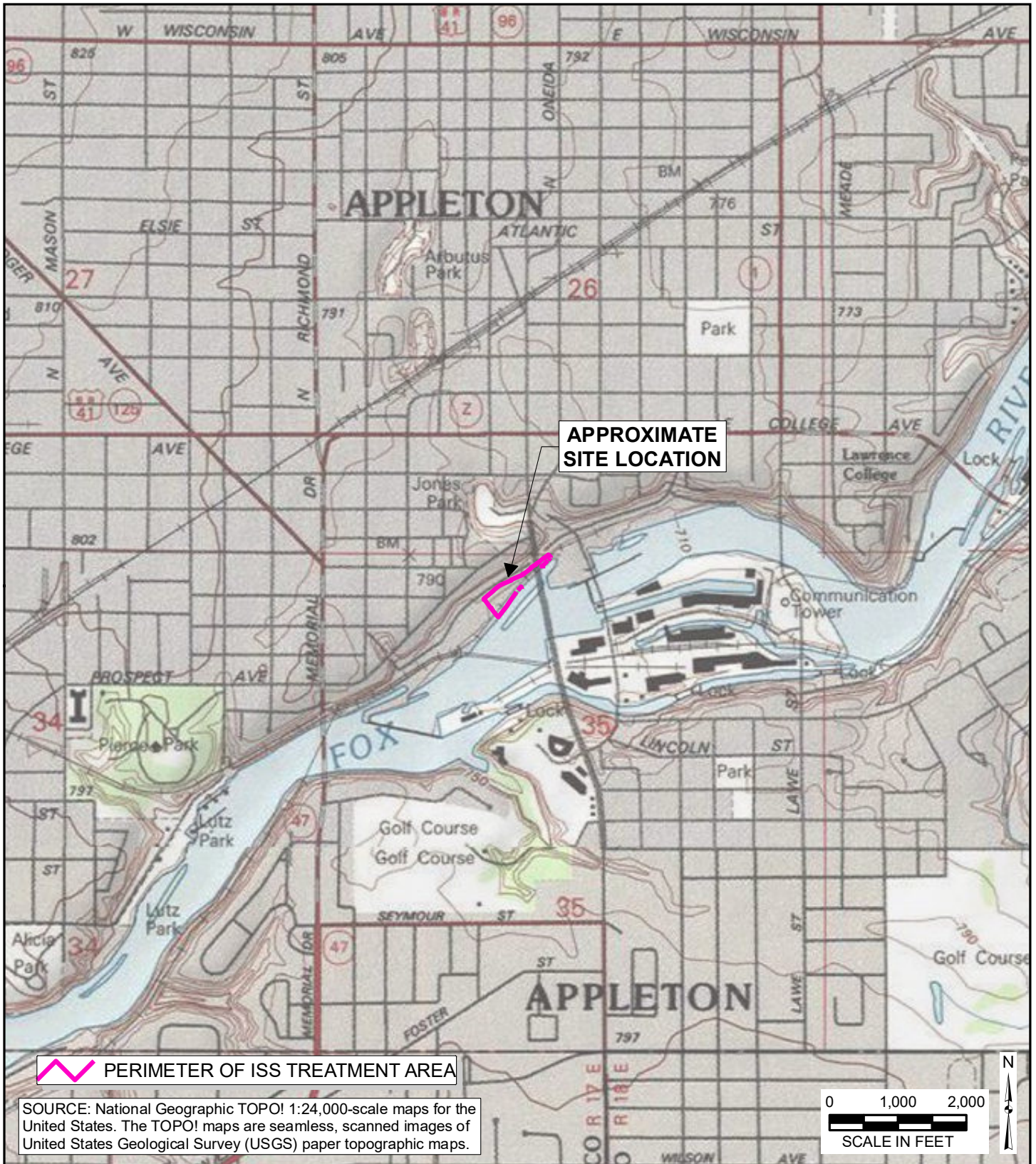
Q = Quarterly Sampling (Jan, Apr, Jul, Oct)

1. Geochemical parameters include: nitrate (N+N), methane, dissolved iron and manganese, sulfate, and alkalinity.
2. Field parameters include: pH, dissolved oxygen, temperature, specific conductance, and oxidation/reduction potential.
3. Water quality sampling will not be conducted at this location as long as NAPL remains present.





Figures



SITE LOCATION MAP

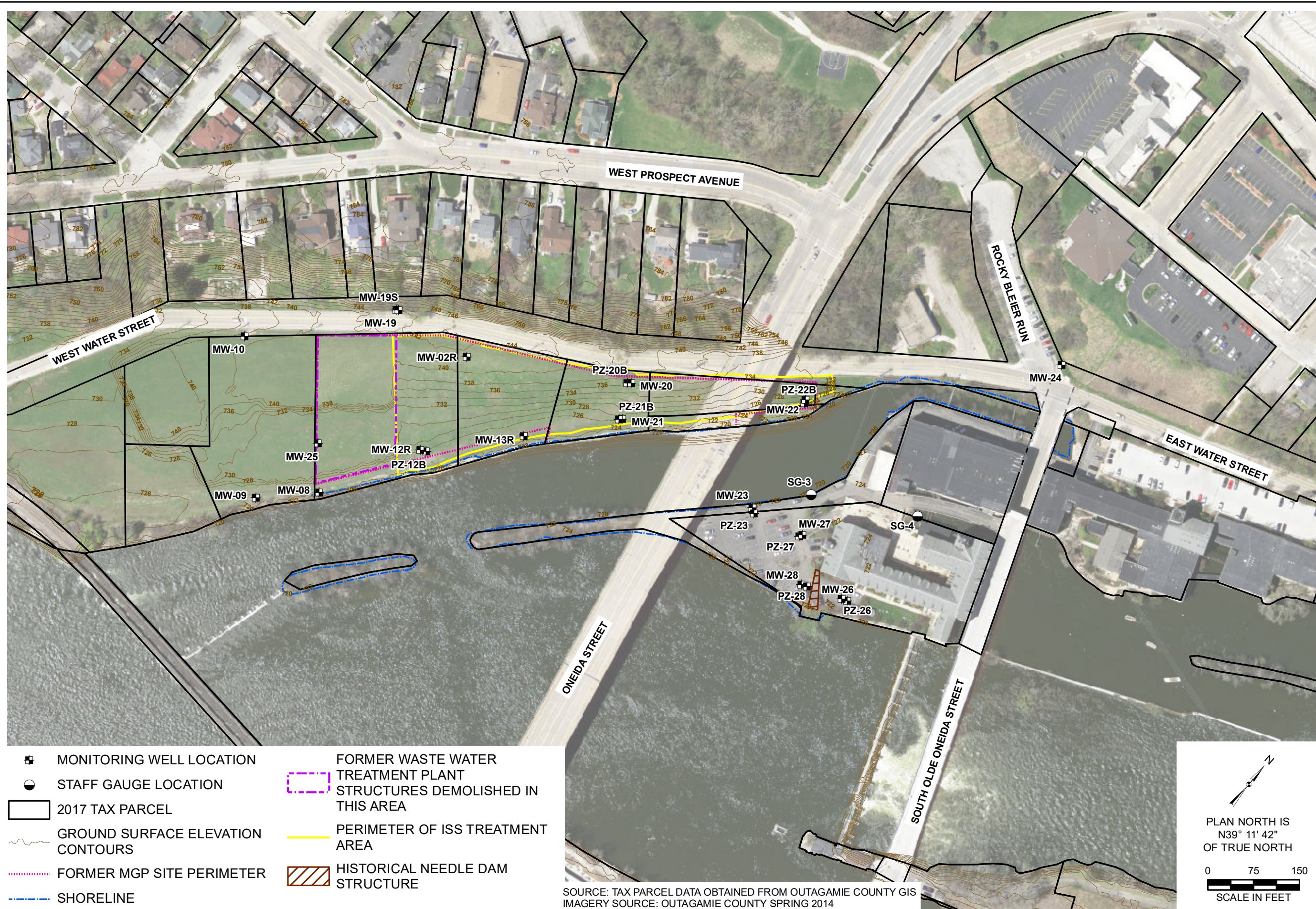
2017 ANNUAL REPORT
 FORMER APPLETON MANUFACTURED
 GAS PLANT (MGP) FACILITY
 WE ENERGIES
 APPLETON, WISCONSIN



PROJECT NO. 67973
 FIGURE NO. 1

DRAWN BY: SDS 1/26/18
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 APPROVED BY: BGH 5/29/18

Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 2_Site_Features.mxd Author: stolzsd Date/Time: 5/30/2018, 4:58:59 PM



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KLT 1/26/18
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BGH 5/29/18

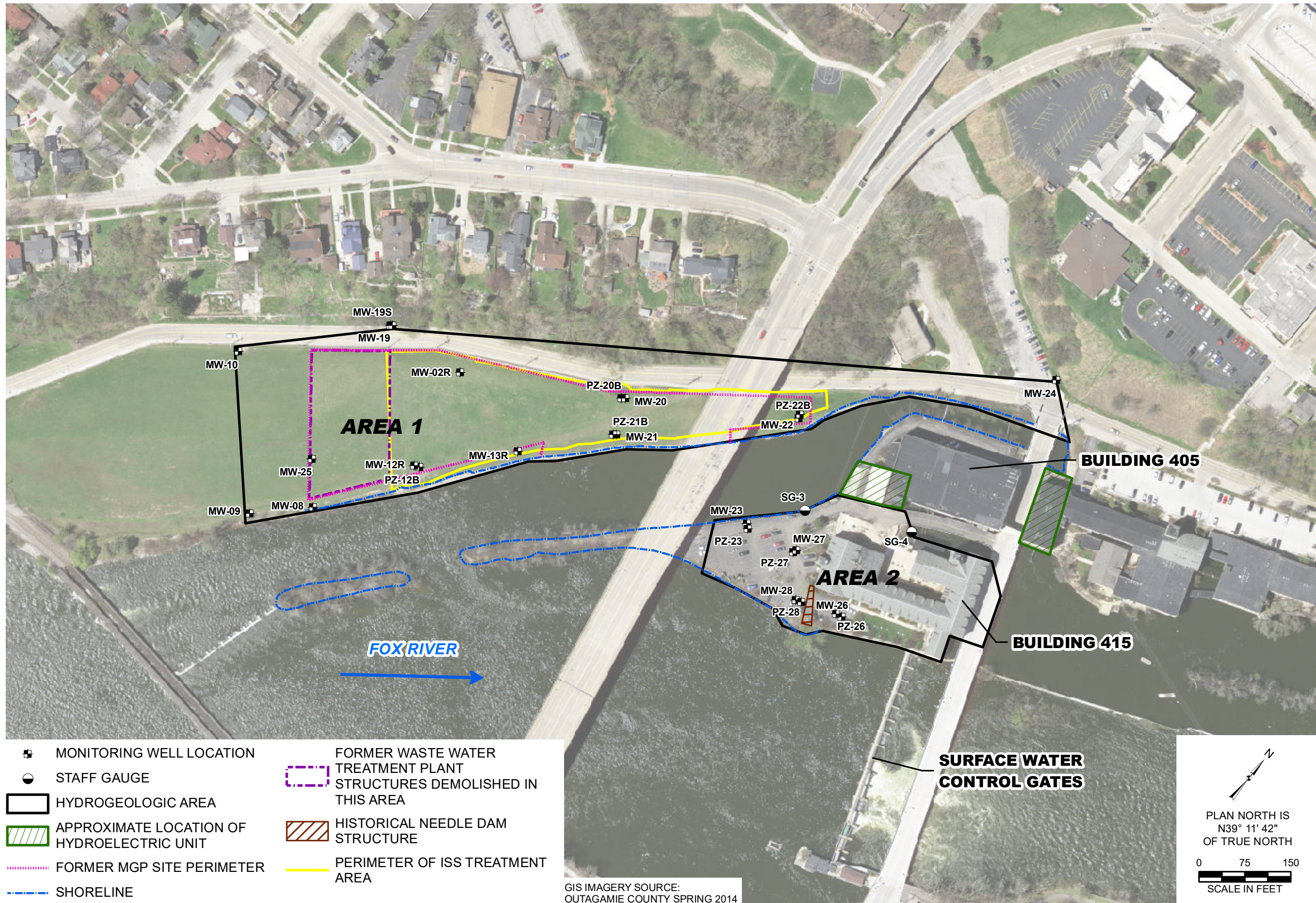
SITE FEATURES
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
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APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 2



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 3_Hydrogeologic Areas 1 and 2.mxd Author: stolzsd: Date/Time: 5/30/2018, 5:02:13 PM



- MONITORING WELL LOCATION
- STAFF GAUGE
- HYDROGEOLOGIC AREA
- APPROXIMATE LOCATION OF HYDROELECTRIC UNIT
- FORMER MGP SITE PERIMETER
- SHORELINE
- FORMER WASTE WATER TREATMENT PLANT STRUCTURES DEMOLISHED IN THIS AREA
- HISTORICAL NEEDLE DAM STRUCTURE
- PERIMETER OF ISS TREATMENT AREA

GIS IMAGERY SOURCE:
OUTAGAMIE COUNTY SPRING 2014

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BGH 5/29/18

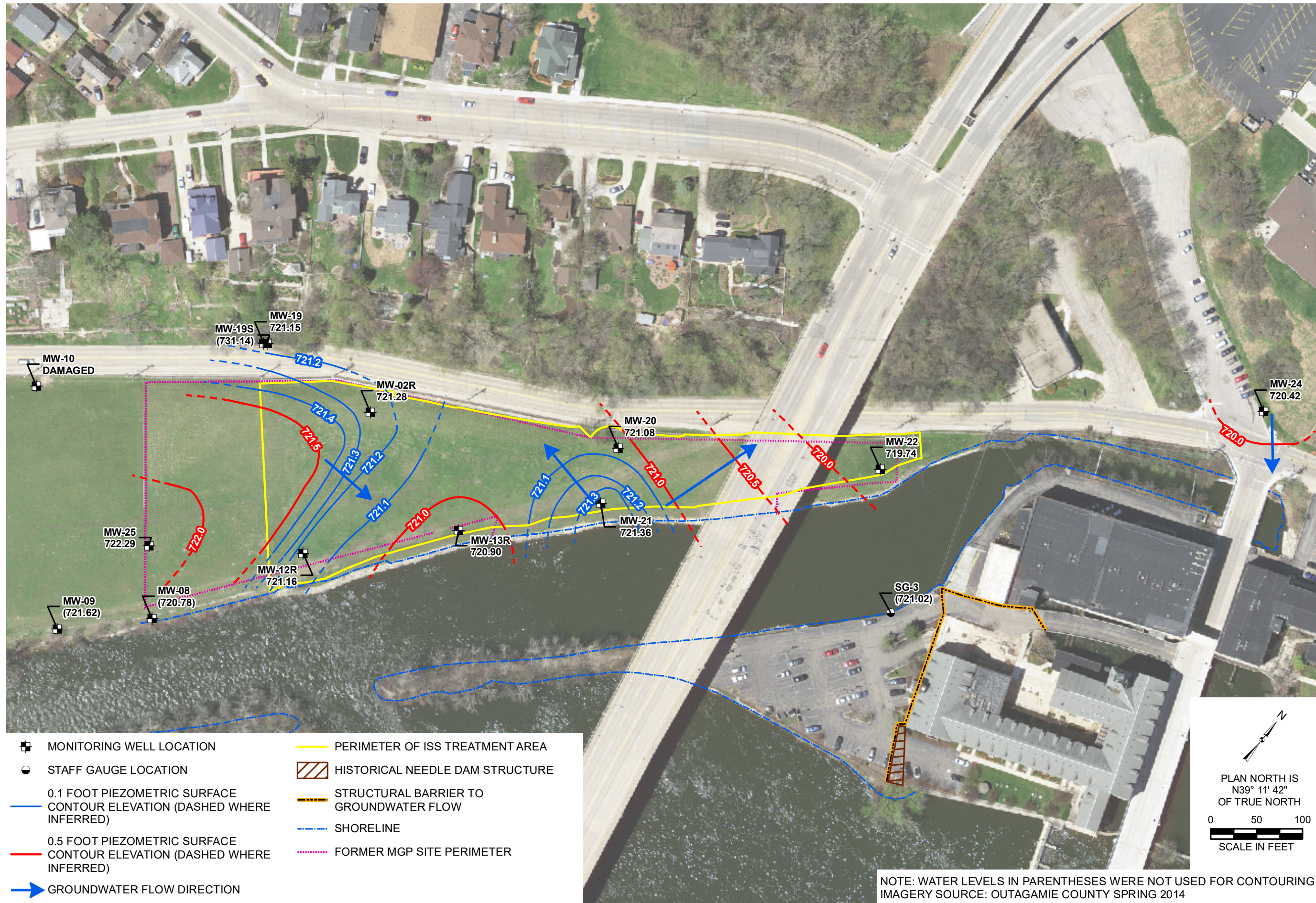
HYDROGEOLOGIC AREAS 1 AND 2
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 3



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 4a_Lower_Till_PSE_Apr17.mxd Author: stolzsd Date/Time: 5/30/2018, 5:04:56 PM



NOTE: WATER LEVELS IN PARENTHESES WERE NOT USED FOR CONTOURING
 IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

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 KLT 2/5/18
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**LOWER TILL PIEZOMETRIC SURFACE ELEVATIONS
 (AREA 1) APRIL 2017**

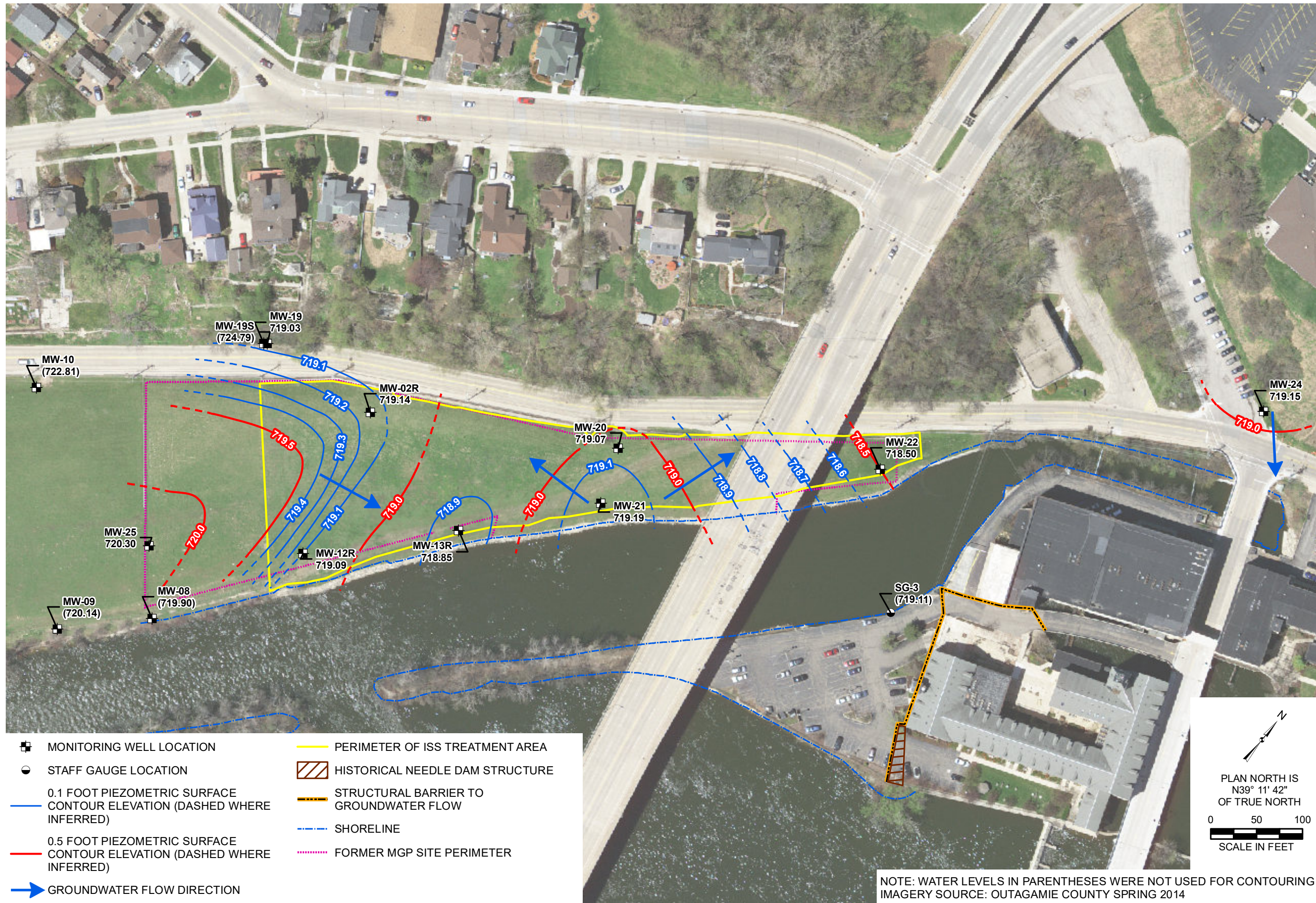
2017 ANNUAL REPORT
 FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
 WE ENERGIES
 APPLETON, WISCONSIN

PROJECT NO: 67973

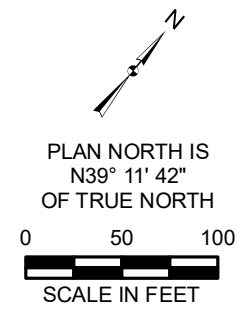
FIGURE NO: 4A



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 4b_Lower Till_PSE_Oct17.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:05:28 PM



- MONITORING WELL LOCATION
- STAFF GAUGE LOCATION
- 0.1 FOOT PIEZOMETRIC SURFACE CONTOUR ELEVATION (DASHED WHERE INFERRED)
- 0.5 FOOT PIEZOMETRIC SURFACE CONTOUR ELEVATION (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- PERIMETER OF ISS TREATMENT AREA
- HISTORICAL NEEDLE DAM STRUCTURE
- STRUCTURAL BARRIER TO GROUNDWATER FLOW
- SHORELINE
- FORMER MGP SITE PERIMETER



NOTE: WATER LEVELS IN PARENTHESES WERE NOT USED FOR CONTOURING
 IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**LOWER TILL PIEZOMETRIC SURFACE ELEVATIONS
 (AREA 1) OCTOBER 2017**

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 APPROVED BY/DATE:
 BGH 5/29/18

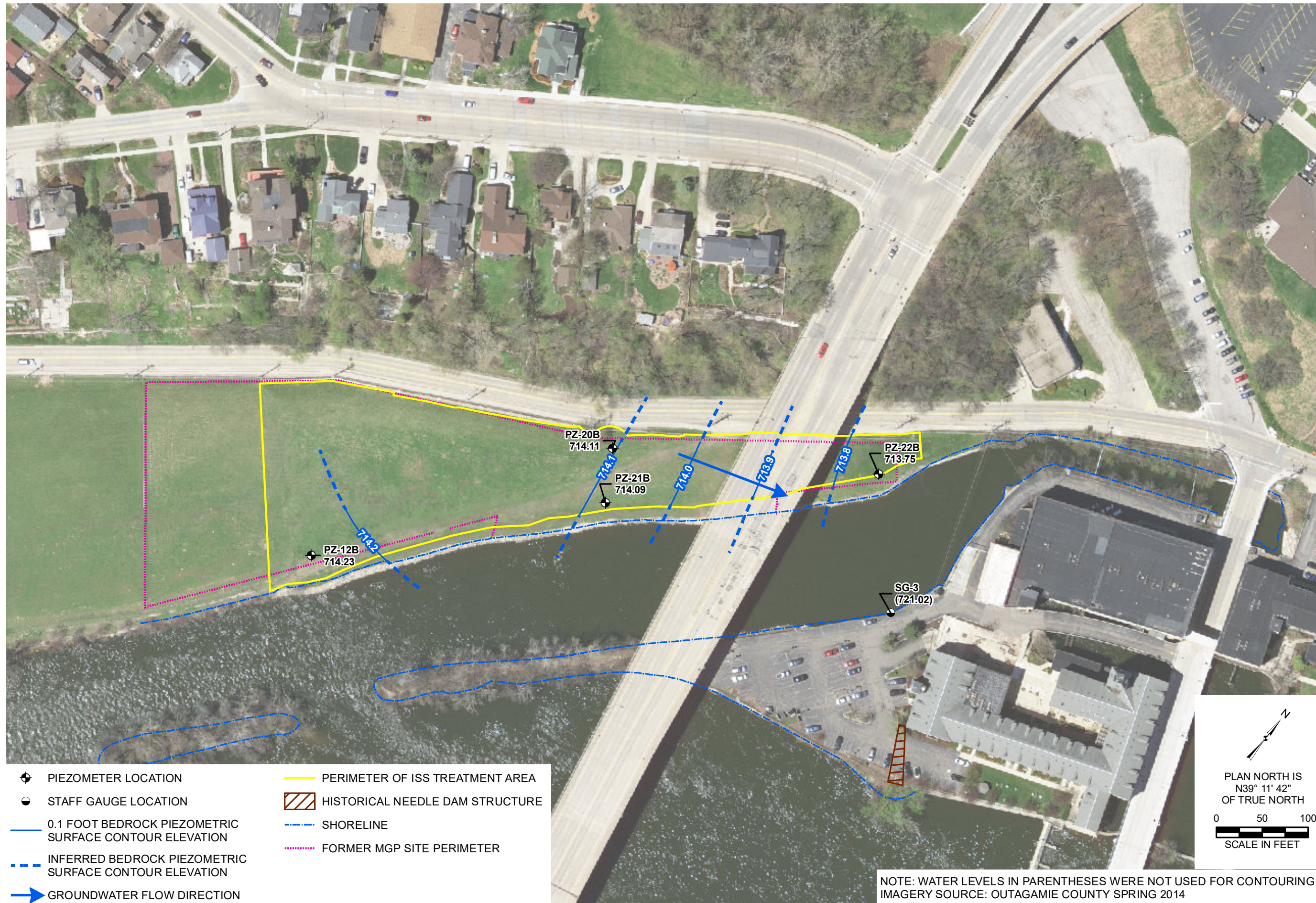
2017 ANNUAL REPORT
 FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
 WE ENERGIES
 APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 4B



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 5_Bedrock_PSE_Apr17.mxd Author: stolzsd Date/Time: 5/30/2018, 5:10:34 PM



- PIEZOMETER LOCATION
- STAFF GAUGE LOCATION
- 0.1 FOOT BEDROCK PIEZOMETRIC SURFACE CONTOUR ELEVATION
- INFERRED BEDROCK PIEZOMETRIC SURFACE CONTOUR ELEVATION
- GROUNDWATER FLOW DIRECTION
- PERIMETER OF ISS TREATMENT AREA
- HISTORICAL NEEDLE DAM STRUCTURE
- SHORELINE
- FORMER MGP SITE PERIMETER

PLAN NORTH IS
 N39° 11' 42"
 OF TRUE NORTH

 SCALE IN FEET

NOTE: WATER LEVELS IN PARENTHESES WERE NOT USED FOR CONTOURING
 IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**BEDROCK PIEZOMETRIC SURFACE ELEVATIONS
 (AREA 1) APRIL 2017**

2017 ANNUAL REPORT
 FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
 WE ENERGIES
 APPLETON, WISCONSIN

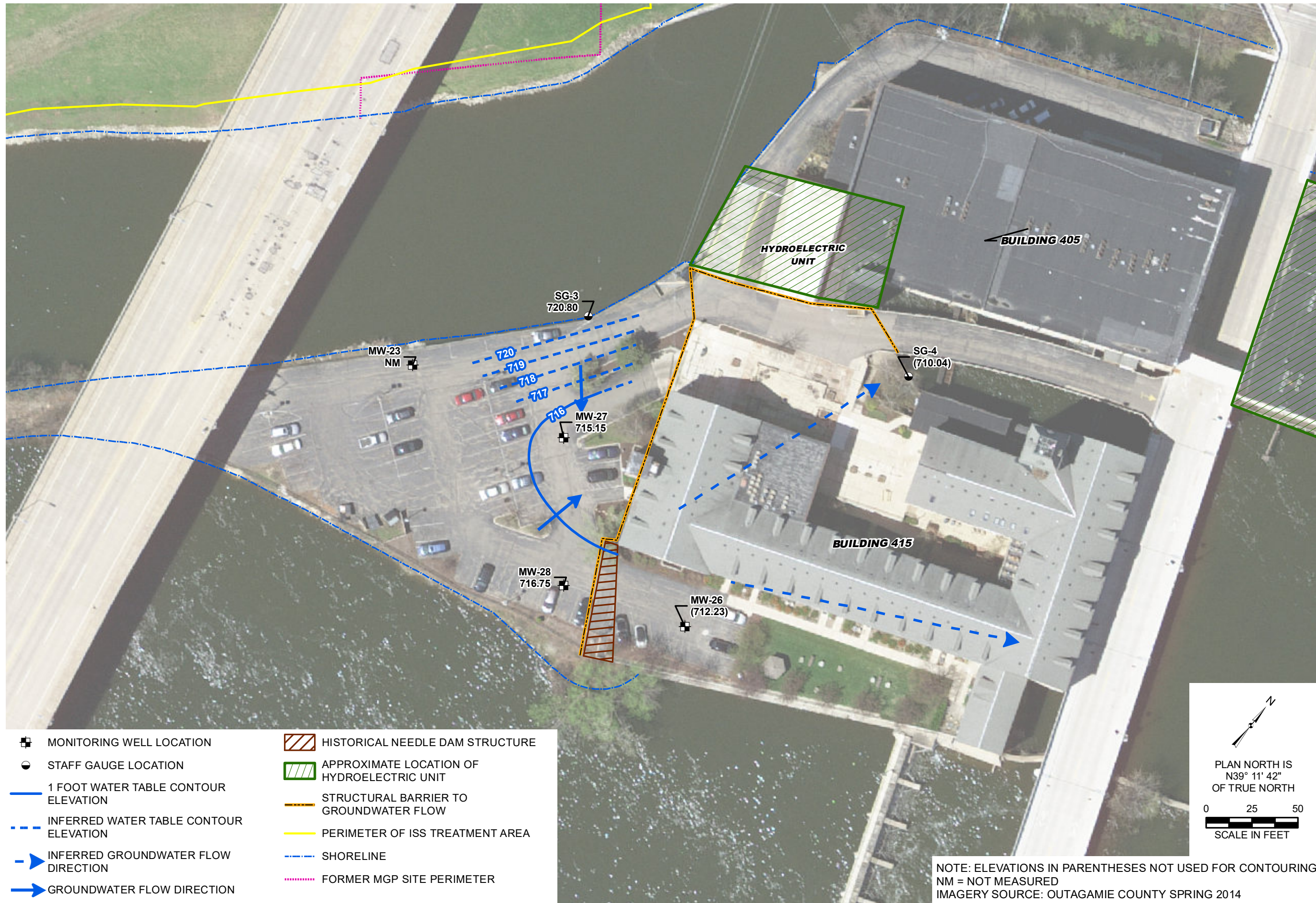
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 KLT 2/5/18
 APPROVED BY/DATE:
 BGH 5/29/18

PROJECT NO: 67973

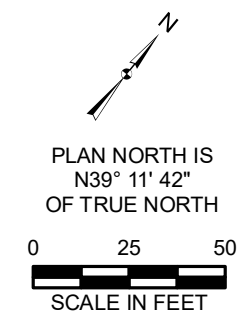
FIGURE NO: 5



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 6a_Water_Table_Jan17.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:10:58 PM



- | | |
|--|--|
| MONITORING WELL LOCATION | HISTORICAL NEEDLE DAM STRUCTURE |
| STAFF GAUGE LOCATION | APPROXIMATE LOCATION OF HYDROELECTRIC UNIT |
| 1 FOOT WATER TABLE CONTOUR ELEVATION | STRUCTURAL BARRIER TO GROUNDWATER FLOW |
| INFERRED WATER TABLE CONTOUR ELEVATION | PERIMETER OF ISS TREATMENT AREA |
| INFERRED GROUNDWATER FLOW DIRECTION | SHORELINE |
| GROUNDWATER FLOW DIRECTION | FORMER MGP SITE PERIMETER |



NOTE: ELEVATIONS IN PARENTHESES NOT USED FOR CONTOURING
 NM = NOT MEASURED
 IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**WATER TABLE ELEVATIONS
 (AREA 2) JANUARY 2017**

2017 ANNUAL REPORT
 FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
 WE ENERGIES
 APPLETON, WISCONSIN

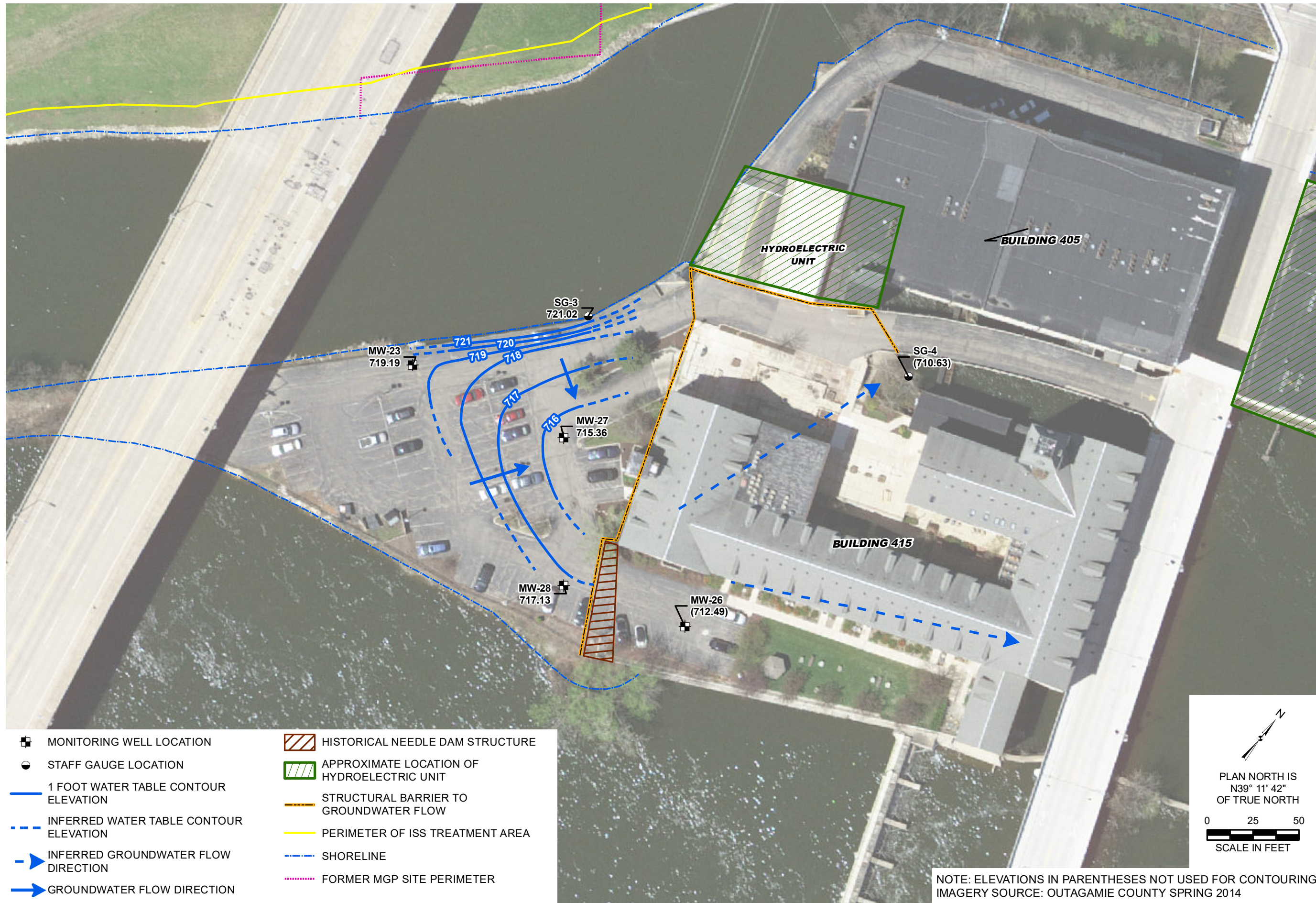
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 KLT 2/5/18
 APPROVED BY/DATE:
 BGH 5/29/18

PROJECT NO: 67973

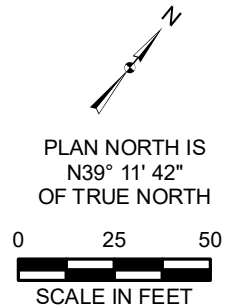
FIGURE NO: 6A



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 6b_Water_Table_Apr17.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:11:35 PM



- | | | | |
|--|--|--|--|
| | MONITORING WELL LOCATION | | HISTORICAL NEEDLE DAM STRUCTURE |
| | STAFF GAUGE LOCATION | | APPROXIMATE LOCATION OF HYDROELECTRIC UNIT |
| | 1 FOOT WATER TABLE CONTOUR ELEVATION | | STRUCTURAL BARRIER TO GROUNDWATER FLOW |
| | INFERRED WATER TABLE CONTOUR ELEVATION | | PERIMETER OF ISS TREATMENT AREA |
| | INFERRED GROUNDWATER FLOW DIRECTION | | SHORELINE |
| | GROUNDWATER FLOW DIRECTION | | FORMER MGP SITE PERIMETER |



NOTE: ELEVATIONS IN PARENTHESES NOT USED FOR CONTOURING
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**WATER TABLE ELEVATIONS
(AREA 2) APRIL 2017**

2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

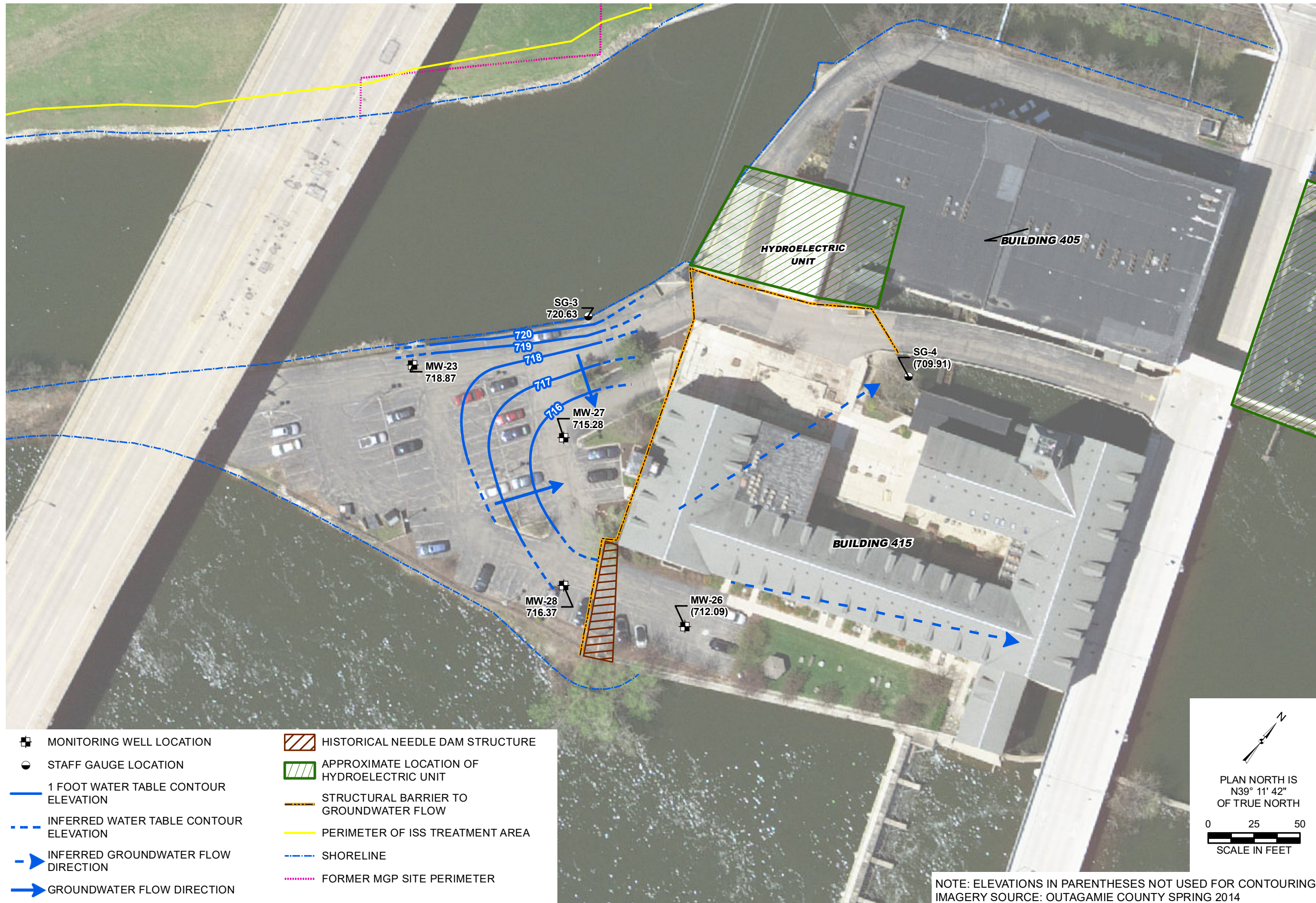
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REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

PROJECT NO: 67973

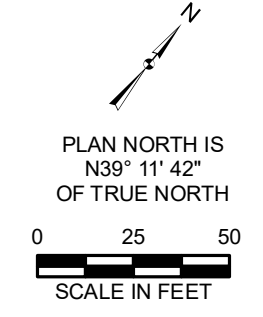
FIGURE NO: 6B



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 6c_Water_Table_July17.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:12:06 PM



- | | | | |
|--|--|--|--|
| | MONITORING WELL LOCATION | | HISTORICAL NEEDLE DAM STRUCTURE |
| | STAFF GAUGE LOCATION | | APPROXIMATE LOCATION OF HYDROELECTRIC UNIT |
| | 1 FOOT WATER TABLE CONTOUR ELEVATION | | STRUCTURAL BARRIER TO GROUNDWATER FLOW |
| | INFERRED WATER TABLE CONTOUR ELEVATION | | PERIMETER OF ISS TREATMENT AREA |
| | INFERRED GROUNDWATER FLOW DIRECTION | | SHORELINE |
| | GROUNDWATER FLOW DIRECTION | | FORMER MGP SITE PERIMETER |



NOTE: ELEVATIONS IN PARENTHESES NOT USED FOR CONTOURING
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**WATER TABLE ELEVATIONS
(AREA 2) JULY 2017**

2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

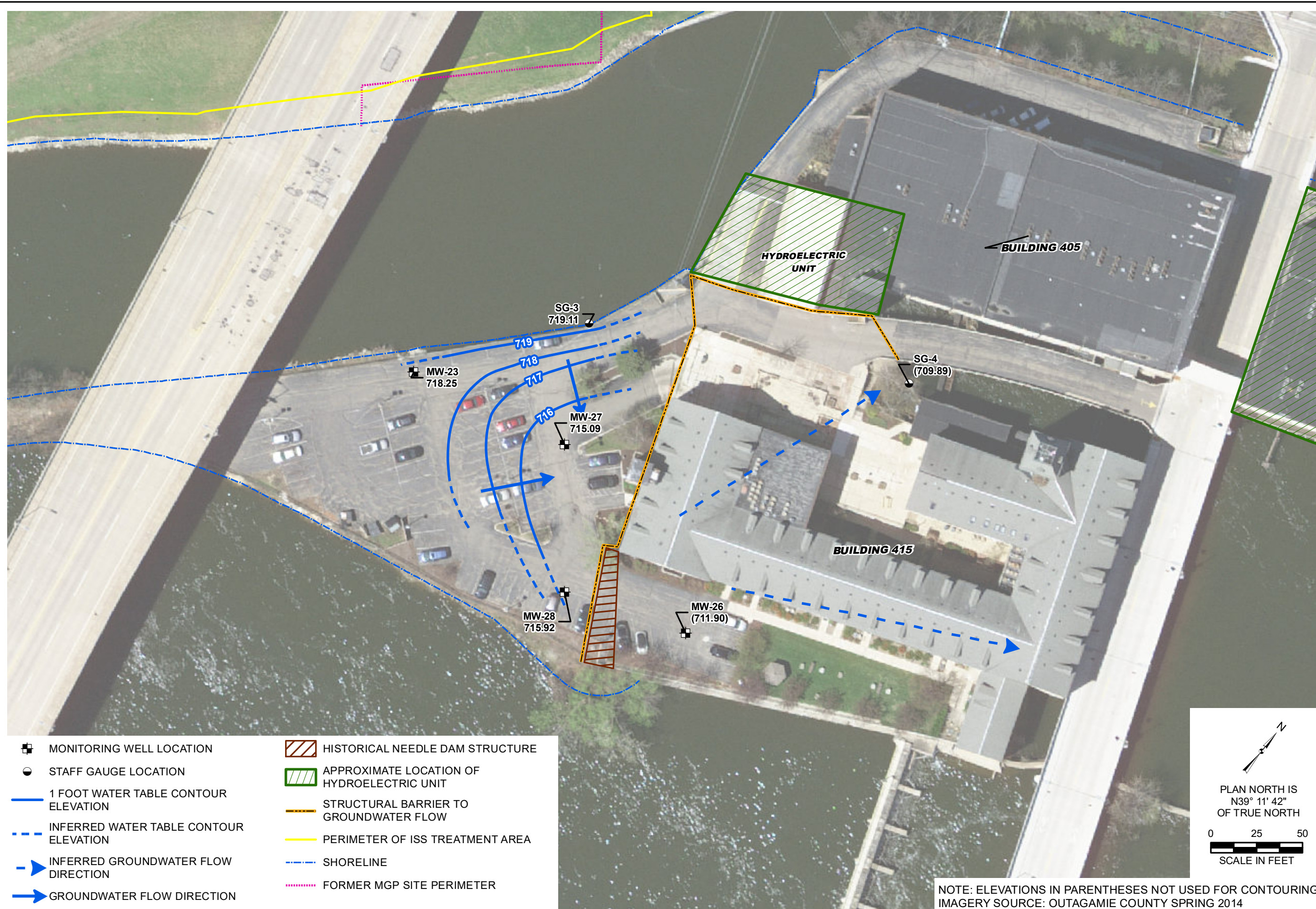
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REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

PROJECT NO: 67973

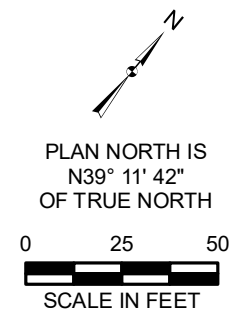
FIGURE NO: 6C



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 6d_Water_Table_Oct17.mxd Author: stb\zsd Date/Time: 5/30/2018, 5:12:35 PM



- | | | | |
|--|--|--|--|
| | MONITORING WELL LOCATION | | HISTORICAL NEEDLE DAM STRUCTURE |
| | STAFF GAUGE LOCATION | | APPROXIMATE LOCATION OF HYDROELECTRIC UNIT |
| | 1 FOOT WATER TABLE CONTOUR ELEVATION | | STRUCTURAL BARRIER TO GROUNDWATER FLOW |
| | INFERRED WATER TABLE CONTOUR ELEVATION | | PERIMETER OF ISS TREATMENT AREA |
| | INFERRED GROUNDWATER FLOW DIRECTION | | SHORELINE |
| | GROUNDWATER FLOW DIRECTION | | FORMER MGP SITE PERIMETER |



NOTE: ELEVATIONS IN PARENTHESES NOT USED FOR CONTOURING
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**WATER TABLE ELEVATIONS
(AREA 2) OCTOBER 2017**

2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

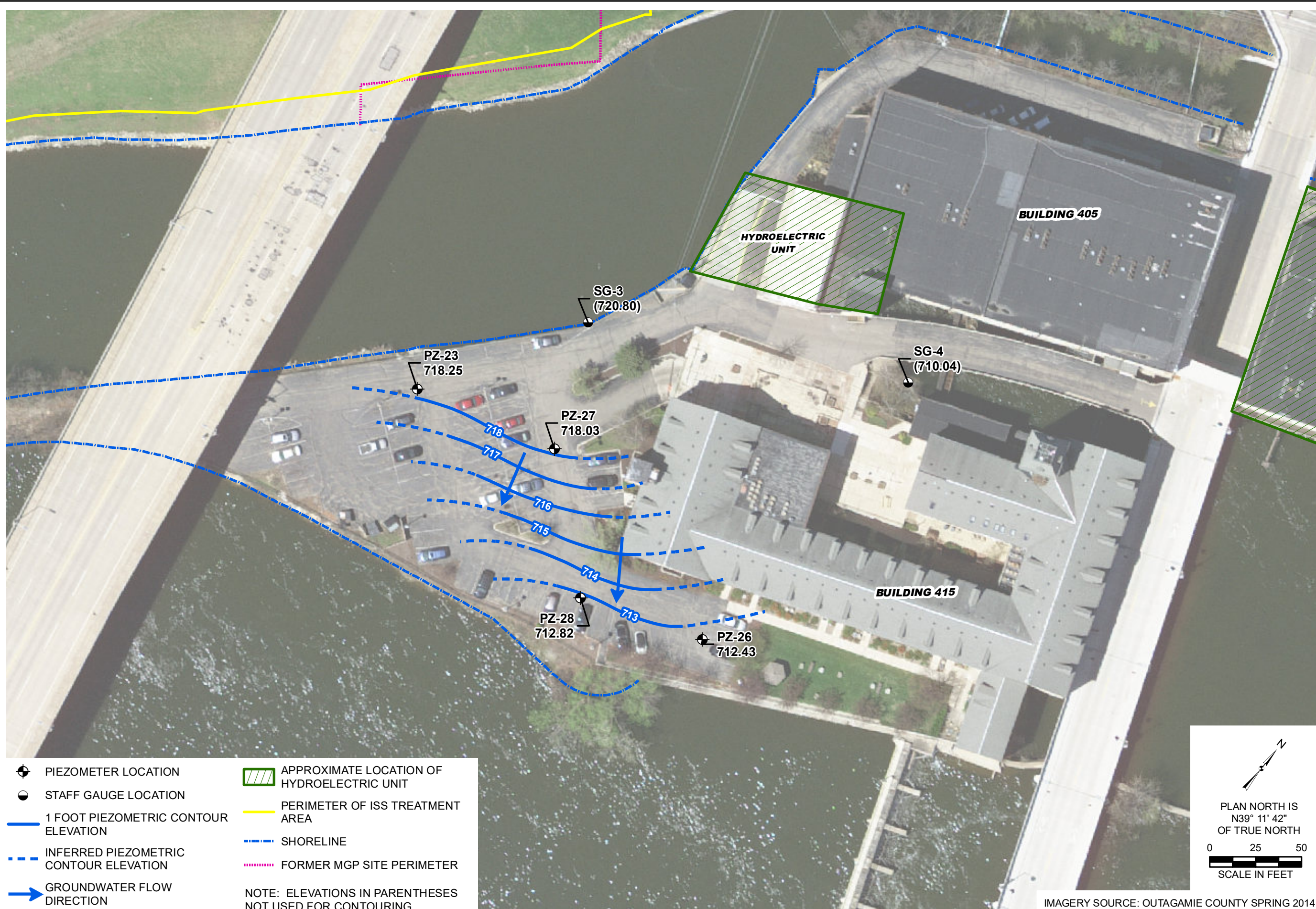
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SDS 1/26/18
REVIEWED BY/DATE:
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APPROVED BY/DATE:
BGH 5/29/18

PROJECT NO: 67973

FIGURE NO: 6D



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 7a_Bedrock Piezometric Surface Elevations - Areas 2 - Jan17.mxd Author: stolzsd Date/Time: 5/30/2018, 5:13:05 PM



	PIEZOMETER LOCATION		APPROXIMATE LOCATION OF HYDROELECTRIC UNIT
	STAFF GAUGE LOCATION		PERIMETER OF ISS TREATMENT AREA
	1 FOOT PIEZOMETRIC CONTOUR ELEVATION		SHORELINE
	INFERRED PIEZOMETRIC CONTOUR ELEVATION		FORMER MGP SITE PERIMETER
	GROUNDWATER FLOW DIRECTION	NOTE: ELEVATIONS IN PARENTHESES NOT USED FOR CONTOURING	

PLAN NORTH IS
N39° 11' 42"
OF TRUE NORTH
SCALE IN FEET

IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

DRAWN BY/DATE:
SDS 1/26/18
REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

**UPPER WEATHERED BEDROCK PIEZOMETRIC SURFACE ELEVATIONS
(AREA 2) JANUARY 2017**

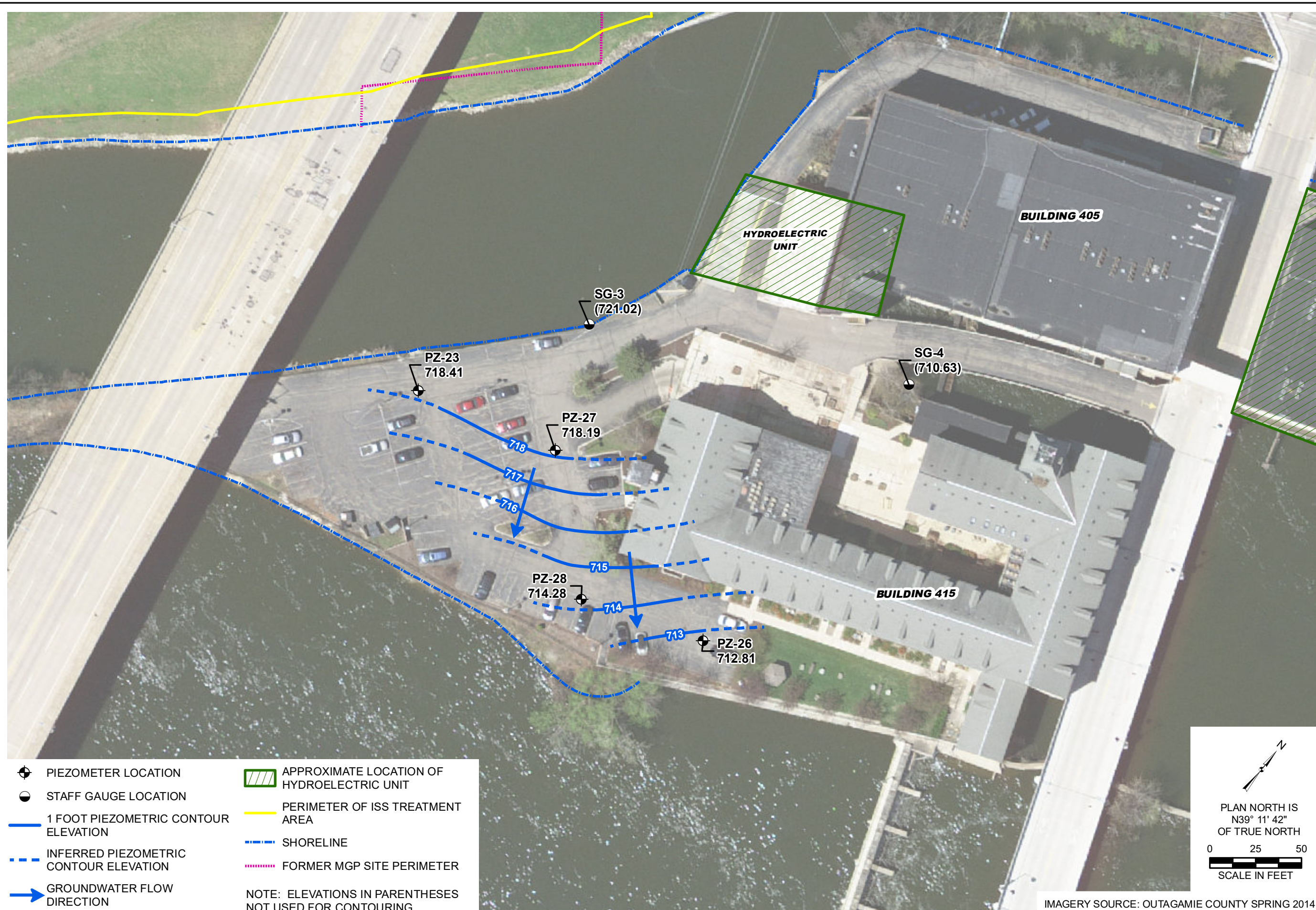
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 7A



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 7b_Bedrock Piezometric Surface Elevations - Areas 2 - Apr17.mxd Author: stolzsd Date/Time: 5/30/2018, 5:13:34 PM



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BGH 5/29/18

**UPPER WEATHERED BEDROCK PIEZOMETRIC SURFACE ELEVATIONS
(AREA 2) APRIL 2017**

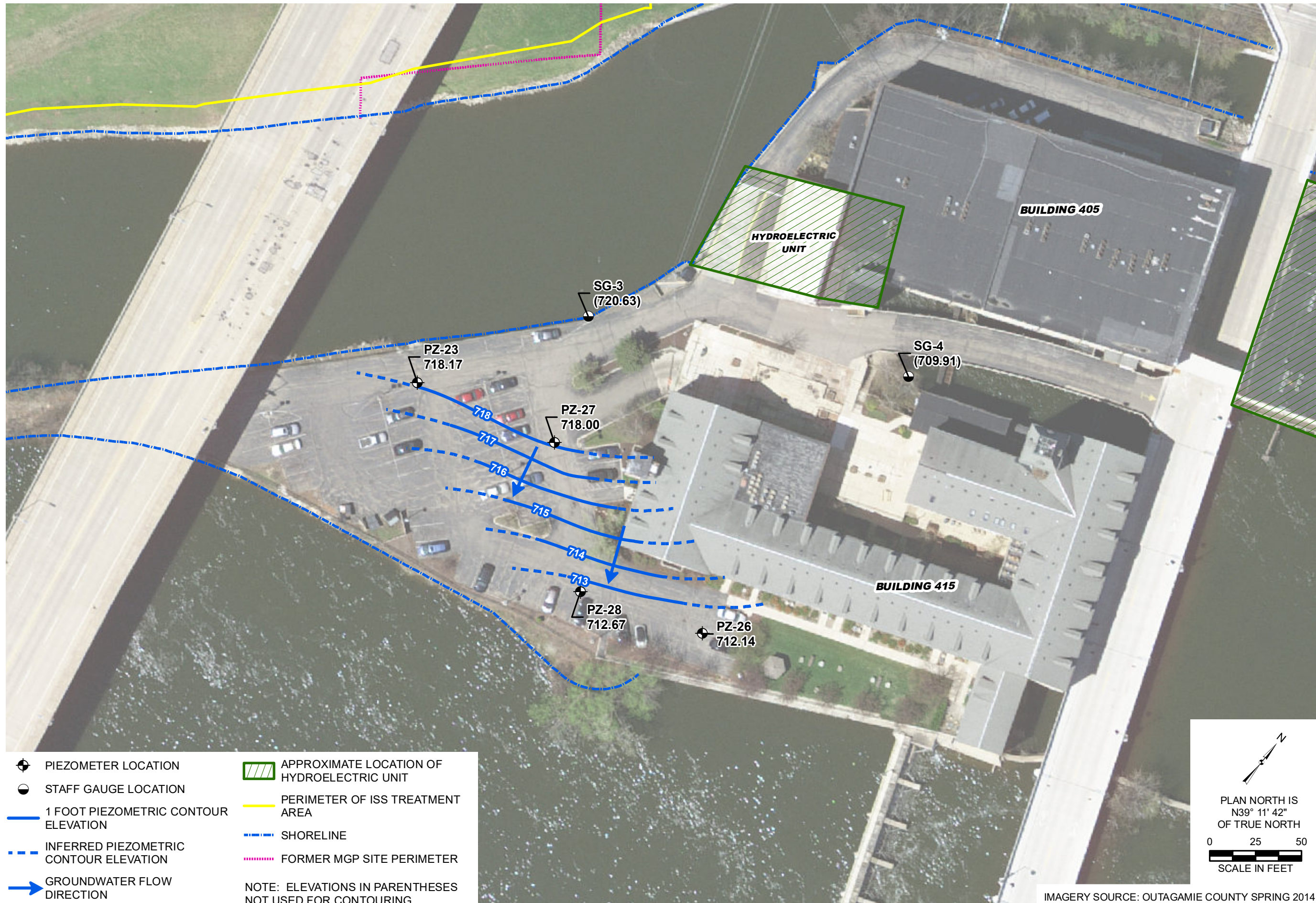
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 7B



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 7c_Bedrock Piezometric Surface Elevations - Areas 2 - July17.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:14:00 PM



	PIEZOMETER LOCATION		APPROXIMATE LOCATION OF HYDROELECTRIC UNIT
	STAFF GAUGE LOCATION		PERIMETER OF ISS TREATMENT AREA
	1 FOOT PIEZOMETRIC CONTOUR ELEVATION		SHORELINE
	INFERRED PIEZOMETRIC CONTOUR ELEVATION		FORMER MGP SITE PERIMETER
	GROUNDWATER FLOW DIRECTION	NOTE: ELEVATIONS IN PARENTHESES NOT USED FOR CONTOURING	

PLAN NORTH IS
N39° 11' 42"
OF TRUE NORTH

SCALE IN FEET

IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

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REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

**UPPER WEATHERED BEDROCK PIEZOMETRIC SURFACE ELEVATIONS
(AREA 2) JULY 2017**

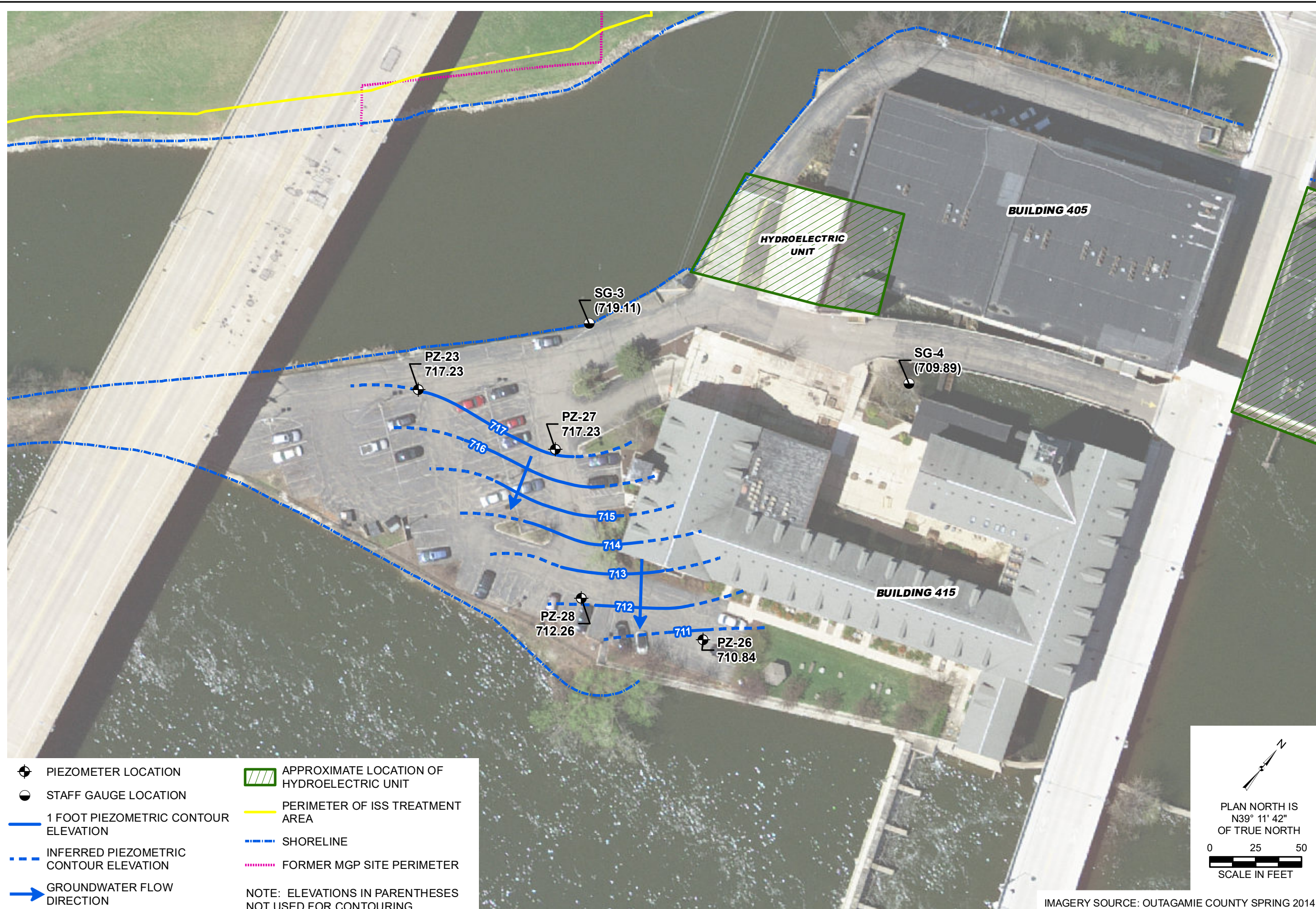
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 7C



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 7d_Bedrock Piezometric Surface Elevations - Areas 2 - Oct17.mxd Author: stolszsd Date/Time: 5/30/2018, 5:14:26 PM



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APPROVED BY/DATE:
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**UPPER WEATHERED BEDROCK PIEZOMETRIC SURFACE ELEVATIONS
(AREA 2) OCTOBER 2017**

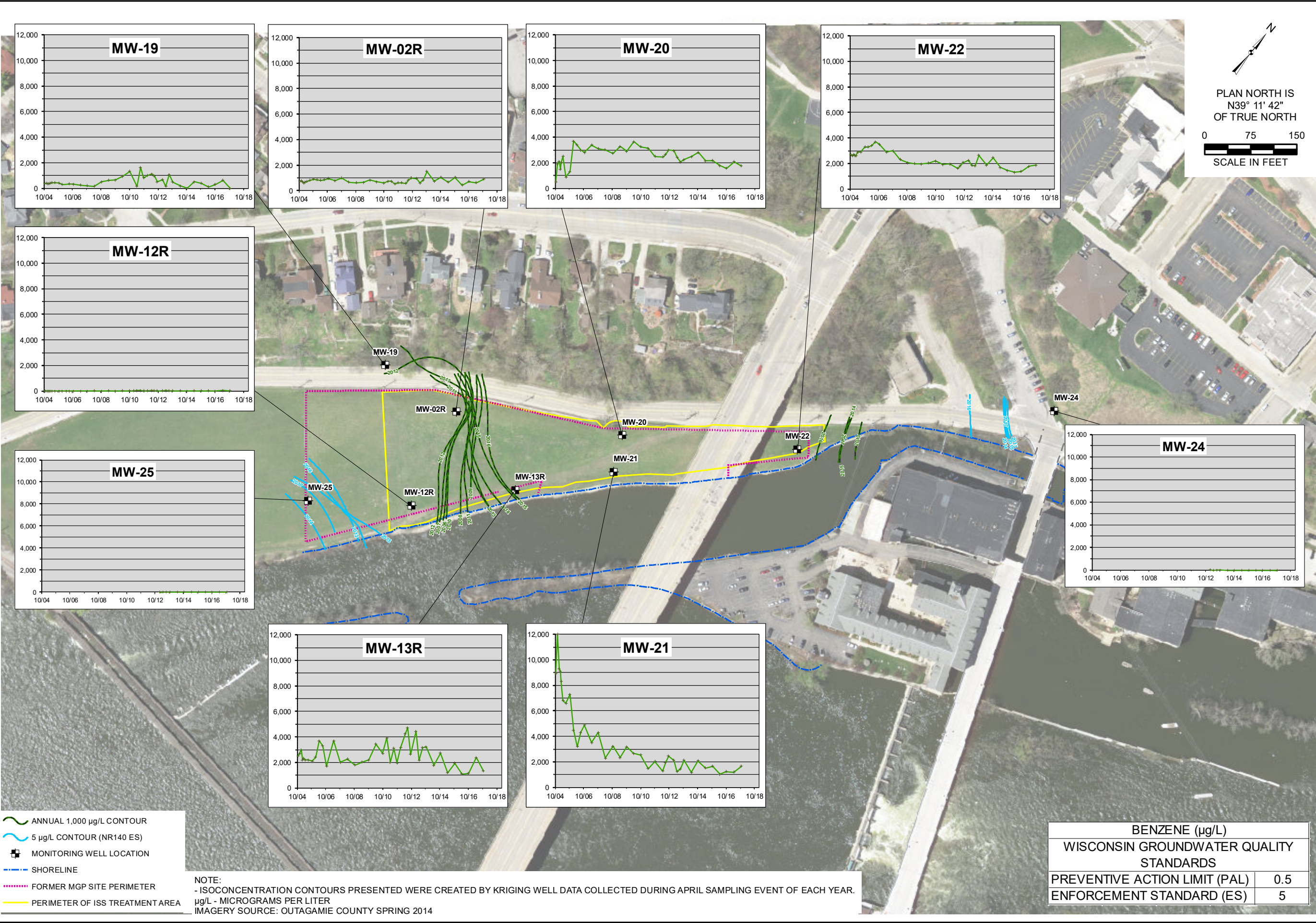
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 7D



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 8_Lower_Till_GW_Benzene.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:15:01 PM



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LOWER TILL GROUNDWATER BENZENE ANALYTICAL SUMMARY (AREA 1)

2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

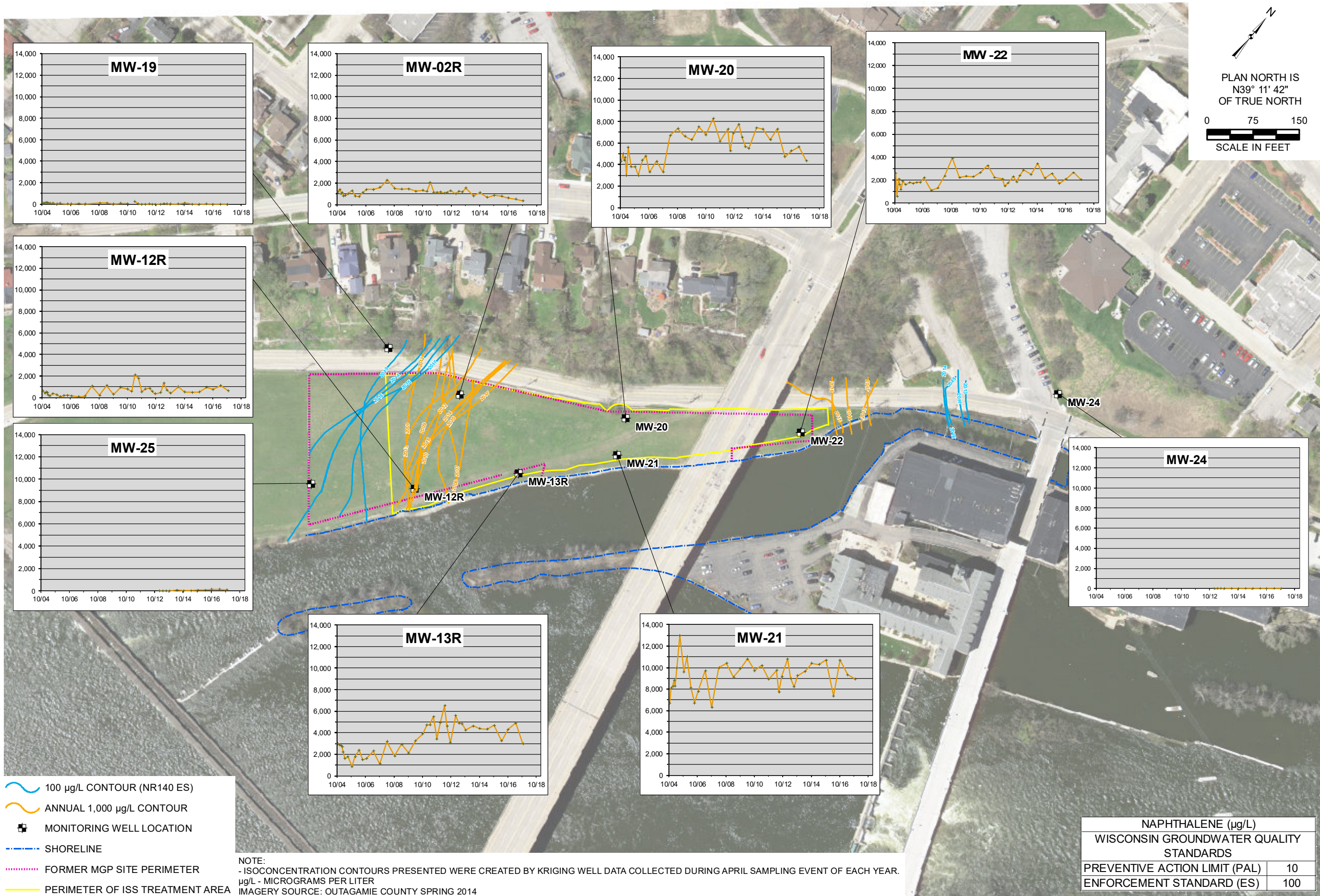
FIGURE NO: 8



PLAN NORTH IS
N39° 11' 42"
OF TRUE NORTH
0 75 150
SCALE IN FEET

NOTE:
- ISOCONCENTRATION CONTOURS PRESENTED WERE CREATED BY KRIGING WELL DATA COLLECTED DURING APRIL SAMPLING EVENT OF EACH YEAR.
µg/L - MICROGRAMS PER LITER
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 9_Lower_Till_GW_Naphthalene.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:15:52 PM



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SDS 1/26/18
REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

**LOWER TILL GROUNDWATER NAPHTHALENE ANALYTICAL SUMMARY
(AREA 1)**

2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

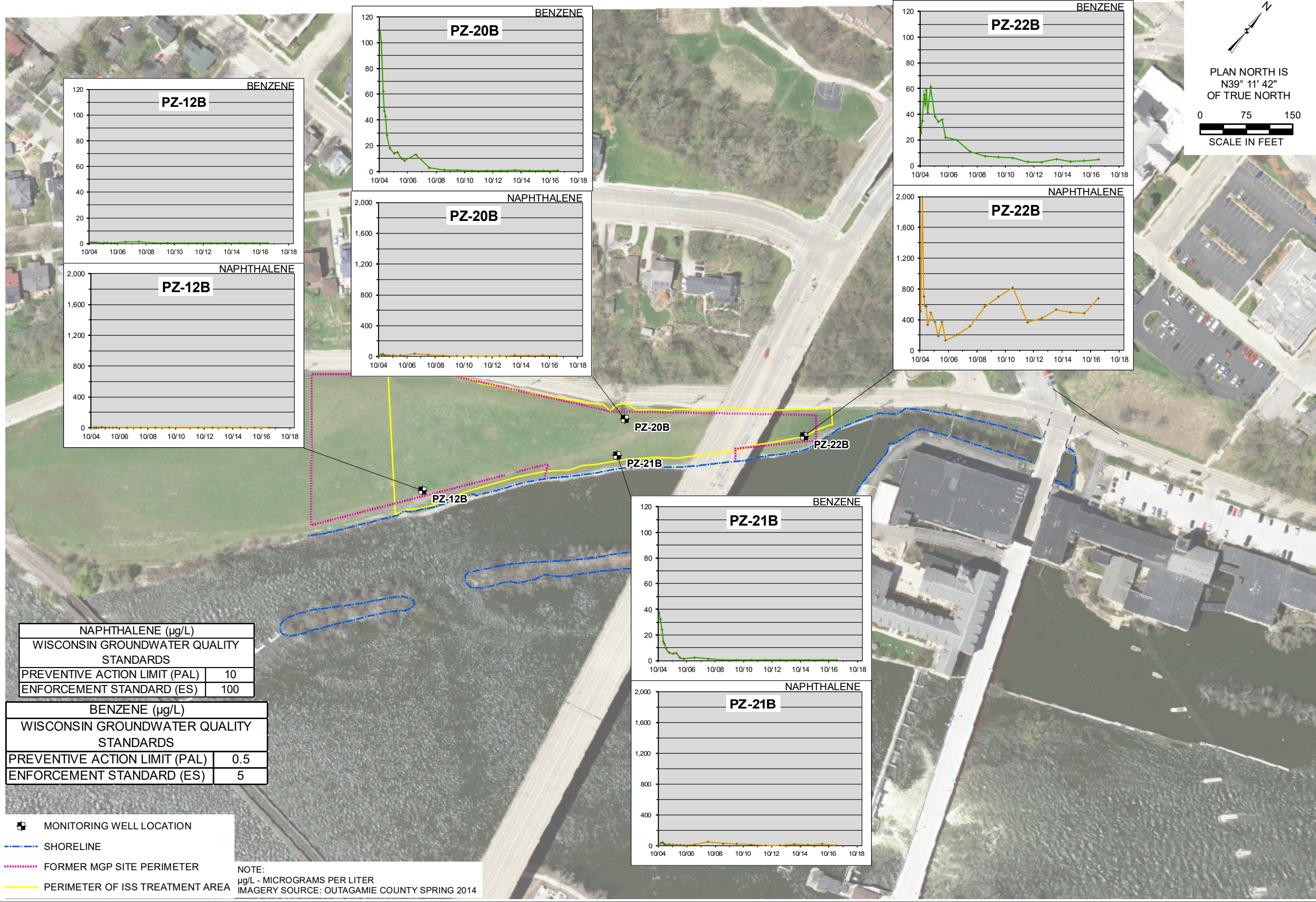
FIGURE NO: 9



NAPHTHALENE (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS	
PREVENTIVE ACTION LIMIT (PAL)	10
ENFORCEMENT STANDARD (ES)	100

NOTE:
- ISOCONCENTRATION CONTOURS PRESENTED WERE CREATED BY KRIGING WELL DATA COLLECTED DURING APRIL SAMPLING EVENT OF EACH YEAR.
µg/L - MICROGRAMS PER LITER
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 10_Bedrock_GW_Benzene_Naphthalene.mxd Author: stolzsd Date/Time: 5/30/2018, 5:18:14 PM



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SDS 1/26/18
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KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

PLAN NORTH IS
N39° 11' 42"
OF TRUE NORTH
0 75 150
SCALE IN FEET

NAPHTHALENE (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS	
PREVENTIVE ACTION LIMIT (PAL)	10
ENFORCEMENT STANDARD (ES)	100

BENZENE (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS	
PREVENTIVE ACTION LIMIT (PAL)	0.5
ENFORCEMENT STANDARD (ES)	5

- MONITORING WELL LOCATION
- SHORELINE
- FORMER MGP SITE PERIMETER
- PERIMETER OF ISS TREATMENT AREA

NOTE:
µg/L - MICROGRAMS PER LITER
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**BEDROCK GROUNDWATER
BENZENE AND NAPHTHALENE ANALYTICAL SUMMARY (AREA 1)**

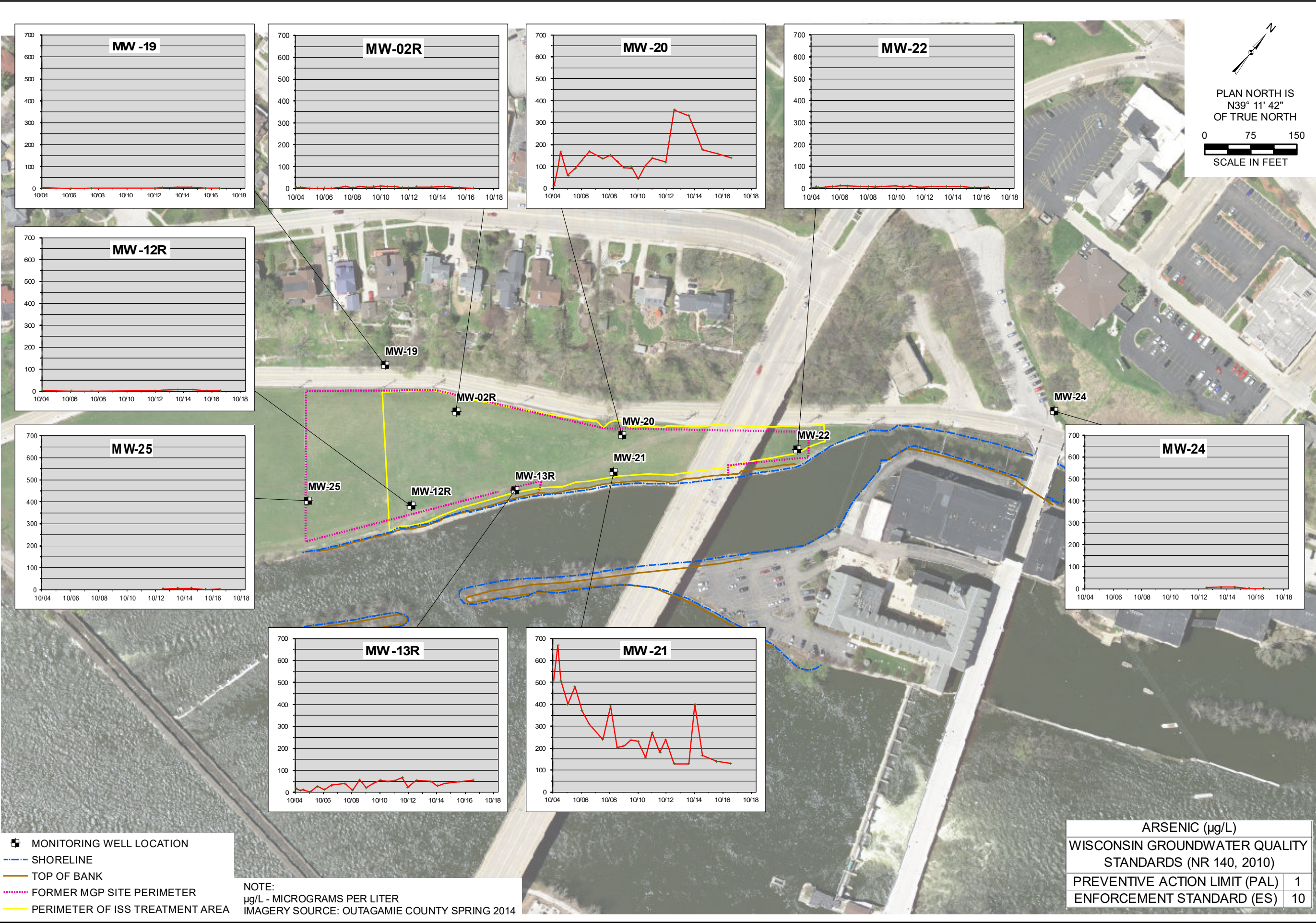
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 10



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure_11_Lower_Till_GW_Arsenic.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:18:54 PM



PLAN NORTH IS
N39° 11' 42"
OF TRUE NORTH

0 75 150
SCALE IN FEET

- MONITORING WELL LOCATION
- SHORELINE
- TOP OF BANK
- FORMER MGP SITE PERIMETER
- PERIMETER OF ISS TREATMENT AREA

NOTE:
µg/L - MICROGRAMS PER LITER
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

ARSENIC (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS (NR 140, 2010)	
PREVENTIVE ACTION LIMIT (PAL)	1
ENFORCEMENT STANDARD (ES)	10

DRAWN BY/DATE:
SDS 1/26/18

REVIEWED BY/DATE:
KLT 2/5/18

APPROVED BY/DATE:
BGH 5/29/18

**LOWER TILL GROUNDWATER ARSENIC ANALYTICAL SUMMARY
(AREA 1)**

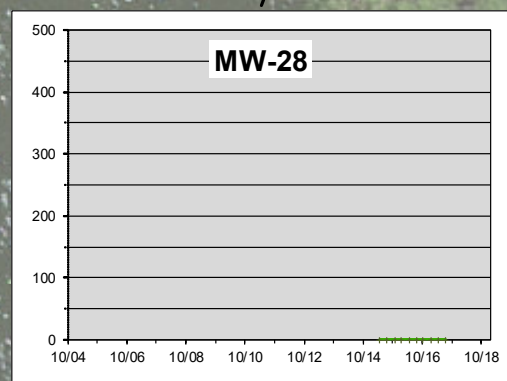
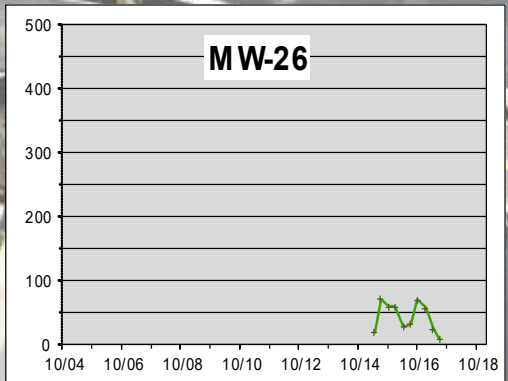
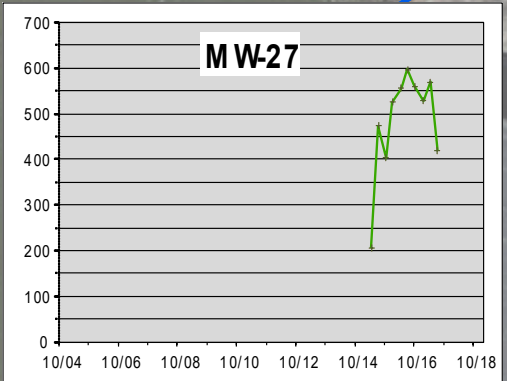
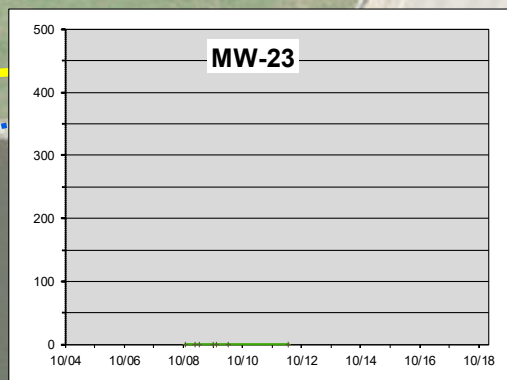
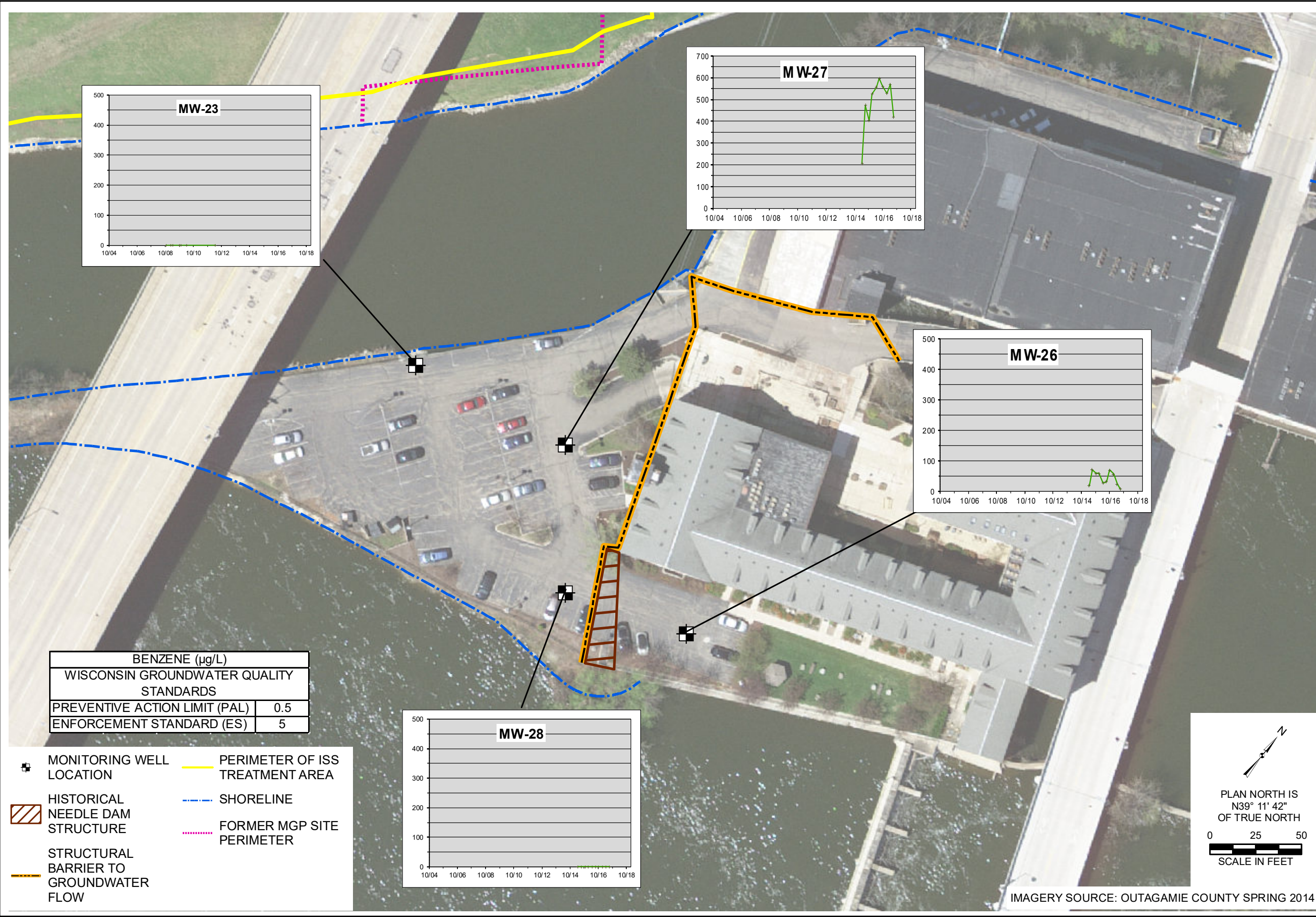
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 11

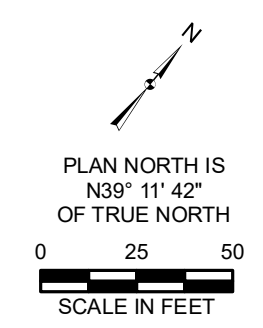


Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 12_Watertable Benzene Analytical - Area 2.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:36:06 PM



BENZENE (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS	
PREVENTIVE ACTION LIMIT (PAL)	0.5
ENFORCEMENT STANDARD (ES)	5

- MONITORING WELL LOCATION
- PERIMETER OF ISS TREATMENT AREA
- HISTORICAL NEEDLE DAM STRUCTURE
- SHORELINE
- STRUCTURAL BARRIER TO GROUNDWATER FLOW
- FORMER MGP SITE PERIMETER



IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

**WATER TABLE GROUNDWATER BENZENE ANALYTICAL SUMMARY
(AREA 2)**

DRAWN BY/DATE:
SDS 1/26/18
REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

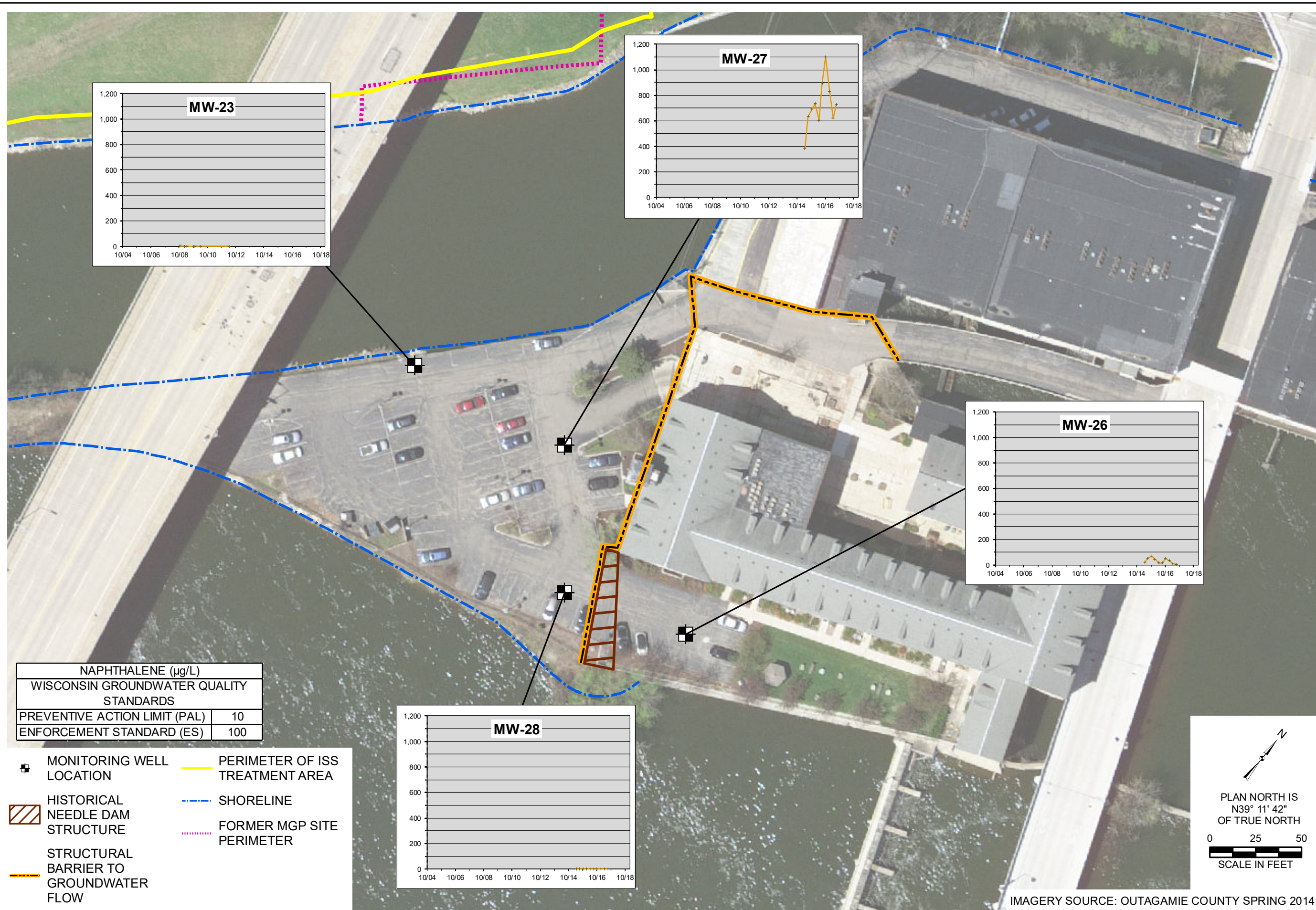
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 12



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure_13_WaterTableNaphthaleneAnalytical - Area 2.mxd Author: stolzsd. Date/Time: 5/30/2018, 5:20:28 PM



NAPHTHALENE (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS	
PREVENTIVE ACTION LIMIT (PAL)	10
ENFORCEMENT STANDARD (ES)	100

- MONITORING WELL LOCATION
- PERIMETER OF ISS TREATMENT AREA
- HISTORICAL NEEDLE DAM STRUCTURE
- SHORELINE
- STRUCTURAL BARRIER TO GROUNDWATER FLOW
- FORMER MGP SITE PERIMETER

DRAWN BY/DATE:
SDS 1/26/18
REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

WATER TABLE GROUNDWATER NAPHTHALENE ANALYTICAL SUMMARY (AREA 2)

2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

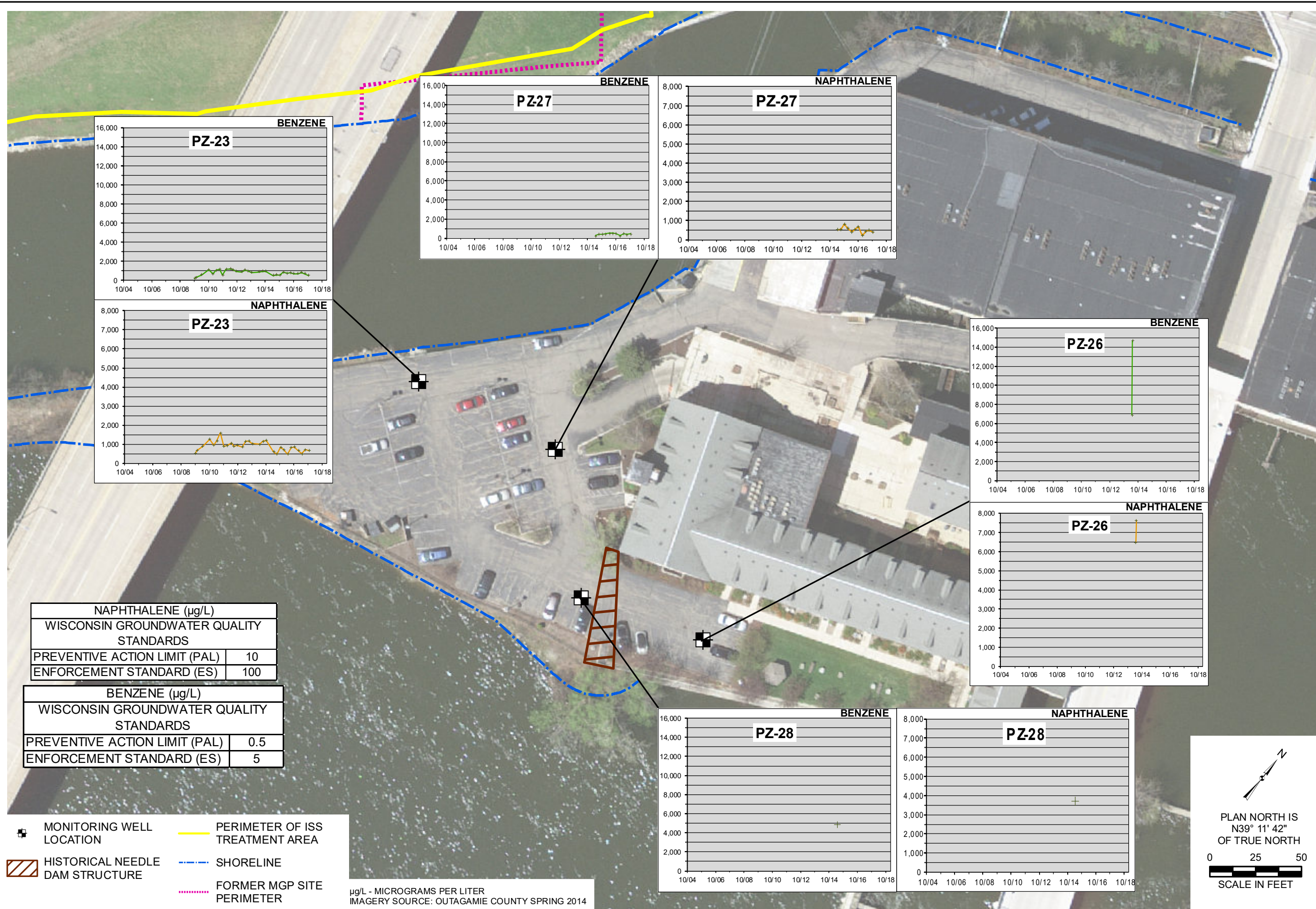
PROJECT NO: 67973

FIGURE NO: 13



IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014

Y:\GIS\Projects\1511508\MMXD\2017_AR\Figure 14_Shallow Bedrock Benzene and Naphthalene Analytical - Area 2.mxd Author: stolzsd; Date/Time: 5/30/2018, 5:25:53 PM



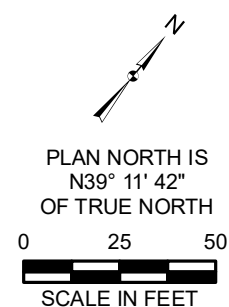
DRAWN BY/DATE:
SDS 1/26/18
REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18

**UPPER WEATHERED BEDROCK
GROUNDWATER BENZENE AND NAPHTHALENE SUMMARY (AREA 2)**

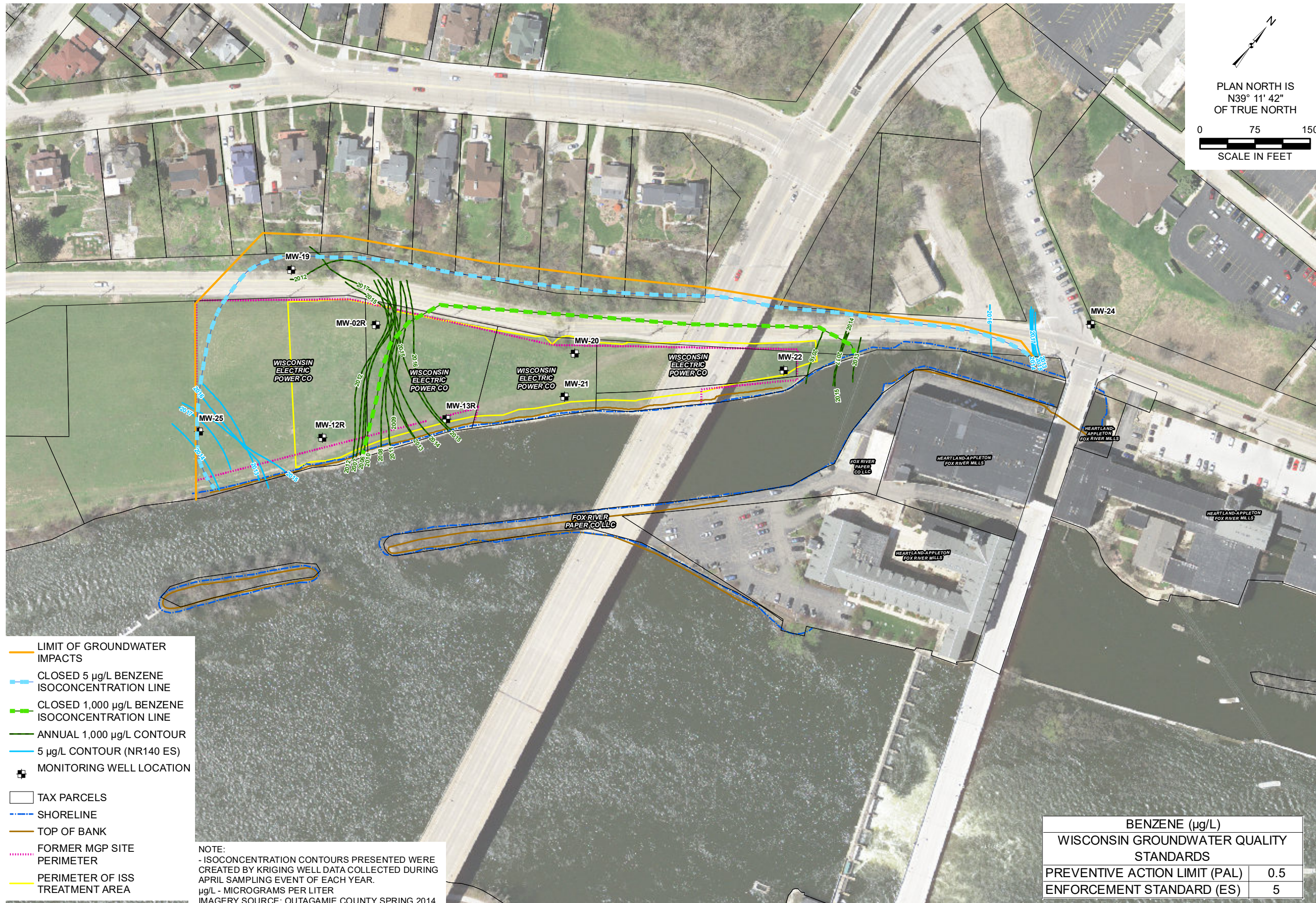
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 14



Y:\GIS\Projects\1511508\MXD\2017_AR\Figure 15_Limits of Groundwater Impacts.mxd Author: stolzsd. Date/Time: 5/30/2018, 5:27:58 PM



DRAWN BY/DATE:
SDS 2/5/18
REVIEWED BY/DATE:
KLT 2/5/18
APPROVED BY/DATE:
BGH 5/29/18


LIMIT OF GROUNDWATER IMPACTS
2017 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 67973

FIGURE NO: 15



BENZENE (µg/L)	
WISCONSIN GROUNDWATER QUALITY STANDARDS	
PREVENTIVE ACTION LIMIT (PAL)	0.5
ENFORCEMENT STANDARD (ES)	5



Appendix A
O&M Form 4400-194

GENERAL INSTRUCTIONS, PURPOSE AND APPLICABILITY OF THIS FORM: Completion of this form is required under s. NR 724.13(3), Wis. Adm. Code. A narrative report or letter containing the equivalent information required in this form may be submitted in lieu of the actual form. Failure to submit this form as required is a violation of s. NR 724.13(3), Wis. Adm. Code, and is subject to the penalties in s. 292.99, Wis. Stats. This form must be submitted every six months for soil or groundwater remediation projects that report operation and maintenance progress in accordance with s. NR 724.13(3), Wis. Adm. Code.

Note: Long-term monitoring results submitted in accordance with s. NR 724.17(3), Wis. Adm. Code are required to be submitted within 10 business days of receiving sampling results and are not required to be submitted using this form. However, portions of this form require monitoring data summary information that may be based on information previously submitted in accordance with s. NR 724.17(3), Wis. Adm. Code.

Note: Responsible parties should check with the State Project Manager assigned to the site to determine if this form is required to be submitted at sites responded to under the Federal Comprehensive Environmental Response and Compensation Act (commonly known as Superfund) or an equivalent State lead Superfund response.

Note: Responsible parties should check with the State Project Manager assigned to the site to determine if any of the information required in this form may be omitted or changed and obtain prior written approval for any omissions or changes.

Submittal of this form is not a substitute for reporting required by Department programs such as Waste Water or Air Management. Personally identifiable information on this form is not intended to be used for any other purpose than tracking progress of the remediation by the Bureau for Remediation and Redevelopment.

Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.). Unless otherwise noted, all citations refer to Wisconsin Administrative Code.

Note: There is a separate semi-annual report required under s. NR 700.11(1), Wis. Adm. Code. Reporting under that provision is through an internet-based form:

<http://dnr.wi.gov/topic/Brownfields/documents/regs/NR700progreport.pdf>

Section GI - General Site Information

A. General Information

1. Site name

Appleton City (Coal Tar), aka Appleton MGP

2. Reporting period from: 01/01/2017 To: 12/31/2017 Days in period: 365

3. Regulatory agency (enter DNR, DATCP and/or other) DNR
 4. BRRTS ID No. (2 digit program-2 digit county-6 digit site specific) 02-45-000042

5. Site location

Region	County	Address					
Northeast Region	Outagamie	337 Water Street					
Municipality name	<input checked="" type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village	Township	Range	<input checked="" type="radio"/> E <input type="radio"/> W	Section	¼	¼
City of Appleton		21 N	17		35		

6. Responsible party Name	7. Consultant	
We Energies	<input checked="" type="checkbox"/> Select if the following information has changed since the last submittal	
Mailing address	Company name	
333 W. Everett, Street, A231	O'Brien and Gere Engineers, Inc.	
Phone number	Mailing address	Phone number
(414) 221-2156	234 W Florida St, Milwaukee, WI 53024	(414) 837-3607

8. Contaminants
 Benzene, Naphthalene

9. Soil types (USCS or USDA)
 Fill: solidified soil (cement), Native: CL, ML, SP, GW, GP, Dolomite

10. Hydraulic conductivity(cm/sec): 2E-7 to 9E-10 cm/s (solidified soil), 1E-3 to 1E-2 cm/s (till)
 11. Average linear velocity of groundwater (ft/yr) 0.003 ft/yr (solidified soil), 50 ft/yr (lower till)

12. If soil is treated ex situ, is the treatment location off site? Yes No

If yes, give location: Region _____ County _____

Municipality name	<input type="radio"/> City <input type="radio"/> Town <input type="radio"/> Village	Township	Range	<input type="radio"/> E <input checked="" type="radio"/> W	Section	¼	¼
		N					

Site name: Appleton City (Coal Tar), aka Appleton MGP

Reporting period from: 01/01/2017 To: 12/31/2017

Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 11/14)

Page 2 of 28

B. Remediation Method

Only submit sections that apply to an individual site. Check all that apply:

- Groundwater extraction (submit a completed Section GW-1).
- Free product recovery (submit a completed Section GW-1).
- In situ air sparging (submit a completed Section GW-2).
- Groundwater natural attenuation (submit a completed Section GW-3).
- Other groundwater remediation method (submit a completed Section GW-4).
- Soil venting (including soil vapor extraction building venting and bioventing submit a completed Section IS-1).
- Soil natural attenuation (submit a completed Section IS-2).
- Other in situ soil remediation method (submit a completed Section IS-3).
- Biopiles (submit a completed Section ES-1).
- Landspreading/thinspreading of petroleum contaminated soil (submit a completed Section ES-2).
- Other ex situ remediation method (submit a completed Section ES-3).
- Site is a landfill (submit a completed Section LF-1).

C. General Effectiveness Evaluation for All Active Systems

If the remediation is active (not natural attenuation), complete this subsection.

1. Is the system operating at design rates and specifications? Yes No

If the answer is no, explain whether or not modifications are necessary to achieve the goal that was previously established in design.

2. Are modifications to the system warranted to improve effectiveness Yes No

If yes, explain:

3. Is natural attenuation an effective low cost option at this time? Yes No

4. Is closure sampling warranted at this time? Yes No

5. Are there any modifications that can be made to the remediation to improve cost effectiveness? Yes No

If yes, explain:

D. Economic and Cost Data to Date

1. Total investigation cost: \$1,300,000.00

2. Implementation costs (design, capital and installation costs, excluding investigation costs): \$10,000,000.00

3. Total costs during the previous reporting period: \$40,000.00

4. Total costs during this reporting period: \$35,000.00

5. Total anticipated costs for the next reporting period: \$40,000.00

6. Are any unusual or one-time costs listed in the reporting periods covered by D.3., D.4. or D.5. above? Yes No

If yes, explain:

7. If closure is anticipated within 12 months, estimated costs for project closeout: _____

Site name: Appleton City (Coal Tar), aka Appleton MGP
Reporting period from: 01/01/2017 To: 12/31/2017
Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 11/14)

Page 3 of 28

E. Name(s), Signature(s) and Date of Person(s) Submitting Form

Legibly print name, date and sign. Only persons qualified to submit reports under ch. NR 712 Wis. Adm. Code are to sign this form for sites with any ongoing active remediation, monitoring or an investigation. Other persons may sign this form for sites with no response activities during the six month reporting period.


Registered Professional Engineers:

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Signature	Date

Hydrogeologists:

I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Brian G. Hennings PG	Hydrogeologist
Signature 	Date 5/29/18

Scientists:

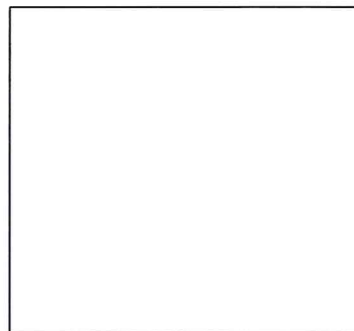
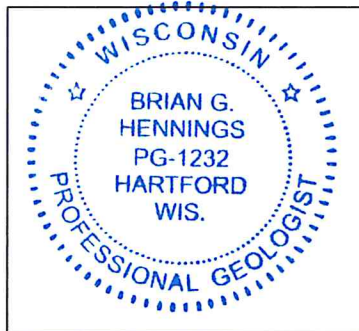
I hereby certify that I am a scientist as that term is defined in s. NR 712.03(3), Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Signature	Date

Other Persons:

Print name	Title
Signature	Date

Professional Seal(s), if applicable:



Site name: Appleton City (Coal Tar), aka Appleton MGP
Reporting period from: 01/01/2017 To: 12/31/2017
Days in period: 365

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 11/14)

Page 7 of 28

Section GW-3, Natural Attenuation (Passive Bioremediation) in Groundwater

A. Effectiveness Evaluation

1. If free product is not present, determine the single contaminant that requires the greatest percent reduction to achieve ch. NR 140 ES and PAL. Perform this calculation for all contaminants that were present at the site that have ch. NR 140 standards. Use the highest contaminant concentration measured in any sampling points during reporting period. If free product is present, write "FREE PRODUCT" in A.1.a

a. Contaminant: Benzene - Free product observed in 4 wells, see attached Annual Report Section 3.0 GW Quality

b. Percent reduction necessary to reach ch. NR 140 ES and PAL: 99.98 %

c. Maximum contaminant concentration level in any monitoring well of that contaminant: 2,390 µg/L

2. Aquifer parameters:

a. Hydraulic conductivity: 0.0033 cm/sec

b. Groundwater average linear velocity: 50 ft/yr

3. Is there a downgradient monitoring well that meets ch. NR 140 standards? Yes No

4. Based on water chemistry results, is the plume: Expanding Stabalized Contracting ?

5. If the answer in 4. (above) is "expanding," is natural attenuation still the best option? Yes No

If yes, explain:

6. Biodegradation parameters:

a. Upgradient (or other site specific background) DO level: 410 µg/L

b. DO levels in the part of the plume that is most heavily contaminated 180 µg/L

7. Is site closure a viable option within 12 months from the date of this form? Yes No

8. Are there any modifications that can improve cost effectiveness? Yes No

If yes, explain:

9. Have groundwater table fluctuations changed the contaminant level trends over time? Yes No

If yes, explain:

localized variable flow affects individual wells, site-wide trends are stable to decreasing


10. Has the direction of groundwater flow changed during the reporting period? Yes No

If yes, approximate change in degrees: _____

B. Additional Attachments

Attach the following:

- Groundwater contour map.
- Groundwater contaminant distribution map (may be combined with contour map).
- When contaminants are aerobically biodegradable, attach a dissolved oxygen in groundwater map (dissolved oxygen may be combined with the contaminant data on a single map).
- Graph of contaminant concentrations versus time for the contaminant listed in A.1.a. (above) for the monitoring point with the greatest level of contamination.
Note: This is the minimum required graph; however, it is recommended that multiple time versus contamination concentration graphs as described in the instructions on page 24 for Natural Attenuation of Groundwater be submitted.
- Graph of contaminant concentrations versus distance.
- Groundwater contaminant chemistry table.
- Groundwater biological parameters.
- Groundwater elevations table.



Appendix B
**2017 Groundwater
Laboratory Reports**
(on CD)

January 30, 2017

David Kollakowsky
We Energies
333 W. Everett St
Room P129
Milwaukee, WI 532012179

RE: Project: W-1272000003 APPLETON MGP
Pace Project No.: 40144598

Dear David Kollakowsky:

Enclosed are the analytical results for sample(s) received by the laboratory on January 18, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten
brian.basten@pacelabs.com
Project Manager

Enclosures

cc: Frank Dombrowski, WE Energies
Brian Hennings, NATURAL RESOURCE TECHNOLOGY



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40144598001	011817001	Water	01/18/17 09:00	01/18/17 15:36
40144598002	011817002	Water	01/18/17 09:48	01/18/17 15:36
40144598003	011817003	Water	01/18/17 10:41	01/18/17 15:36
40144598004	011817004	Water	01/18/17 12:11	01/18/17 15:36
40144598005	011817005	Water	01/18/17 12:16	01/18/17 15:36
40144598006	011817006	Water	01/18/17 12:55	01/18/17 15:36
40144598007	011817007	Water	01/18/17 13:15	01/18/17 15:36
40144598008	011817008	Water	01/18/17 00:00	01/18/17 15:36

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

SAMPLE ANALYTE COUNT

Project: W-1272000003 APPLETON MGP
Pace Project No.: 40144598

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40144598001	011817001	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598002	011817002	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598003	011817003	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598004	011817004	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598005	011817005	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598006	011817006	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598007	011817007	EPA 8015B Modified	ALD	1

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 6020	SDW	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40144598008	011817008	EPA 8260	LAP	9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: W-1272000003 APPLETON MGP
Pace Project No.: 40144598

Sample: 011817001									
Lab ID: 40144598001									
Collected: 01/18/17 09:00 Received: 01/18/17 15:36 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV									
Analytical Method: EPA 8015B Modified									
Methane	3880	ug/L	70.0	34.2	25		01/19/17 11:36	74-82-8	
6020 MET ICPMS, Dissolved									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	386	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 16:57	7439-89-6	
Manganese, Dissolved	86.3	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 16:57	7439-96-5	
8260 MSV UST									
Analytical Method: EPA 8260									
Benzene	694	ug/L	4.0	2.0	4		01/20/17 12:28	71-43-2	
Ethylbenzene	58.5	ug/L	4.0	2.0	4		01/20/17 12:28	100-41-4	
Naphthalene	669	ug/L	20.0	10.0	4		01/20/17 12:28	91-20-3	
Toluene	2.4J	ug/L	4.0	2.0	4		01/20/17 12:28	108-88-3	
m&p-Xylene	<4.0	ug/L	8.0	4.0	4		01/20/17 12:28	179601-23-1	
o-Xylene	9.5	ug/L	4.0	2.0	4		01/20/17 12:28	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		4		01/20/17 12:28	1868-53-7	
Toluene-d8 (S)	97	%	70-130		4		01/20/17 12:28	2037-26-5	
4-Bromofluorobenzene (S)	89	%	70-130		4		01/20/17 12:28	460-00-4	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 20:02	14797-55-8	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		01/18/17 20:02	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	217	mg/L	23.5	7.0	1		01/26/17 09:30		

Sample: 011817002									
Lab ID: 40144598002									
Collected: 01/18/17 09:48 Received: 01/18/17 15:36 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV									
Analytical Method: EPA 8015B Modified									
Methane	1650	ug/L	70.0	34.2	25		01/19/17 10:40	74-82-8	M1
6020 MET ICPMS, Dissolved									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	733	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 16:30	7439-89-6	
Manganese, Dissolved	115	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 16:30	7439-96-5	
8260 MSV UST									
Analytical Method: EPA 8260									
Benzene	529	ug/L	4.0	2.0	4		01/20/17 12:05	71-43-2	
Ethylbenzene	118	ug/L	4.0	2.0	4		01/20/17 12:05	100-41-4	
Naphthalene	828	ug/L	20.0	10.0	4		01/20/17 12:05	91-20-3	
Toluene	2.8J	ug/L	4.0	2.0	4		01/20/17 12:05	108-88-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Sample: 011817002 Lab ID: 40144598002 Collected: 01/18/17 09:48 Received: 01/18/17 15:36 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
m&p-Xylene	10.8	ug/L	8.0	4.0	4		01/20/17 12:05	179601-23-1	
o-Xylene	15.0	ug/L	4.0	2.0	4		01/20/17 12:05	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		4		01/20/17 12:05	1868-53-7	
Toluene-d8 (S)	98	%	70-130		4		01/20/17 12:05	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		4		01/20/17 12:05	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 20:14	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		01/18/17 20:14	14808-79-8	M0
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	236	mg/L	117	35.2	5		01/26/17 09:33		

Sample: 011817003 Lab ID: 40144598003 Collected: 01/18/17 10:41 Received: 01/18/17 15:36 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2480	ug/L	28.0	13.7	10		01/19/17 11:01	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	1460	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 17:31	7439-89-6	
Manganese, Dissolved	296	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 17:31	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	252	ug/L	2.5	1.2	2.5		01/20/17 12:51	71-43-2	
Ethylbenzene	23.0	ug/L	2.5	1.2	2.5		01/20/17 12:51	100-41-4	
Naphthalene	227	ug/L	12.5	6.2	2.5		01/20/17 12:51	91-20-3	
Toluene	1.4J	ug/L	2.5	1.2	2.5		01/20/17 12:51	108-88-3	
m&p-Xylene	5.1	ug/L	5.0	2.5	2.5		01/20/17 12:51	179601-23-1	
o-Xylene	9.0	ug/L	2.5	1.2	2.5		01/20/17 12:51	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	70-130		2.5		01/20/17 12:51	1868-53-7	
Toluene-d8 (S)	100	%	70-130		2.5		01/20/17 12:51	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		2.5		01/20/17 12:51	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 20:52	14797-55-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Sample: 011817003 **Lab ID: 40144598003** Collected: 01/18/17 10:41 Received: 01/18/17 15:36 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	35.9	mg/L	3.0	1.0	1		01/18/17 20:52	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	188	mg/L	23.5	7.0	1		01/26/17 09:34		

Sample: 011817004 **Lab ID: 40144598004** Collected: 01/18/17 12:11 Received: 01/18/17 15:36 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2070	ug/L	56.0	27.4	20		01/19/17 11:50	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	684	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 17:38	7439-89-6	
Manganese, Dissolved	208	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 17:38	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:07	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:07	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		01/20/17 15:07	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:07	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		01/20/17 15:07	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:07	95-47-6	
Surrogates									
Dibromofluoromethane (S)	105	%	70-130		1		01/20/17 15:07	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		01/20/17 15:07	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130		1		01/20/17 15:07	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 21:05	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	3.0J	mg/L	3.0	1.0	1		01/18/17 21:05	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	208	mg/L	23.5	7.0	1		01/26/17 09:35		

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ANALYTICAL RESULTS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 011817005 Lab ID: 40144598005 Collected: 01/18/17 12:16 Received: 01/18/17 15:36 Matrix: Water									
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	4370	ug/L	56.0	27.4	20		01/19/17 11:15	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	662	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 17:44	7439-89-6	
Manganese, Dissolved	202	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 17:44	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:29	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:29	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		01/20/17 15:29	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:29	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		01/20/17 15:29	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:29	95-47-6	
Surrogates									
Dibromofluoromethane (S)	107	%	70-130		1		01/20/17 15:29	1868-53-7	
Toluene-d8 (S)	96	%	70-130		1		01/20/17 15:29	2037-26-5	
4-Bromofluorobenzene (S)	90	%	70-130		1		01/20/17 15:29	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 21:17	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	2.7J	mg/L	3.0	1.0	1		01/18/17 21:17	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	207	mg/L	23.5	7.0	1		01/26/17 09:35		

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 011817006 Lab ID: 40144598006 Collected: 01/18/17 12:55 Received: 01/18/17 15:36 Matrix: Water									
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	4460	ug/L	56.0	27.4	20		01/19/17 11:23	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	1620	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 17:51	7439-89-6	
Manganese, Dissolved	242	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 17:51	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	56.9	ug/L	1.0	0.50	1		01/20/17 15:52	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:52	100-41-4	
Naphthalene	34.9	ug/L	5.0	2.5	1		01/20/17 15:52	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		01/20/17 15:52	108-88-3	

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ANALYTICAL RESULTS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Sample: 011817006 Lab ID: 40144598006 Collected: 01/18/17 12:55 Received: 01/18/17 15:36 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
m&p-Xylene	1.0J	ug/L	2.0	1.0	1		01/20/17 15:52	179601-23-1	
o-Xylene	1.5	ug/L	1.0	0.50	1		01/20/17 15:52	95-47-6	
Surrogates									
Dibromofluoromethane (S)	104	%	70-130		1		01/20/17 15:52	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		01/20/17 15:52	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		1		01/20/17 15:52	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 22:07	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	29.8	mg/L	3.0	1.0	1		01/18/17 22:07	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	345	mg/L	23.5	7.0	1		01/26/17 09:36		

Sample: 011817007 Lab ID: 40144598007 Collected: 01/18/17 13:15 Received: 01/18/17 15:36 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	<1.4	ug/L	2.8	1.4	1		01/19/17 09:38	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	61.1J	ug/L	250	10.0	1	01/25/17 08:35	01/26/17 17:58	7439-89-6	B
Manganese, Dissolved	0.87J	ug/L	1.0	0.18	1	01/25/17 08:35	01/26/17 17:58	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1.2	ug/L	1.0	0.50	1		01/20/17 16:15	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:15	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		01/20/17 16:15	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:15	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		01/20/17 16:15	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:15	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	70-130		1		01/20/17 16:15	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		01/20/17 16:15	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130		1		01/20/17 16:15	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		01/18/17 22:20	14797-55-8	

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ANALYTICAL RESULTS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Sample: 011817007 **Lab ID: 40144598007** Collected: 01/18/17 13:15 Received: 01/18/17 15:36 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		01/18/17 22:20	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	9.1J	mg/L	23.5	7.0	1		01/26/17 09:37		

Sample: 011817008 **Lab ID: 40144598008** Collected: 01/18/17 00:00 Received: 01/18/17 15:36 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:37	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:37	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		01/20/17 16:37	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:37	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		01/20/17 16:37	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		01/20/17 16:37	95-47-6	
Surrogates									
Dibromofluoromethane (S)	103	%	70-130		1		01/20/17 16:37	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		01/20/17 16:37	2037-26-5	
4-Bromofluorobenzene (S)	82	%	70-130		1		01/20/17 16:37	460-00-4	

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QUALITY CONTROL DATA

Project: W-1272000003 APPLETON MGP
Pace Project No.: 40144598

QC Batch: 246617 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

METHOD BLANK: 1458160 Matrix: Water
Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	ug/L	<1.4	2.8	01/19/17 06:58	

LABORATORY CONTROL SAMPLE & LCSD: 1458161 1458162

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	28.6	28.6	29.4	100	103	73-122	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1458251 1458252

Parameter	Units	40144598002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	1650	714	714	3680	3670	284	283	15-187	0	20	M1

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QUALITY CONTROL DATA

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

QC Batch: 247001

Analysis Method: EPA 6020

QC Batch Method: EPA 3010

Analysis Description: 6020 MET Dissolved

Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

METHOD BLANK: 1460036

Matrix: Water

Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	10.0J	250	01/26/17 16:16	
Manganese, Dissolved	ug/L	<0.18	1.0	01/26/17 16:16	

LABORATORY CONTROL SAMPLE: 1460037

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	5000	5150	103	80-120	
Manganese, Dissolved	ug/L	500	521	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1460038 1460039

Parameter	Units	40144598002		40144598003		40144598004		40144598005		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Iron, Dissolved	ug/L	733	5000	5000	6020	6040	106	106	75-125	0	20		
Manganese, Dissolved	ug/L	115	500	500	660	664	109	110	75-125	1	20		

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QUALITY CONTROL DATA

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

QC Batch: 246648 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
 Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007, 40144598008

METHOD BLANK: 1458318 Matrix: Water
 Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007, 40144598008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	01/20/17 07:10	
Ethylbenzene	ug/L	<0.50	1.0	01/20/17 07:10	
m&p-Xylene	ug/L	<1.0	2.0	01/20/17 07:10	
Naphthalene	ug/L	<2.5	5.0	01/20/17 07:10	
o-Xylene	ug/L	<0.50	1.0	01/20/17 07:10	
Toluene	ug/L	<0.50	1.0	01/20/17 07:10	
4-Bromofluorobenzene (S)	%	83	70-130	01/20/17 07:10	
Dibromofluoromethane (S)	%	103	70-130	01/20/17 07:10	
Toluene-d8 (S)	%	97	70-130	01/20/17 07:10	

LABORATORY CONTROL SAMPLE: 1458319

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	54.4	109	60-135	
Ethylbenzene	ug/L	50	58.1	116	70-136	
m&p-Xylene	ug/L	100	118	118	70-138	
o-Xylene	ug/L	50	58.5	117	70-134	
Toluene	ug/L	50	59.6	119	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1458320 1458321

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40144598002 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	529	200	200	731	717	101	94	57-138	2	20
Ethylbenzene	ug/L	118	200	200	371	359	127	121	70-138	3	20
m&p-Xylene	ug/L	10.8	400	400	507	488	124	119	70-140	4	20
o-Xylene	ug/L	15.0	200	200	269	260	127	122	70-134	3	20
Toluene	ug/L	2.8J	200	200	244	233	121	115	70-130	5	20
4-Bromofluorobenzene (S)	%						105	103	70-130		
Dibromofluoromethane (S)	%						99	99	70-130		
Toluene-d8 (S)	%						102	102	70-130		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

QC Batch: 246630

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

METHOD BLANK: 1458202

Matrix: Water

Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.075	0.22	01/18/17 19:37	
Sulfate	mg/L	<1.0	3.0	01/18/17 19:37	

LABORATORY CONTROL SAMPLE: 1458203

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	1.5	1.6	109	90-110	
Sulfate	mg/L	20	21.7	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1458204 1458205

Parameter	Units	40144598002		40144598005		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Nitrate as N	mg/L	<0.075	1.5	1.5	1.6	110	110	90-110	0	15	
Sulfate	mg/L	<1.0	20	20	23.5	113	114	90-110	1	15	M0

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QUALITY CONTROL DATA

Project: W-1272000003 APPLETON MGP
Pace Project No.: 40144598

QC Batch: 247085 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

METHOD BLANK: 1460375 Matrix: Water
Associated Lab Samples: 40144598001, 40144598002, 40144598003, 40144598004, 40144598005, 40144598006, 40144598007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	01/26/17 09:27	

LABORATORY CONTROL SAMPLE: 1460376

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	94.7	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1460377 1460378

Parameter	Units	40144598002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	236	500	500	691	705	91	94	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1460379 1460380

Parameter	Units	40144682001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	6580	5000	5000	12200	12300	113	115	90-110	1	20	M0

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QUALIFIERS

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: W-1272000003 APPLETON MGP

Pace Project No.: 40144598

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40144598001	011817001	EPA 8015B Modified	246617		
40144598002	011817002	EPA 8015B Modified	246617		
40144598003	011817003	EPA 8015B Modified	246617		
40144598004	011817004	EPA 8015B Modified	246617		
40144598005	011817005	EPA 8015B Modified	246617		
40144598006	011817006	EPA 8015B Modified	246617		
40144598007	011817007	EPA 8015B Modified	246617		
40144598001	011817001	EPA 3010	247001	EPA 6020	247065
40144598002	011817002	EPA 3010	247001	EPA 6020	247065
40144598003	011817003	EPA 3010	247001	EPA 6020	247065
40144598004	011817004	EPA 3010	247001	EPA 6020	247065
40144598005	011817005	EPA 3010	247001	EPA 6020	247065
40144598006	011817006	EPA 3010	247001	EPA 6020	247065
40144598007	011817007	EPA 3010	247001	EPA 6020	247065
40144598001	011817001	EPA 8260	246648		
40144598002	011817002	EPA 8260	246648		
40144598003	011817003	EPA 8260	246648		
40144598004	011817004	EPA 8260	246648		
40144598005	011817005	EPA 8260	246648		
40144598006	011817006	EPA 8260	246648		
40144598007	011817007	EPA 8260	246648		
40144598008	011817008	EPA 8260	246648		
40144598001	011817001	EPA 300.0	246630		
40144598002	011817002	EPA 300.0	246630		
40144598003	011817003	EPA 300.0	246630		
40144598004	011817004	EPA 300.0	246630		
40144598005	011817005	EPA 300.0	246630		
40144598006	011817006	EPA 300.0	246630		
40144598007	011817007	EPA 300.0	246630		
40144598001	011817001	EPA 300.0	246630		
40144598002	011817002	EPA 300.0	246630		
40144598003	011817003	EPA 300.0	246630		
40144598004	011817004	EPA 300.0	246630		
40144598005	011817005	EPA 300.0	246630		
40144598006	011817006	EPA 300.0	246630		
40144598007	011817007	EPA 300.0	246630		
40144598001	011817001	EPA 310.2	247085		
40144598002	011817002	EPA 310.2	247085		
40144598003	011817003	EPA 310.2	247085		
40144598004	011817004	EPA 310.2	247085		
40144598005	011817005	EPA 310.2	247085		
40144598006	011817006	EPA 310.2	247085		
40144598007	011817007	EPA 310.2	247085		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical™

Client Name: We Energies / NRT Project # **WO# : 40144598**

Courier: Fed Ex UPS Client Pace Other: _____
Tracking #: _____



Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROI /Corr: _____ Biological Tissue is Frozen: yes

Temp Blank Present: yes no no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 1/18/17
Initials: BA

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>003 2 vials no ID - matched by time</u>
-Includes date/time/ID/Analysis Matrix:		<u>1/18/17</u> <u>W</u> <u>KT 1/18/17</u>
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤ 2; NaOH+ZnAct ≥ 9, NaOH ≥ 12) exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Initial when completed	<u>BA</u>	Lab Std #ID of preservative
Date/Time:		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	<u>372</u>	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ If checked, see attached form for additional comments

Comments/ Resolution: _____

Project Manager Review:

BA Date: 1-19-17

May 01, 2017

David Kollakowsky
We Energies
333 W. Everett St
Room P129
Milwaukee, WI 532012179

RE: Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

Dear David Kollakowsky:

Enclosed are the analytical results for sample(s) received by the laboratory on April 20, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Frank Dombrowski, WE Energies
Brian Hennings, NATURAL RESOURCE TECHNOLOGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40148670001	PZ-20B	Water	04/19/17 13:10	04/20/17 12:18
40148670002	PZ-21B	Water	04/19/17 15:05	04/20/17 12:18
40148670003	PZ-22B	Water	04/19/17 14:14	04/20/17 12:18
40148670004	PZ-12B	Water	04/19/17 16:33	04/20/17 12:18
40148670005	MW-2R	Water	04/19/17 11:53	04/20/17 12:18
40148670006	MW-20	Water	04/19/17 12:33	04/20/17 12:18
40148670007	MW-21	Water	04/19/17 14:35	04/20/17 12:18
40148670008	MW-13R	Water	04/19/17 15:29	04/20/17 12:18
40148670009	MW-19	Water	04/19/17 11:22	04/20/17 12:18
40148670010	MW-12R	Water	04/19/17 15:57	04/20/17 12:18
40148670011	QC-1	Water	04/19/17 00:00	04/20/17 12:18
40148670012	TRIP BLANK	Water	04/19/17 00:00	04/20/17 12:18
40148670013	MW-24	Water	04/20/17 07:17	04/20/17 12:18
40148670014	MW-25	Water	04/20/17 07:47	04/20/17 12:18
40148670015	MW-26	Water	04/20/17 10:15	04/20/17 12:18
40148670016	MW-27	Water	04/20/17 08:44	04/20/17 12:18
40148670017	MW-28	Water	04/20/17 09:39	04/20/17 12:18
40148670018	PZ-23	Water	04/20/17 08:14	04/20/17 12:18
40148670019	PZ-27	Water	04/20/17 09:06	04/20/17 12:18
40148670020	QCFB	Water	04/20/17 10:27	04/20/17 12:18
40148670021	MW22	Water	04/19/17 13:52	04/20/17 12:18

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SAMPLE ANALYTE COUNT

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40148670001	PZ-20B	EPA 8260	MDS	5
40148670002	PZ-21B	EPA 8260	MDS	5
40148670003	PZ-22B	EPA 8260	MDS	5
40148670004	PZ-12B	EPA 8260	MDS	5
40148670005	MW-2R	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40148670006	MW-20	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40148670007	MW-21	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40148670008	MW-13R	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40148670009	MW-19	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40148670010	MW-12R	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10

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SAMPLE ANALYTE COUNT

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40148670011	QC-1	EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
40148670012	TRIP BLANK	EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40148670013	MW-24	EPA 8260	MDS	10
		EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
40148670014	MW-25	EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
40148670015	MW-26	EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
40148670016	MW-27	EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
40148670017	MW-28	EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 8015B Modified	ALD	1

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40148670018	PZ-23	EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
40148670019	PZ-27	EPA 310.2	DAW	1
		EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
40148670020	QCFB	EPA 310.2	DAW	1
		EPA 6020	DS1	3
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
		EPA 310.2	DAW	1
40148670021	MW22	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	3
		EPA 8260	MDS	10
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: PZ-20B									
Lab ID: 40148670001 Collected: 04/19/17 13:10 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	0.64J	ug/L	1.0	0.50	1		04/21/17 12:20	71-43-2	
Naphthalene	11.4	ug/L	5.0	2.5	1		04/21/17 12:20	91-20-3	
Surrogates									
Dibromofluoromethane (S)	117	%	70-130		1		04/21/17 12:20	1868-53-7	
Toluene-d8 (S)	90	%	70-130		1		04/21/17 12:20	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		04/21/17 12:20	460-00-4	

Sample: PZ-21B									
Lab ID: 40148670002 Collected: 04/19/17 15:05 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		04/21/17 12:42	71-43-2	
Naphthalene	4.4J	ug/L	5.0	2.5	1		04/21/17 12:42	91-20-3	
Surrogates									
Dibromofluoromethane (S)	115	%	70-130		1		04/21/17 12:42	1868-53-7	
Toluene-d8 (S)	90	%	70-130		1		04/21/17 12:42	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		04/21/17 12:42	460-00-4	

Sample: PZ-22B									
Lab ID: 40148670003 Collected: 04/19/17 14:14 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	4.8J	ug/L	5.0	2.5	5		04/24/17 11:21	71-43-2	
Naphthalene	678	ug/L	25.0	12.5	5		04/24/17 11:21	91-20-3	
Surrogates									
Dibromofluoromethane (S)	113	%	70-130		5		04/24/17 11:21	1868-53-7	
Toluene-d8 (S)	88	%	70-130		5		04/24/17 11:21	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		5		04/24/17 11:21	460-00-4	

Sample: PZ-12B									
Lab ID: 40148670004 Collected: 04/19/17 16:33 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		04/21/17 13:03	71-43-2	M1
Naphthalene	<2.5	ug/L	5.0	2.5	1		04/21/17 13:03	91-20-3	
Surrogates									
Dibromofluoromethane (S)	115	%	70-130		1		04/21/17 13:03	1868-53-7	
Toluene-d8 (S)	90	%	70-130		1		04/21/17 13:03	2037-26-5	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: PZ-12B **Lab ID: 40148670004** Collected: 04/19/17 16:33 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
<i>Surrogates</i>									
4-Bromofluorobenzene (S)	92	%	70-130		1		04/21/17 13:03	460-00-4	

Sample: MW-2R **Lab ID: 40148670005** Collected: 04/19/17 11:53 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	371	ug/L	7.0	3.4	2.5		04/21/17 10:07	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	2.0	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 09:08	7440-38-2	
Iron, Dissolved	535	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 09:08	7439-89-6	
Manganese, Dissolved	10.0	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 09:08	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	602	ug/L	10.0	5.0	10		04/21/17 16:37	71-43-2	
Ethylbenzene	238	ug/L	10.0	5.0	10		04/21/17 16:37	100-41-4	
Naphthalene	503	ug/L	50.0	25.0	10		04/21/17 16:37	91-20-3	
Toluene	21.9	ug/L	10.0	5.0	10		04/21/17 16:37	108-88-3	
Xylene (Total)	147	ug/L	30.0	15.0	10		04/21/17 16:37	1330-20-7	
m&p-Xylene	62.5	ug/L	20.0	10.0	10		04/21/17 16:37	179601-23-1	
o-Xylene	84.8	ug/L	10.0	5.0	10		04/21/17 16:37	95-47-6	
<i>Surrogates</i>									
Dibromofluoromethane (S)	118	%	70-130		10		04/21/17 16:37	1868-53-7	
Toluene-d8 (S)	90	%	70-130		10		04/21/17 16:37	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		10		04/21/17 16:37	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/20/17 20:41	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	234	mg/L	60.0	20.0	20		04/21/17 15:33	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	461	mg/L	47.0	14.1	2		04/26/17 12:04		

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-20 **Lab ID: 40148670006** Collected: 04/19/17 12:33 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	319	ug/L	7.0	3.4	2.5		04/21/17 10:14	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	139	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 09:35	7440-38-2	
Iron, Dissolved	168J	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 09:35	7439-89-6	
Manganese, Dissolved	1.4	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 09:35	7439-96-5	B
8260 MSV UST Analytical Method: EPA 8260									
Benzene	2080	ug/L	50.0	25.0	50		04/21/17 18:23	71-43-2	
Ethylbenzene	606	ug/L	50.0	25.0	50		04/21/17 18:23	100-41-4	
Naphthalene	5660	ug/L	250	125	50		04/21/17 18:23	91-20-3	
Toluene	930	ug/L	50.0	25.0	50		04/21/17 18:23	108-88-3	
Xylene (Total)	939	ug/L	150	75.0	50		04/21/17 18:23	1330-20-7	
m&p-Xylene	529	ug/L	100	50.0	50		04/21/17 18:23	179601-23-1	
o-Xylene	410	ug/L	50.0	25.0	50		04/21/17 18:23	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	70-130		50		04/21/17 18:23	1868-53-7	
Toluene-d8 (S)	90	%	70-130		50		04/21/17 18:23	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		50		04/21/17 18:23	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/20/17 20:53	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	510	mg/L	60.0	20.0	20		04/21/17 15:45	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	135	mg/L	23.5	7.0	1		04/26/17 12:06		

Sample: MW-21 **Lab ID: 40148670007** Collected: 04/19/17 14:35 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	31.0	ug/L	2.8	1.4	1		04/21/17 08:22	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	130	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 09:49	7440-38-2	
Iron, Dissolved	246J	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 09:49	7439-89-6	
Manganese, Dissolved	0.62J	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 09:49	7439-96-5	B
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1190	ug/L	100	50.0	100		04/21/17 18:45	71-43-2	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-21 **Lab ID: 40148670007** Collected: 04/19/17 14:35 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Ethylbenzene	224	ug/L	100	50.0	100		04/21/17 18:45	100-41-4	
Naphthalene	9320	ug/L	500	250	100		04/21/17 18:45	91-20-3	
Toluene	1040	ug/L	100	50.0	100		04/21/17 18:45	108-88-3	
Xylene (Total)	912	ug/L	300	150	100		04/21/17 18:45	1330-20-7	
m&p-Xylene	574	ug/L	200	100	100		04/21/17 18:45	179601-23-1	
o-Xylene	338	ug/L	100	50.0	100		04/21/17 18:45	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	70-130		100		04/21/17 18:45	1868-53-7	
Toluene-d8 (S)	89	%	70-130		100		04/21/17 18:45	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		100		04/21/17 18:45	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<1.5	mg/L	4.5	1.5	20		04/21/17 15:56	14797-55-8	D3,H5
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	549	mg/L	60.0	20.0	20		04/21/17 15:56	14808-79-8	M0
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	130	mg/L	47.0	14.1	2		04/26/17 12:06		M0

Sample: MW-13R **Lab ID: 40148670008** Collected: 04/19/17 15:29 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	536	ug/L	11.2	5.5	4		04/21/17 10:21	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	56.0	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:09	7440-38-2	
Iron, Dissolved	610	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:09	7439-89-6	
Manganese, Dissolved	49.2	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:09	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	2390	ug/L	40.0	20.0	40		04/21/17 18:02	71-43-2	
Ethylbenzene	459	ug/L	40.0	20.0	40		04/21/17 18:02	100-41-4	
Naphthalene	4900	ug/L	200	100	40		04/21/17 18:02	91-20-3	
Toluene	438	ug/L	40.0	20.0	40		04/21/17 18:02	108-88-3	
Xylene (Total)	921	ug/L	120	60.0	40		04/21/17 18:02	1330-20-7	
m&p-Xylene	630	ug/L	80.0	40.0	40		04/21/17 18:02	179601-23-1	
o-Xylene	292	ug/L	40.0	20.0	40		04/21/17 18:02	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	70-130		40		04/21/17 18:02	1868-53-7	
Toluene-d8 (S)	90	%	70-130		40		04/21/17 18:02	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		40		04/21/17 18:02	460-00-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-13R Lab ID: 40148670008 Collected: 04/19/17 15:29 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<1.5	mg/L	4.5	1.5	20		04/21/17 16:41	14797-55-8	D3,H5
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	1030	mg/L	60.0	20.0	20		04/21/17 16:41	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	209	mg/L	117	35.2	5		04/26/17 12:08		

Sample: MW-19 Lab ID: 40148670009 Collected: 04/19/17 11:22 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	663	ug/L	14.0	6.8	5		04/21/17 10:28	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	1.6	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:16	7440-38-2	
Iron, Dissolved	588	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:16	7439-89-6	
Manganese, Dissolved	12.3	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:16	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	637	ug/L	2.5	1.2	2.5		04/21/17 14:50	71-43-2	
Ethylbenzene	67.0	ug/L	2.5	1.2	2.5		04/21/17 14:50	100-41-4	
Naphthalene	12.1J	ug/L	12.5	6.2	2.5		04/21/17 14:50	91-20-3	
Toluene	3.3	ug/L	2.5	1.2	2.5		04/21/17 14:50	108-88-3	
Xylene (Total)	32.1	ug/L	7.5	3.8	2.5		04/21/17 14:50	1330-20-7	
m&p-Xylene	8.5	ug/L	5.0	2.5	2.5		04/21/17 14:50	179601-23-1	
o-Xylene	23.6	ug/L	2.5	1.2	2.5		04/21/17 14:50	95-47-6	
Surrogates									
Dibromofluoromethane (S)	115	%	70-130		2.5		04/21/17 14:50	1868-53-7	
Toluene-d8 (S)	89	%	70-130		2.5		04/21/17 14:50	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		2.5		04/21/17 14:50	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<1.5	mg/L	4.5	1.5	20		04/21/17 17:28	14797-55-8	D3,H5
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	521	mg/L	60.0	20.0	20		04/21/17 17:28	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	474	mg/L	47.0	14.1	2		04/26/17 12:09		

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-12R **Lab ID: 40148670010** Collected: 04/19/17 15:57 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	4110	ug/L	70.0	34.2	25		04/21/17 10:35	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	2.2	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:22	7440-38-2	
Iron, Dissolved	261	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:22	7439-89-6	
Manganese, Dissolved	3.0	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:22	7439-96-5	B
8260 MSV UST Analytical Method: EPA 8260									
Benzene	44.3	ug/L	10.0	5.0	10		04/21/17 16:58	71-43-2	
Ethylbenzene	85.0	ug/L	10.0	5.0	10		04/21/17 16:58	100-41-4	
Naphthalene	1110	ug/L	50.0	25.0	10		04/21/17 16:58	91-20-3	
Toluene	12.9	ug/L	10.0	5.0	10		04/21/17 16:58	108-88-3	
Xylene (Total)	66.8	ug/L	30.0	15.0	10		04/21/17 16:58	1330-20-7	
m&p-Xylene	29.8	ug/L	20.0	10.0	10		04/21/17 16:58	179601-23-1	
o-Xylene	37.0	ug/L	10.0	5.0	10		04/21/17 16:58	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	70-130		10		04/21/17 16:58	1868-53-7	
Toluene-d8 (S)	90	%	70-130		10		04/21/17 16:58	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130		10		04/21/17 16:58	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/20/17 22:02	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	105	mg/L	15.0	5.0	5		04/21/17 17:39	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	272	mg/L	23.5	7.0	1		04/26/17 12:10		

Sample: QC-1 **Lab ID: 40148670011** Collected: 04/19/17 00:00 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	859	ug/L	14.0	6.8	5		04/21/17 10:41	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	2.0	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:29	7440-38-2	
Iron, Dissolved	544	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:29	7439-89-6	
Manganese, Dissolved	9.8	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:29	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	543	ug/L	2.5	1.2	2.5		04/21/17 15:11	71-43-2	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: QC-1 **Lab ID: 40148670011** Collected: 04/19/17 00:00 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Ethylbenzene	219	ug/L	2.5	1.2	2.5		04/21/17 15:11	100-41-4	
Naphthalene	474	ug/L	12.5	6.2	2.5		04/21/17 15:11	91-20-3	
Toluene	18.8	ug/L	2.5	1.2	2.5		04/21/17 15:11	108-88-3	
Xylene (Total)	140	ug/L	7.5	3.8	2.5		04/21/17 15:11	1330-20-7	
m&p-Xylene	55.8	ug/L	5.0	2.5	2.5		04/21/17 15:11	179601-23-1	
o-Xylene	83.9	ug/L	2.5	1.2	2.5		04/21/17 15:11	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	70-130		2.5		04/21/17 15:11	1868-53-7	
Toluene-d8 (S)	90	%	70-130		2.5		04/21/17 15:11	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		2.5		04/21/17 15:11	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/20/17 22:48	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	265	mg/L	30.0	10.0	10		04/21/17 17:51	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	366	mg/L	117	35.2	5		04/26/17 13:18		

Sample: TRIP BLANK **Lab ID: 40148670012** Collected: 04/19/17 00:00 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		04/21/17 11:59	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		04/21/17 11:59	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		04/21/17 11:59	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		04/21/17 11:59	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		04/21/17 11:59	1330-20-7	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		04/21/17 11:59	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		04/21/17 11:59	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	70-130		1		04/21/17 11:59	1868-53-7	HS
Toluene-d8 (S)	92	%	70-130		1		04/21/17 11:59	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		04/21/17 11:59	460-00-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-24 **Lab ID: 40148670013** Collected: 04/20/17 07:17 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	15.3	ug/L	2.8	1.4	1		04/21/17 08:56	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	0.46J	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:36	7440-38-2	
Iron, Dissolved	894	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:36	7439-89-6	
Manganese, Dissolved	93.5	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:36	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		04/21/17 13:46	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		04/21/17 13:46	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		04/21/17 13:46	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		04/21/17 13:46	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		04/21/17 13:46	1330-20-7	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		04/21/17 13:46	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		04/21/17 13:46	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	70-130		1		04/21/17 13:46	1868-53-7	
Toluene-d8 (S)	91	%	70-130		1		04/21/17 13:46	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		04/21/17 13:46	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	0.44	mg/L	0.22	0.075	1		04/20/17 23:00	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	96.3	mg/L	15.0	5.0	5		04/21/17 18:02	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	436	mg/L	47.0	14.1	2		04/26/17 12:12		

Sample: MW-25 **Lab ID: 40148670014** Collected: 04/20/17 07:47 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	2.7	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:43	7440-38-2	
Iron, Dissolved	86.0J	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:43	7439-89-6	
Manganese, Dissolved	0.27J	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:43	7439-96-5	B
8260 MSV UST Analytical Method: EPA 8260									
Benzene	3.7	ug/L	1.0	0.50	1		04/21/17 13:25	71-43-2	
Ethylbenzene	9.0	ug/L	1.0	0.50	1		04/21/17 13:25	100-41-4	
Naphthalene	141	ug/L	5.0	2.5	1		04/21/17 13:25	91-20-3	
Toluene	1.8	ug/L	1.0	0.50	1		04/21/17 13:25	108-88-3	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-25 **Lab ID: 40148670014** Collected: 04/20/17 07:47 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Xylene (Total)	13.4	ug/L	3.0	1.5	1		04/21/17 13:25	1330-20-7	
m&p-Xylene	9.0	ug/L	2.0	1.0	1		04/21/17 13:25	179601-23-1	
o-Xylene	4.4	ug/L	1.0	0.50	1		04/21/17 13:25	95-47-6	
Surrogates									
Dibromofluoromethane (S)	117	%	70-130		1		04/21/17 13:25	1868-53-7	
Toluene-d8 (S)	89	%	70-130		1		04/21/17 13:25	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		1		04/21/17 13:25	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.75	mg/L	2.2	0.75	10		04/21/17 18:14	14797-55-8	D3
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	52.5	mg/L	30.0	10.0	10		04/21/17 18:14	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	497	mg/L	117	35.2	5		04/26/17 13:19		

Sample: MW-26 **Lab ID: 40148670015** Collected: 04/20/17 10:15 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	5980	ug/L	112	54.8	40		04/21/17 10:48	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	85.9	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:49	7440-38-2	
Iron, Dissolved	2610	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:49	7439-89-6	
Manganese, Dissolved	282	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:49	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	24.7	ug/L	1.0	0.50	1		04/21/17 14:07	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		04/21/17 14:07	100-41-4	
Naphthalene	10.0	ug/L	5.0	2.5	1		04/21/17 14:07	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		04/21/17 14:07	108-88-3	
Xylene (Total)	1.6J	ug/L	3.0	1.5	1		04/21/17 14:07	1330-20-7	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		04/21/17 14:07	179601-23-1	
o-Xylene	0.95J	ug/L	1.0	0.50	1		04/21/17 14:07	95-47-6	
Surrogates									
Dibromofluoromethane (S)	118	%	70-130		1		04/21/17 14:07	1868-53-7	
Toluene-d8 (S)	89	%	70-130		1		04/21/17 14:07	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		04/21/17 14:07	460-00-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW-26 Lab ID: 40148670015 Collected: 04/20/17 10:15 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/20/17 23:23	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	43.7	mg/L	3.0	1.0	1		04/21/17 18:25	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	387	mg/L	117	35.2	5		04/26/17 13:20		

Sample: MW-27 Lab ID: 40148670016 Collected: 04/20/17 08:44 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2120	ug/L	70.0	34.2	25		04/21/17 11:09	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	6.9	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 10:56	7440-38-2	
Iron, Dissolved	1030	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 10:56	7439-89-6	
Manganese, Dissolved	97.4	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 10:56	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	569	ug/L	5.0	2.5	5		04/21/17 15:54	71-43-2	
Ethylbenzene	94.4	ug/L	5.0	2.5	5		04/21/17 15:54	100-41-4	
Naphthalene	620	ug/L	25.0	12.5	5		04/21/17 15:54	91-20-3	
Toluene	2.8J	ug/L	5.0	2.5	5		04/21/17 15:54	108-88-3	
Xylene (Total)	23.3	ug/L	15.0	7.5	5		04/21/17 15:54	1330-20-7	
m&p-Xylene	9.1J	ug/L	10.0	5.0	5		04/21/17 15:54	179601-23-1	
o-Xylene	14.2	ug/L	5.0	2.5	5		04/21/17 15:54	95-47-6	
Surrogates									
Dibromofluoromethane (S)	118	%	70-130		5		04/21/17 15:54	1868-53-7	
Toluene-d8 (S)	90	%	70-130		5		04/21/17 15:54	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130		5		04/21/17 15:54	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/20/17 23:34	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	6.2	mg/L	3.0	1.0	1		04/21/17 18:37	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	225	mg/L	23.5	7.0	1		04/26/17 12:16		

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: **MW-28** Lab ID: **40148670017** Collected: 04/20/17 09:39 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2400	ug/L	28.0	13.7	10		04/21/17 11:16	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	32.3	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 11:03	7440-38-2	
Iron, Dissolved	1370	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 11:03	7439-89-6	
Manganese, Dissolved	465	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 11:03	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		04/21/17 14:28	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		04/21/17 14:28	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		04/21/17 14:28	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		04/21/17 14:28	108-88-3	
Xylene (Total)	<1.5	ug/L	3.0	1.5	1		04/21/17 14:28	1330-20-7	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		04/21/17 14:28	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		04/21/17 14:28	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	70-130		1		04/21/17 14:28	1868-53-7	
Toluene-d8 (S)	88	%	70-130		1		04/21/17 14:28	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		04/21/17 14:28	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/21/17 00:09	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	12.8	mg/L	3.0	1.0	1		04/21/17 19:12	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	198	mg/L	23.5	7.0	1		04/26/17 12:16		

Sample: **PZ-23** Lab ID: **40148670018** Collected: 04/20/17 08:14 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	6.8	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 11:09	7440-38-2	
Iron, Dissolved	344	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 11:09	7439-89-6	
Manganese, Dissolved	75.6	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 11:09	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	819	ug/L	10.0	5.0	10		04/21/17 17:19	71-43-2	
Ethylbenzene	55.4	ug/L	10.0	5.0	10		04/21/17 17:19	100-41-4	
Naphthalene	507	ug/L	50.0	25.0	10		04/21/17 17:19	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		04/21/17 17:19	108-88-3	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: PZ-23 **Lab ID: 40148670018** Collected: 04/20/17 08:14 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Xylene (Total)	19.0J	ug/L	30.0	15.0	10		04/21/17 17:19	1330-20-7	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		04/21/17 17:19	179601-23-1	
o-Xylene	10.9	ug/L	10.0	5.0	10		04/21/17 17:19	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	70-130		10		04/21/17 17:19	1868-53-7	
Toluene-d8 (S)	91	%	70-130		10		04/21/17 17:19	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		10		04/21/17 17:19	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/21/17 00:21	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	6.6	mg/L	3.0	1.0	1		04/21/17 19:58	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	213	mg/L	47.0	14.1	2		04/26/17 12:17		

Sample: PZ-27 **Lab ID: 40148670019** Collected: 04/20/17 09:06 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2150	ug/L	28.0	13.7	10		04/21/17 11:22	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	3.5	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 11:30	7440-38-2	
Iron, Dissolved	840	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 11:30	7439-89-6	
Manganese, Dissolved	109	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 11:30	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	506	ug/L	10.0	5.0	10		04/21/17 16:15	71-43-2	
Ethylbenzene	45.7	ug/L	10.0	5.0	10		04/21/17 16:15	100-41-4	
Naphthalene	438	ug/L	50.0	25.0	10		04/21/17 16:15	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		04/21/17 16:15	108-88-3	
Xylene (Total)	18.8J	ug/L	30.0	15.0	10		04/21/17 16:15	1330-20-7	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		04/21/17 16:15	179601-23-1	
o-Xylene	11.5	ug/L	10.0	5.0	10		04/21/17 16:15	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	70-130		10		04/21/17 16:15	1868-53-7	
Toluene-d8 (S)	90	%	70-130		10		04/21/17 16:15	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		10		04/21/17 16:15	460-00-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: PZ-27 Lab ID: 40148670019 Collected: 04/20/17 09:06 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/21/17 00:32	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	2.9J	mg/L	3.0	1.0	1		04/21/17 20:09	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	224	mg/L	23.5	7.0	1		04/26/17 12:41		

Sample: QCFB Lab ID: 40148670020 Collected: 04/20/17 10:27 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	<0.099	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 08:55	7440-38-2	
Iron, Dissolved	27.4J	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 08:55	7439-89-6	
Manganese, Dissolved	0.35J	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 08:55	7439-96-5	B
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/21/17 01:18	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		04/21/17 01:18	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	7.4J	mg/L	23.5	7.0	1		04/26/17 12:41		B

Sample: MW22 Lab ID: 40148670021 Collected: 04/19/17 13:52 Received: 04/20/17 12:18 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2260	ug/L	56.0	27.4	20		04/21/17 11:29	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	5.7	ug/L	1.0	0.099	1	04/26/17 08:41	04/27/17 11:36	7440-38-2	
Iron, Dissolved	254	ug/L	250	10.0	1	04/26/17 08:41	04/27/17 11:36	7439-89-6	
Manganese, Dissolved	40.3	ug/L	1.0	0.18	1	04/26/17 08:41	04/27/17 11:36	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1770	ug/L	25.0	12.5	25		04/21/17 17:40	71-43-2	
Ethylbenzene	489	ug/L	25.0	12.5	25		04/21/17 17:40	100-41-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Sample: MW22 **Lab ID: 40148670021** Collected: 04/19/17 13:52 Received: 04/20/17 12:18 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Naphthalene	2660	ug/L	125	62.5	25		04/21/17 17:40	91-20-3	
Toluene	<12.5	ug/L	25.0	12.5	25		04/21/17 17:40	108-88-3	
Xylene (Total)	77.7	ug/L	75.0	37.5	25		04/21/17 17:40	1330-20-7	
m&p-Xylene	31.9J	ug/L	50.0	25.0	25		04/21/17 17:40	179601-23-1	
o-Xylene	45.8	ug/L	25.0	12.5	25		04/21/17 17:40	95-47-6	
Surrogates									
Dibromofluoromethane (S)	115	%	70-130		25		04/21/17 17:40	1868-53-7	
Toluene-d8 (S)	92	%	70-130		25		04/21/17 17:40	2037-26-5	
4-Bromofluorobenzene (S)	95	%	70-130		25		04/21/17 17:40	460-00-4	
300.0 IC Anions		Analytical Method: EPA 300.0							
Nitrate as N	<0.075	mg/L	0.22	0.075	1		04/21/17 01:30	14797-55-8	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Sulfate	4.5	mg/L	3.0	1.0	1		04/21/17 01:30	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	410	mg/L	117	35.2	5		04/26/17 13:23		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

QC Batch: 253435 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670015, 40148670016, 40148670017, 40148670019, 40148670021

METHOD BLANK: 1495121 Matrix: Water
Associated Lab Samples: 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670015, 40148670016, 40148670017, 40148670019, 40148670021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	ug/L	<1.4	2.8	04/21/17 07:37	

LABORATORY CONTROL SAMPLE & LCSD: 1495122 1495123

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	28.6	30.7	31.0	107	108	73-122	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1495258 1495259

Parameter	Units	40148670013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	15.3	28.6	28.6	42.5	42.2	95	94	15-187	1	20	

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

QC Batch: 253740 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018, 40148670019, 40148670020, 40148670021

METHOD BLANK: 1496520 Matrix: Water
Associated Lab Samples: 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018, 40148670019, 40148670020, 40148670021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.099	1.0	04/27/17 08:48	
Iron, Dissolved	ug/L	<10.0	250	04/27/17 08:48	
Manganese, Dissolved	ug/L	0.53J	1.0	04/27/17 08:48	

LABORATORY CONTROL SAMPLE: 1496521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	529	106	80-120	
Iron, Dissolved	ug/L	5000	5090	102	80-120	
Manganese, Dissolved	ug/L	500	521	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1496522 1496523

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40148670005 Result	Spike Conc.	Spike Conc.	MS Result						
Arsenic, Dissolved	ug/L	2.0	500	500	441	529	88	105	75-125	18	20
Iron, Dissolved	ug/L	535	5000	5000	4560	5470	80	99	75-125	18	20
Manganese, Dissolved	ug/L	10.0	500	500	429	516	84	101	75-125	18	20

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

QC Batch: 253456 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40148670001, 40148670002, 40148670003, 40148670004, 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670012, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018, 40148670019, 40148670021

METHOD BLANK: 1495190 Matrix: Water
Associated Lab Samples: 40148670001, 40148670002, 40148670003, 40148670004, 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670012, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018, 40148670019, 40148670021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	04/21/17 10:33	
Ethylbenzene	ug/L	<0.50	1.0	04/21/17 10:33	
m&p-Xylene	ug/L	<1.0	2.0	04/21/17 10:33	
Naphthalene	ug/L	<2.5	5.0	04/21/17 10:33	
o-Xylene	ug/L	<0.50	1.0	04/21/17 10:33	
Toluene	ug/L	<0.50	1.0	04/21/17 10:33	
Xylene (Total)	ug/L	<1.5	3.0	04/21/17 10:33	
4-Bromofluorobenzene (S)	%	95	70-130	04/21/17 10:33	
Dibromofluoromethane (S)	%	114	70-130	04/21/17 10:33	
Toluene-d8 (S)	%	91	70-130	04/21/17 10:33	

LABORATORY CONTROL SAMPLE: 1495191

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	63.8	128	60-135	
Ethylbenzene	ug/L	50	53.3	107	70-136	
m&p-Xylene	ug/L	100	107	107	70-138	
o-Xylene	ug/L	50	52.2	104	70-134	
Toluene	ug/L	50	53.1	106	70-130	
Xylene (Total)	ug/L	150	160	106	70-135	
4-Bromofluorobenzene (S)	%			103	70-130	
Dibromofluoromethane (S)	%			114	70-130	
Toluene-d8 (S)	%			93	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1495249 1495250

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40148670004 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<0.50	50	50	72.3	76.6	145	153	57-138	6	20	M1
Ethylbenzene	ug/L	<0.50	50	50	58.8	60.1	118	120	70-138	2	20	
m&p-Xylene	ug/L	<1.0	100	100	119	124	119	124	70-140	4	20	
o-Xylene	ug/L	<0.50	50	50	57.8	60.4	116	121	70-134	4	20	
Toluene	ug/L	<0.50	50	50	58.4	61.1	117	122	70-130	4	20	
Xylene (Total)	ug/L	<1.5	150	150	177	185	118	123	70-135	4	20	
4-Bromofluorobenzene (S)	%						102	99	70-130			

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1495249												1495250	
Parameter	Units	40148670004 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
			Spike Conc.	Spike Conc.									
Dibromofluoromethane (S)	%							115	115	70-130			
Toluene-d8 (S)	%							92	92	70-130			

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

QC Batch: 253392 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018, 40148670019, 40148670020, 40148670021

METHOD BLANK: 1494805 Matrix: Water
Associated Lab Samples: 40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018, 40148670019, 40148670020, 40148670021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.075	0.22	04/20/17 20:18	
Sulfate	mg/L	<1.0	3.0	04/21/17 14:47	

LABORATORY CONTROL SAMPLE: 1494806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	1.5	1.5	102	90-110	
Sulfate	mg/L	20	20.8	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1494807 1494808

Parameter	Units	40148670007 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Spike Conc.	MSD Result						
Nitrate as N	mg/L	<1.5	30	30	31.9	31.5	105	104	90-110	1	15	
Sulfate	mg/L	549	400	400	891	867	86	80	90-110	3	15 M0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1494809 1494810

Parameter	Units	40148670016 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Spike Conc.	MSD Result						
Nitrate as N	mg/L	<0.075	1.5	1.5	1.7	1.7	110	110	90-110	0	15	
Sulfate	mg/L	6.2	20	20	27.3	27.7	106	108	90-110	2	15	

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

QC Batch:	253880	Analysis Method:	EPA 310.2
QC Batch Method:	EPA 310.2	Analysis Description:	310.2 Alkalinity
Associated Lab Samples:	40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018		

METHOD BLANK:	1497137	Matrix:	Water
Associated Lab Samples:	40148670005, 40148670006, 40148670007, 40148670008, 40148670009, 40148670010, 40148670011, 40148670013, 40148670014, 40148670015, 40148670016, 40148670017, 40148670018		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	04/26/17 11:58	

LABORATORY CONTROL SAMPLE: 1497138

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	99.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497139 1497140

Parameter	Units	40148670007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	130	200	200	187	196	28	33	90-110	5	20	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497141 1497142

Parameter	Units	40148670018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	213	200	200	411	410	99	99	90-110	0	20	

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

QC Batch: 253882 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40148670019, 40148670020, 40148670021

METHOD BLANK: 1497149 Matrix: Water
Associated Lab Samples: 40148670019, 40148670020, 40148670021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	8.1J	23.5	04/26/17 12:40	

LABORATORY CONTROL SAMPLE: 1497150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	103	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497151 1497152

Parameter	Units	40148716005		401487152		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO ₃	mg/L	106	200	261	266	77	80	90-110	2	20	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497153 1497154

Parameter	Units	40148812001		401488154		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Alkalinity, Total as CaCO ₃	mg/L	108	200	285	286	89	89	90-110	0	20	M0

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QUALIFIERS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

H5 Reanalysis conducted in excess of EPA method holding time. Results confirm original analysis performed in hold time.

HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148670005	MW-2R	EPA 8015B Modified	253435		
40148670006	MW-20	EPA 8015B Modified	253435		
40148670007	MW-21	EPA 8015B Modified	253435		
40148670008	MW-13R	EPA 8015B Modified	253435		
40148670009	MW-19	EPA 8015B Modified	253435		
40148670010	MW-12R	EPA 8015B Modified	253435		
40148670011	QC-1	EPA 8015B Modified	253435		
40148670013	MW-24	EPA 8015B Modified	253435		
40148670015	MW-26	EPA 8015B Modified	253435		
40148670016	MW-27	EPA 8015B Modified	253435		
40148670017	MW-28	EPA 8015B Modified	253435		
40148670019	PZ-27	EPA 8015B Modified	253435		
40148670021	MW22	EPA 8015B Modified	253435		
40148670005	MW-2R	EPA 3010	253740	EPA 6020	253938
40148670006	MW-20	EPA 3010	253740	EPA 6020	253938
40148670007	MW-21	EPA 3010	253740	EPA 6020	253938
40148670008	MW-13R	EPA 3010	253740	EPA 6020	253938
40148670009	MW-19	EPA 3010	253740	EPA 6020	253938
40148670010	MW-12R	EPA 3010	253740	EPA 6020	253938
40148670011	QC-1	EPA 3010	253740	EPA 6020	253938
40148670013	MW-24	EPA 3010	253740	EPA 6020	253938
40148670014	MW-25	EPA 3010	253740	EPA 6020	253938
40148670015	MW-26	EPA 3010	253740	EPA 6020	253938
40148670016	MW-27	EPA 3010	253740	EPA 6020	253938
40148670017	MW-28	EPA 3010	253740	EPA 6020	253938
40148670018	PZ-23	EPA 3010	253740	EPA 6020	253938
40148670019	PZ-27	EPA 3010	253740	EPA 6020	253938
40148670020	QCFB	EPA 3010	253740	EPA 6020	253938
40148670021	MW22	EPA 3010	253740	EPA 6020	253938
40148670001	PZ-20B	EPA 8260	253456		
40148670002	PZ-21B	EPA 8260	253456		
40148670003	PZ-22B	EPA 8260	253456		
40148670004	PZ-12B	EPA 8260	253456		
40148670005	MW-2R	EPA 8260	253456		
40148670006	MW-20	EPA 8260	253456		
40148670007	MW-21	EPA 8260	253456		
40148670008	MW-13R	EPA 8260	253456		
40148670009	MW-19	EPA 8260	253456		
40148670010	MW-12R	EPA 8260	253456		
40148670011	QC-1	EPA 8260	253456		
40148670012	TRIP BLANK	EPA 8260	253456		
40148670013	MW-24	EPA 8260	253456		
40148670014	MW-25	EPA 8260	253456		
40148670015	MW-26	EPA 8260	253456		
40148670016	MW-27	EPA 8260	253456		
40148670017	MW-28	EPA 8260	253456		
40148670018	PZ-23	EPA 8260	253456		
40148670019	PZ-27	EPA 8260	253456		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40148670

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148670021	MW22	EPA 8260	253456		
40148670005	MW-2R	EPA 300.0	253392		
40148670006	MW-20	EPA 300.0	253392		
40148670007	MW-21	EPA 300.0	253392		
40148670008	MW-13R	EPA 300.0	253392		
40148670009	MW-19	EPA 300.0	253392		
40148670010	MW-12R	EPA 300.0	253392		
40148670011	QC-1	EPA 300.0	253392		
40148670013	MW-24	EPA 300.0	253392		
40148670014	MW-25	EPA 300.0	253392		
40148670015	MW-26	EPA 300.0	253392		
40148670016	MW-27	EPA 300.0	253392		
40148670017	MW-28	EPA 300.0	253392		
40148670018	PZ-23	EPA 300.0	253392		
40148670019	PZ-27	EPA 300.0	253392		
40148670020	QCFB	EPA 300.0	253392		
40148670021	MW22	EPA 300.0	253392		
40148670005	MW-2R	EPA 300.0	253392		
40148670006	MW-20	EPA 300.0	253392		
40148670007	MW-21	EPA 300.0	253392		
40148670008	MW-13R	EPA 300.0	253392		
40148670009	MW-19	EPA 300.0	253392		
40148670010	MW-12R	EPA 300.0	253392		
40148670011	QC-1	EPA 300.0	253392		
40148670013	MW-24	EPA 300.0	253392		
40148670014	MW-25	EPA 300.0	253392		
40148670015	MW-26	EPA 300.0	253392		
40148670016	MW-27	EPA 300.0	253392		
40148670017	MW-28	EPA 300.0	253392		
40148670018	PZ-23	EPA 300.0	253392		
40148670019	PZ-27	EPA 300.0	253392		
40148670020	QCFB	EPA 300.0	253392		
40148670021	MW22	EPA 300.0	253392		
40148670005	MW-2R	EPA 310.2	253880		
40148670006	MW-20	EPA 310.2	253880		
40148670007	MW-21	EPA 310.2	253880		
40148670008	MW-13R	EPA 310.2	253880		
40148670009	MW-19	EPA 310.2	253880		
40148670010	MW-12R	EPA 310.2	253880		
40148670011	QC-1	EPA 310.2	253880		
40148670013	MW-24	EPA 310.2	253880		
40148670014	MW-25	EPA 310.2	253880		
40148670015	MW-26	EPA 310.2	253880		
40148670016	MW-27	EPA 310.2	253880		
40148670017	MW-28	EPA 310.2	253880		
40148670018	PZ-23	EPA 310.2	253880		
40148670019	PZ-27	EPA 310.2	253882		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40148670

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40148670020	QCFB	EPA 310.2	253882		
40148670021	MW22	EPA 310.2	253882		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: **WE Energies**
 Branch/Location: **LAB SERVICES**
 Project Contact: **DAVE KOLLAKOWSKI**
 Phone: **414-221-2835**
 Project Number: **AD-1272-000003**
 Project Name: **APPLETON MAT**
 Project State: **WI**
 Sampled By (Print): **BILL BRAUNSCHEIN**
 Sampled By (Sign): *[Signature]*
 PO #: **4760003357**

CHAIN OF CUSTODY

REGULATORY PROGRAM: **Regulatory Program**

Matrix Codes:
 A = Air, B = Biotia, C = Chertcoal, O = Oil, S = Soil, SI = Sludge, W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WM = Waste Water, WP = Wipe

Preservation Codes:
 A=None, B=HCL, C=H2SO4, D=HNO3, E=D1 Water, F=Methanol, G=NaOH, H=Sodium Bisulfate Solution, I=Sodium Thiosulfate, J=Other

FILTERED? (YES/NO)
 PRESERVATION (CODE)*

Y/N	Pick Letter	Analyses Requested
N	B	BENZENE AND NAPHTHALENE
N	B	BTEX AND NAPHTHALENE
Y	D	DISSOLVED METALS As, Fe, Mn
N	B	METHANE
N	A	NITRATE, SULFATE, ALKALINITY

PACE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX
001	PZ-20B	4-9-17	1310	GLU
002	PZ-21B	4-9-17	1505	
003	PZ-22B	4-9-17	1414	
004	PZ-12B	4-9-17	1633	
005	MW-22	4-9-17	1153	
006	MW-21	4-9-17	1233	
007	MW-21	4-9-17	1435	
008	MW-13R	4-9-17	1529	
009	MW-19	4-9-17	1122	
010	MW-12R	4-9-17	1557	
011	DC-1	4-9-17	?	GLU
012	M17 BLADE	4-9-17	-	

Relinquished By: *[Signature]* Date/Time: **4-20-17 1218** Received By: *[Signature]* Date/Time: **4-20-17 1218**

Relinquished By: *[Signature]* Date/Time: **4-20-17 1218** Received By: *[Signature]* Date/Time: **4-20-17 1218**

Relinquished By: *[Signature]* Date/Time: **4-20-17 1218** Received By: *[Signature]* Date/Time: **4-20-17 1218**

Relinquished By: *[Signature]* Date/Time: **4-20-17 1218** Received By: *[Signature]* Date/Time: **4-20-17 1218**

Quote #: **333 W. EVERETT ST MILWAUKEE, WI. 53203**

Mail To Contact: **DAVE KOLLAKOWSKI**

Mail To Company: **WE Energies**

Mail To Address: **333 W. EVERETT ST MILWAUKEE, WI. 53203**

Invoice To Contact: **ACCOUNTS PAYABLE**

Invoice To Company: **WE Energies**

Invoice To Address: **SAME**

Invoice To Phone: **3-400MB**

CLIENT COMMENTS: **3-400MB**

LAB COMMENTS (Lab Use Only): **6-400MB 2-350MB AD**

Profile #: **MSMSD 1840MB**

DATE: **4-20-17**

RECEIVED BY: **DAVE KOLLAKOWSKI**

DATE/TIME: **4-20-17 1218**

RECEIVED BY: **DAVE KOLLAKOWSKI**

DATE/TIME: **4-20-17 1218**

RECEIVED BY: **DAVE KOLLAKOWSKI**

DATE/TIME: **4-20-17 1218**

RECEIVED BY: **DAVE KOLLAKOWSKI**

DATE/TIME: **4-20-17 1218**

PACE Project No. **40148670**

Receipt Temp = **POTE**

Sample Receipt pH **OK/ Adjusted**

Cooler Custody Seal **Present / Not Present**

Intact / Not Intact

OR RESULTS TO: BRAD HEADINGS UPPER MIDWEST REGION
 Face Analytical! www.faceab.com
 MN: 612-607-1700 WI: 920-469-2436
 SSM 40148670 Page 1 of 1

(Please Print Clearly)

Company Name: W.E. Energies
 Branch/Location: LAB SERVICES
 Project Contact: DAVE KOLLAKOWSKI
 Phone: 414-221-2835
 Project Number: W-1272-000003
 Project Name: APR 2017 M67
 Project State: WI
 Sampled By (Print): BILL BAUDSCHULZE
 Sampled By (Sign): [Signature]
 PO #: 410000357
 Regulatory Program: [Blank]

Data Package Options (billable):
 EPA Level III
 EPA Level IV
 On your sample (billable)
 NOT needed on your sample

Matrix Codes:
 A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, SI = Sludge
 W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WP = Waste Water



CHAIN OF CUSTODY

Preservation Codes:
 A=None, B=HCL, C=H2SO4, D=HNO3, E=DI Water, F=Methanol, G=NaOH
 H=Sodium Bisulfate Solution, I=Sodium Thiosulfate, J=Other

FILTERED?
 (YES/NO)
 PRESERVATION (CODE):

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX	Analyses Requested
013	MW-24	4-20-17	07:17	GW	✓
014	MW-25	4-20-17	07:47	GW	✓
015	MW-26	4-20-17	10:15	GW	✓
016	MW-27	4-20-17	08:44	GW	✓
017	MW-28	4-20-17	09:39	GW	✓
018	72-23	4-20-17	18:14	GW	✓
019	72-27	4-20-17	09:06	GW	✓
020	ACFR	4-20-17	10:27	GW	✓
021	MW-23	4-19-17	13:52	W	✓

① In shipment Lab added to COC 4-20-17 saw

Y/N	Pick/Lab	ANALYSES REQUESTED
N	B	STEEL AND NAPHTHALENE
N	B	METHANE
Y	D	DISSOLVED METALS: AS, Fe, Mn
N		NITRATE, SULFATE, ALKALINITY

UPPER MIDWEST REGION
 MN: 612-607-1700
 WI: 920-469-2436

Page 1 of 1
 40148670

Quote #:

Mail To Contact: DAVE KOLLAKOWSKI
 Mail To Company: W.E. Energies
 Mail To Address: 333 W. EVERETT ST. MILWAUKEE WI 53203

Invoice To Contact: ACCIDENTS PAYABLE
 Invoice To Company: W.E. Energies
 Invoice To Address: SAME

Invoice To Phone:
 Invoice To Comments: LAB COMMENTS (Lab Use Only)
 Profile #

CLIENT COMMENTS:
 6-40 MW 15
 3-40 MW 15
 6-40 MW 15
 3-40 MW 15
 6-40 MW 15
 6-40 MW 15
 6-40 MW 15

Rush Turnaround Time Requested - Prelims
 (Rush TAT subject to approval/surcharge)
 Date Needed:

Relinquished By: [Signature]
 Date/Time: 4-20-17 12:18

Received By: [Signature]
 Date/Time: 4-20-17 12:18

PACE Project No. 40148670

Transmit Prelim Rush Results by (complete what you want):
 Email #1:
 Email #2:
 Telephone:
 Fax:

Relinquished By:
 Date/Time:

Received By:
 Date/Time:

Receipt Temp = ROTC
 Sample Receipt pH
 Cooler Custody Seal Present / Not Present
 Intact / Not Intact

40148670

QUARTERLY SAMPLING SUMMARY

Appleton MGP Groundwater Sampling – April 2017

Well/ Piezometer	Water Level ¹	NAPL Thickness	NAPL Removal	BTEX & Naphthalene (USEPA 8260B)	Benzene & Naphthalene (USEPA 8260B)	Arsenic, Iron, and Manganese ² (USEPA 6020)	Iron and Manganese ² (USEPA 6020)	Nitrate & Sulfate (USEPA 300.0) and Alkalinity (USEPA 310.2)	Methane (USEPA 8015B)	Field Parameters (See Note 3 for list)
MW-2R ✓			NA		NA		NA			
MW-8		NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-9		NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10		NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-12R ✓			NA		NA		NA			
MW-13R ✓			NA		NA		NA			
MW-19 ✓			NA		NA		NA			
MW-19S		NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-20 ✓			NA		NA		NA			
MW-21 ✓			NA		NA		NA			
MW-22 ✓			NA		NA		NA			
MW-23		NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-24		NA	NA		NA		NA			
MW-25		NA	NA		NA		NA			
MW-26			NA		NA		NA			
MW-27			NA		NA		NA			
MW-28			NA		NA		NA			
PZ-12B ✓		NA	NA	NA		NA	NA	NA	NA	
PZ-20B ✓		NA	NA	NA		NA	NA	NA	NA	
PZ-21B ✓		NA	NA	NA		NA	NA	NA	NA	
PZ-22B ✓		NA	NA	NA		NA	NA	NA	NA	
PZ-23			NA		NA		NA			
PZ-26				N	NA	N	NA	N	N	N
PZ-27			NA		NA		NA			
PZ-28				N	NA	N	NA	N	N	N
SG-3		NA	NA	NA	NA	NA	NA	NA	NA	NA
SG-4		NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 - A complete round of water levels should be collected prior to any well purging or sampling activities.
- 2 - All metals (Ar, Mn, and Fe) are to be field filtered using in-line disposable filters.
- 3 - Field parameters include:
 - pH
 - Dissolved oxygen
 - Temperature
 - Specific conductance
 - Oxidation/reduction potential

NA	- Measurement/analysis not applicable for this location.
*	- NAPL Removal will be completed if NAPL greater than 0.5 feet is present
N	- Water quality sampling will not be conducted at this location as long as NAPL remains present
TBD	- To Be Determined.

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302



Client Name: We Energies

Project #: **WO# : 40148670**

Courier: Fed Ex UPS Client Pace Other: _____



Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROT / Corr: _____ Biological Tissue is Frozen: yes

Temp Blank Present: yes no no

Person examining contents:
Date: 4-20-17
Initials: SKW

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10. <u>012 - vial received broken. 4-20-17 SKW</u>
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>005 - 1-250 ml p.p. - No collect time. 207 - collect time on samples 1439. 010 - 1-40 ml p.p. ID P2 12B - time 4-20-17 SKW</u>
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≥ 2, NaOH+ZnAct ≥ 9, NaOH ≥ 12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: <u>VOA</u> , coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	initial when completed: <u>SKW</u> Lab Std #ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>012 - vial 4-20-17 SKW</u>
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>375</u>		

Client Notification/ Resolution: 4-20-17 SKW If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Add MW22 to COC per DK 4-21-17

Project Manager Review: SKW Date: 4-21-17

July 26, 2017

David Kollakowsky
We Energies
333 W. Everett St
Room P129
Milwaukee, WI 532012179

RE: Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

Dear David Kollakowsky:

Enclosed are the analytical results for sample(s) received by the laboratory on July 12, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Frank Dombrowski, WE Energies
Brian Hennings, NATURAL RESOURCE TECHNOLOGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40153108001	MW-26	Water	07/12/17 12:22	07/12/17 13:55
40153108002	MW-27	Water	07/12/17 09:52	07/12/17 13:55
40153108003	MW-28	Water	07/12/17 11:05	07/12/17 13:55
40153108004	PZ-23	Water	07/12/17 09:05	07/12/17 13:55
40153108005	PZ-27	Water	07/12/17 10:17	07/12/17 13:55
40153108006	QCFB	Water	07/12/17 12:30	07/12/17 13:55
40153108007	QC-1	Water	07/12/17 00:00	07/12/17 13:55
40153108008	TRIP BLANK	Water	07/12/17 00:00	07/12/17 13:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40153108001	MW-26	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108002	MW-27	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108003	MW-28	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108004	PZ-23	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108005	PZ-27	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108006	QCFB	EPA 8015B Modified	ALD	1
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108007	QC-1	EPA 8015B Modified	ALD	1

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 6020	SDW	3
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40153108008	TRIP BLANK	EPA 8260	LAP	9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Sample: MW-26 Lab ID: 40153108001 Collected: 07/12/17 12:22 Received: 07/12/17 13:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	3430	ug/L	56.0	27.4	20		07/18/17 10:40	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	93.9	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 22:31	7440-38-2	
Iron, Dissolved	1580	ug/L	368	111	1	07/20/17 09:12	07/21/17 22:31	7439-89-6	
Manganese, Dissolved	183	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 22:31	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	8.0	ug/L	1.0	0.50	1		07/13/17 16:58	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		07/13/17 16:58	100-41-4	
Naphthalene	4.5J	ug/L	5.0	2.5	1		07/13/17 16:58	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		07/13/17 16:58	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		07/13/17 16:58	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		07/13/17 16:58	95-47-6	
Surrogates									
Dibromofluoromethane (S)	103	%	67-130		1		07/13/17 16:58	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		07/13/17 16:58	2037-26-5	
4-Bromofluorobenzene (S)	92	%	61-130		1		07/13/17 16:58	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 14:43	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	34.2	mg/L	3.0	1.0	1		07/13/17 14:43	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	370	mg/L	23.5	7.0	1		07/18/17 14:02		

Sample: MW-27 Lab ID: 40153108002 Collected: 07/12/17 09:52 Received: 07/12/17 13:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2010	ug/L	56.0	27.4	20		07/18/17 10:47	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	10.3	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 22:45	7440-38-2	
Iron, Dissolved	662	ug/L	368	111	1	07/20/17 09:12	07/21/17 22:45	7439-89-6	
Manganese, Dissolved	106	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 22:45	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	420	ug/L	5.0	2.5	5		07/13/17 11:05	71-43-2	
Ethylbenzene	88.5	ug/L	5.0	2.5	5		07/13/17 11:05	100-41-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Sample: MW-27	Lab ID: 40153108002	Collected: 07/12/17 09:52	Received: 07/12/17 13:55	Matrix: Water					
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Naphthalene	727	ug/L	25.0	12.5	5		07/13/17 11:05	91-20-3	
Toluene	<2.5	ug/L	5.0	2.5	5		07/13/17 11:05	108-88-3	
m&p-Xylene	8.8J	ug/L	10.0	5.0	5		07/13/17 11:05	179601-23-1	
o-Xylene	12.6	ug/L	5.0	2.5	5		07/13/17 11:05	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	67-130		5		07/13/17 11:05	1868-53-7	
Toluene-d8 (S)	99	%	70-130		5		07/13/17 11:05	2037-26-5	
4-Bromofluorobenzene (S)	97	%	61-130		5		07/13/17 11:05	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 14:54	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	1.5J	mg/L	3.0	1.0	1		07/13/17 14:54	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	236	mg/L	23.5	7.0	1		07/18/17 14:03		

Sample: MW-28	Lab ID: 40153108003	Collected: 07/12/17 11:05	Received: 07/12/17 13:55	Matrix: Water					
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	1920	ug/L	56.0	27.4	20		07/18/17 10:54	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	41.3	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 23:05	7440-38-2	
Iron, Dissolved	1020	ug/L	368	111	1	07/20/17 09:12	07/21/17 23:05	7439-89-6	
Manganese, Dissolved	312	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 23:05	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		07/13/17 11:49	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		07/13/17 11:49	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		07/13/17 11:49	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		07/13/17 11:49	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		07/13/17 11:49	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		07/13/17 11:49	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	67-130		1		07/13/17 11:49	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		07/13/17 11:49	2037-26-5	
4-Bromofluorobenzene (S)	92	%	61-130		1		07/13/17 11:49	460-00-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Sample: MW-28									
		Lab ID: 40153108003	Collected: 07/12/17 11:05	Received: 07/12/17 13:55	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 15:04	14797-55-8	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	6.2	mg/L	3.0	1.0	1		07/13/17 15:04	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	218	mg/L	23.5	7.0	1		07/18/17 14:03		

Sample: PZ-23									
		Lab ID: 40153108004	Collected: 07/12/17 09:05	Received: 07/12/17 13:55	Matrix: Water				
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV									
Analytical Method: EPA 8015B Modified									
Methane	1730	ug/L	56.0	27.4	20		07/18/17 11:01	74-82-8	M1
6020 MET ICPMS, Dissolved									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	8.8	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 22:04	7440-38-2	
Iron, Dissolved	411	ug/L	368	111	1	07/20/17 09:12	07/21/17 22:04	7439-89-6	
Manganese, Dissolved	95.8	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 22:04	7439-96-5	
8260 MSV UST									
Analytical Method: EPA 8260									
Benzene	702	ug/L	10.0	5.0	10		07/13/17 10:21	71-43-2	
Ethylbenzene	69.4	ug/L	10.0	5.0	10		07/13/17 10:21	100-41-4	
Naphthalene	720	ug/L	50.0	25.0	10		07/13/17 10:21	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		07/13/17 10:21	108-88-3	
m&p-Xylene	10.5J	ug/L	20.0	10.0	10		07/13/17 10:21	179601-23-1	
o-Xylene	13.3	ug/L	10.0	5.0	10		07/13/17 10:21	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	67-130		10		07/13/17 10:21	1868-53-7	
Toluene-d8 (S)	101	%	70-130		10		07/13/17 10:21	2037-26-5	
4-Bromofluorobenzene (S)	96	%	61-130		10		07/13/17 10:21	460-00-4	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 15:15	14797-55-8	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		07/13/17 15:15	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	229	mg/L	47.0	14.1	2		07/18/17 14:04		

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

Sample: PZ-27 **Lab ID: 40153108005** Collected: 07/12/17 10:17 Received: 07/12/17 13:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	3730	ug/L	56.0	27.4	20		07/18/17 11:22	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	4.4	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 23:12	7440-38-2	
Iron, Dissolved	822	ug/L	368	111	1	07/20/17 09:12	07/21/17 23:12	7439-89-6	
Manganese, Dissolved	105	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 23:12	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	398	ug/L	10.0	5.0	10		07/13/17 10:43	71-43-2	
Ethylbenzene	48.5	ug/L	10.0	5.0	10		07/13/17 10:43	100-41-4	
Naphthalene	485	ug/L	50.0	25.0	10		07/13/17 10:43	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		07/13/17 10:43	108-88-3	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		07/13/17 10:43	179601-23-1	
o-Xylene	12.9	ug/L	10.0	5.0	10		07/13/17 10:43	95-47-6	
Surrogates									
Dibromofluoromethane (S)	101	%	67-130		10		07/13/17 10:43	1868-53-7	
Toluene-d8 (S)	101	%	70-130		10		07/13/17 10:43	2037-26-5	
4-Bromofluorobenzene (S)	97	%	61-130		10		07/13/17 10:43	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 15:48	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		07/13/17 15:48	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	236	mg/L	23.5	7.0	1		07/18/17 14:06		

Sample: QCFB **Lab ID: 40153108006** Collected: 07/12/17 12:30 Received: 07/12/17 13:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2.3J	ug/L	2.8	1.4	1		07/18/17 08:51	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	<0.28	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 21:50	7440-38-2	
Iron, Dissolved	<111	ug/L	368	111	1	07/20/17 09:12	07/21/17 21:50	7439-89-6	
Manganese, Dissolved	<2.7	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 21:50	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:11	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:11	100-41-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Sample: QCFB **Lab ID: 40153108006** Collected: 07/12/17 12:30 Received: 07/12/17 13:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Naphthalene	<2.5	ug/L	5.0	2.5	1		07/13/17 12:11	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:11	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		07/13/17 12:11	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:11	95-47-6	
Surrogates									
Dibromofluoromethane (S)	99	%	67-130		1		07/13/17 12:11	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		07/13/17 12:11	2037-26-5	
4-Bromofluorobenzene (S)	94	%	61-130		1		07/13/17 12:11	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 15:58	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		07/13/17 15:58	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	<7.0	mg/L	23.5	7.0	1		07/18/17 14:07		

Sample: QC-1 **Lab ID: 40153108007** Collected: 07/12/17 00:00 Received: 07/12/17 13:55 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	3120	ug/L	70.0	34.2	25		07/18/17 11:28	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Arsenic, Dissolved	4.6	ug/L	1.0	0.28	1	07/20/17 09:12	07/21/17 23:19	7440-38-2	
Iron, Dissolved	832	ug/L	368	111	1	07/20/17 09:12	07/21/17 23:19	7439-89-6	
Manganese, Dissolved	106	ug/L	9.0	2.7	1	07/20/17 09:12	07/21/17 23:19	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	394	ug/L	10.0	5.0	10		07/14/17 10:38	71-43-2	
Ethylbenzene	46.0	ug/L	10.0	5.0	10		07/14/17 10:38	100-41-4	
Naphthalene	473	ug/L	50.0	25.0	10		07/14/17 10:38	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		07/14/17 10:38	108-88-3	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		07/14/17 10:38	179601-23-1	
o-Xylene	11.0	ug/L	10.0	5.0	10		07/14/17 10:38	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	67-130		10		07/14/17 10:38	1868-53-7	
Toluene-d8 (S)	97	%	70-130		10		07/14/17 10:38	2037-26-5	
4-Bromofluorobenzene (S)	95	%	61-130		10		07/14/17 10:38	460-00-4	

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ANALYTICAL RESULTS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Sample: QC-1									
Lab ID: 40153108007									
Collected: 07/12/17 00:00 Received: 07/12/17 13:55 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions									
Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		07/13/17 16:42	14797-55-8	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		07/13/17 16:42	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	235	mg/L	23.5	7.0	1		07/18/17 14:07		

Sample: TRIP BLANK									
Lab ID: 40153108008									
Collected: 07/12/17 00:00 Received: 07/12/17 13:55 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST									
Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:33	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:33	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		07/13/17 12:33	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:33	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		07/13/17 12:33	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		07/13/17 12:33	95-47-6	
Surrogates									
Dibromofluoromethane (S)	100	%	67-130		1		07/13/17 12:33	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		07/13/17 12:33	2037-26-5	
4-Bromofluorobenzene (S)	91	%	61-130		1		07/13/17 12:33	460-00-4	

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

QC Batch: 261719 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

METHOD BLANK: 1540965 Matrix: Water
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Methane	ug/L	<1.4	2.8	07/18/17 07:10	

LABORATORY CONTROL SAMPLE & LCSD: 1540966 1540967

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Methane	ug/L	28.6	27.4	28.4	96	99	80-120	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1540968 1540969

Parameter	Units	40153108004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Methane	ug/L	1730	571	571	3790	4030	361	403	10-200	6	20	M1

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

QC Batch: 262041 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

METHOD BLANK: 1542613 Matrix: Water
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	<0.28	1.0	07/21/17 21:43	
Iron, Dissolved	ug/L	<111	368	07/21/17 21:43	
Manganese, Dissolved	ug/L	<2.7	9.0	07/21/17 21:43	

LABORATORY CONTROL SAMPLE: 1542614

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	492	98	80-120	
Iron, Dissolved	ug/L	5000	4900	98	80-120	
Manganese, Dissolved	ug/L	500	498	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1542615 1542616

Parameter	Units	40153108004		MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Arsenic, Dissolved	ug/L	8.8	500	500	512	498	101	98	75-125	3	20			
Iron, Dissolved	ug/L	411	5000	5000	5420	5190	100	96	75-125	4	20			
Manganese, Dissolved	ug/L	95.8	500	500	612	585	103	98	75-125	5	20			

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

QC Batch: 261382 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108008

METHOD BLANK: 1539006 Matrix: Water
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	07/13/17 07:46	
Ethylbenzene	ug/L	<0.50	1.0	07/13/17 07:46	
m&p-Xylene	ug/L	<1.0	2.0	07/13/17 07:46	
Naphthalene	ug/L	<2.5	5.0	07/13/17 07:46	
o-Xylene	ug/L	<0.50	1.0	07/13/17 07:46	
Toluene	ug/L	<0.50	1.0	07/13/17 07:46	
4-Bromofluorobenzene (S)	%	91	61-130	07/13/17 07:46	
Dibromofluoromethane (S)	%	102	67-130	07/13/17 07:46	
Toluene-d8 (S)	%	101	70-130	07/13/17 07:46	

LABORATORY CONTROL SAMPLE: 1539007

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	54.4	109	73-145	
Ethylbenzene	ug/L	50	56.3	113	87-129	
m&p-Xylene	ug/L	100	110	110	70-130	
o-Xylene	ug/L	50	57.5	115	70-130	
Toluene	ug/L	50	54.3	109	82-130	
4-Bromofluorobenzene (S)	%			101	61-130	
Dibromofluoromethane (S)	%			102	67-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1539008 1539009

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40153108004 Result	Spike Conc.	Spike Conc.	MS Result						
Benzene	ug/L	702	500	500	1200	1200	100	100	73-145	0	20
Ethylbenzene	ug/L	69.4	500	500	636	634	113	113	87-129	0	20
m&p-Xylene	ug/L	10.5J	1000	1000	1150	1140	114	113	70-130	2	20
o-Xylene	ug/L	13.3	500	500	589	579	115	113	70-130	2	20
Toluene	ug/L	<5.0	500	500	554	539	110	107	82-131	3	20
4-Bromofluorobenzene (S)	%						101	101	61-130		
Dibromofluoromethane (S)	%						104	103	67-130		
Toluene-d8 (S)	%						102	101	70-130		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

QC Batch: 261433 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40153108007

METHOD BLANK: 1539239 Matrix: Water
Associated Lab Samples: 40153108007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	07/14/17 07:42	
Ethylbenzene	ug/L	<0.50	1.0	07/14/17 07:42	
m&p-Xylene	ug/L	<1.0	2.0	07/14/17 07:42	
Naphthalene	ug/L	<2.5	5.0	07/14/17 07:42	
o-Xylene	ug/L	<0.50	1.0	07/14/17 07:42	
Toluene	ug/L	<0.50	1.0	07/14/17 07:42	
4-Bromofluorobenzene (S)	%	90	61-130	07/14/17 07:42	
Dibromofluoromethane (S)	%	101	67-130	07/14/17 07:42	
Toluene-d8 (S)	%	101	70-130	07/14/17 07:42	

LABORATORY CONTROL SAMPLE: 1539240

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.2	101	73-145	
Ethylbenzene	ug/L	20	20.6	103	87-129	
m&p-Xylene	ug/L	40	41.9	105	70-130	
o-Xylene	ug/L	20	20.7	103	70-130	
Toluene	ug/L	20	20.5	103	82-130	
4-Bromofluorobenzene (S)	%			98	61-130	
Dibromofluoromethane (S)	%			101	67-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1539620 1539621

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual	
		40153147001 Result	Spike Conc.	Spike Conc.	MS Result						MSD Result
Benzene	ug/L	<0.50	50	50	50.8	54.1	102	108	73-145	6	20
Ethylbenzene	ug/L	<0.50	50	50	54.1	57.6	108	115	87-129	6	20
m&p-Xylene	ug/L	<1.0	100	100	110	116	110	116	70-130	5	20
o-Xylene	ug/L	<0.50	50	50	55.3	58.1	111	116	70-130	5	20
Toluene	ug/L	<0.50	50	50	52.8	56.3	106	113	82-131	6	20
4-Bromofluorobenzene (S)	%						102	101	61-130		
Dibromofluoromethane (S)	%						104	103	67-130		
Toluene-d8 (S)	%						100	101	70-130		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

QC Batch: 261431

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

METHOD BLANK: 1539229

Matrix: Water

Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.075	0.22	07/13/17 14:21	
Sulfate	mg/L	<1.0	3.0	07/13/17 14:21	

LABORATORY CONTROL SAMPLE: 1539230

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	1.5	1.6	104	90-110	
Sulfate	mg/L	20	20.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1539231 1539232

Parameter	Units	40153108004		1539231		1539232		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Nitrate as N	mg/L	<0.075	1.5	1.5	1.6	1.6	107	90-110	1	15	
Sulfate	mg/L	<1.0	20	20	21.9	22.0	105	90-110	0	15	

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QUALITY CONTROL DATA

Project: W-1272-000003 APPLETON MGP
Pace Project No.: 40153108

QC Batch: 261760 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

METHOD BLANK: 1541111 Matrix: Water
Associated Lab Samples: 40153108001, 40153108002, 40153108003, 40153108004, 40153108005, 40153108006, 40153108007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	07/18/17 13:56	

LABORATORY CONTROL SAMPLE: 1541112

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	100	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1541113 1541114

Parameter	Units	40153108004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	229	200	200	436	429	103	100	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1541115 1541116

Parameter	Units	40153259002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	10000	5000	5000	10100	9740	2	-6	90-110	4	20	M0

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QUALIFIERS

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: W-1272-000003 APPLETON MGP

Pace Project No.: 40153108

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40153108001	MW-26	EPA 8015B Modified	261719		
40153108002	MW-27	EPA 8015B Modified	261719		
40153108003	MW-28	EPA 8015B Modified	261719		
40153108004	PZ-23	EPA 8015B Modified	261719		
40153108005	PZ-27	EPA 8015B Modified	261719		
40153108006	QCFB	EPA 8015B Modified	261719		
40153108007	QC-1	EPA 8015B Modified	261719		
40153108001	MW-26	EPA 3010	262041	EPA 6020	262107
40153108002	MW-27	EPA 3010	262041	EPA 6020	262107
40153108003	MW-28	EPA 3010	262041	EPA 6020	262107
40153108004	PZ-23	EPA 3010	262041	EPA 6020	262107
40153108005	PZ-27	EPA 3010	262041	EPA 6020	262107
40153108006	QCFB	EPA 3010	262041	EPA 6020	262107
40153108007	QC-1	EPA 3010	262041	EPA 6020	262107
40153108001	MW-26	EPA 8260	261382		
40153108002	MW-27	EPA 8260	261382		
40153108003	MW-28	EPA 8260	261382		
40153108004	PZ-23	EPA 8260	261382		
40153108005	PZ-27	EPA 8260	261382		
40153108006	QCFB	EPA 8260	261382		
40153108007	QC-1	EPA 8260	261433		
40153108008	TRIP BLANK	EPA 8260	261382		
40153108001	MW-26	EPA 300.0	261431		
40153108002	MW-27	EPA 300.0	261431		
40153108003	MW-28	EPA 300.0	261431		
40153108004	PZ-23	EPA 300.0	261431		
40153108005	PZ-27	EPA 300.0	261431		
40153108006	QCFB	EPA 300.0	261431		
40153108007	QC-1	EPA 300.0	261431		
40153108001	MW-26	EPA 300.0	261431		
40153108002	MW-27	EPA 300.0	261431		
40153108003	MW-28	EPA 300.0	261431		
40153108004	PZ-23	EPA 300.0	261431		
40153108005	PZ-27	EPA 300.0	261431		
40153108006	QCFB	EPA 300.0	261431		
40153108007	QC-1	EPA 300.0	261431		
40153108001	MW-26	EPA 310.2	261760		
40153108002	MW-27	EPA 310.2	261760		
40153108003	MW-28	EPA 310.2	261760		
40153108004	PZ-23	EPA 310.2	261760		
40153108005	PZ-27	EPA 310.2	261760		
40153108006	QCFB	EPA 310.2	261760		
40153108007	QC-1	EPA 310.2	261760		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

Company Name: W.E. Energias
 Branch/Location: LAR SANDERS
 Project Contact: DAVE KOLLAKOSKY
 Phone: 414-221-2835
 Project Number: W-1212-000003
 Project Name: APPLETOWN MB
 Project State: WI
 Sampled By (Print): Bill Baujuschke
 Sampled By (Sign): Bill Baujuschke
 PO #: 4100003353
 Regulatory Program: MS/MSD

CHAIN OF CUSTODY

Matrix Codes: A=Air, B=Biota, C=Charcoal, O=Oil, S=Soil, SI=Sludge, W=Water, DW=Drinking Water, GW=Ground Water, SW=Surface Water, WW=Waste Water, WP=Wipes

Filtered? (YES/NO) _____
 Preservation (Code) _____

Analysis Requested: STEX AND NACHTHALFENE
METHANE
DISSOLVED METALS: AS, FE, MN
NITRATE, SULFATE, ALKALINITY

CHAIN OF CUSTODY



UPPER MIDWEST REGION
 MN: 612-607-1700 WI: 920-469-2436

40153108

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX	Analyses Requested				Y/N	Pick Letter
					STEX AND NACHTHALFENE	METHANE	DISSOLVED METALS: AS, FE, MN	NITRATE, SULFATE, ALKALINITY		
001	MW-26	7-12-17	1222	GW	X	X	X	X		
002	MW-27		0952	GW	X	X	X	X		
003	MW-28		1105	GW	X	X	X	X		
004	PZ-23		0905	GW	X	X	X	X		
005	PZ-28 PZ-27		1017	GW	X	X	X	X		
006	ACFR		1230	W	X	X	X	X		
007	AC-1		?	GW	X	X	X	X		
008	TRIP BLANK									

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)
 Date Needed: _____
 Transmit Prelim Rush Results by (complete what you want): _____
 Email #1: _____
 Email #2: _____
 Telephone: _____
 Fax: _____

Relinquished By: Bill Baujuschke Date/Time: 7-12-17 1355
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____

Quote #: _____
 Mail To Contact: DAVE KOLLAKOSKY
 Mail To Company: W.E. Energias
 Mail To Address: 333 RIVERDELT ST. MILWAUKEE, WI 53263
 Invoice To Contact: ACCURATE PAYABLE
 Invoice To Company: W.E. Energias
 Invoice To Address: SAME
 Invoice To Phone: _____
 CLIENT COMMENTS: _____
 LAB COMMENTS (Lab Use Only): 2-250mlp AD 6-40mlv B
MS/MSD
MILLI-D H2O
REIDT REPLACED
2-40mlv B
18-40mlv B

PACE Project No. 40153108
 Receipt Temp = ROT °C
 Sample Receipt pH OK/Adjusted
 Cooler Custody Seal Present / Not Present Present
 Intact / Not Intact Intact

Version 6.0 08/14/06 ORIGINAL

TRIP BLANK added to CCC by lab. 7-12-17 KR



Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project #

WO#: 40153108

Client Name: We Energies



Courier: Fed Ex UPS Client Pace Other:

Tracking #:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: RO1 /Corr: Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 7-12-17
Initials: KR

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like 'Chain of Custody Present', 'Short Hold Time Analysis', 'Rush Turn Around Time Requested', 'Sample Labels match COC', and 'Trip Blank Present'. Includes handwritten notes and signatures.

Client Notification/ Resolution: If checked, see attached form for additional comments

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Date: 7-13-17

November 06, 2017

David Kollakowsky
We Energies
333 W. Everett St
Room P129
Milwaukee, WI 532012179

RE: Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

Dear David Kollakowsky:

Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten
brian.basten@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Frank Dombrowski, WE Energies
Brian Hennings, NATURAL RESOURCE TECHNOLOGY



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40159297001	MW-26	Water	10/23/17 12:23	10/24/17 14:05
40159297002	MW-28	Water	10/23/17 13:12	10/24/17 14:05
40159297003	DUP 01	Water	10/23/17 13:17	10/24/17 14:05
40159297004	MW-27	Water	10/23/17 13:54	10/24/17 14:05
40159297005	PZ-27	Water	10/23/17 14:26	10/24/17 14:05
40159297006	PZ-23	Water	10/23/17 15:51	10/24/17 14:05
40159297007	MW-24	Water	10/23/17 16:41	10/24/17 14:05
40159297008	MW-19	Water	10/23/17 17:27	10/24/17 14:05
40159297009	EQUIP BLANK 1	Water	10/23/17 17:30	10/24/17 14:05
40159297010	MW-25	Water	10/24/17 08:34	10/24/17 14:05
40159297011	MW-12R	Water	10/24/17 09:10	10/24/17 14:05
40159297012	DUP 02	Water	10/24/17 09:15	10/24/17 14:05
40159297013	MW-13R	Water	10/24/17 09:44	10/24/17 14:05
40159297014	MW-22	Water	10/24/17 10:22	10/24/17 14:05
40159297015	MW-21	Water	10/24/17 10:55	10/24/17 14:05
40159297016	MW-20	Water	10/24/17 11:29	10/24/17 14:05
40159297017	MW-02R	Water	10/24/17 12:03	10/24/17 14:05
40159297018	TRIP BLANK	Water	10/24/17 12:08	10/24/17 14:05
40159297019	EQUIP BLANK 2	Water	10/24/17 12:13	10/24/17 14:05

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SAMPLE ANALYTE COUNT

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40159297001	MW-26	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297002	MW-28	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297003	DUP 01	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297004	MW-27	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297005	PZ-27	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 8260	MDS	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297006	PZ-23	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 8260	MDS	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297007	MW-24	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 8260	LAP	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1

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SAMPLE ANALYTE COUNT

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 310.2	DAW	1
40159297008	MW-19	EPA 8260	LAP	9
40159297009	EQUIP BLANK 1	EPA 8260	LAP	9
40159297010	MW-25	EPA 8015B Modified	ALD	1
		EPA 6020	DS1	2
		EPA 8260	MDS	9
		EPA 300.0	HMB	1
		EPA 300.0	HMB	1
		EPA 310.2	DAW	1
40159297011	MW-12R	EPA 8260	MDS	9
40159297012	DUP 02	EPA 8260	MDS	9
40159297013	MW-13R	EPA 8260	MDS	9
40159297014	MW-22	EPA 8260	MDS	9
40159297015	MW-21	EPA 8260	MDS	9
40159297016	MW-20	EPA 8260	MDS	9
40159297017	MW-02R	EPA 8260	MDS	9
40159297018	TRIP BLANK	EPA 8260	LAP	9
40159297019	EQUIP BLANK 2	EPA 8260	LAP	9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: MW-26									
Lab ID: 40159297001									
Collected: 10/23/17 12:23 Received: 10/24/17 14:05 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV									
Analytical Method: EPA 8015B Modified									
Methane	2890	ug/L	56.0	27.4	20		10/25/17 11:42	74-82-8	
6020 MET ICPMS, Dissolved									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	1650	ug/L	368	111	1	10/31/17 07:00	11/03/17 21:27	7439-89-6	
Manganese, Dissolved	233	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 21:27	7439-96-5	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		10/25/17 11:27	14797-55-8	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	5.7	mg/L	3.0	1.0	1		10/25/17 11:27	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO ₃	278	mg/L	23.5	7.0	1		10/26/17 07:38		

Sample: MW-28									
Lab ID: 40159297002									
Collected: 10/23/17 13:12 Received: 10/24/17 14:05 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV									
Analytical Method: EPA 8015B Modified									
Methane	3580	ug/L	56.0	27.4	20		10/25/17 11:49	74-82-8	
6020 MET ICPMS, Dissolved									
Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	851	ug/L	368	111	1	10/31/17 07:00	11/03/17 21:49	7439-89-6	
Manganese, Dissolved	254	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 21:49	7439-96-5	
300.0 IC Anions									
Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		10/25/17 11:37	14797-55-8	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Sulfate	4.9	mg/L	3.0	1.0	1		10/25/17 11:37	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO ₃	209	mg/L	23.5	7.0	1		10/26/17 07:38		

Sample: DUP 01									
Lab ID: 40159297003									
Collected: 10/23/17 13:17 Received: 10/24/17 14:05 Matrix: Water									
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV									
Analytical Method: EPA 8015B Modified									
Methane	3210	ug/L	70.0	34.2	25		10/25/17 11:56	74-82-8	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: DUP 01 **Lab ID: 40159297003** Collected: 10/23/17 13:17 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Iron, Dissolved	815	ug/L	368	111	1	10/31/17 07:00	11/03/17 21:57	7439-89-6	
Manganese, Dissolved	246	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 21:57	7439-96-5	
300.0 IC Anions		Analytical Method: EPA 300.0							
Nitrate as N	<0.075	mg/L	0.22	0.075	1		10/25/17 11:48	14797-55-8	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Sulfate	4.6	mg/L	3.0	1.0	1		10/25/17 11:48	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	237	mg/L	117	35.2	5		10/26/17 07:39		M0

Sample: MW-27 **Lab ID: 40159297004** Collected: 10/23/17 13:54 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Methane	2580	ug/L	70.0	34.2	25		10/25/17 12:03	74-82-8	
6020 MET ICPMS, Dissolved		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Iron, Dissolved	857	ug/L	368	111	1	10/31/17 07:00	11/03/17 22:04	7439-89-6	
Manganese, Dissolved	123	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 22:04	7439-96-5	
300.0 IC Anions		Analytical Method: EPA 300.0							
Nitrate as N	<0.075	mg/L	0.22	0.075	1		10/25/17 12:31	14797-55-8	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Sulfate	<1.0	mg/L	3.0	1.0	1		10/25/17 12:31	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	238	mg/L	23.5	7.0	1		10/26/17 08:03		

Sample: PZ-27 **Lab ID: 40159297005** Collected: 10/23/17 14:26 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Methane	3100	ug/L	70.0	34.2	25		10/25/17 12:10	74-82-8	
6020 MET ICPMS, Dissolved		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Iron, Dissolved	1190	ug/L	368	111	1	10/31/17 07:00	11/03/17 22:12	7439-89-6	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: PZ-27 **Lab ID: 40159297005** Collected: 10/23/17 14:26 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Manganese, Dissolved	121	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 22:12	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	469	ug/L	10.0	5.0	10		10/25/17 14:34	71-43-2	
Ethylbenzene	34.0	ug/L	10.0	5.0	10		10/25/17 14:34	100-41-4	
Naphthalene	398	ug/L	50.0	25.0	10		10/25/17 14:34	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		10/25/17 14:34	108-88-3	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		10/25/17 14:34	179601-23-1	
o-Xylene	7.4J	ug/L	10.0	5.0	10		10/25/17 14:34	95-47-6	
Surrogates									
Dibromofluoromethane (S)	116	%	67-130		10		10/25/17 14:34	1868-53-7	
Toluene-d8 (S)	93	%	70-130		10		10/25/17 14:34	2037-26-5	
4-Bromofluorobenzene (S)	85	%	61-130		10		10/25/17 14:34	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		10/25/17 12:42	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		10/25/17 12:42	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	233	mg/L	23.5	7.0	1		10/26/17 08:03		

Sample: PZ-23 **Lab ID: 40159297006** Collected: 10/23/17 15:51 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2700	ug/L	70.0	34.2	25		10/25/17 12:17	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	539	ug/L	368	111	1	10/31/17 07:00	11/03/17 22:19	7439-89-6	
Manganese, Dissolved	89.4	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 22:19	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	498	ug/L	10.0	5.0	10		10/25/17 14:55	71-43-2	
Ethylbenzene	36.5	ug/L	10.0	5.0	10		10/25/17 14:55	100-41-4	
Naphthalene	669	ug/L	50.0	25.0	10		10/25/17 14:55	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		10/25/17 14:55	108-88-3	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		10/25/17 14:55	179601-23-1	
o-Xylene	8.1J	ug/L	10.0	5.0	10		10/25/17 14:55	95-47-6	
Surrogates									
Dibromofluoromethane (S)	107	%	67-130		10		10/25/17 14:55	1868-53-7	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: PZ-23 **Lab ID: 40159297006** Collected: 10/23/17 15:51 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
<i>Surrogates</i>									
Toluene-d8 (S)	88	%	70-130		10		10/25/17 14:55	2037-26-5	
4-Bromofluorobenzene (S)	86	%	61-130		10		10/25/17 14:55	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.075	mg/L	0.22	0.075	1		10/25/17 12:53	14797-55-8	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	<1.0	mg/L	3.0	1.0	1		10/25/17 12:53	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	224	mg/L	23.5	7.0	1		10/26/17 08:06		

Sample: MW-24 **Lab ID: 40159297007** Collected: 10/23/17 16:41 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	13.1	ug/L	2.8	1.4	1		10/25/17 10:51	74-82-8	
6020 MET ICPMS, Dissolved Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Iron, Dissolved	3000	ug/L	368	111	1	10/31/17 07:00	11/03/17 22:27	7439-89-6	
Manganese, Dissolved	167	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 22:27	7439-96-5	
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		10/26/17 14:12	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/26/17 14:12	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/26/17 14:12	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/26/17 14:12	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/26/17 14:12	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/26/17 14:12	95-47-6	
<i>Surrogates</i>									
Dibromofluoromethane (S)	92	%	67-130		1		10/26/17 14:12	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		10/26/17 14:12	2037-26-5	
4-Bromofluorobenzene (S)	92	%	61-130		1		10/26/17 14:12	460-00-4	
300.0 IC Anions Analytical Method: EPA 300.0									
Nitrate as N	<0.38	mg/L	1.1	0.38	5		10/25/17 13:04	14797-55-8	D3
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Sulfate	88.9	mg/L	15.0	5.0	5		10/25/17 13:04	14808-79-8	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

Sample: MW-24	Lab ID: 40159297007	Collected: 10/23/17 16:41	Received: 10/24/17 14:05	Matrix: Water
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Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	431	mg/L	47.0	14.1	2		10/26/17 08:07		

Sample: MW-19	Lab ID: 40159297008	Collected: 10/23/17 17:27	Received: 10/24/17 14:05	Matrix: Water
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Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	2.4	ug/L	1.0	0.50	1		10/26/17 15:41	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/26/17 15:41	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/26/17 15:41	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/26/17 15:41	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/26/17 15:41	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/26/17 15:41	95-47-6	
Surrogates									
Dibromofluoromethane (S)	94	%	67-130		1		10/26/17 15:41	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/26/17 15:41	2037-26-5	
4-Bromofluorobenzene (S)	94	%	61-130		1		10/26/17 15:41	460-00-4	

Sample: EQUIP BLANK 1	Lab ID: 40159297009	Collected: 10/23/17 17:30	Received: 10/24/17 14:05	Matrix: Water
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Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		10/25/17 13:43	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/17 13:43	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/25/17 13:43	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/25/17 13:43	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/25/17 13:43	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/25/17 13:43	95-47-6	
Surrogates									
Dibromofluoromethane (S)	107	%	67-130		1		10/25/17 13:43	1868-53-7	
Toluene-d8 (S)	104	%	70-130		1		10/25/17 13:43	2037-26-5	
4-Bromofluorobenzene (S)	98	%	61-130		1		10/25/17 13:43	460-00-4	

Sample: MW-25	Lab ID: 40159297010	Collected: 10/24/17 08:34	Received: 10/24/17 14:05	Matrix: Water
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Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Methane	2010	ug/L	56.0	27.4	20		10/25/17 12:24	74-82-8	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: MW-25 **Lab ID: 40159297010** Collected: 10/24/17 08:34 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Iron, Dissolved	<111	ug/L	368	111	1	10/31/17 07:00	11/03/17 22:34	7439-89-6	
Manganese, Dissolved	<2.7	ug/L	9.0	2.7	1	10/31/17 07:00	11/03/17 22:34	7439-96-5	
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	3.9	ug/L	1.0	0.50	1		10/26/17 09:48	71-43-2	
Ethylbenzene	3.7	ug/L	1.0	0.50	1		10/26/17 09:48	100-41-4	
Naphthalene	86.2	ug/L	5.0	2.5	1		10/26/17 09:48	91-20-3	
Toluene	1.2	ug/L	1.0	0.50	1		10/26/17 09:48	108-88-3	
m&p-Xylene	3.3	ug/L	2.0	1.0	1		10/26/17 09:48	179601-23-1	
o-Xylene	2.1	ug/L	1.0	0.50	1		10/26/17 09:48	95-47-6	
Surrogates									
Dibromofluoromethane (S)	121	%	67-130		1		10/26/17 09:48	1868-53-7	
Toluene-d8 (S)	93	%	70-130		1		10/26/17 09:48	2037-26-5	
4-Bromofluorobenzene (S)	85	%	61-130		1		10/26/17 09:48	460-00-4	
300.0 IC Anions		Analytical Method: EPA 300.0							
Nitrate as N	<0.38	mg/L	1.1	0.38	5		10/25/17 13:15	14797-55-8	D3
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Sulfate	88.2	mg/L	15.0	5.0	5		10/25/17 13:15	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO ₃	277	mg/L	47.0	14.1	2		10/26/17 08:07		

Sample: MW-12R **Lab ID: 40159297011** Collected: 10/24/17 09:10 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST		Analytical Method: EPA 8260							
Benzene	14.8	ug/L	10.0	5.0	10		10/25/17 15:17	71-43-2	
Ethylbenzene	36.1	ug/L	10.0	5.0	10		10/25/17 15:17	100-41-4	
Naphthalene	604	ug/L	50.0	25.0	10		10/25/17 15:17	91-20-3	
Toluene	6.4J	ug/L	10.0	5.0	10		10/25/17 15:17	108-88-3	
m&p-Xylene	11.5J	ug/L	20.0	10.0	10		10/25/17 15:17	179601-23-1	
o-Xylene	13.2	ug/L	10.0	5.0	10		10/25/17 15:17	95-47-6	
Surrogates									
Dibromofluoromethane (S)	112	%	67-130		10		10/25/17 15:17	1868-53-7	
Toluene-d8 (S)	91	%	70-130		10		10/25/17 15:17	2037-26-5	
4-Bromofluorobenzene (S)	86	%	61-130		10		10/25/17 15:17	460-00-4	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: DUP 02 **Lab ID: 40159297012** Collected: 10/24/17 09:15 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	12.2	ug/L	10.0	5.0	10		10/25/17 15:39	71-43-2	
Ethylbenzene	33.5	ug/L	10.0	5.0	10		10/25/17 15:39	100-41-4	
Naphthalene	658	ug/L	50.0	25.0	10		10/25/17 15:39	91-20-3	
Toluene	<5.0	ug/L	10.0	5.0	10		10/25/17 15:39	108-88-3	
m&p-Xylene	12.5J	ug/L	20.0	10.0	10		10/25/17 15:39	179601-23-1	
o-Xylene	16.3	ug/L	10.0	5.0	10		10/25/17 15:39	95-47-6	
Surrogates									
Dibromofluoromethane (S)	117	%	67-130		10		10/25/17 15:39	1868-53-7	
Toluene-d8 (S)	89	%	70-130		10		10/25/17 15:39	2037-26-5	
4-Bromofluorobenzene (S)	87	%	61-130		10		10/25/17 15:39	460-00-4	

Sample: MW-13R **Lab ID: 40159297013** Collected: 10/24/17 09:44 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1320	ug/L	40.0	20.0	40		10/25/17 16:21	71-43-2	
Ethylbenzene	277	ug/L	40.0	20.0	40		10/25/17 16:21	100-41-4	
Naphthalene	2970	ug/L	200	100	40		10/25/17 16:21	91-20-3	
Toluene	97.5	ug/L	40.0	20.0	40		10/25/17 16:21	108-88-3	
m&p-Xylene	185	ug/L	80.0	40.0	40		10/25/17 16:21	179601-23-1	
o-Xylene	115	ug/L	40.0	20.0	40		10/25/17 16:21	95-47-6	
Surrogates									
Dibromofluoromethane (S)	117	%	67-130		40		10/25/17 16:21	1868-53-7	
Toluene-d8 (S)	94	%	70-130		40		10/25/17 16:21	2037-26-5	
4-Bromofluorobenzene (S)	90	%	61-130		40		10/25/17 16:21	460-00-4	

Sample: MW-22 **Lab ID: 40159297014** Collected: 10/24/17 10:22 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1860	ug/L	25.0	12.5	25		10/25/17 16:43	71-43-2	
Ethylbenzene	368	ug/L	25.0	12.5	25		10/25/17 16:43	100-41-4	
Naphthalene	2050	ug/L	125	62.5	25		10/25/17 16:43	91-20-3	
Toluene	<12.5	ug/L	25.0	12.5	25		10/25/17 16:43	108-88-3	
m&p-Xylene	<25.0	ug/L	50.0	25.0	25		10/25/17 16:43	179601-23-1	
o-Xylene	26.5	ug/L	25.0	12.5	25		10/25/17 16:43	95-47-6	
Surrogates									
Dibromofluoromethane (S)	113	%	67-130		25		10/25/17 16:43	1868-53-7	
Toluene-d8 (S)	94	%	70-130		25		10/25/17 16:43	2037-26-5	
4-Bromofluorobenzene (S)	77	%	61-130		25		10/25/17 16:43	460-00-4	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: MW-21 **Lab ID: 40159297015** Collected: 10/24/17 10:55 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1660	ug/L	100	50.0	100		10/25/17 17:04	71-43-2	
Ethylbenzene	212	ug/L	100	50.0	100		10/25/17 17:04	100-41-4	
Naphthalene	8950	ug/L	500	250	100		10/25/17 17:04	91-20-3	
Toluene	1160	ug/L	100	50.0	100		10/25/17 17:04	108-88-3	
m&p-Xylene	473	ug/L	200	100	100		10/25/17 17:04	179601-23-1	
o-Xylene	278	ug/L	100	50.0	100		10/25/17 17:04	95-47-6	
Surrogates									
Dibromofluoromethane (S)	111	%	67-130		100		10/25/17 17:04	1868-53-7	
Toluene-d8 (S)	91	%	70-130		100		10/25/17 17:04	2037-26-5	
4-Bromofluorobenzene (S)	87	%	61-130		100		10/25/17 17:04	460-00-4	

Sample: MW-20 **Lab ID: 40159297016** Collected: 10/24/17 11:29 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	1750	ug/L	50.0	25.0	50		10/25/17 17:25	71-43-2	
Ethylbenzene	457	ug/L	50.0	25.0	50		10/25/17 17:25	100-41-4	
Naphthalene	4370	ug/L	250	125	50		10/25/17 17:25	91-20-3	
Toluene	787	ug/L	50.0	25.0	50		10/25/17 17:25	108-88-3	
m&p-Xylene	380	ug/L	100	50.0	50		10/25/17 17:25	179601-23-1	
o-Xylene	315	ug/L	50.0	25.0	50		10/25/17 17:25	95-47-6	
Surrogates									
Dibromofluoromethane (S)	112	%	67-130		50		10/25/17 17:25	1868-53-7	
Toluene-d8 (S)	91	%	70-130		50		10/25/17 17:25	2037-26-5	
4-Bromofluorobenzene (S)	95	%	61-130		50		10/25/17 17:25	460-00-4	

Sample: MW-02R **Lab ID: 40159297017** Collected: 10/24/17 12:03 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	890	ug/L	10.0	5.0	10		10/25/17 16:00	71-43-2	
Ethylbenzene	305	ug/L	10.0	5.0	10		10/25/17 16:00	100-41-4	
Naphthalene	352	ug/L	50.0	25.0	10		10/25/17 16:00	91-20-3	
Toluene	10.8	ug/L	10.0	5.0	10		10/25/17 16:00	108-88-3	
m&p-Xylene	46.9	ug/L	20.0	10.0	10		10/25/17 16:00	179601-23-1	
o-Xylene	96.4	ug/L	10.0	5.0	10		10/25/17 16:00	95-47-6	
Surrogates									
Dibromofluoromethane (S)	114	%	67-130		10		10/25/17 16:00	1868-53-7	
Toluene-d8 (S)	93	%	70-130		10		10/25/17 16:00	2037-26-5	
4-Bromofluorobenzene (S)	98	%	61-130		10		10/25/17 16:00	460-00-4	

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ANALYTICAL RESULTS

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Sample: TRIP BLANK **Lab ID: 40159297018** Collected: 10/24/17 12:08 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:28	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:28	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/25/17 14:28	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:28	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/25/17 14:28	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:28	95-47-6	
Surrogates									
Dibromofluoromethane (S)	111	%	67-130		1		10/25/17 14:28	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		10/25/17 14:28	2037-26-5	
4-Bromofluorobenzene (S)	94	%	61-130		1		10/25/17 14:28	460-00-4	

Sample: EQUIP BLANK 2 **Lab ID: 40159297019** Collected: 10/24/17 12:13 Received: 10/24/17 14:05 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:05	71-43-2	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:05	100-41-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/25/17 14:05	91-20-3	
Toluene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:05	108-88-3	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/25/17 14:05	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/25/17 14:05	95-47-6	
Surrogates									
Dibromofluoromethane (S)	108	%	67-130		1		10/25/17 14:05	1868-53-7	
Toluene-d8 (S)	105	%	70-130		1		10/25/17 14:05	2037-26-5	
4-Bromofluorobenzene (S)	89	%	61-130		1		10/25/17 14:05	460-00-4	

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 272136 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 40159297001, 40159297002, 40159297003, 40159297004, 40159297005, 40159297006, 40159297007, 40159297010

METHOD BLANK: 1600387 Matrix: Water
Associated Lab Samples: 40159297001, 40159297002, 40159297003, 40159297004, 40159297005, 40159297006, 40159297007, 40159297010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	<111	368	11/03/17 18:50	
Manganese, Dissolved	ug/L	<2.7	9.0	11/03/17 18:50	

LABORATORY CONTROL SAMPLE: 1600388

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	5000	5180	104	80-120	
Manganese, Dissolved	ug/L	500	518	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1600389 1600390

Parameter	Units	40159075004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	21800	5000	5000	26400	26600	92	97	75-125	1	20	
Manganese, Dissolved	ug/L	225	500	500	730	741	101	103	75-125	2	20	

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 271598 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40159297009, 40159297018, 40159297019

METHOD BLANK: 1596960 Matrix: Water
Associated Lab Samples: 40159297009, 40159297018, 40159297019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	10/25/17 12:13	
Ethylbenzene	ug/L	<0.50	1.0	10/25/17 12:13	
m&p-Xylene	ug/L	<1.0	2.0	10/25/17 12:13	
Naphthalene	ug/L	<2.5	5.0	10/25/17 12:13	
o-Xylene	ug/L	<0.50	1.0	10/25/17 12:13	
Toluene	ug/L	<0.50	1.0	10/25/17 12:13	
4-Bromofluorobenzene (S)	%	92	61-130	10/25/17 12:13	
Dibromofluoromethane (S)	%	102	67-130	10/25/17 12:13	
Toluene-d8 (S)	%	102	70-130	10/25/17 12:13	

LABORATORY CONTROL SAMPLE: 1596961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	49.6	53.9	109	73-145	
Ethylbenzene	ug/L	49.6	55.6	112	87-129	
m&p-Xylene	ug/L	99.2	105	106	70-130	
o-Xylene	ug/L	49.6	52.5	106	70-130	
Toluene	ug/L	49.6	56.0	113	82-130	
4-Bromofluorobenzene (S)	%			100	61-130	
Dibromofluoromethane (S)	%			91	67-130	
Toluene-d8 (S)	%			104	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1596962 1596963

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40159183020 Result	Spike Conc.	Spike Conc.	Result							
Benzene	ug/L	4130	24800	24800	30100	30500	105	106	73-145	1	20	
Ethylbenzene	ug/L	3340	24800	24800	31300	32000	113	116	87-129	2	20	
m&p-Xylene	ug/L	12500	49600	49600	64300	65100	104	106	70-130	1	20	
o-Xylene	ug/L	5530	24800	24800	32300	32400	108	108	70-130	0	20	
Toluene	ug/L	67100	24800	24800	92300	86700	102	79	82-131	6	20 M1	
4-Bromofluorobenzene (S)	%						100	104	61-130			
Dibromofluoromethane (S)	%						97	97	67-130			
Toluene-d8 (S)	%						104	104	70-130			

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 271790 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40159297005, 40159297006, 40159297010, 40159297011, 40159297012, 40159297013, 40159297014, 40159297015, 40159297016, 40159297017

METHOD BLANK: 1598032 Matrix: Water
Associated Lab Samples: 40159297005, 40159297006, 40159297010, 40159297011, 40159297012, 40159297013, 40159297014, 40159297015, 40159297016, 40159297017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	10/25/17 09:32	
Ethylbenzene	ug/L	<0.50	1.0	10/25/17 09:32	
m&p-Xylene	ug/L	<1.0	2.0	10/25/17 09:32	
Naphthalene	ug/L	<2.5	5.0	10/25/17 09:32	
o-Xylene	ug/L	<0.50	1.0	10/25/17 09:32	
Toluene	ug/L	<0.50	1.0	10/25/17 09:32	
4-Bromofluorobenzene (S)	%	82	61-130	10/25/17 09:32	
Dibromofluoromethane (S)	%	115	67-130	10/25/17 09:32	
Toluene-d8 (S)	%	92	70-130	10/25/17 09:32	

LABORATORY CONTROL SAMPLE: 1598033

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	49.6	50.6	102	73-145	
Ethylbenzene	ug/L	49.6	50.2	101	87-129	
m&p-Xylene	ug/L	99.2	108	109	70-130	
o-Xylene	ug/L	49.6	50.8	102	70-130	
Toluene	ug/L	49.6	51.5	104	82-130	
4-Bromofluorobenzene (S)	%			105	61-130	
Dibromofluoromethane (S)	%			105	67-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1598034 1598035

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40159284004 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Benzene	ug/L	<1.0	49.6	49.6	51.8	52.5	104	106	73-145	1	20	
Ethylbenzene	ug/L	<1.0	49.6	49.6	53.8	52.7	108	106	87-129	2	20	
m&p-Xylene	ug/L	<2.0	99.2	99.2	114	111	115	112	70-130	3	20	
o-Xylene	ug/L	<1.0	49.6	49.6	54.5	52.2	110	105	70-130	4	20	
Toluene	ug/L	<1.0	49.6	49.6	54.1	53.5	109	108	82-131	1	20	
4-Bromofluorobenzene (S)	%						104	106	61-130			
Dibromofluoromethane (S)	%						101	102	67-130			
Toluene-d8 (S)	%						97	98	70-130			

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 271816 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 40159297007, 40159297008

METHOD BLANK: 1598140 Matrix: Water
Associated Lab Samples: 40159297007, 40159297008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	<0.50	1.0	10/25/17 15:51	
Ethylbenzene	ug/L	<0.50	1.0	10/25/17 15:51	
m&p-Xylene	ug/L	<1.0	2.0	10/25/17 15:51	
Naphthalene	ug/L	<2.5	5.0	10/25/17 15:51	
o-Xylene	ug/L	<0.50	1.0	10/25/17 15:51	
Toluene	ug/L	<0.50	1.0	10/25/17 15:51	
4-Bromofluorobenzene (S)	%	84	61-130	10/25/17 15:51	
Dibromofluoromethane (S)	%	99	67-130	10/25/17 15:51	
Toluene-d8 (S)	%	93	70-130	10/25/17 15:51	

LABORATORY CONTROL SAMPLE: 1598141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	44.4	89	73-145	
Ethylbenzene	ug/L	50	50.9	102	87-129	
m&p-Xylene	ug/L	100	99.9	100	70-130	
Naphthalene	ug/L	50	47.6	95	70-130	
o-Xylene	ug/L	50	50.4	101	70-130	
Toluene	ug/L	50	49.2	98	82-130	
4-Bromofluorobenzene (S)	%			102	61-130	
Dibromofluoromethane (S)	%			94	67-130	
Toluene-d8 (S)	%			96	70-130	

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 271807 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40159297001, 40159297002, 40159297003, 40159297004, 40159297005, 40159297006, 40159297007, 40159297010

METHOD BLANK: 1598087 Matrix: Water
Associated Lab Samples: 40159297001, 40159297002, 40159297003, 40159297004, 40159297005, 40159297006, 40159297007, 40159297010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.075	0.22	10/25/17 13:47	
Sulfate	mg/L	<1.0	3.0	10/25/17 13:47	

LABORATORY CONTROL SAMPLE: 1598088

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	1.5	1.6	105	90-110	
Sulfate	mg/L	20	20.9	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1598089 1598090

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40159297010 Result	Spike Conc.	Spike Conc.	Conc.								
Nitrate as N	mg/L	<0.38	7.5	7.5	7.8	8.1	104	108	90-110	4	15		
Sulfate	mg/L	88.2	100	100	183	194	95	106	90-110	6	15		

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 271918 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40159297001, 40159297002, 40159297003

METHOD BLANK: 1599048 Matrix: Water
Associated Lab Samples: 40159297001, 40159297002, 40159297003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<7.0	23.5	10/26/17 07:21	

LABORATORY CONTROL SAMPLE: 1599049

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	99.8	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1599050 1599051

Parameter	Units	40158938010		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Alkalinity, Total as CaCO ₃	mg/L	300	500	500	794	763	99	93	90-110	4	20		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1599052 1599053

Parameter	Units	40159297003		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Alkalinity, Total as CaCO ₃	mg/L	237	500	500	684	692	89	91	90-110	1	20	M0	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

QC Batch: 271920 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40159297004, 40159297005, 40159297006, 40159297007, 40159297010

METHOD BLANK: 1599060 Matrix: Water
Associated Lab Samples: 40159297004, 40159297005, 40159297006, 40159297007, 40159297010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<7.0	23.5	10/26/17 08:02	

LABORATORY CONTROL SAMPLE: 1599061

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	105	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1599062 1599063

Parameter	Units	40159361004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	21.3J	100	100	124	122	103	101	90-110	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 1508/2.0 APPLETON FORMER MGP
Pace Project No.: 40159297

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40159297001	MW-26	EPA 8015B Modified	271768		
40159297002	MW-28	EPA 8015B Modified	271768		
40159297003	DUP 01	EPA 8015B Modified	271768		
40159297004	MW-27	EPA 8015B Modified	271768		
40159297005	PZ-27	EPA 8015B Modified	271768		
40159297006	PZ-23	EPA 8015B Modified	271768		
40159297007	MW-24	EPA 8015B Modified	271768		
40159297010	MW-25	EPA 8015B Modified	271768		
40159297001	MW-26	EPA 3010	272136	EPA 6020	272546
40159297002	MW-28	EPA 3010	272136	EPA 6020	272546
40159297003	DUP 01	EPA 3010	272136	EPA 6020	272546
40159297004	MW-27	EPA 3010	272136	EPA 6020	272546
40159297005	PZ-27	EPA 3010	272136	EPA 6020	272546
40159297006	PZ-23	EPA 3010	272136	EPA 6020	272546
40159297007	MW-24	EPA 3010	272136	EPA 6020	272546
40159297010	MW-25	EPA 3010	272136	EPA 6020	272546
40159297005	PZ-27	EPA 8260	271790		
40159297006	PZ-23	EPA 8260	271790		
40159297007	MW-24	EPA 8260	271816		
40159297008	MW-19	EPA 8260	271816		
40159297009	EQUIP BLANK 1	EPA 8260	271598		
40159297010	MW-25	EPA 8260	271790		
40159297011	MW-12R	EPA 8260	271790		
40159297012	DUP 02	EPA 8260	271790		
40159297013	MW-13R	EPA 8260	271790		
40159297014	MW-22	EPA 8260	271790		
40159297015	MW-21	EPA 8260	271790		
40159297016	MW-20	EPA 8260	271790		
40159297017	MW-02R	EPA 8260	271790		
40159297018	TRIP BLANK	EPA 8260	271598		
40159297019	EQUIP BLANK 2	EPA 8260	271598		
40159297001	MW-26	EPA 300.0	271807		
40159297002	MW-28	EPA 300.0	271807		
40159297003	DUP 01	EPA 300.0	271807		
40159297004	MW-27	EPA 300.0	271807		
40159297005	PZ-27	EPA 300.0	271807		
40159297006	PZ-23	EPA 300.0	271807		
40159297007	MW-24	EPA 300.0	271807		
40159297010	MW-25	EPA 300.0	271807		
40159297001	MW-26	EPA 300.0	271807		
40159297002	MW-28	EPA 300.0	271807		
40159297003	DUP 01	EPA 300.0	271807		
40159297004	MW-27	EPA 300.0	271807		
40159297005	PZ-27	EPA 300.0	271807		
40159297006	PZ-23	EPA 300.0	271807		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1508/2.0 APPLETON FORMER MGP

Pace Project No.: 40159297

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40159297007	MW-24	EPA 300.0	271807		
40159297010	MW-25	EPA 300.0	271807		
40159297001	MW-26	EPA 310.2	271918		
40159297002	MW-28	EPA 310.2	271918		
40159297003	DUP 01	EPA 310.2	271918		
40159297004	MW-27	EPA 310.2	271920		
40159297005	PZ-27	EPA 310.2	271920		
40159297006	PZ-23	EPA 310.2	271920		
40159297007	MW-24	EPA 310.2	271920		
40159297010	MW-25	EPA 310.2	271920		

REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)



CHAIN OF CUSTODY

UPPER MIDWEST REGION
 MN: 612-607-1700 WI: 920-469-2436
 A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

Page 1 of 2
 COC # 1508-1017-001
 40159297

Company Name: Natural Resource Technology
 Branch/Location: 234 W. Florida Street Milwaukee WI 53204
 Project Contact: Brian Hawkins
 Phone: 414-837-3524
 Project Number: 1508/2.0
 Project Name: Appleton Former MRP
 Project State: WI
 Sampled By (Print): Tyler Locke
 Sampled By (Sign): [Signature]
 PO #: _____
 Regulatory Program: _____

Data Package Options (billable)
 EPA Level III
 EPA Level IV
 On your sample (billable)
 NOT needed on your sample

Matrix Codes
 A=Air B=Biota C=Charcoal O=Oil S=Soil SI=Sludge
 W=Water DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water WP=Wipe

PAGE LAB #	CLIENT FIELD ID	DATE	COLLECTION TIME	MATRIX	Analyses Requested		V/I/M	Pick Letter
					Filter	Preservation (CODE)*		
001	NW-26	10/23/17	1223	GW	BTX + NAPTH	8260B	N	B
002	NW-28	10/23/17	1312	GW	BENZENE + NAPTH	8260B	N	T
003	DUP 01	10/23/17	1317	GW	IRON AND MANGANESE	6020	X	D
004	NW-27	10/23/17	1354	GW	Nitrate + Sulfate 300.0	Alkalinity 310.2	X	P
005	PZ-27	10/23/17	1426	GW	Methane	8015B	X	B
006	PZ-23	10/23/17	1551	GW			X	
007	NW-24	10/23/17	1641	GW			X	
008	NW-19	10/23/17	1727	GW			X	
009	Equip blank 1	10/23/17	1730	DI			X	
010	NW-25	10/24/17	0834	GW			X	
011	NW-122	10/24/17	0910	GW			X	
012	DUP 02	10/24/17	0915	GW			X	
013	NW-132	10/24/17	0944	GW			X	

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)
 Date Needed: _____

Transmit Prelim Rush Results By (complete what you want):
 Relinquished By: [Signature] Date/Time: 10/24/17 1405
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____
 Relinquished By: _____ Date/Time: _____

Received By: [Signature] Date/Time: 10/24/17 1405
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____
 Received By: _____ Date/Time: _____

Quote #: _____
 Mail To Contact: Dave Kolla Kowalsky
 Mail To Company: VE Energies
 Mail To Address: 333 W. Everett St. Milwaukee WI 53203
 Invoice To Contact: Accounts Payable
 Invoice To Company: VE Energies
 Invoice To Address: Same

CLIENT COMMENTS: 3-40 L^W P
 LAB COMMENTS (Lab Use Only): 2-250 L^W AD

Receipt Temp = Rel °C
 Sample Receipt pH OK / Adjusted
 Cooler Custody Seal Present / Not Present
 Intact / Not Intact

(Please Print Clearly)



CHAIN OF CUSTODY

A=None B=HCl C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
 H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

UPPER MIDWEST REGION
 MN: 612-607-1700 WI: 920-469-2436

Quote #: 4059297
 CO# 1508-1017-002

Company Name: Natural Resource Technochem
 Branch/Location: 234 W. Florida Street Milwaukee WI 53201
 Project Contact: Brian Hennings
 Phone: 414-837-3524
 Project Number: 1508/120
 Project Name: Appleton Former M&D
 Project State: WI
 Sampled By (Print): Tyler Lucke
 Sampled By (Sign): *T Lucke*
 PO #: 4700003353

FILTERED? (YES/NO)
 PRESERVATION (CODE)*

Data Package Options (billable)
 EPA Level III
 EPA Level IV
 On your sample (billable)
 NOT needed on your sample

Matrix Codes
 A = Air B = Biota C = Charcoal O = Oil S = Soil SI = Sludge
 W = Water DW = Drinking Water GW = Ground Water SW = Surface Water WP = Waste Water

PAGE LAB #	CLIENT FIELD ID	DATE	TIME	MATRIX
014	NW-22	10/24/17	1022	GW
015	NW-21	10/24/17	1055	GW
016	NW-20	10/24/17	1129	GW
017	NW-02R	10/24/17	1203	GW
018	TEEP BLANK	10/24/17	1208	DI
019	TEEP BLANK	10/24/17	1213	DI

Y/N	Pick Letter	Analyses Requested
N	R	BTEX + NAPTH 8260B

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge)
 Date Needed:

Relinquished By: *Carli Potts* Date/Time: 10-24-17/1405
 Relinquished By: Date/Time:
 Relinquished By: Date/Time:
 Relinquished By: Date/Time:

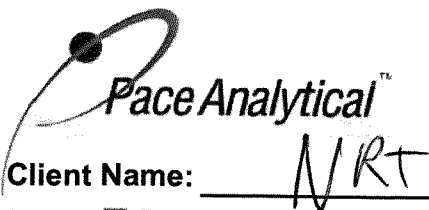
Received By: *Michelle Potts* Date/Time: 10/24/17 1405
 Received By: Date/Time:
 Received By: Date/Time:
 Received By: Date/Time:

Invoice To Contact: Accounts Payable
 Invoice To Company: Use envelopes
 Invoice To Address: Same
 Invoice To Phone:
 Client Comments: MS/MSD
 Lab Comments (Lab Use Only): 9-40mls
 Profile #: 3-40mls
 2-40mls

Mail To Contact: Dave Bellkowsky
 Mail To Company: Use Envelopes
 Mail To Address: 333 W Everett St. Milwaukee WI 53203

Quote #: 4059297
 CO# 1508-1017-002

Receipt Temp = *Kept* °C
 Sample Receipt pH: *6.1* / Adjusted
 Cooler Custody Seal Present / Not Present: *Intact / Not Intact*



Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project #: WO#: 40159297

Client Name: NRT

Courier: Fed Ex UPS Client Pace Other

Tracking #:



Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: R02 /Corr: Biological Tissue is Frozen: yes

Temp Blank Present: yes no

Person examining contents:
Date: 10/24/17
Initials: SM


Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Comments:

Table with 15 rows of inspection items and checkboxes. Includes items like Chain of Custody Present, Short Hold Time Analysis, and Trip Blank Present.

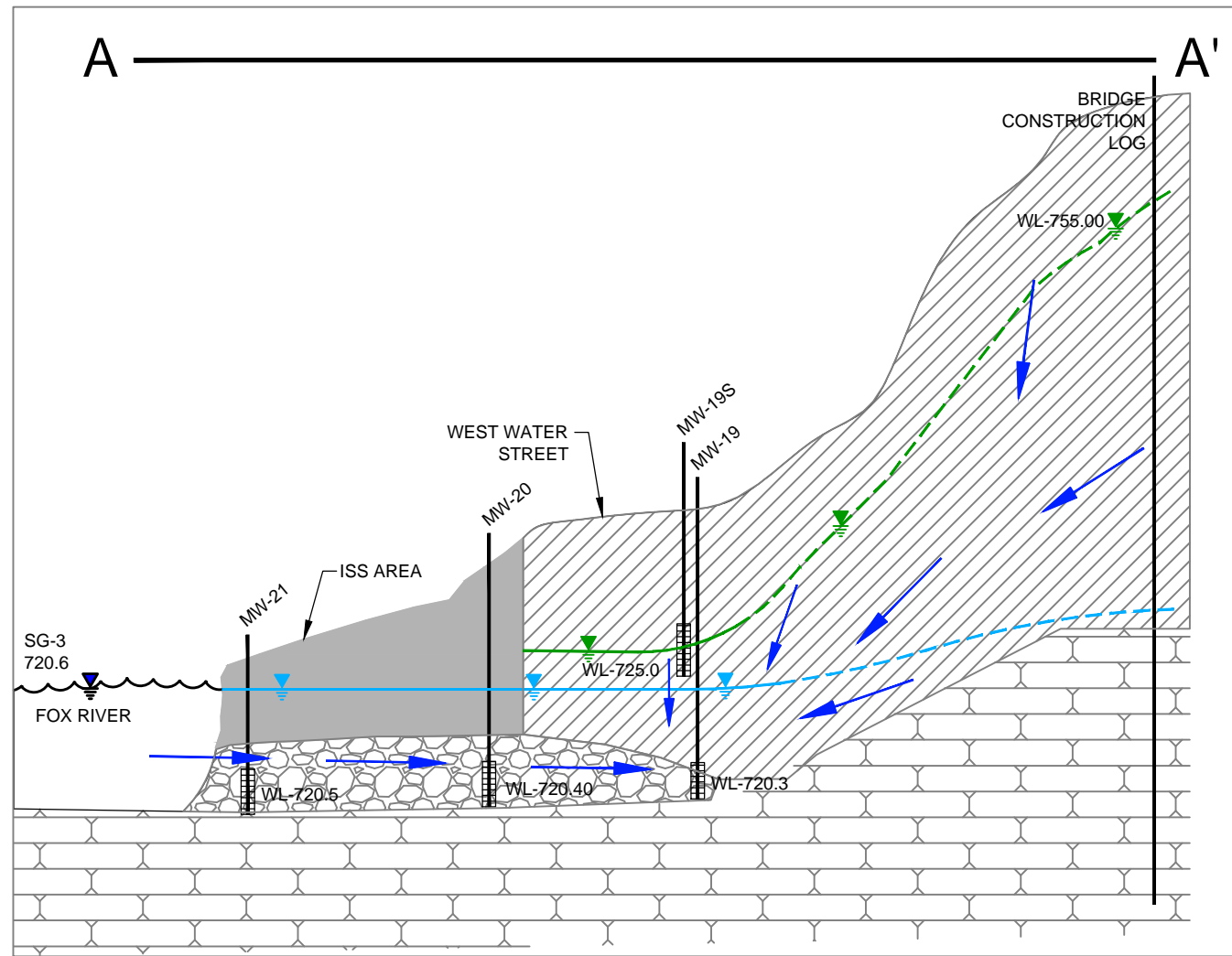
Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution:

Project Manager Review: Date: 10-25-17



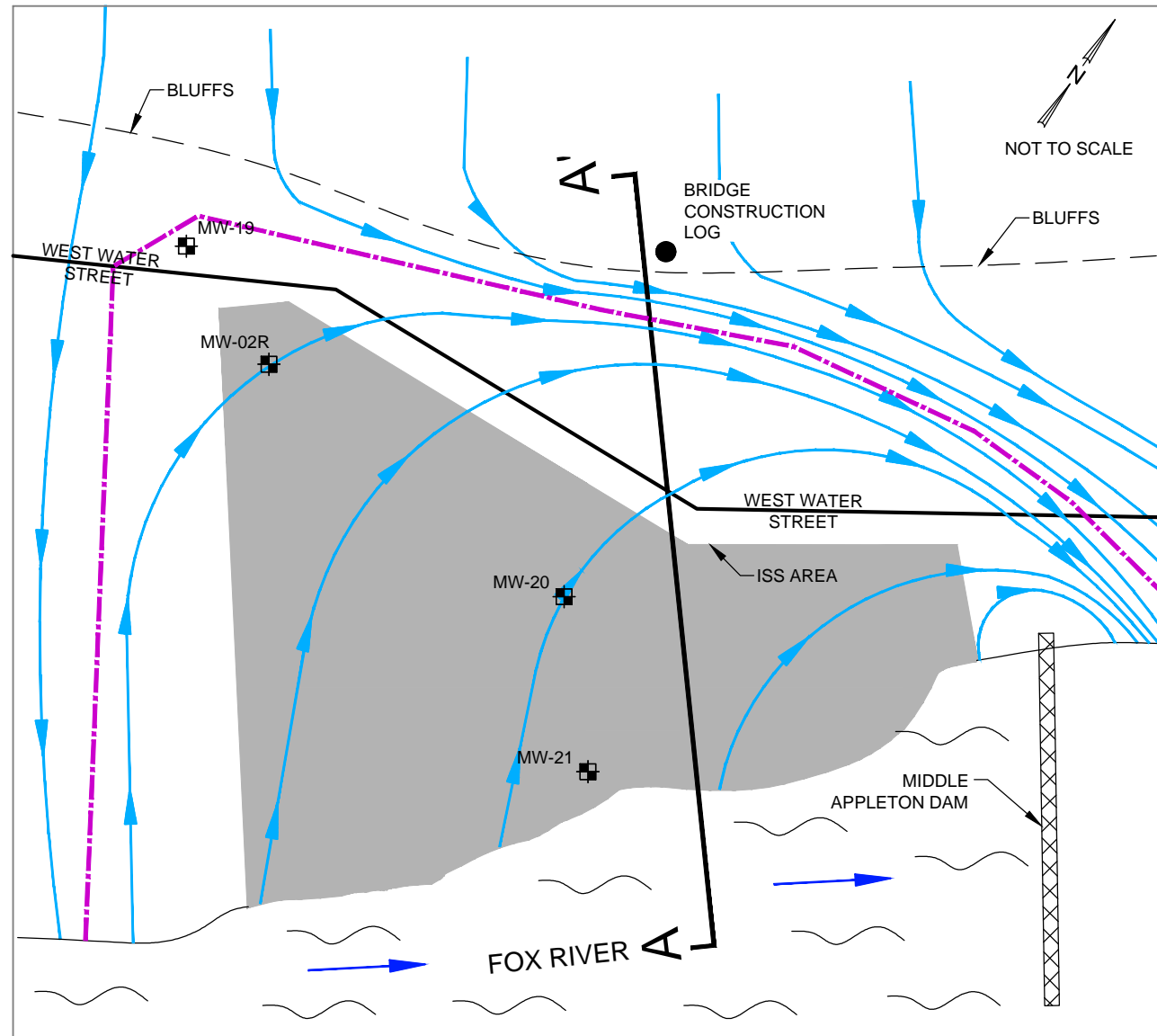
Appendix C
Conceptual Flow Model
and Conceptual Site
Model Figures

CONCEPTUAL FLOW MODEL
(PREVIOUSLY SUBMITTED AS FIGURE 12 OF THE
2014 ANNUAL REPORT)



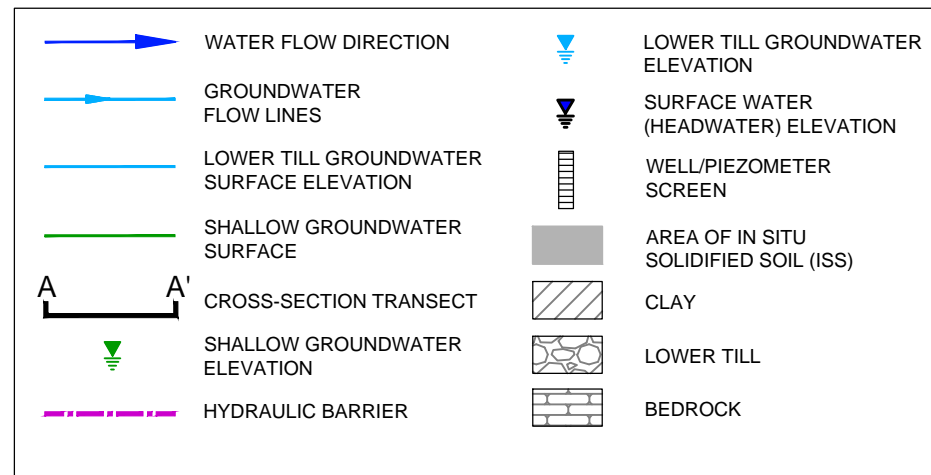
1 CROSS-SECTION A-A'

NOT TO SCALE



2 PLAN VIEW

NOT TO SCALE



DRAWN BY:	DMD	DATE:	03/11/15
CHECKED BY:	BGH	DATE:	03/25/15
APPROVED BY:	BGH	DATE:	04/27/15
DRAWING NO:	1508-212-B12		
REFERENCE:			

CONCEPTUAL FLOW MODEL

2014 ANNUAL GROUNDWATER REPORT
 WE ENERGIES
 APPLETON FORMER MGP SITE
 APPLETON, WISCONSIN



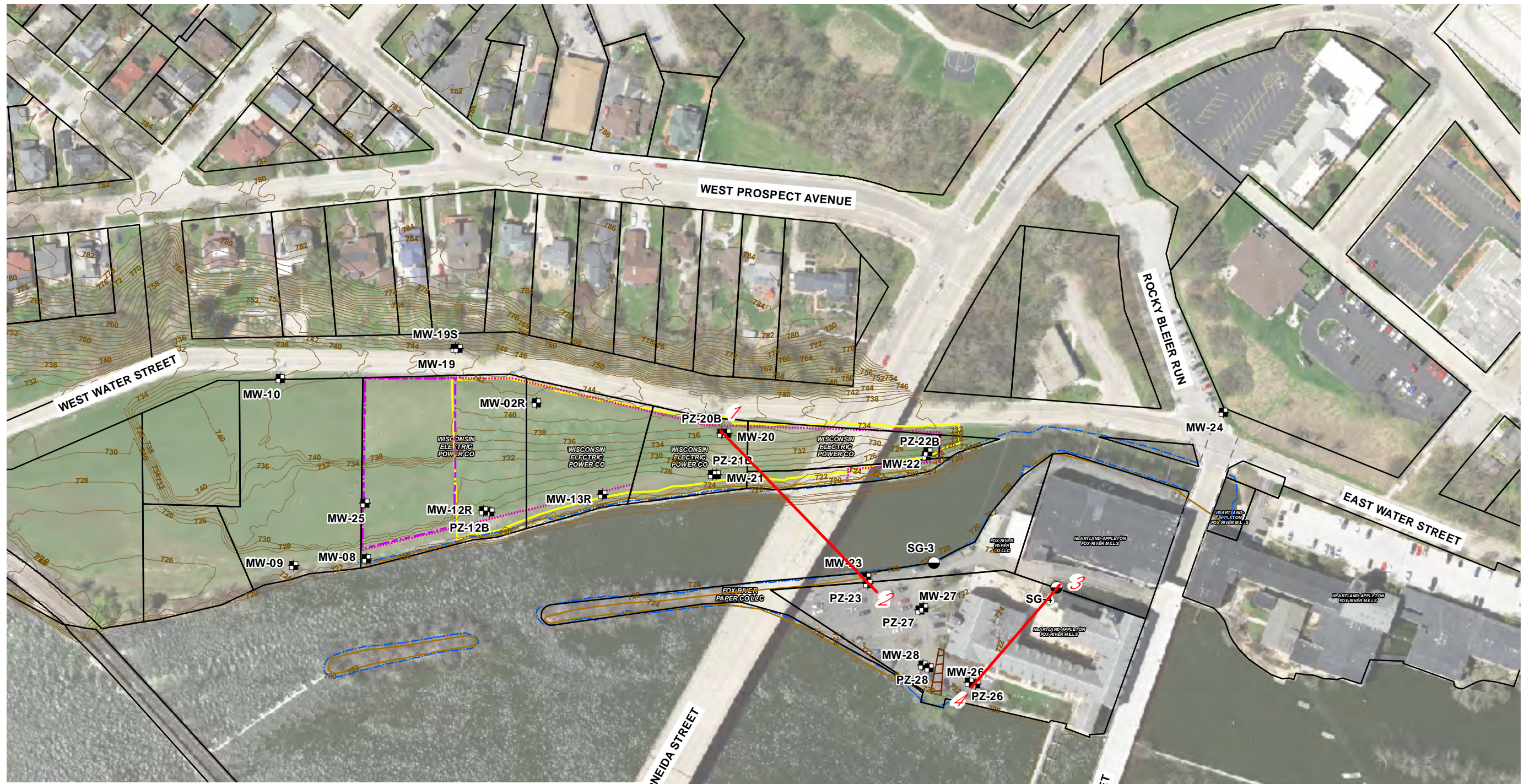
PROJECT NO.
1508/21.2

FIGURE NO.
12

Apr 27, 2015 4:39pm PLOTTED BY: dduda, SAVED BY: dduda
 I:\ACAdata\Projects\15\1508\21-2\1508-212-B12.dwg Layout1
 XREFS:

CONCEPTUAL SITE MODEL FIGURES

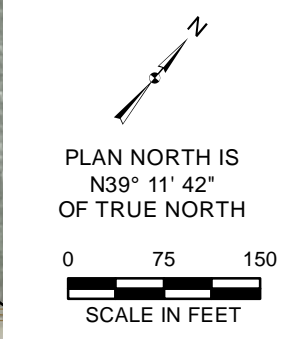
Y:\GIS\Projects\1511508\MXD\2016_Annual_Report\E1_Site_Features and CSM.mxd Author: stoljzsd Date/Time: 4/12/2017, 4:15:39 PM



1 2 CSM PROFILE (SEE DRAWINGS CSM-1 THROUGH CSM-4)

- MONITORING WELL LOCATION
- STAFF GAUGE LOCATION
- 2014 TAX PARCEL
- TOP OF BANK
- GROUND SURFACE ELEVATION CONTOURS
- FORMER MGP SITE PERIMETER
- SHORELINE
- FORMER WASTE WATER TREATMENT PLANT STRUCTURES DEMOLISHED IN THIS AREA
- PERIMETER OF ISS TREATMENT AREA
- HISTORICAL NEEDLE DAM STRUCTURE

SOURCE: TAX PARCEL DATA OBTAINED FROM OUTAGAMIE COUNTY GIS
IMAGERY SOURCE: OUTAGAMIE COUNTY SPRING 2014



DRAWN BY/DATE:
SDS 2/8/17
REVIEWED BY/DATE:
ANS 2/8/17
APPROVED BY/DATE:
BGH 4/12/17

SITE FEATURES AND CONCEPTUAL SITE MODEL (CSM) PROFILES

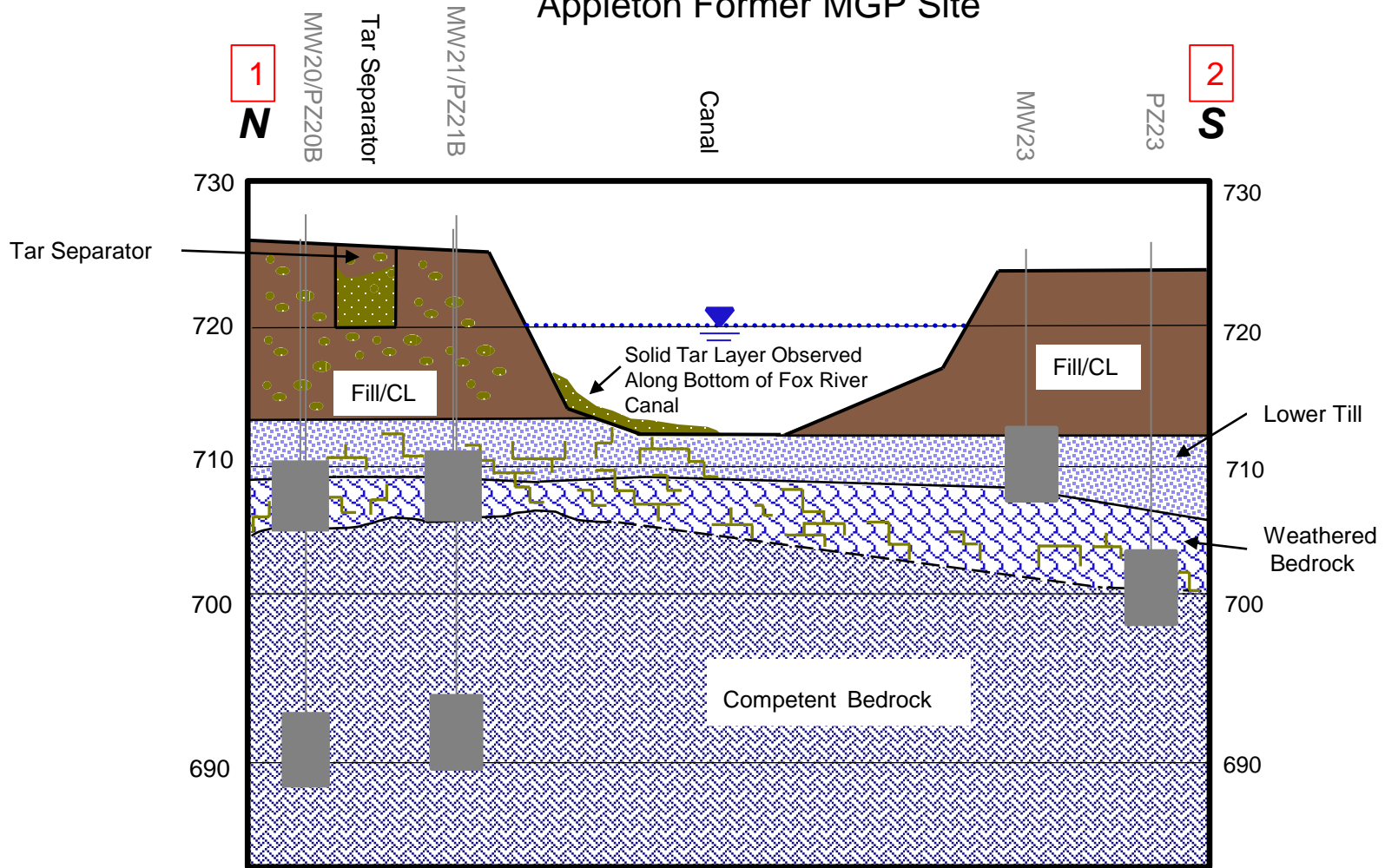
2016 ANNUAL REPORT
FORMER APPLETON MANUFACTURED GAS PLANT (MGP) FACILITY
WE ENERGIES
APPLETON, WISCONSIN

PROJECT NO: 1508

FIGURE NO: E1

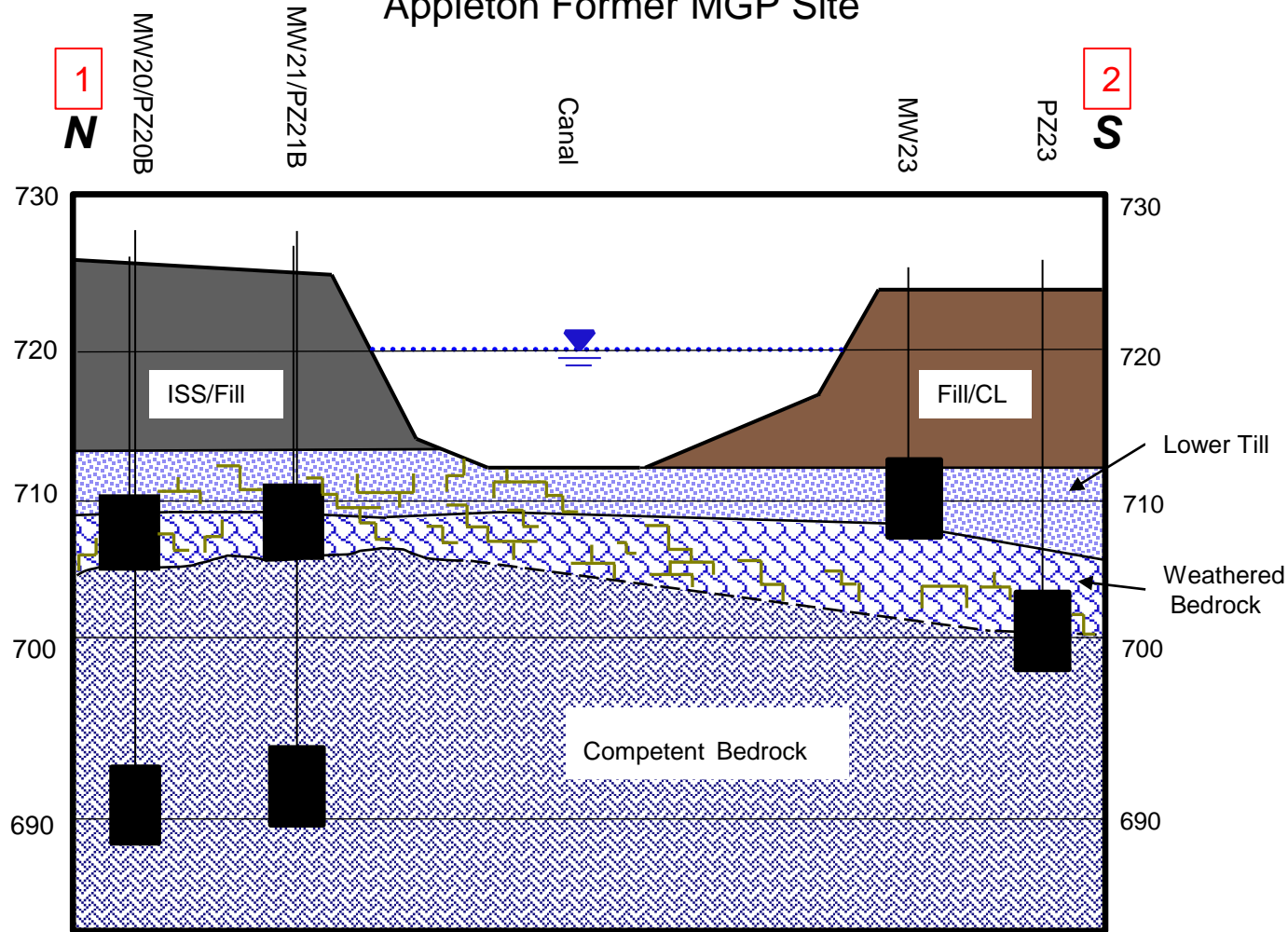


Pre-Remediation Conceptual Drawing of Residual Materials: Appleton Former MGP Site



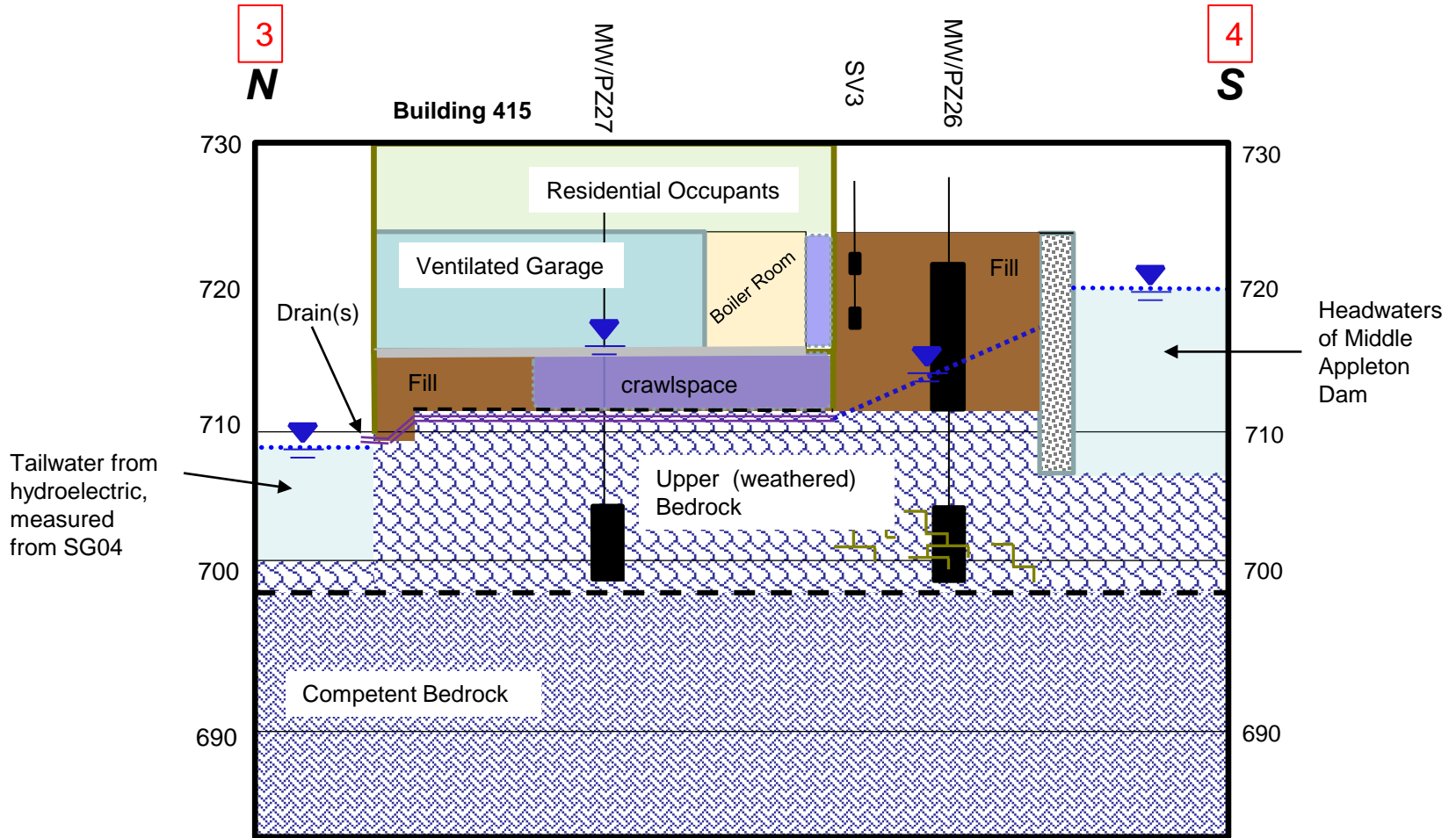
CSM-1. Conceptual drawing that illustrates the presence of MGP residuals prior to remedial construction (source removal and in situ solidification). Residual product is shown in green. Post-construction monitoring wells (gray) were included for reference. During remedial construction in 2002 and 2003, potential source areas such as the material within the tar separator and the solid tar layer observed along the bottom of the canal were removed. Following source removal, the fill and clay north of the canal was solidified. See "Post-Remediation Conceptual Drawing of Residual Materials" for conceptual drawing of post-remediation conditions.

Post-Remediation Conceptual Drawing of Residual Materials: Appleton Former MGP Site



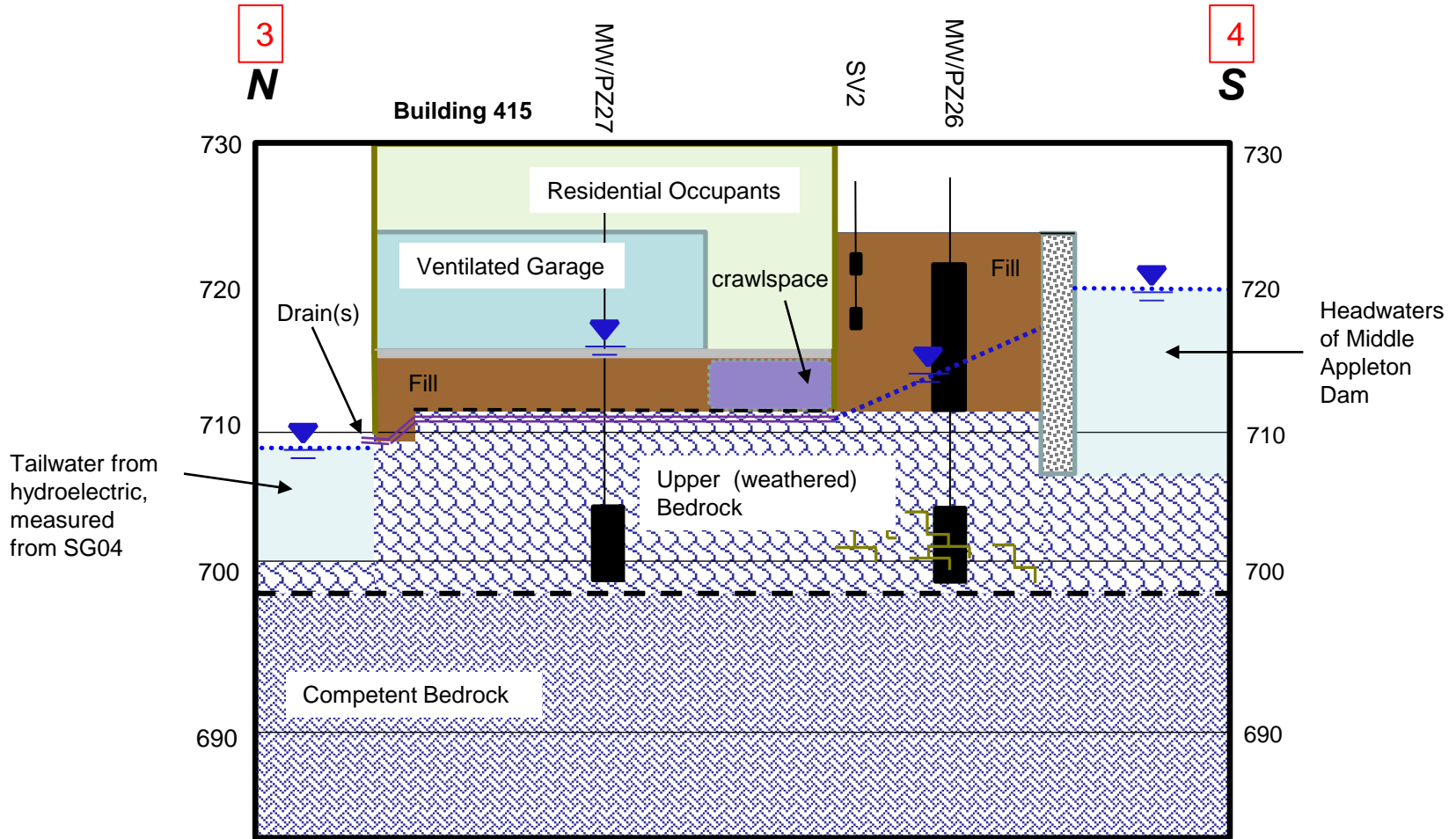
CSM-2. Conceptual drawing that illustrates the presence of MGP residuals following remedial construction (source removal and in situ solidification). Residual product is shown in green. The remediation area, including solidified soils, is shown in gray. Post-construction monitoring wells are in black. Following remedial construction, minor amounts of residual product have been observed in the lower till and weathered bedrock; and, a sheen was observed in portions of the canal bottom when dewatered in November 2011. The source of the observed residuals was removed or solidified during construction.

Conceptual Drawing of Building 415 Appleton Former MGP Site (Boiler Room)




CSM-3. Conceptual drawing that illustrates the profile of the apartment building located at 415 South Olde Oneida Street. Monitoring wells and soil vapor probes have been projected onto the profile. Residual product observed in shallow (weathered) bedrock is shown in green. The floor of the garage has been surveyed at 715 feet NAVD 88. Observations suggest that the wall of the building sits on bedrock near the elevation of the tailwater from the hydroelectric units, a crawlspace was observed beneath the garage slab along the southern wall of the building and PVC drain pipes were observed in the wall near SG04 at approximately 709.5 feet, the drain pipes become submerged when tailwater elevations exceed 710 feet.

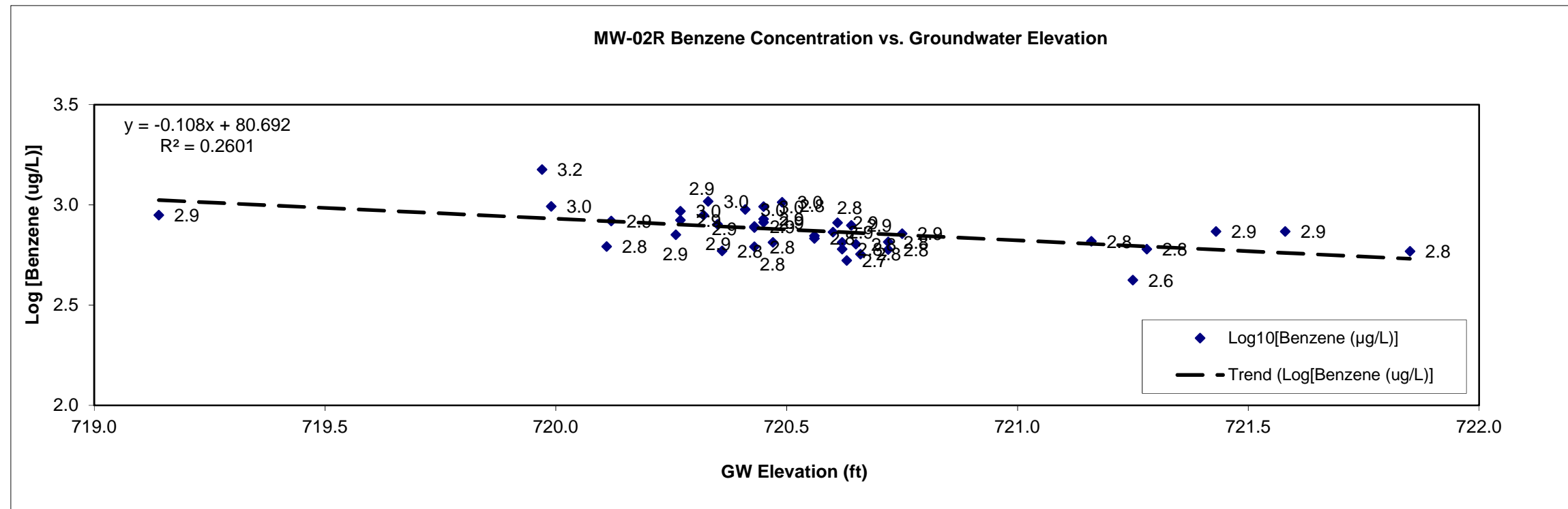
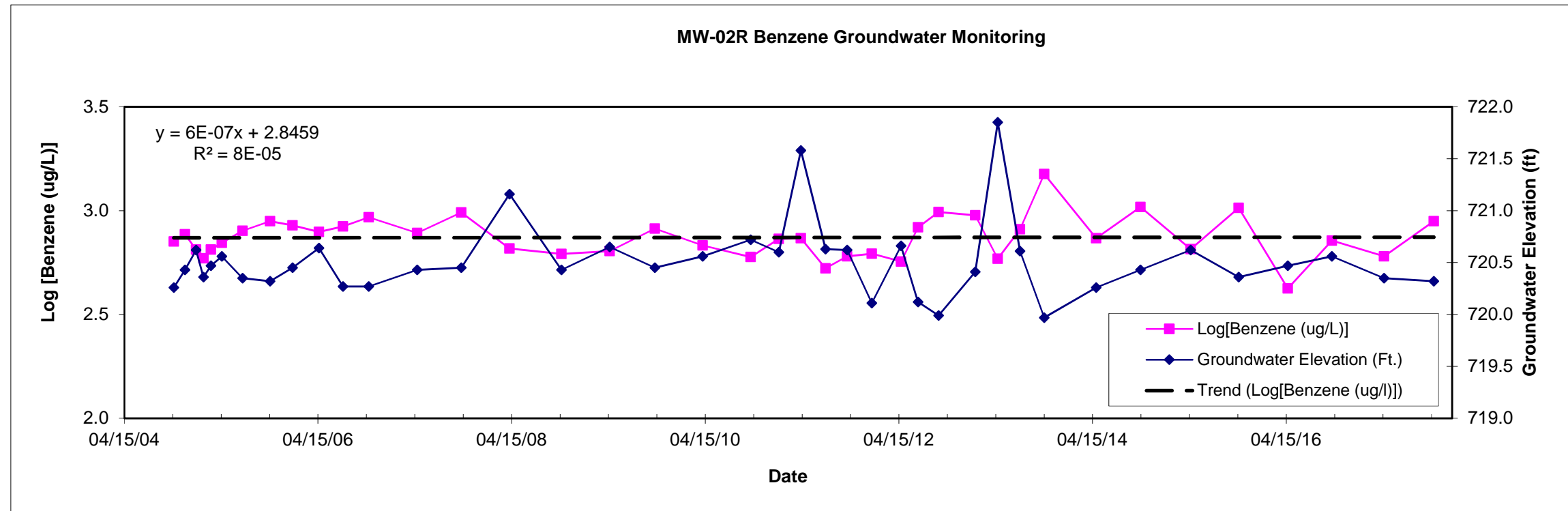
Conceptual Drawing of Building 415 Appleton Former MGP Site (Near Occupied Space)

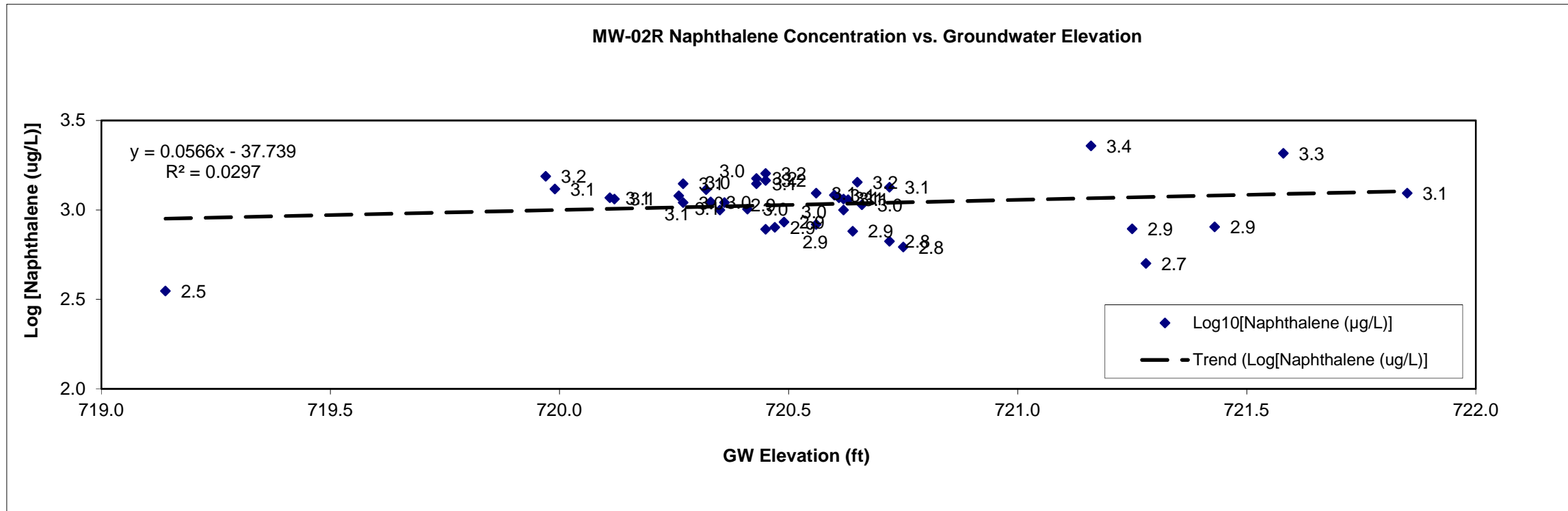
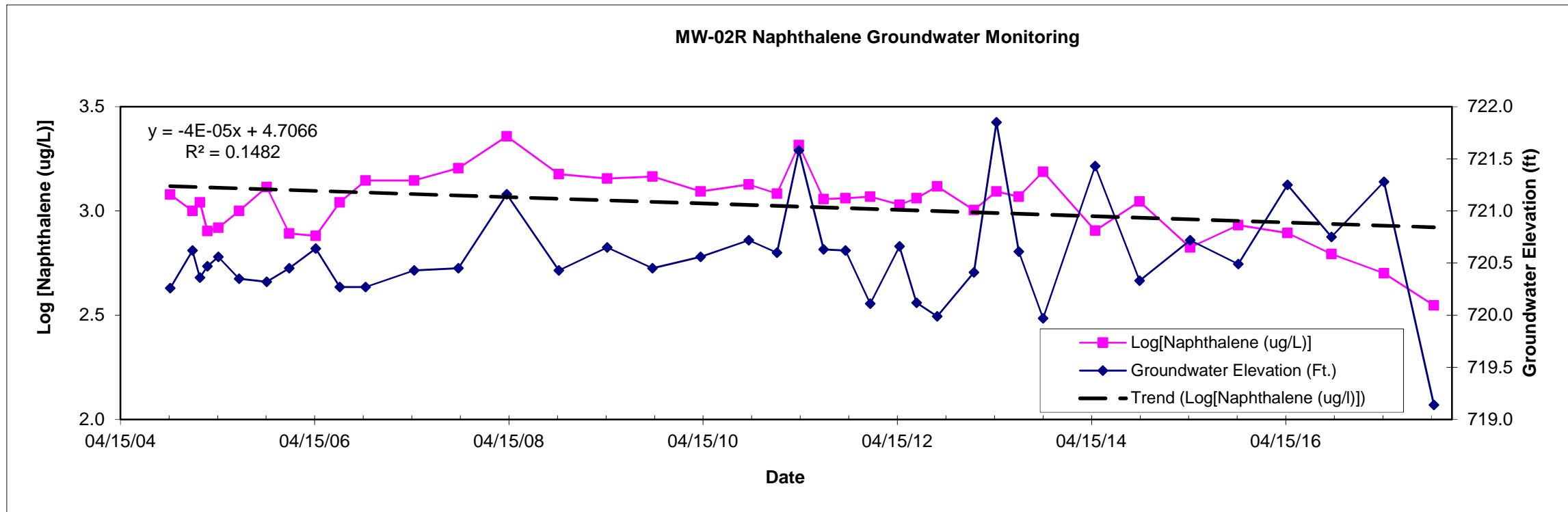


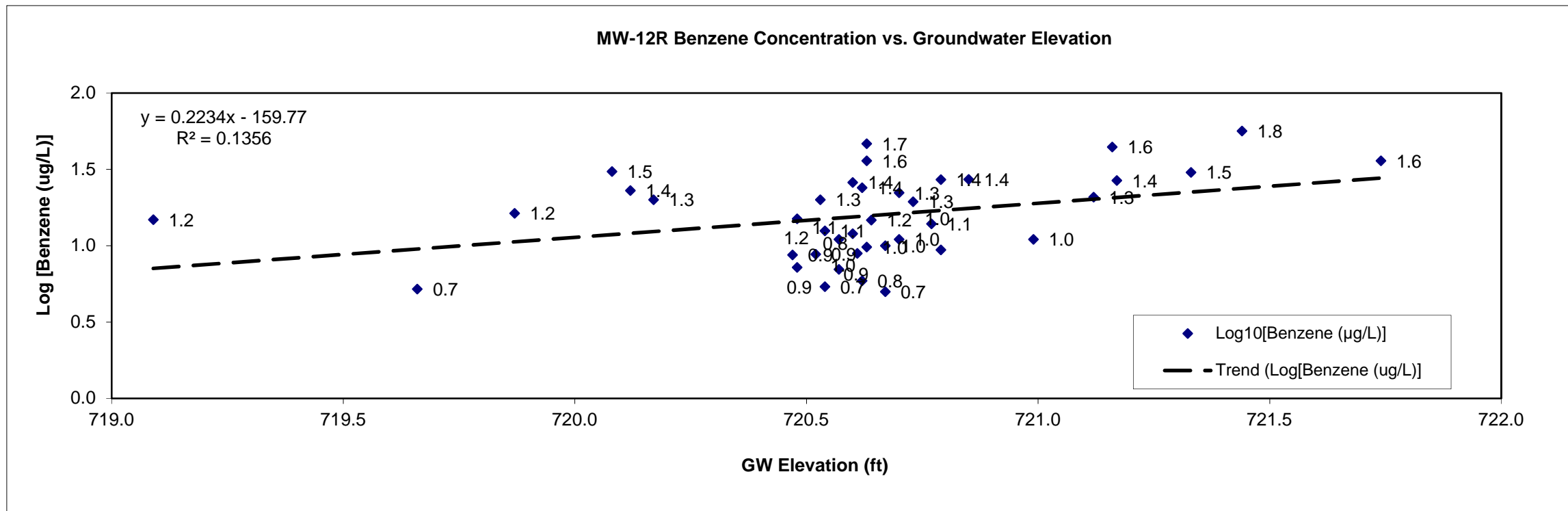
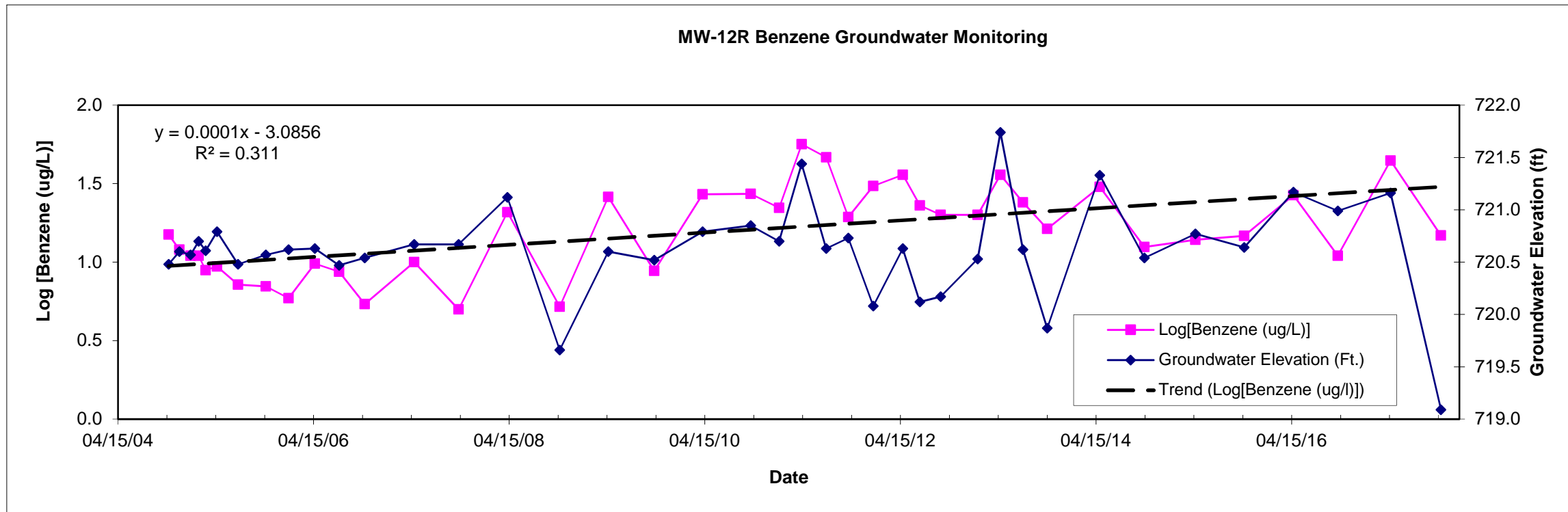
CSM-4. Conceptual drawing that illustrates the profile of the apartment building located at 415 South Olde Oneida Street. Monitoring wells and soil vapor probes have been projected onto the profile. Residual product observed in shallow (weathered) bedrock is shown in green. The floor of the garage has been surveyed at 715 feet NAVD 88. Observations suggest that the wall of the building sits on bedrock near the elevation of the tailwater from the hydroelectric units, a crawlspace was observed beneath the garage slab along the southern wall of the building and PVC drain pipes were observed in the wall near SG04 at approximately 709.5 feet, the drain pipes become submerged when tailwater elevations exceed 710 feet.

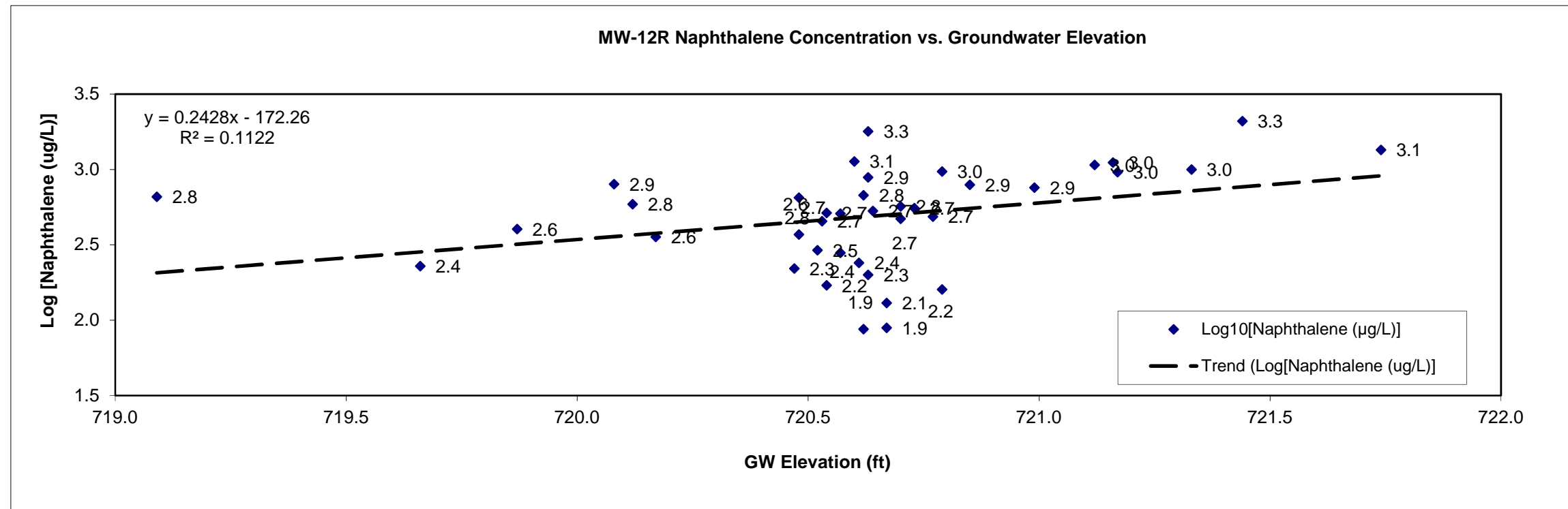
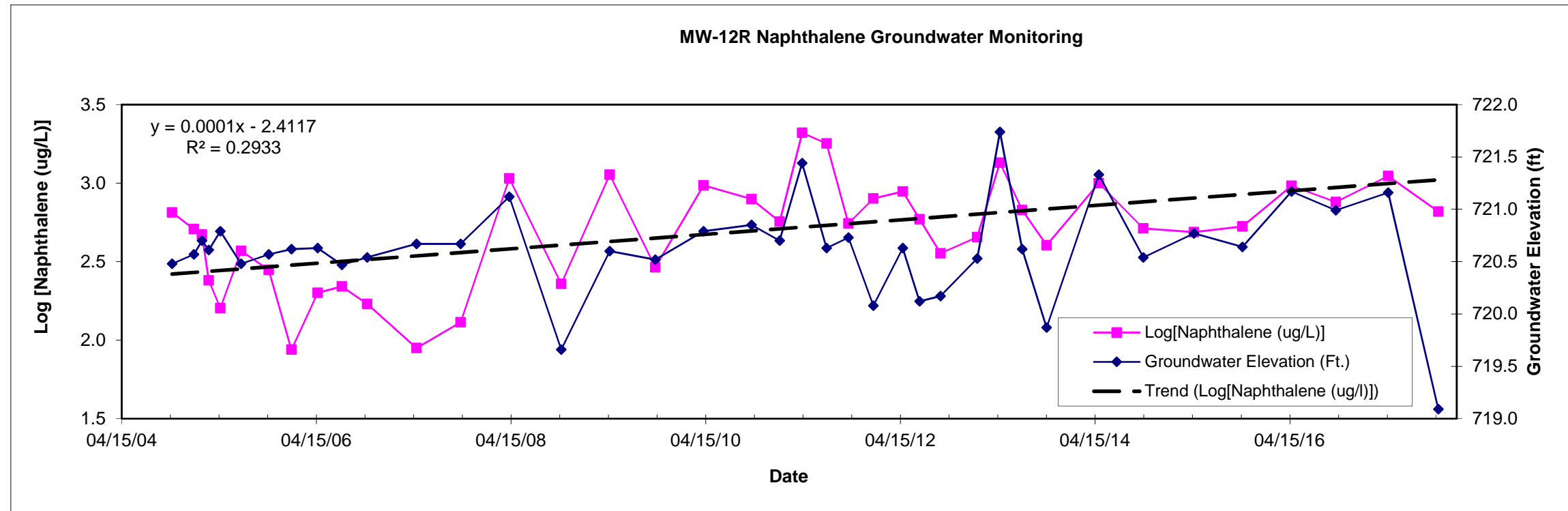


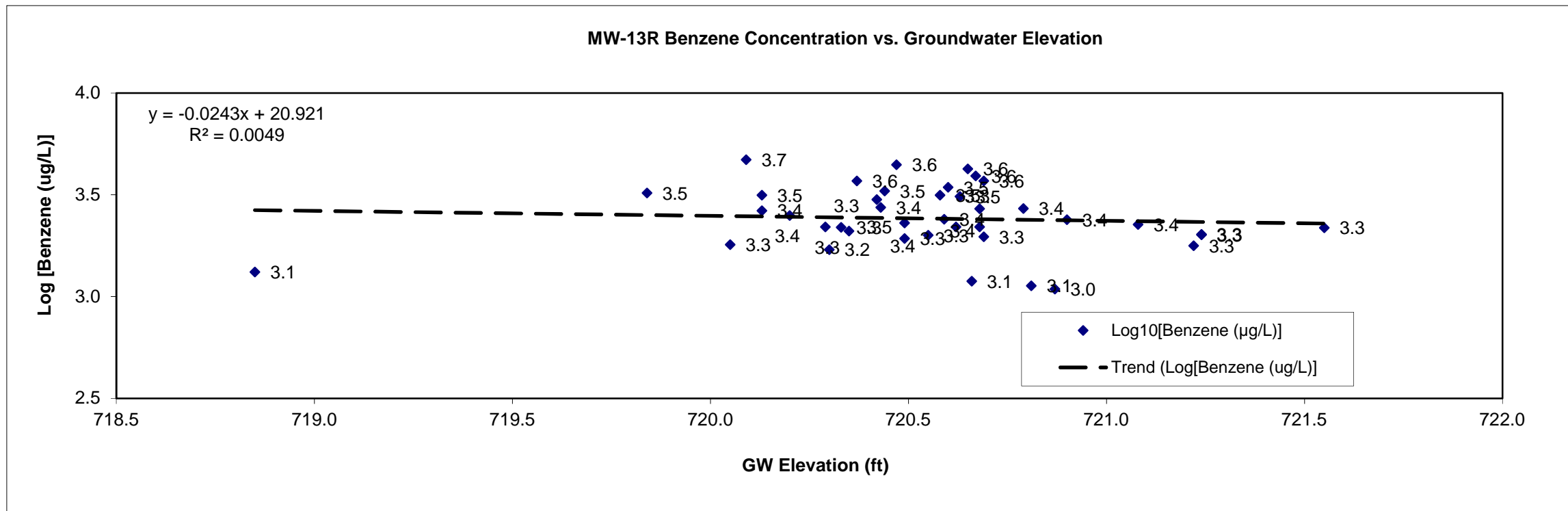
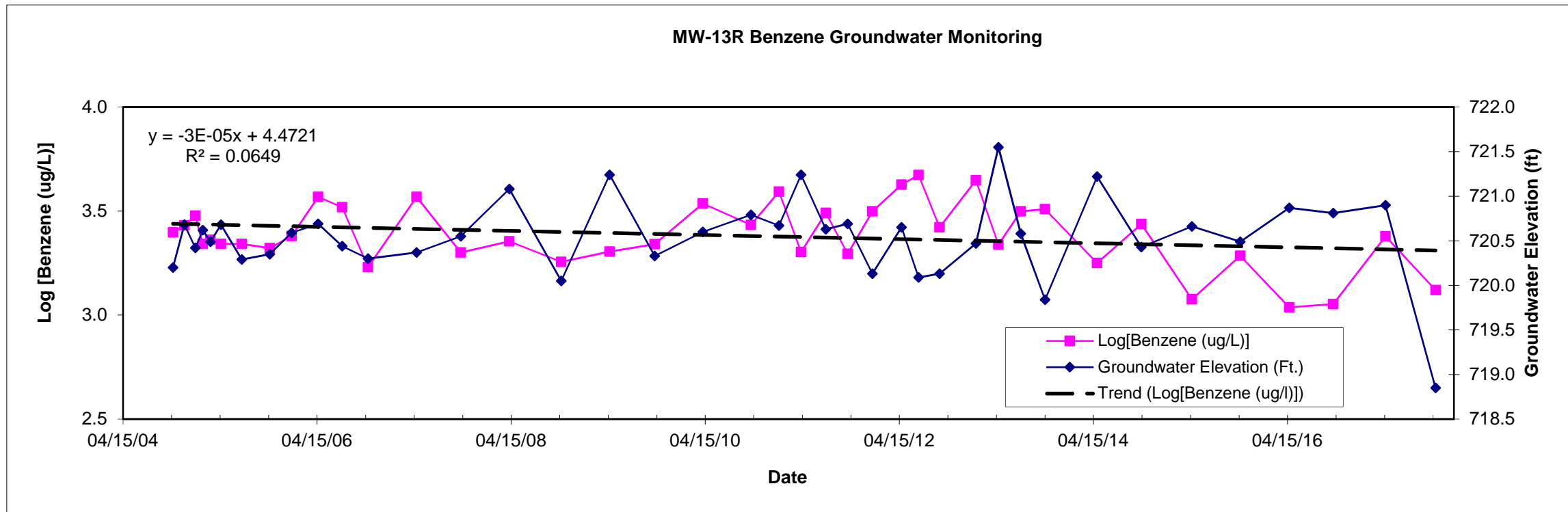
Appendix D1
Benzene and Naphthalene
Groundwater Trend
Graphs

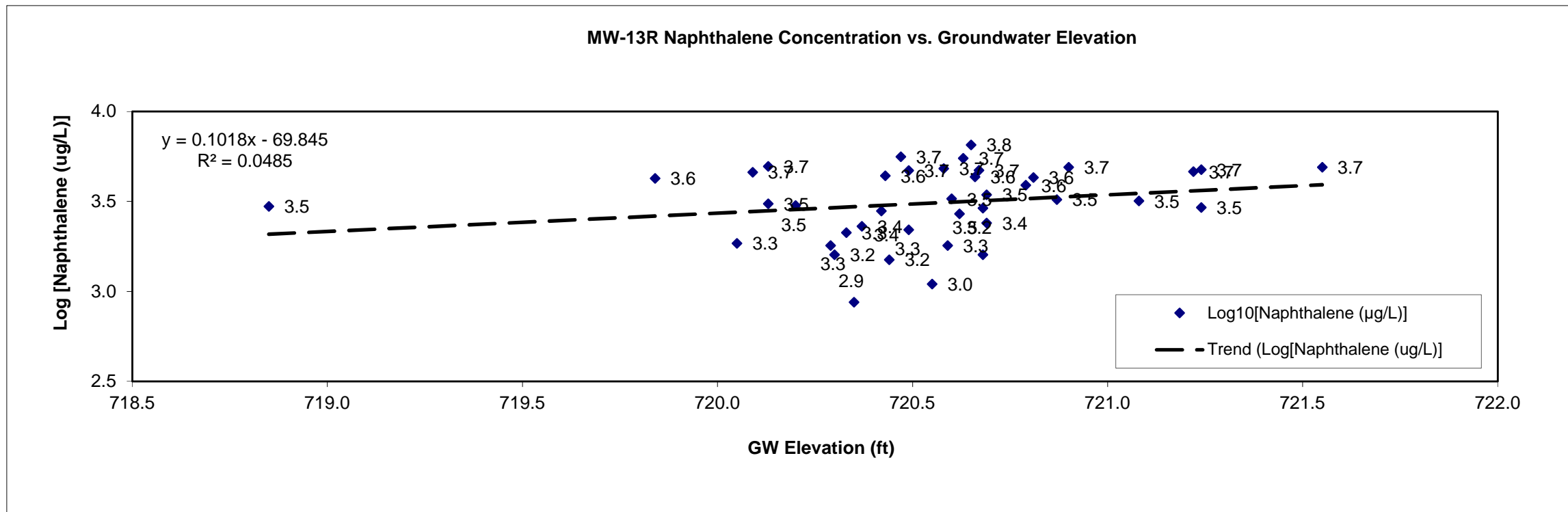
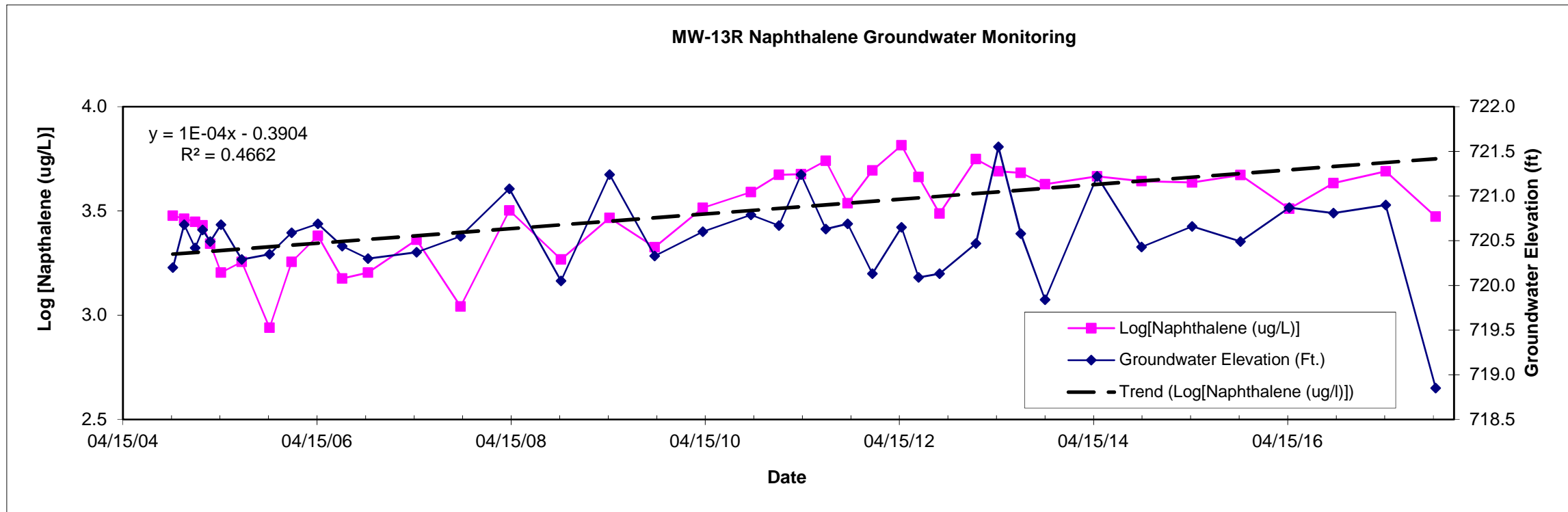


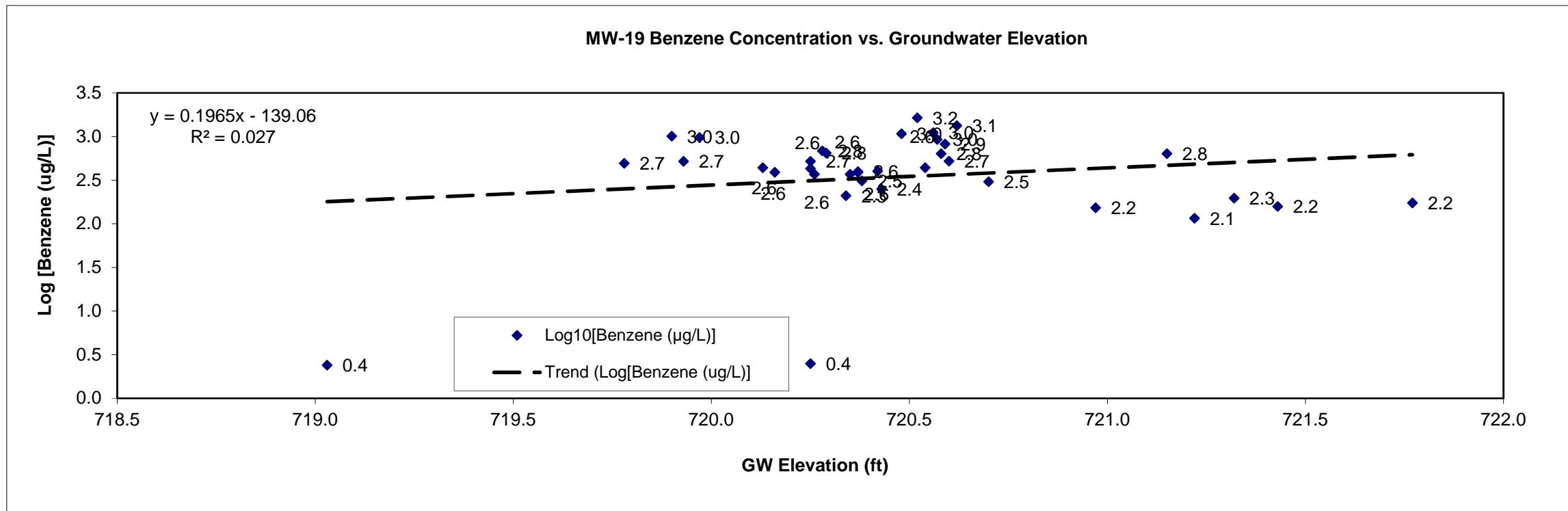
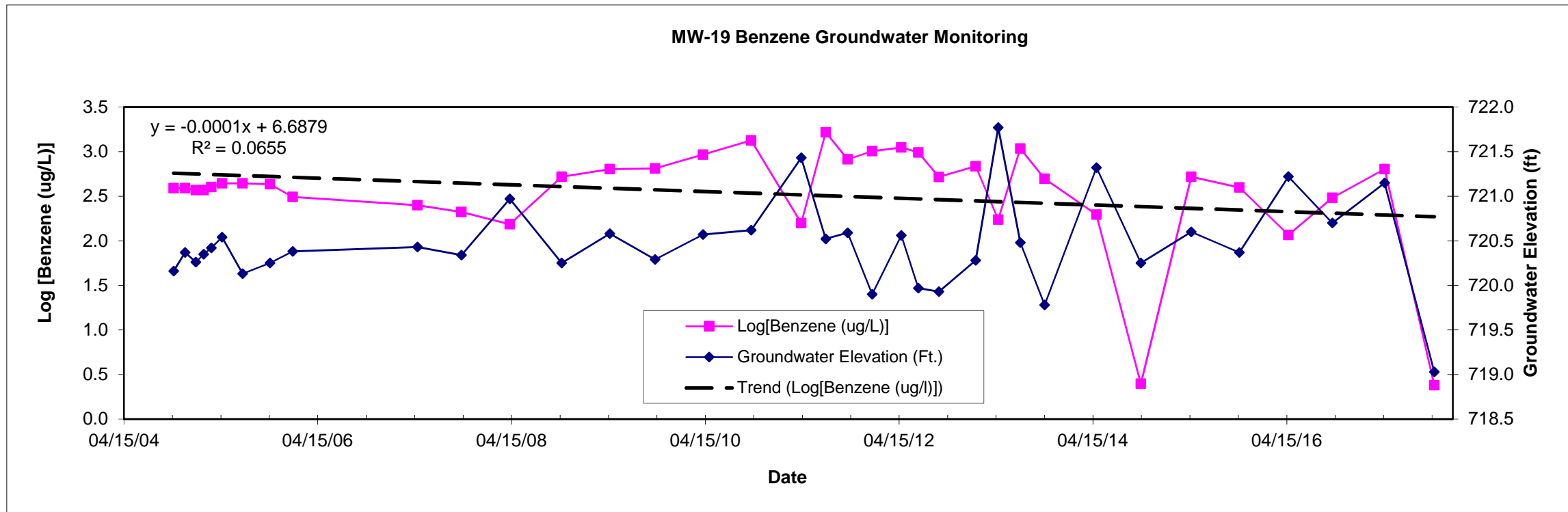


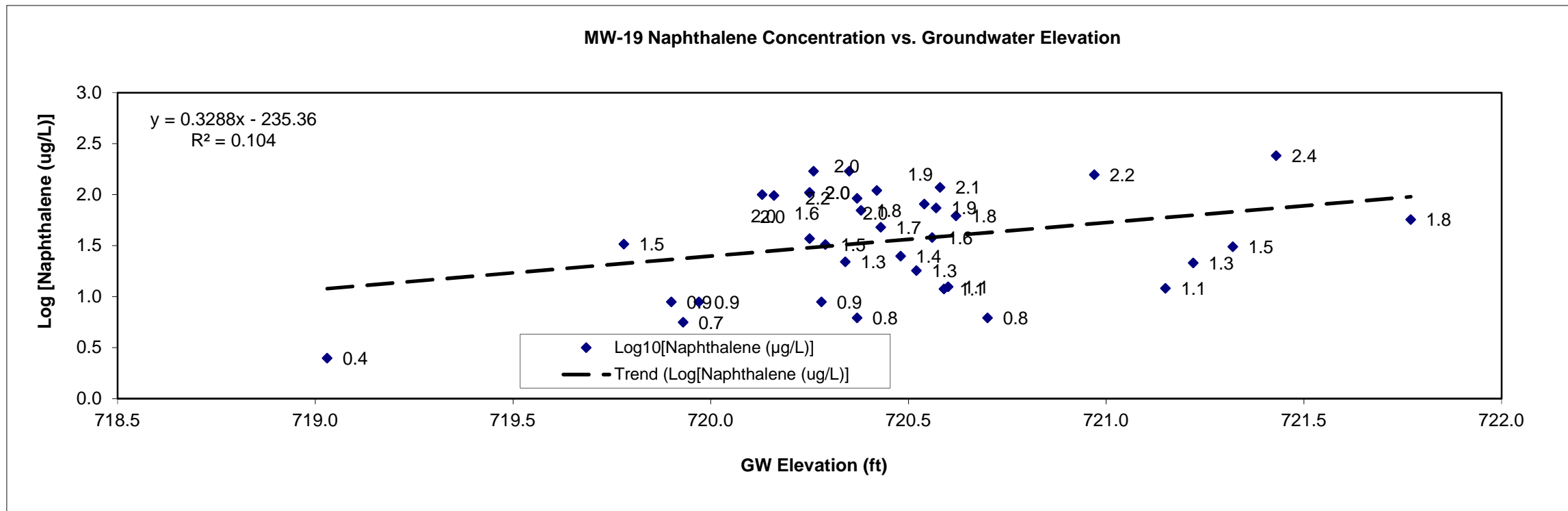
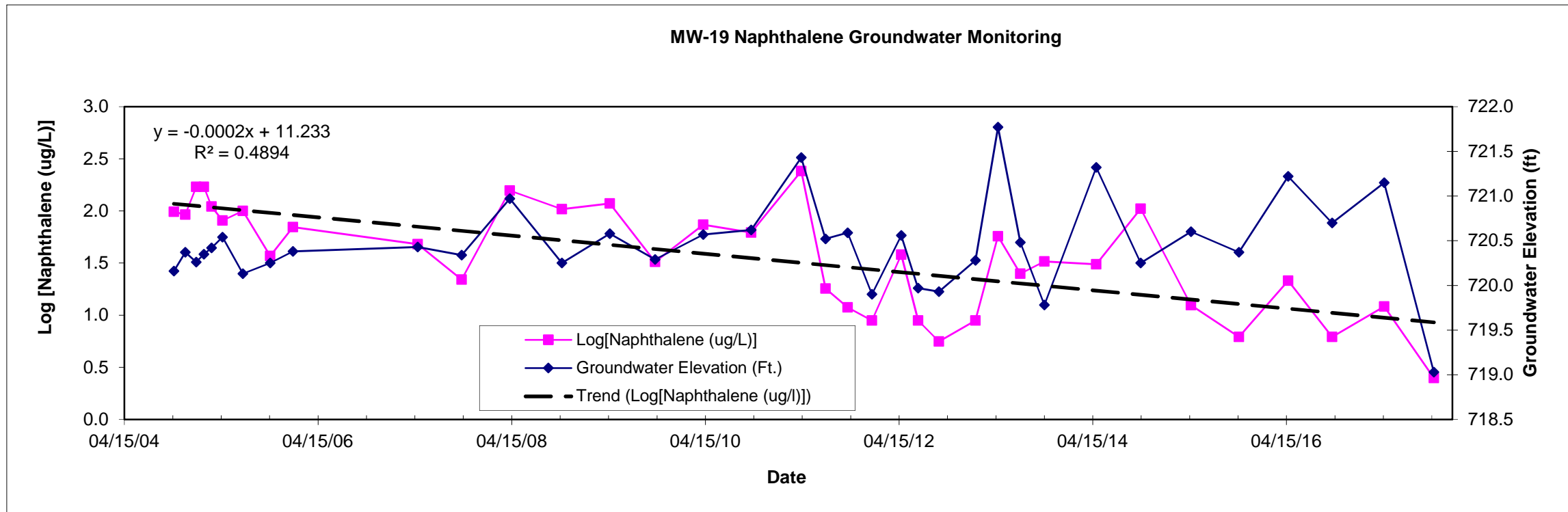


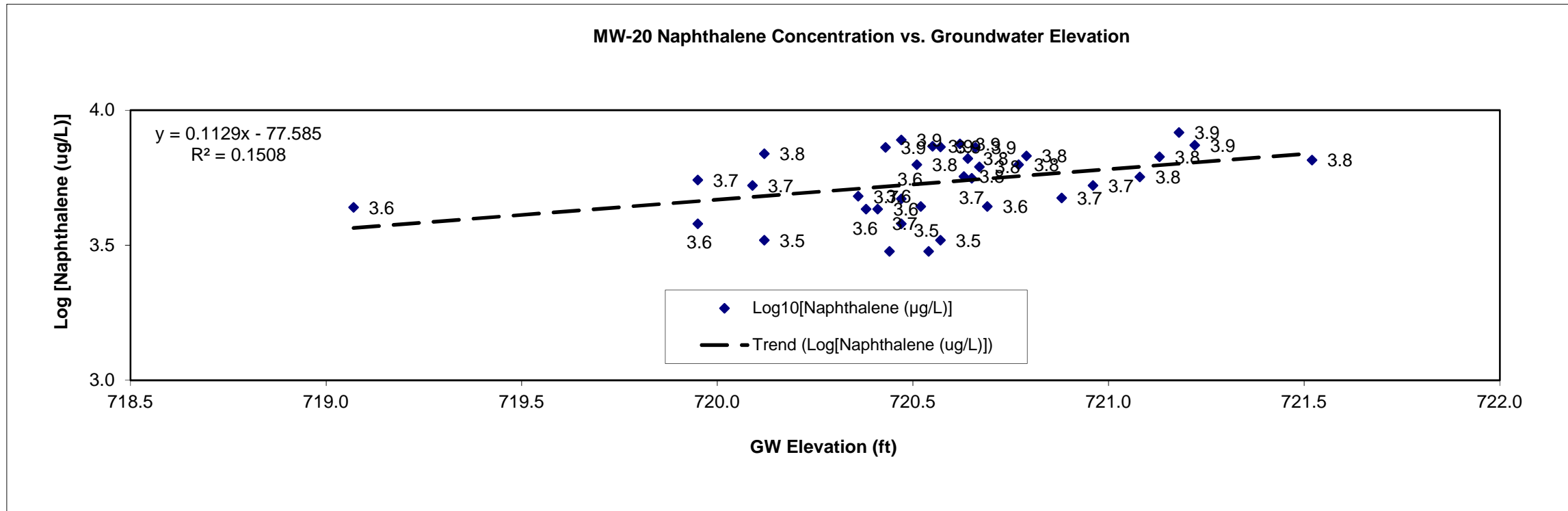
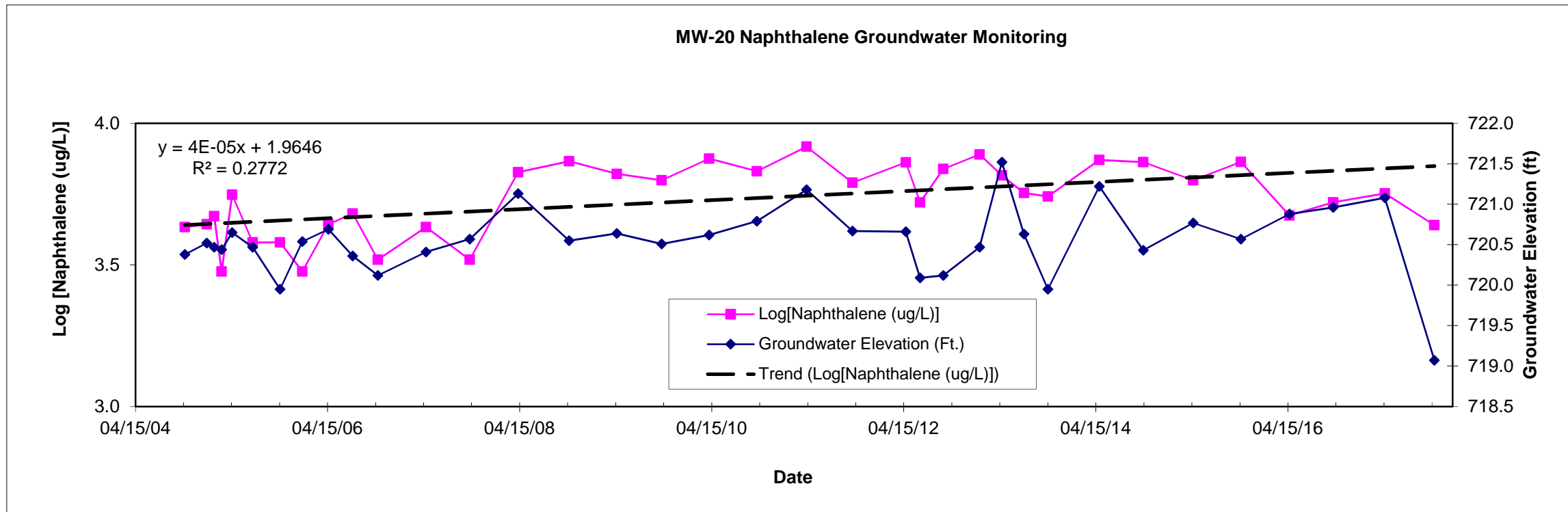


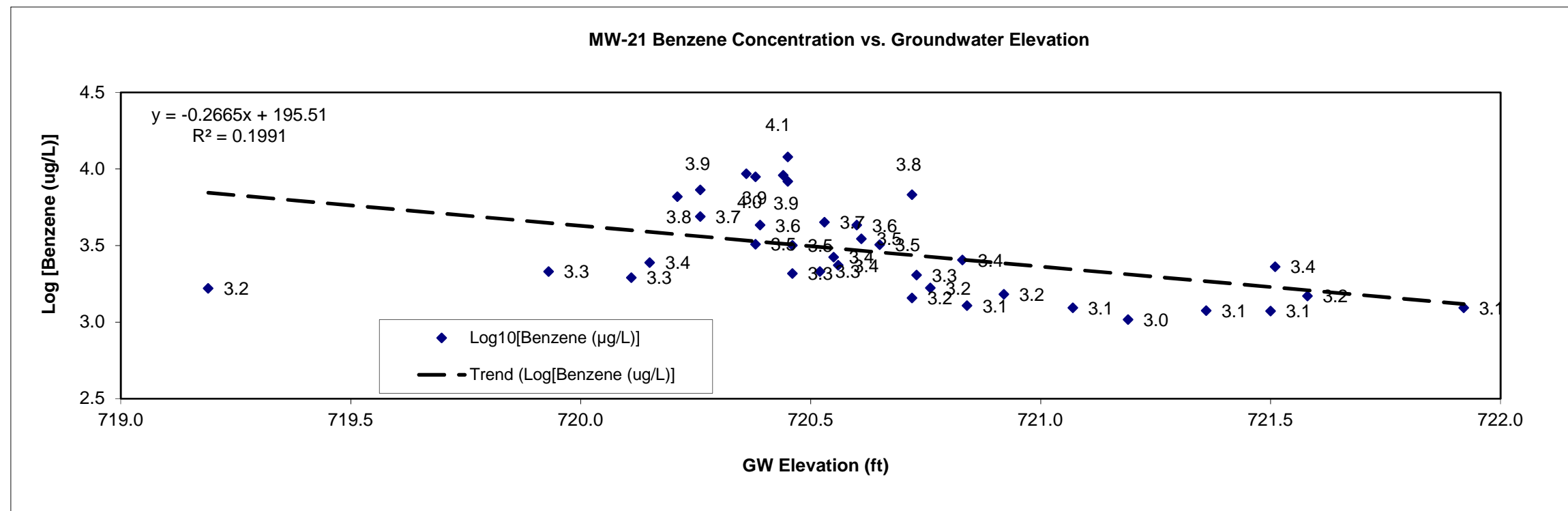
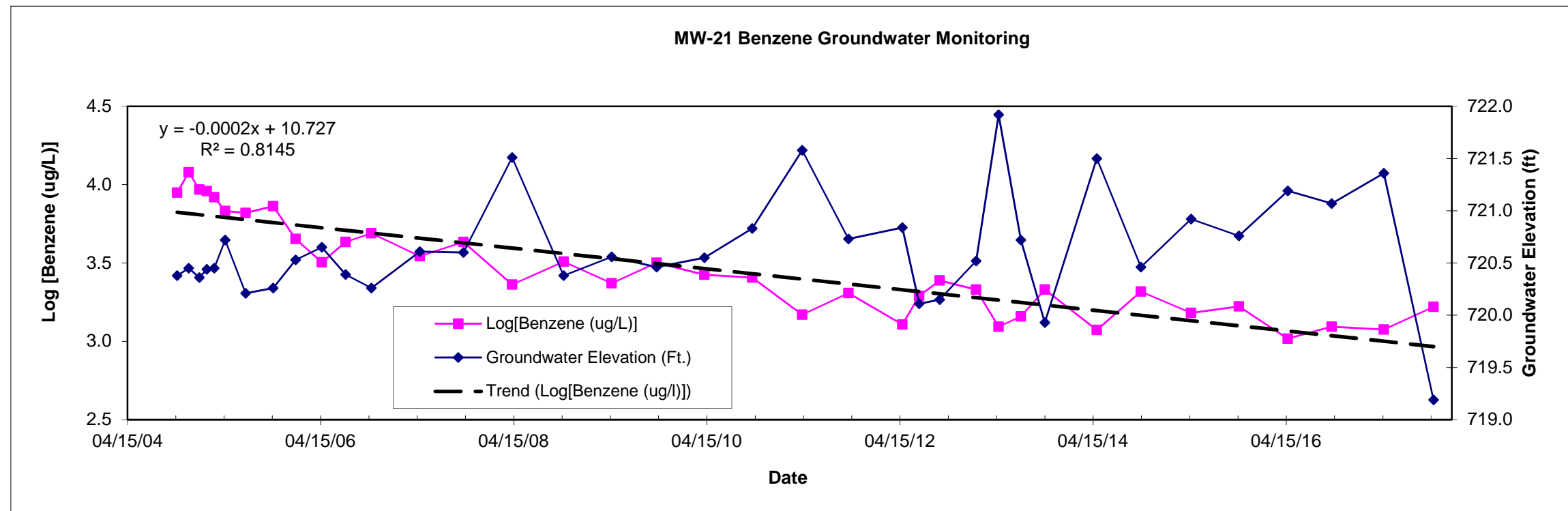


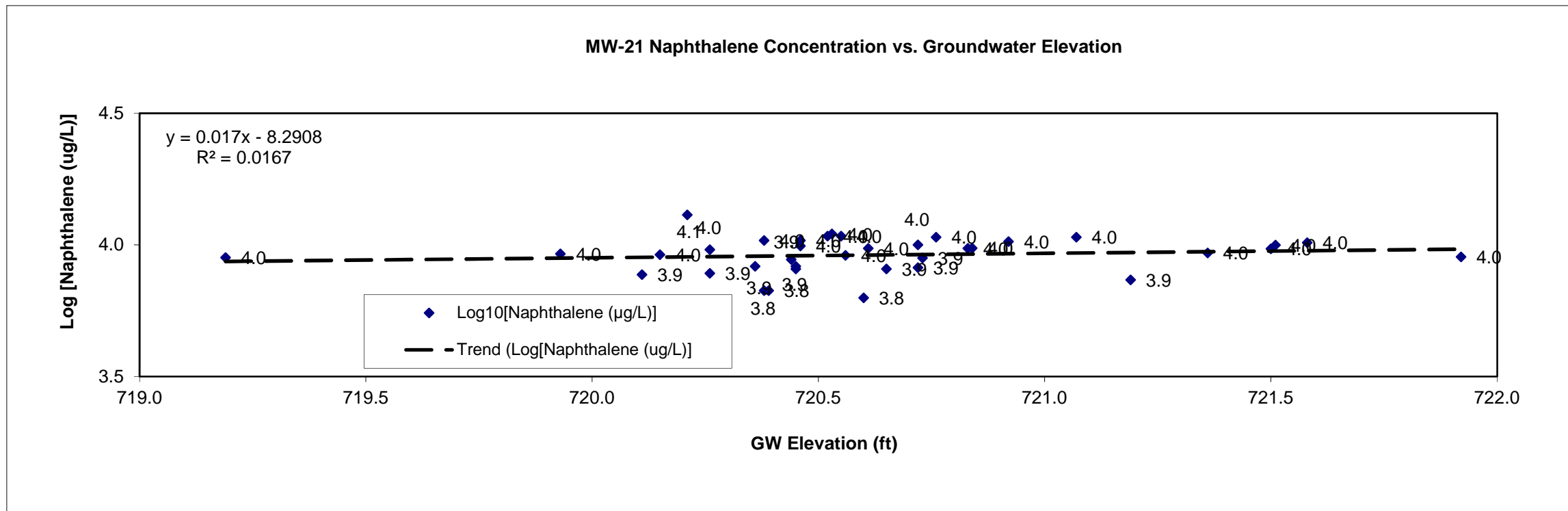
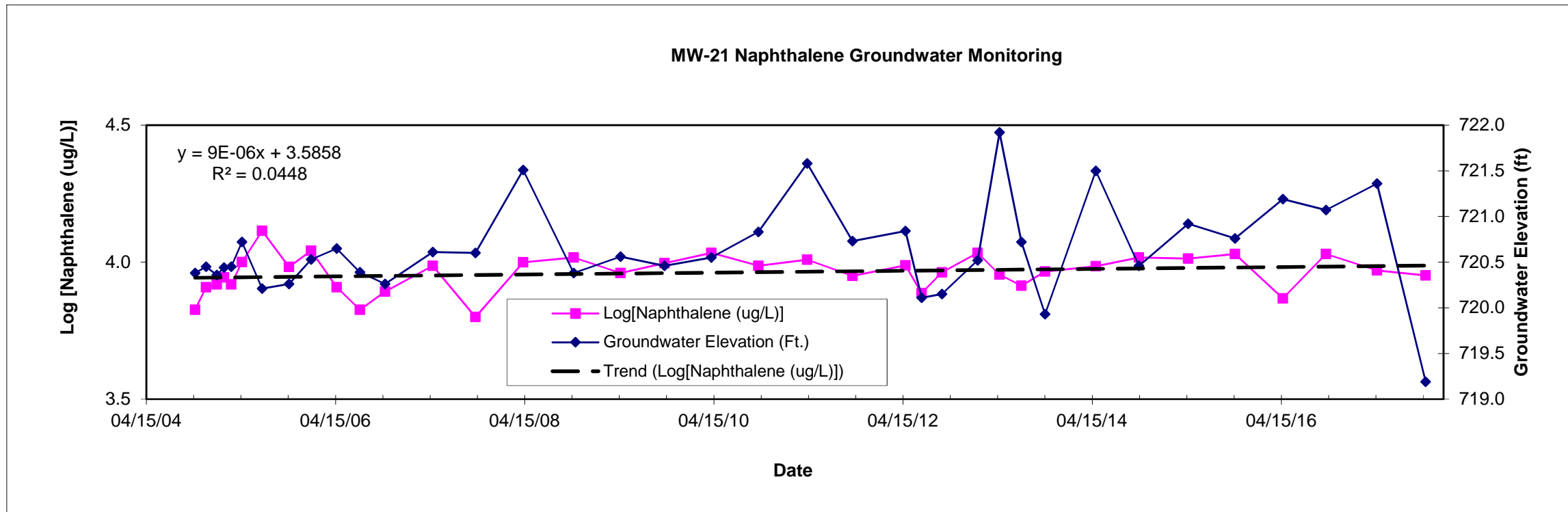


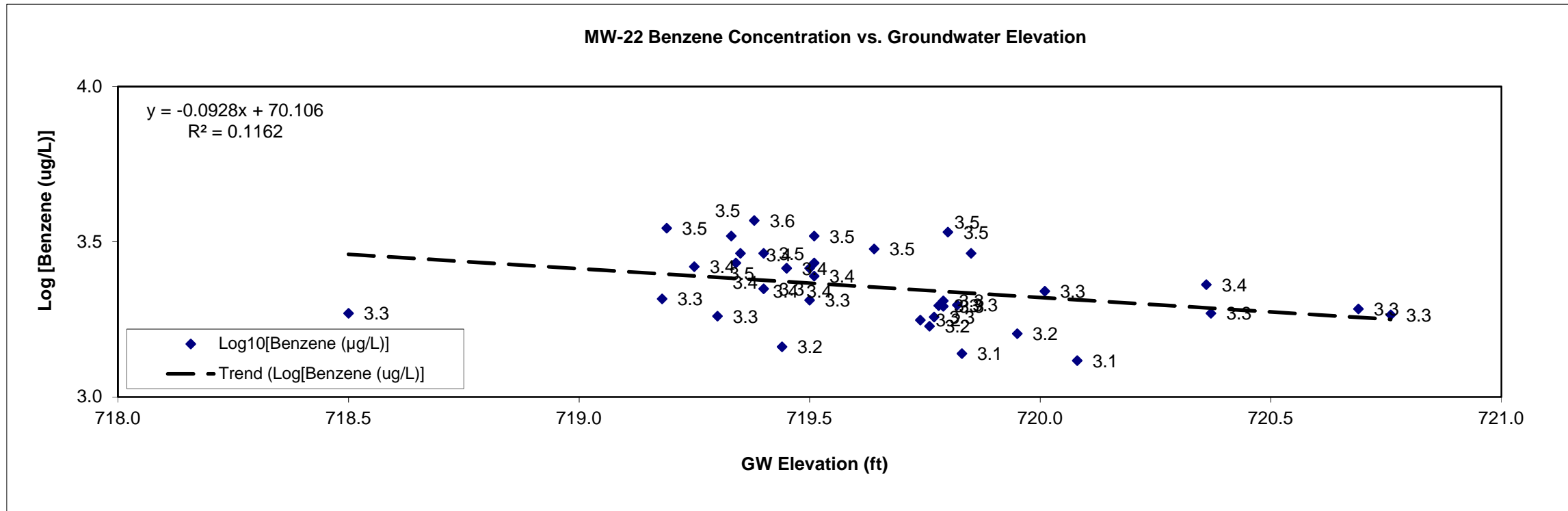
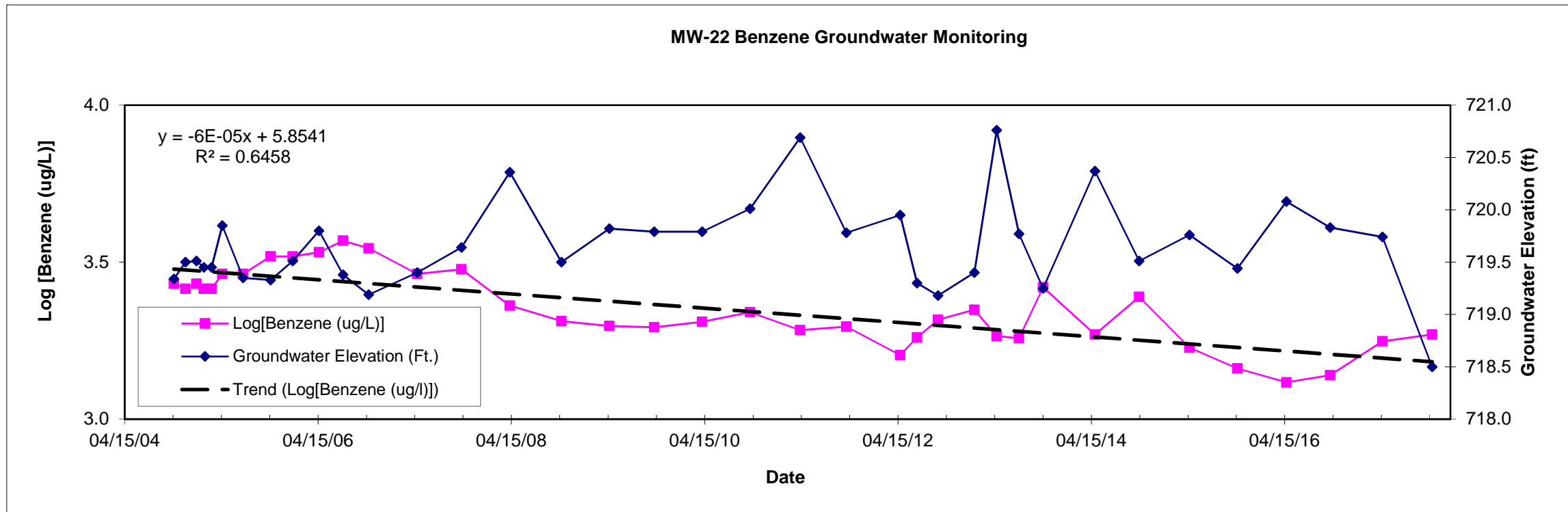


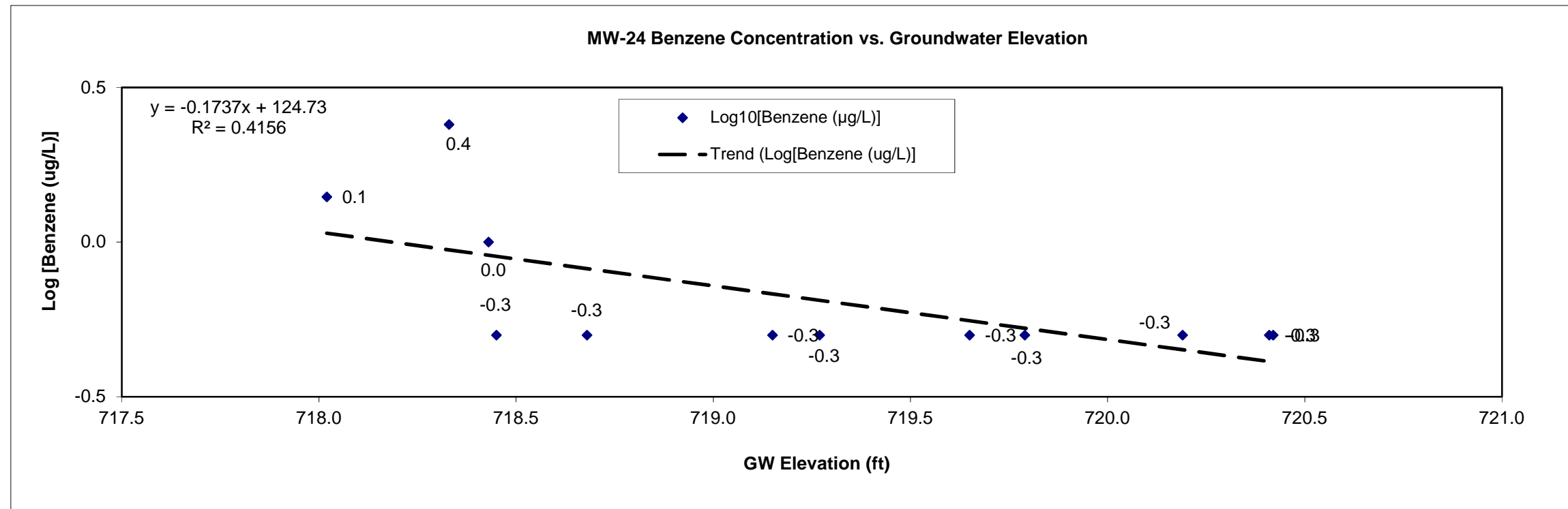
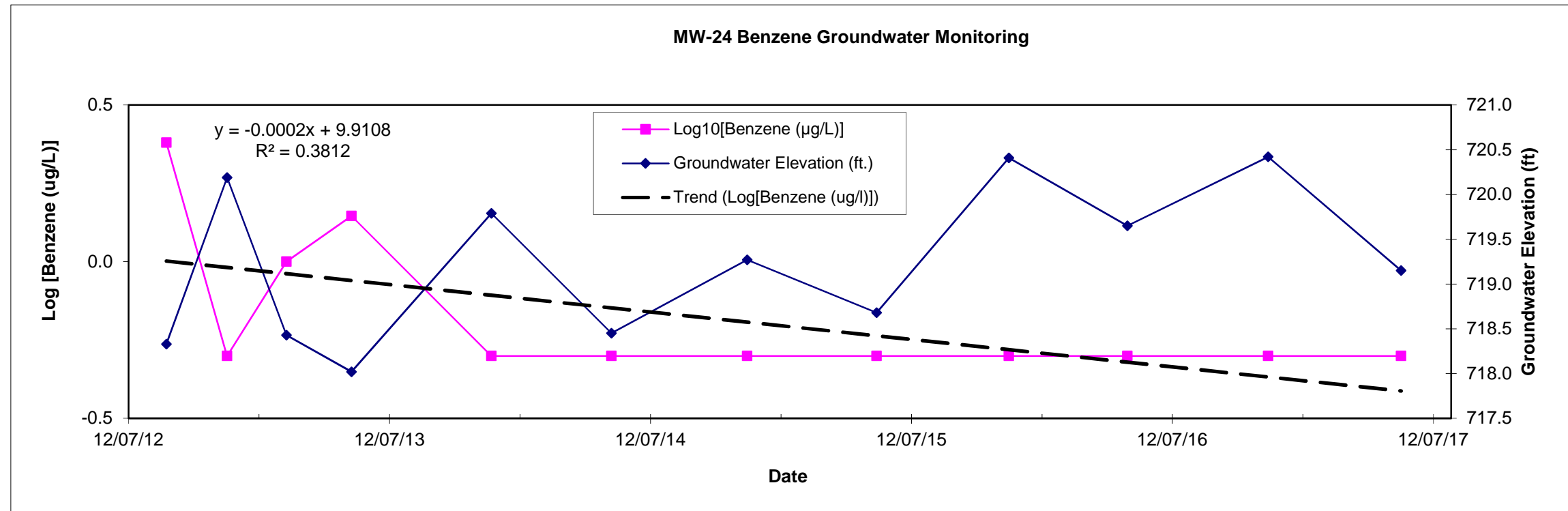


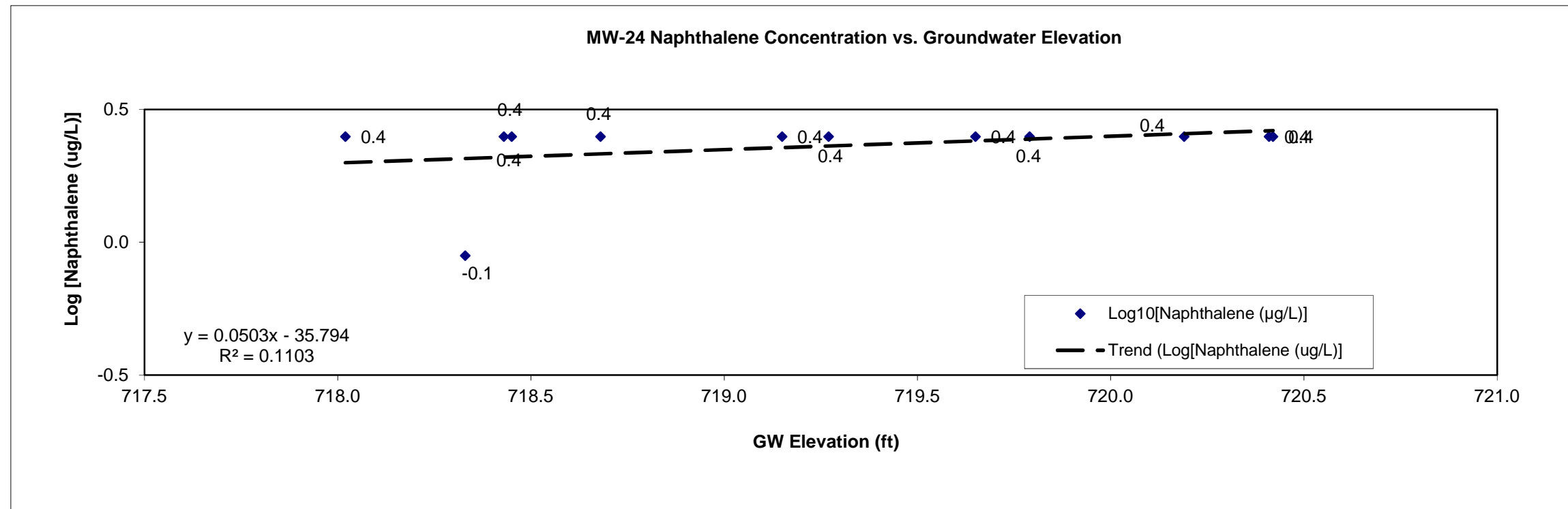
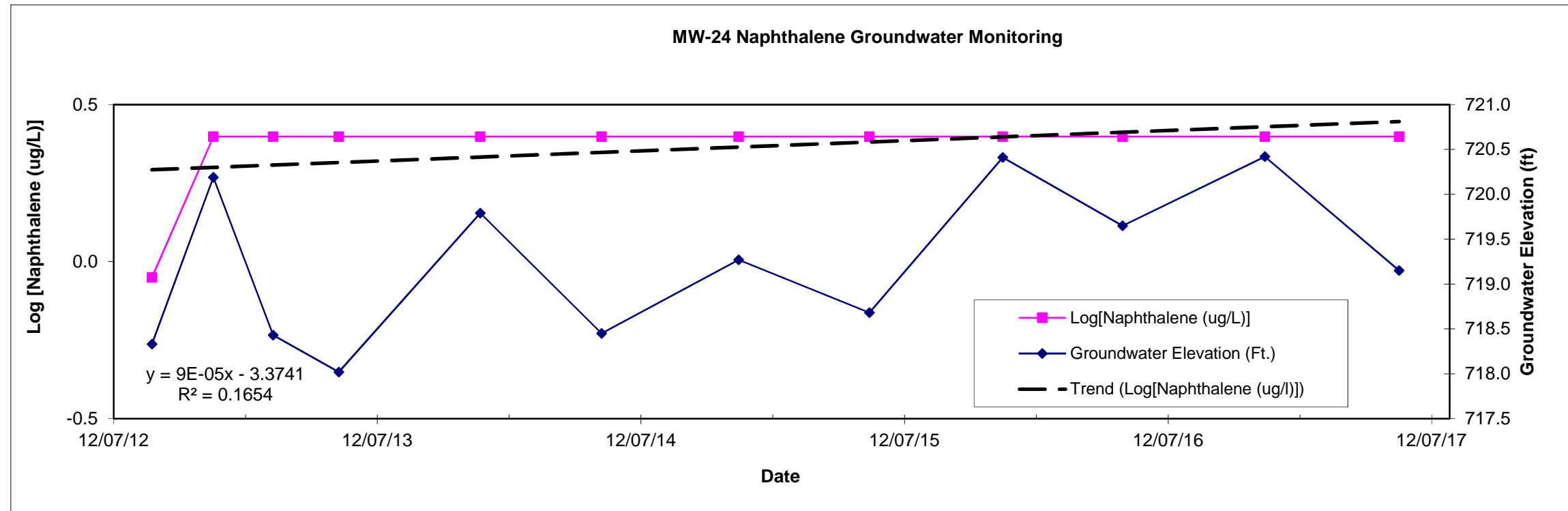


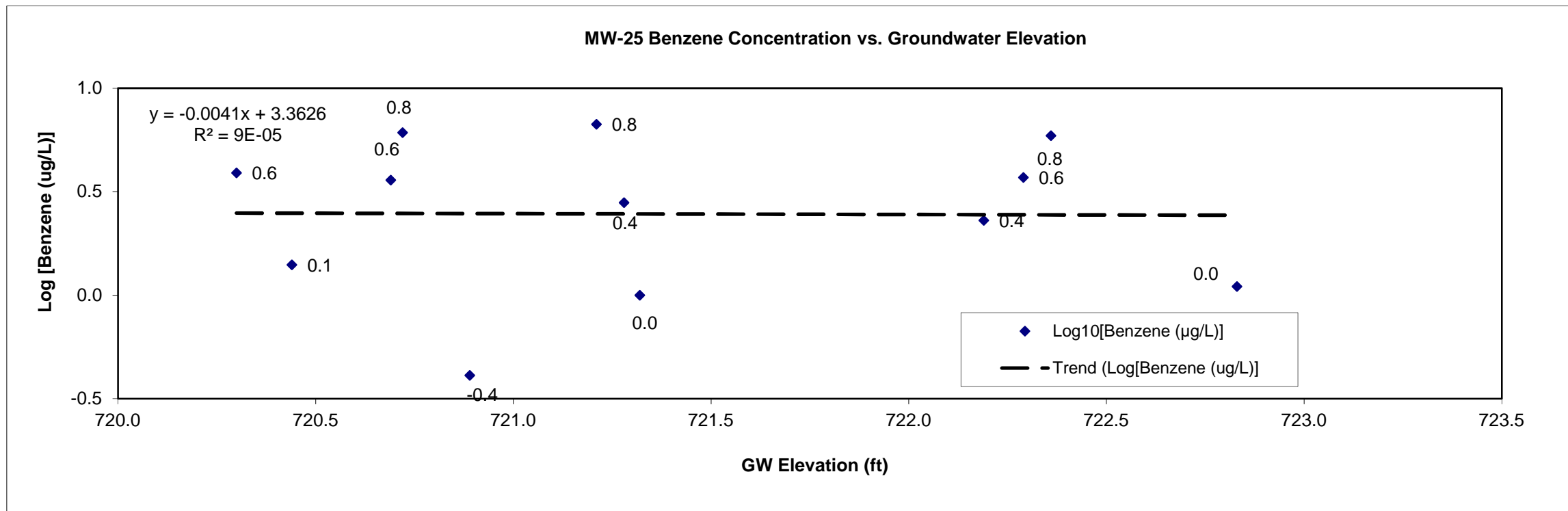
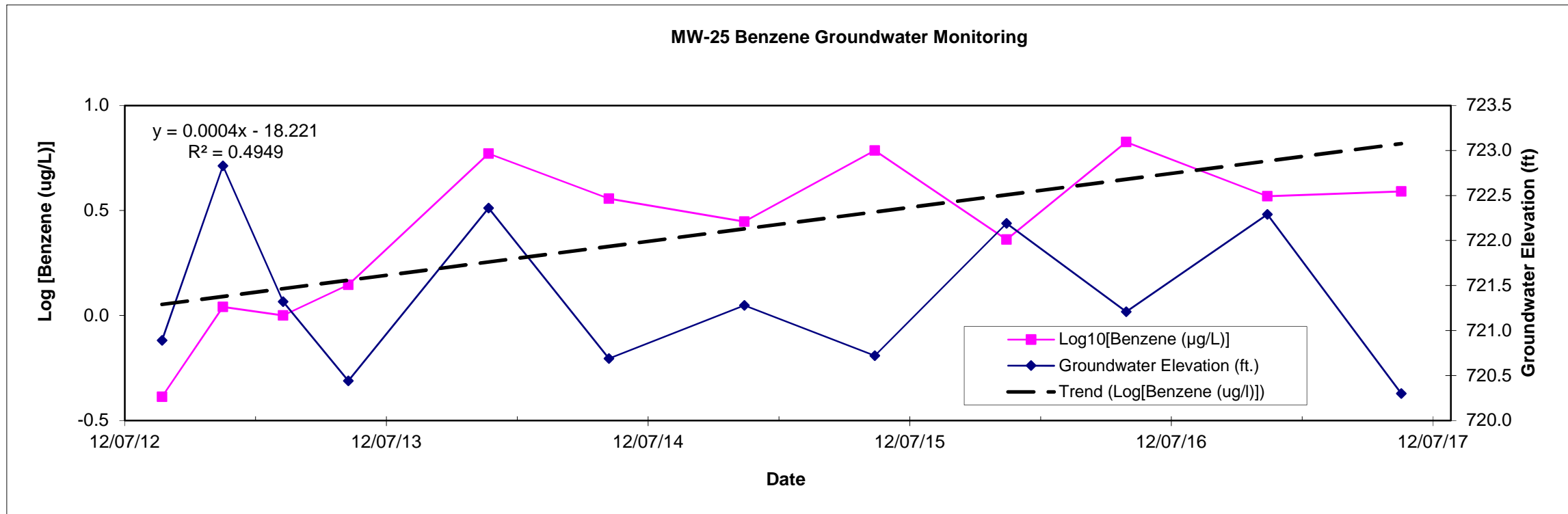


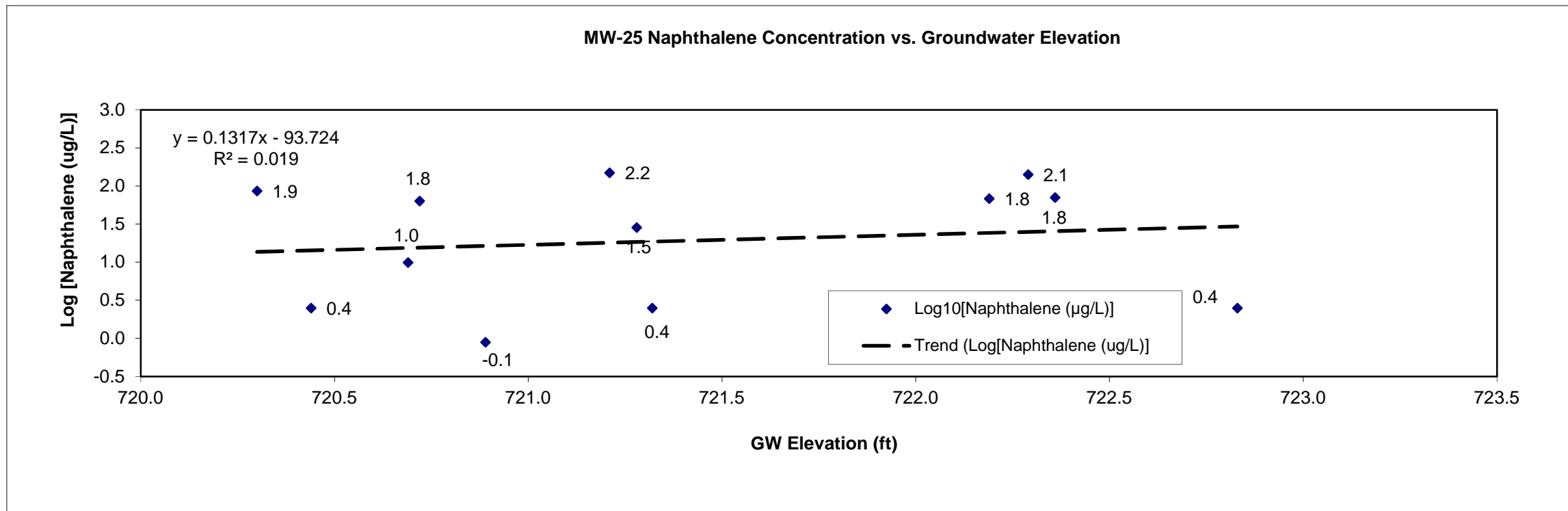
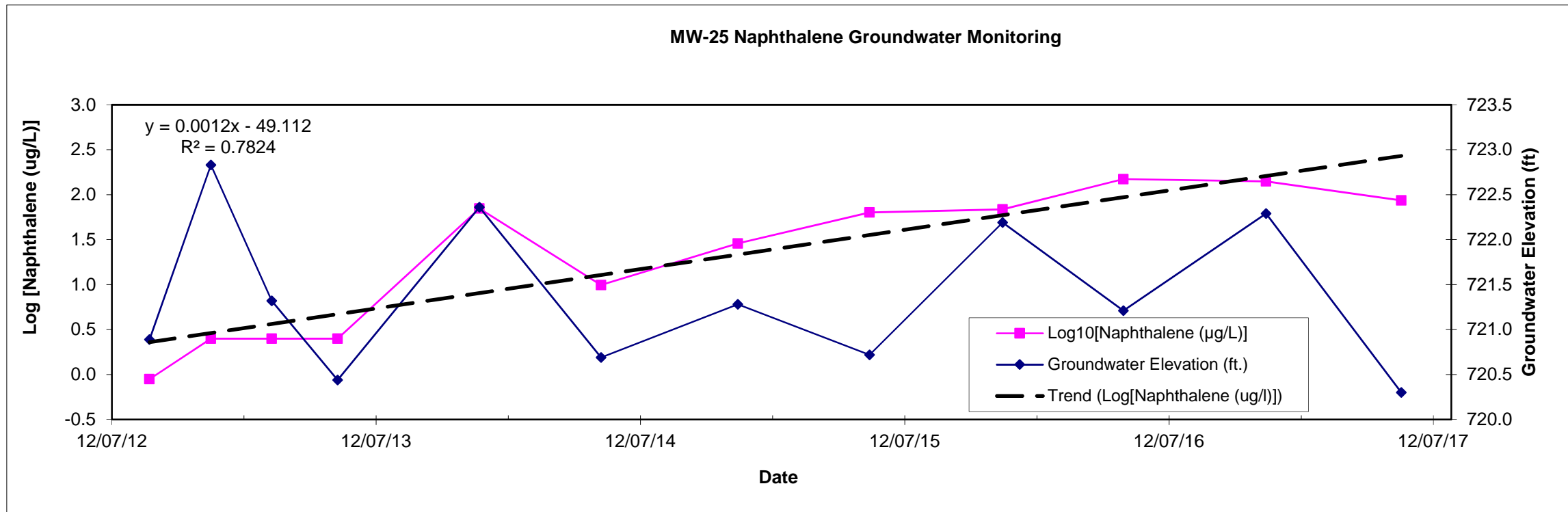


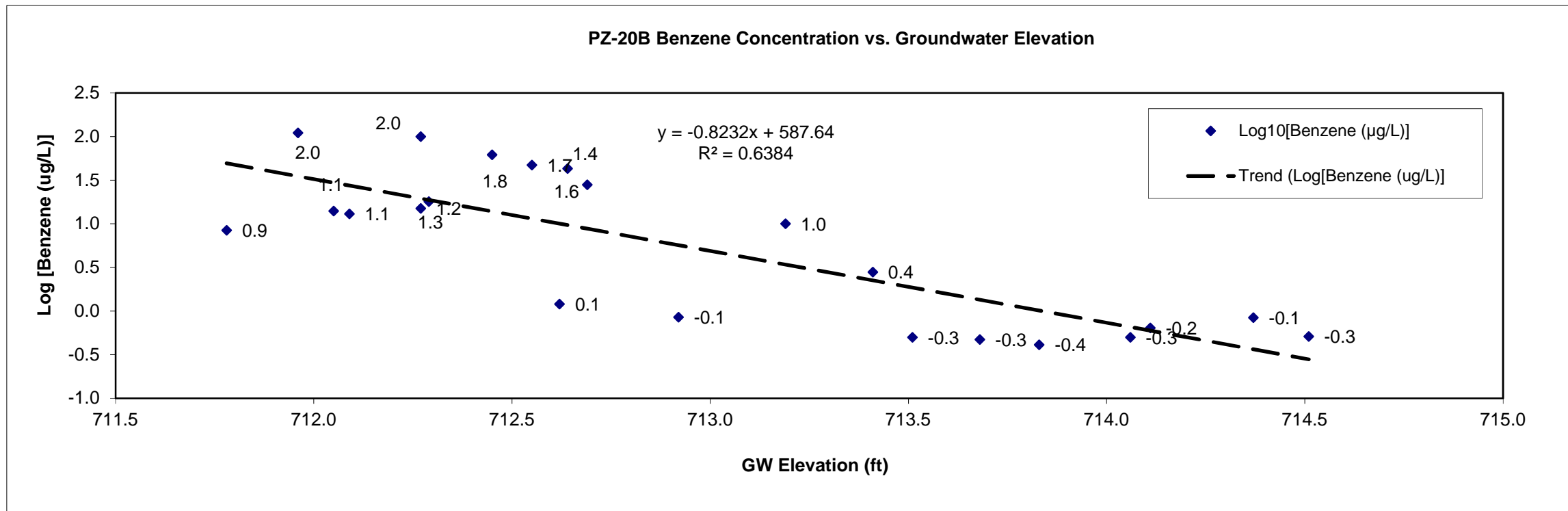
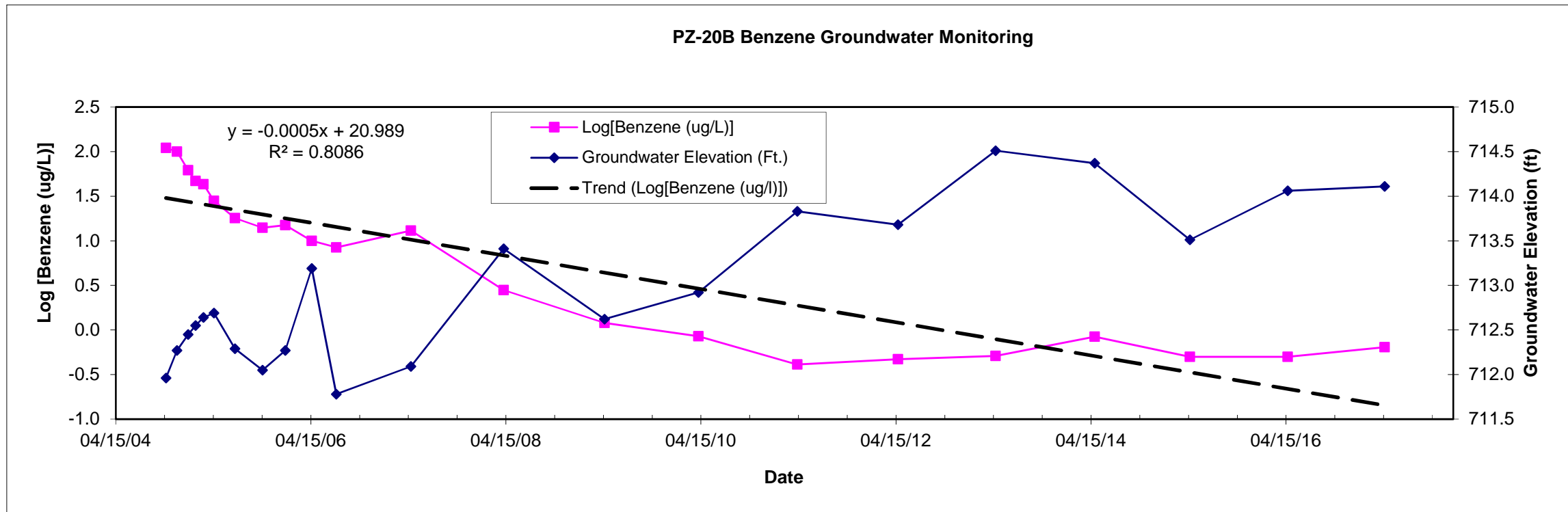


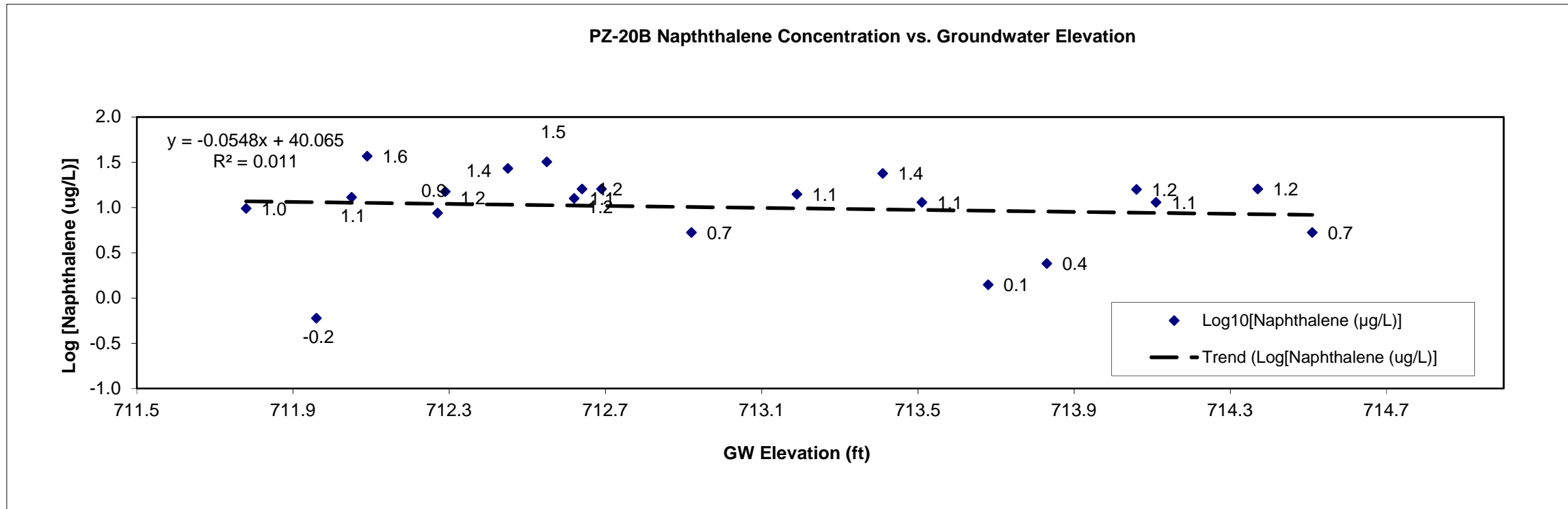
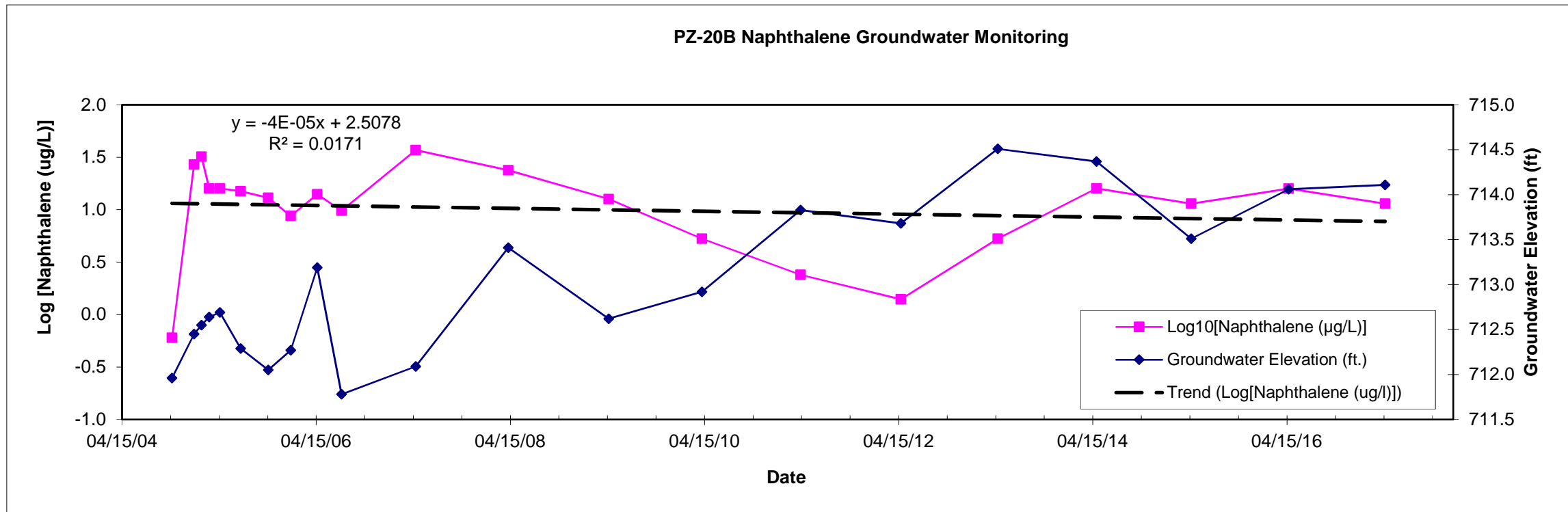


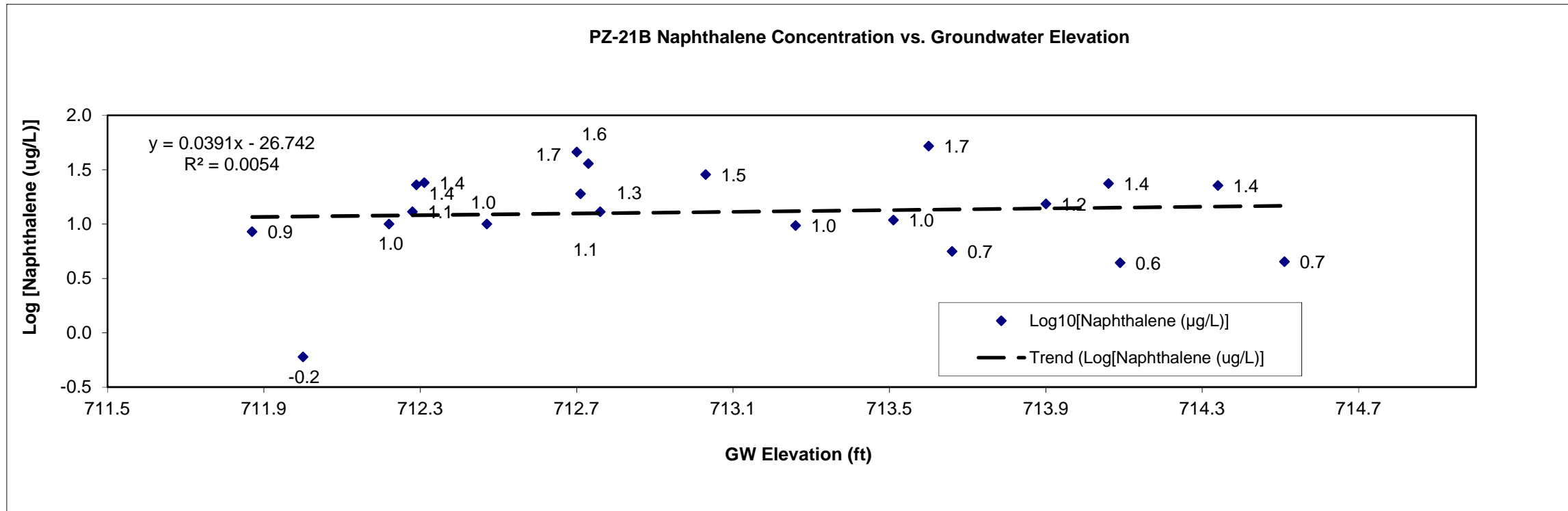
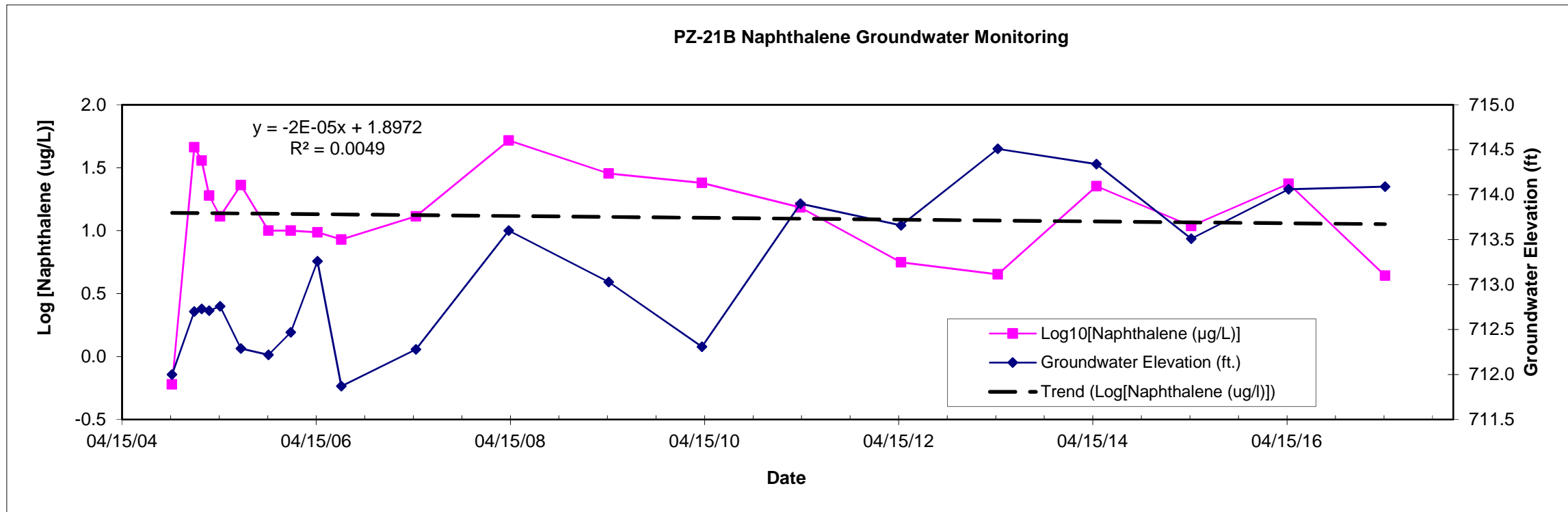


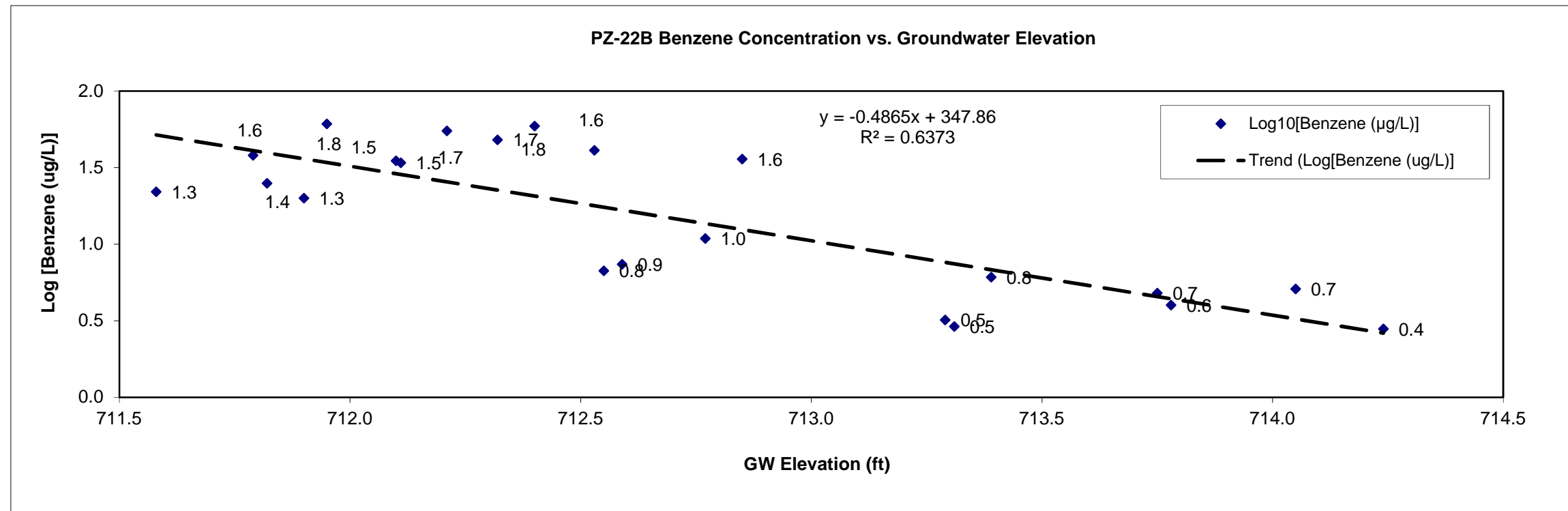
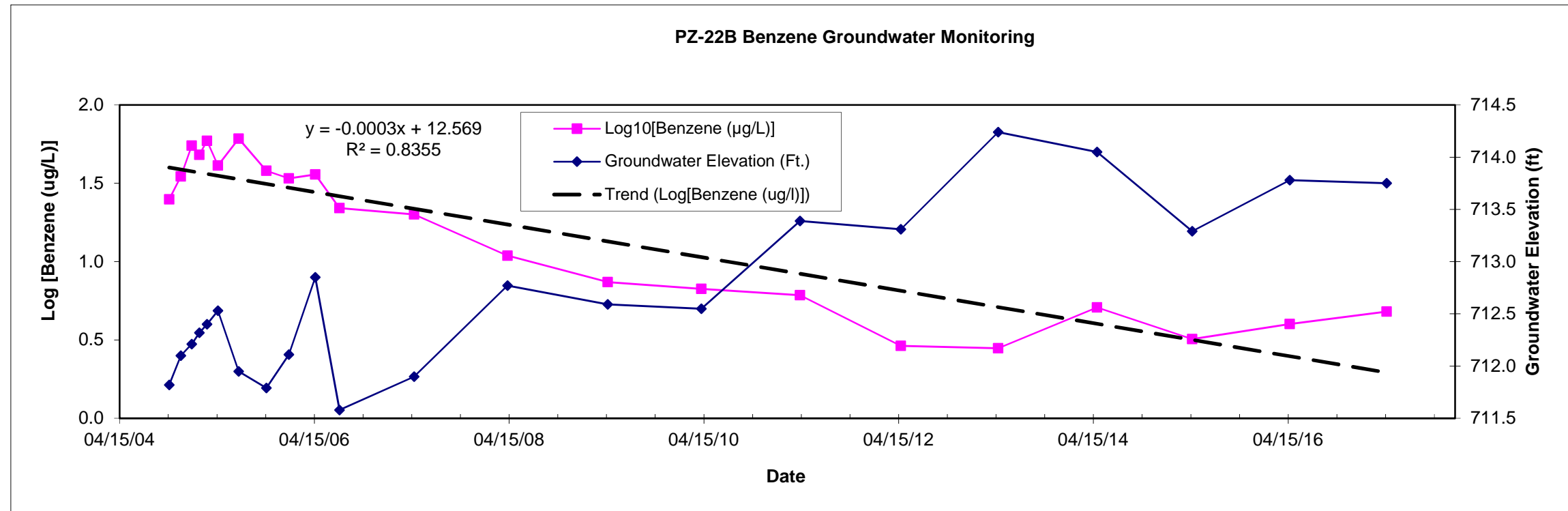


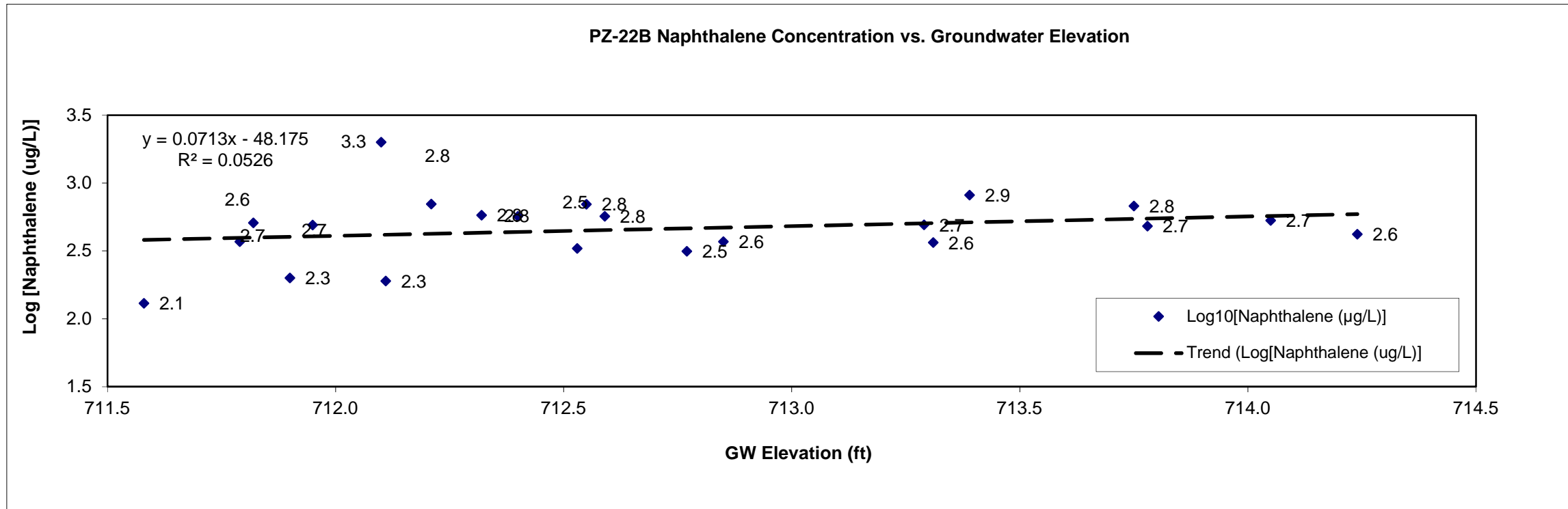
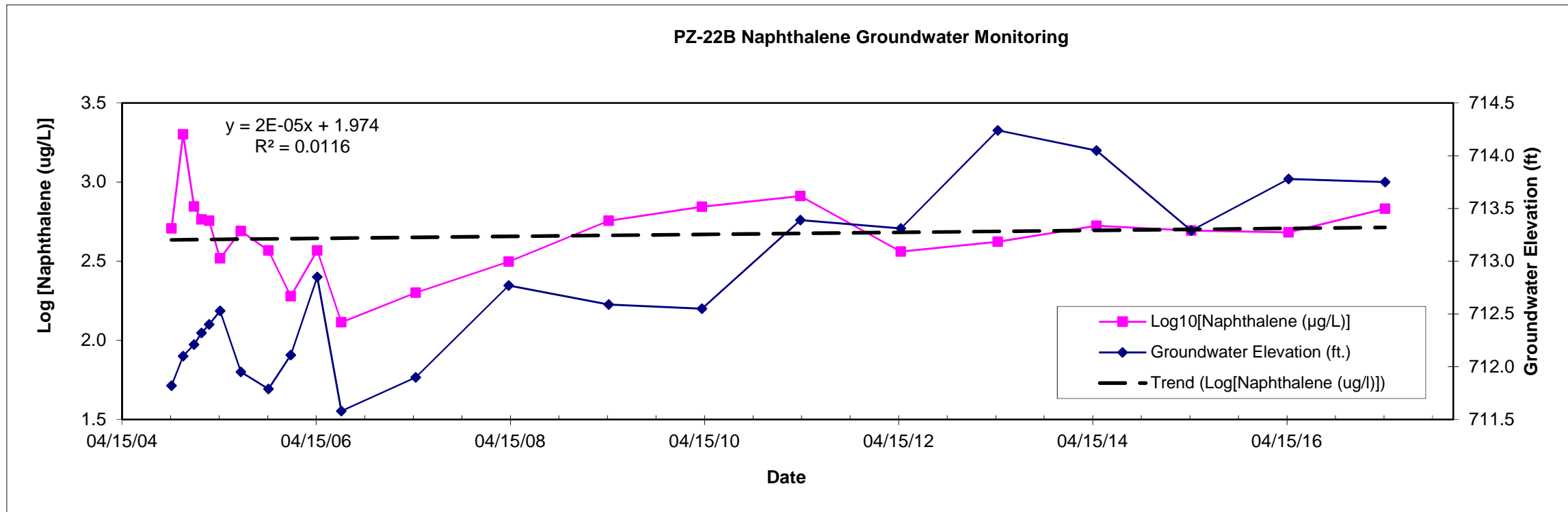


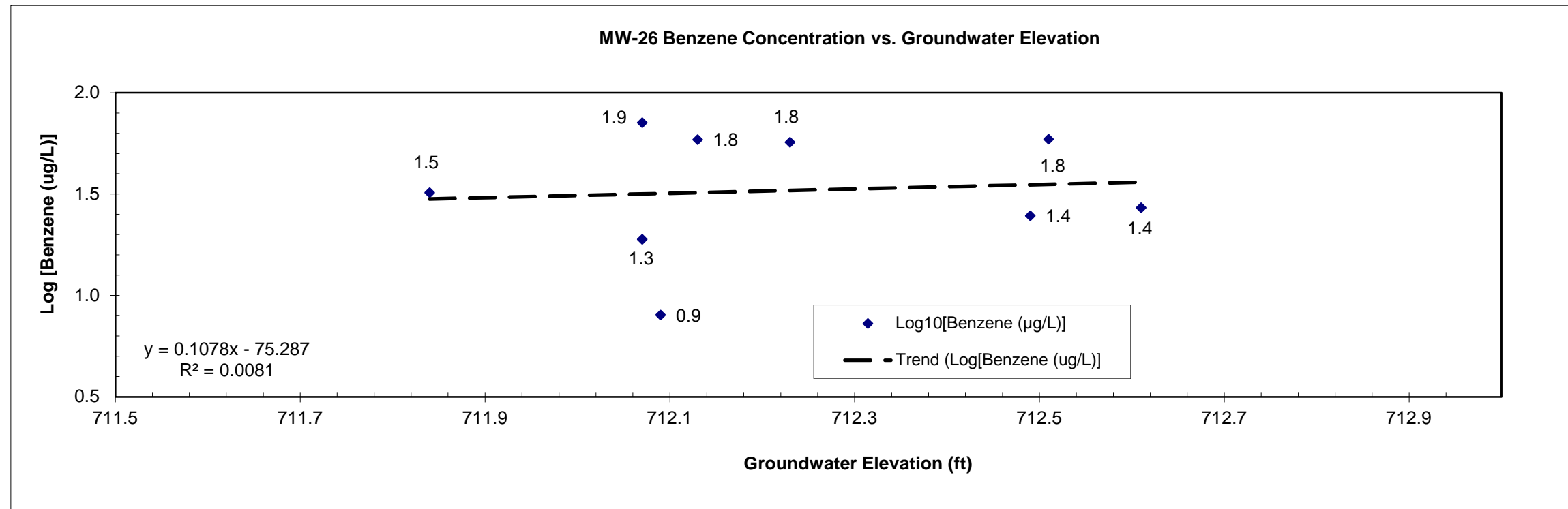
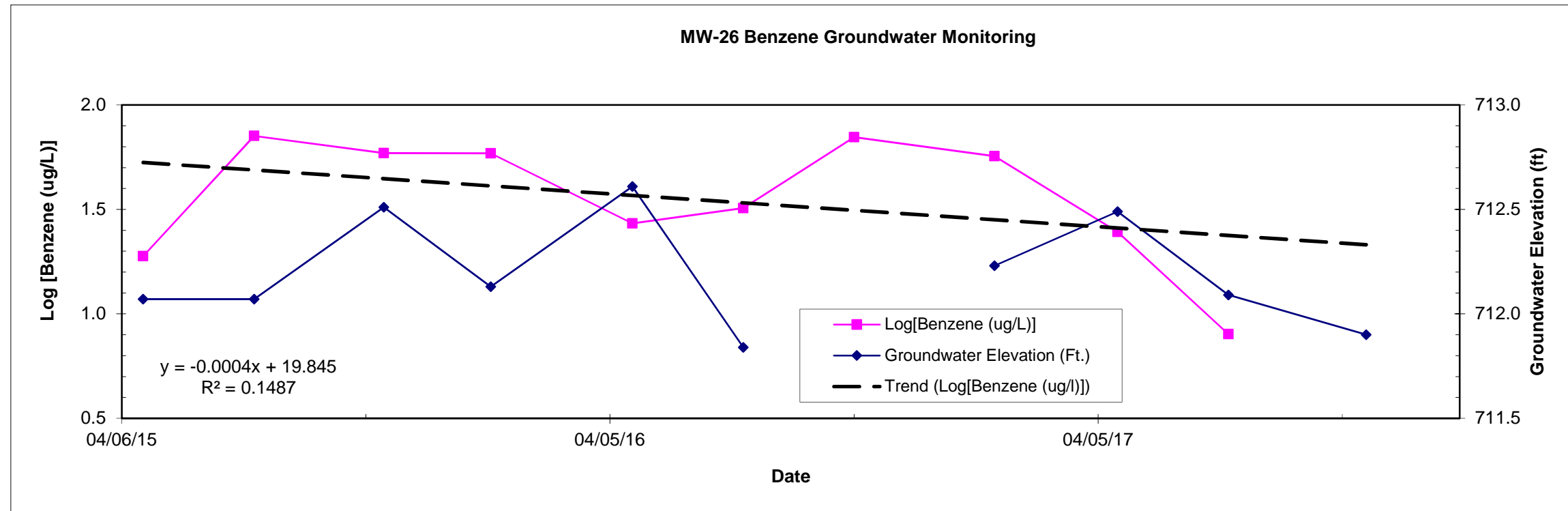


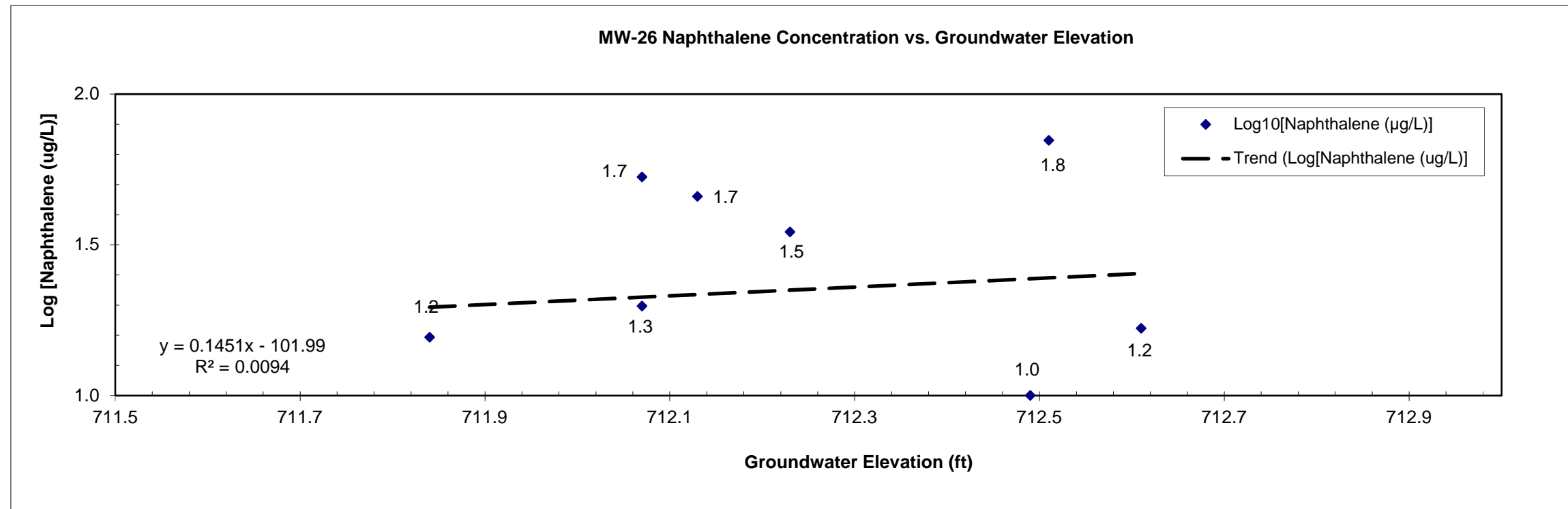
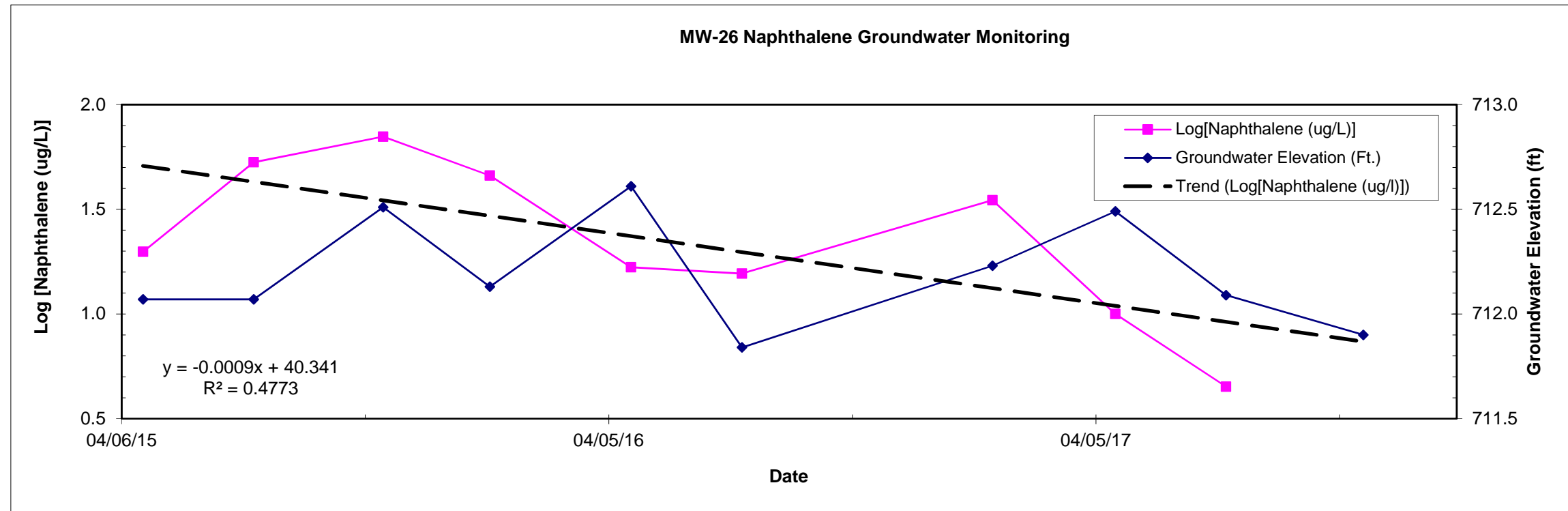


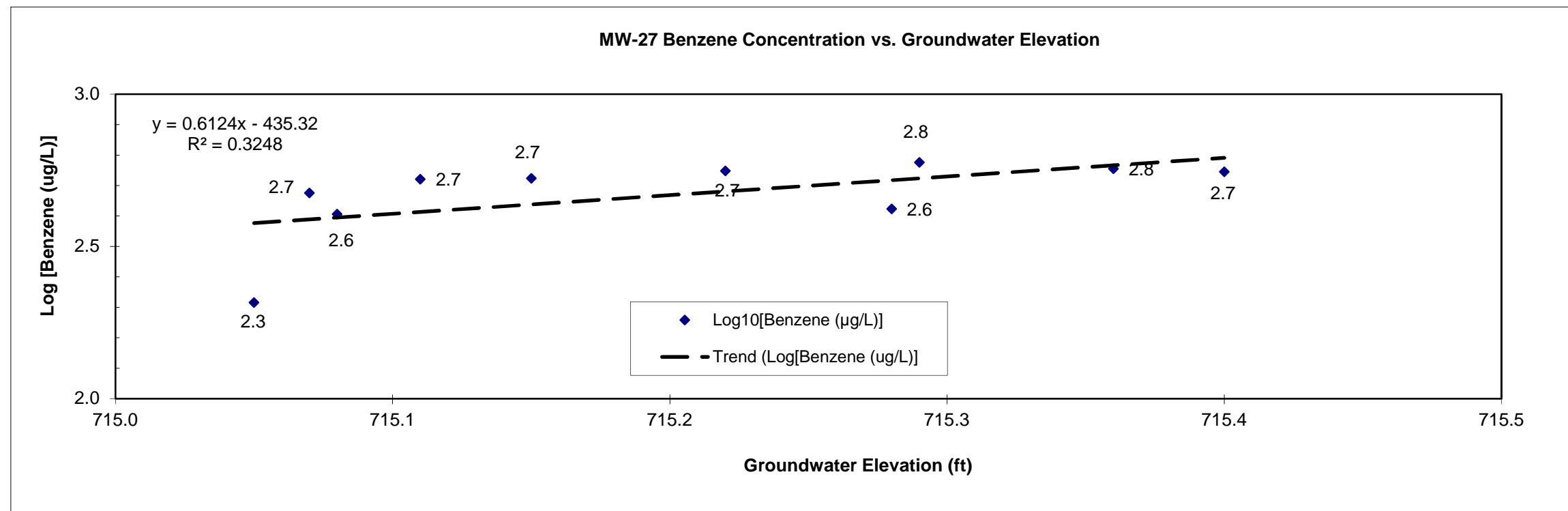
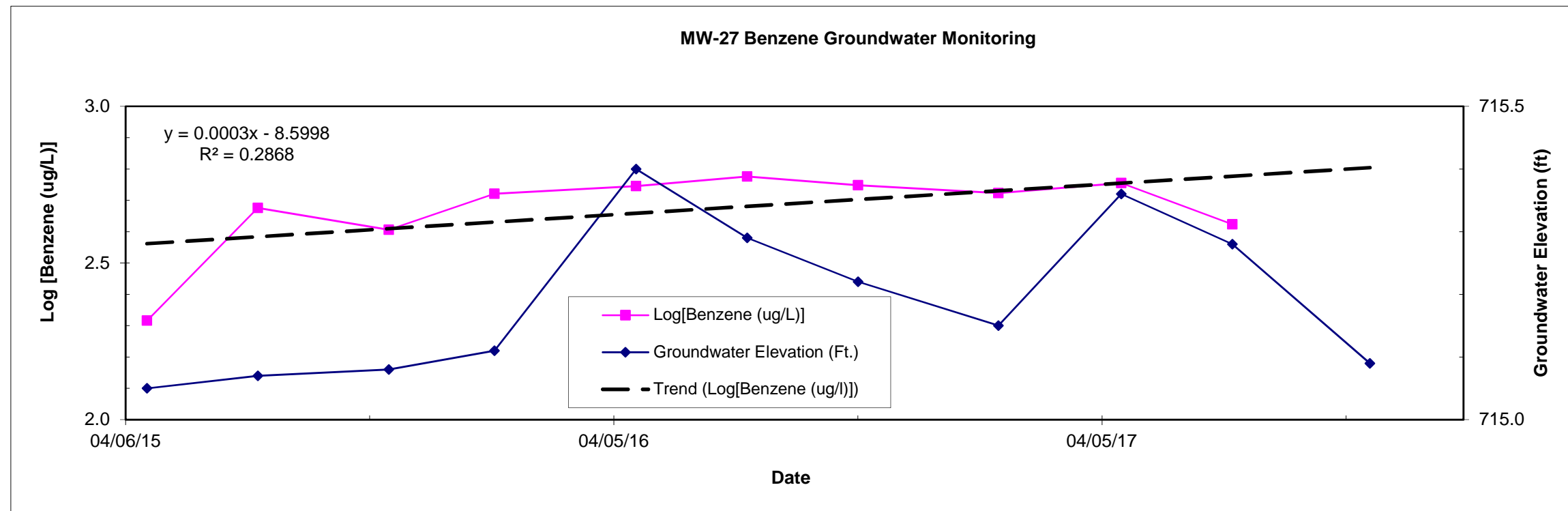


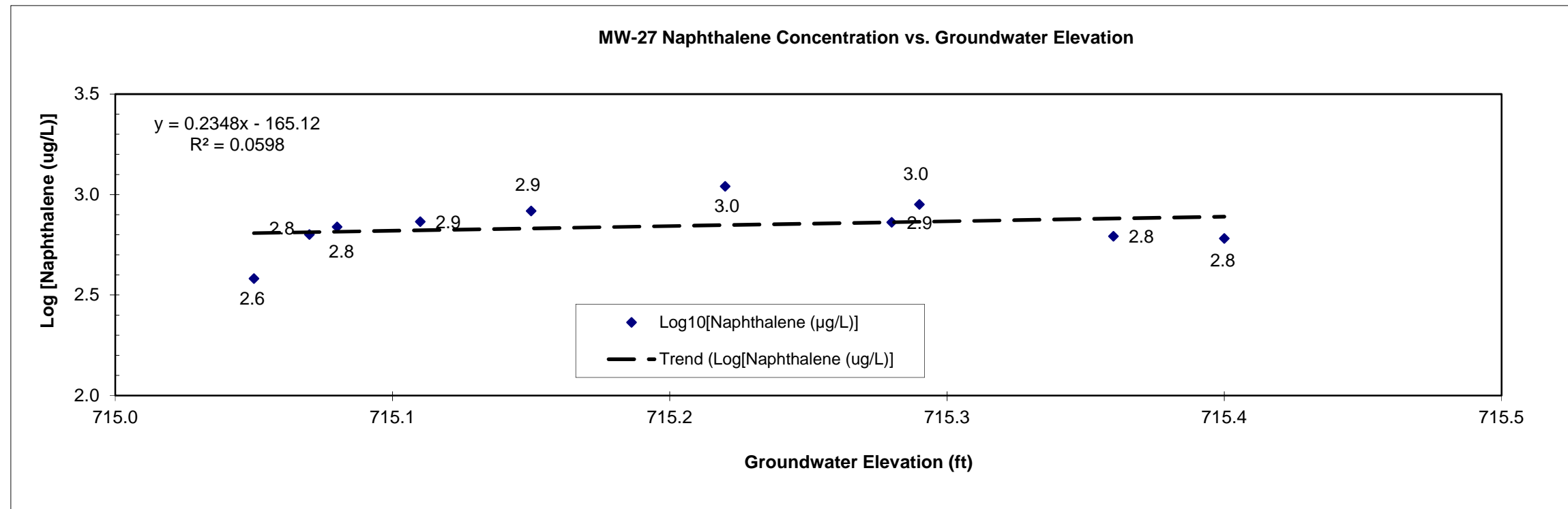
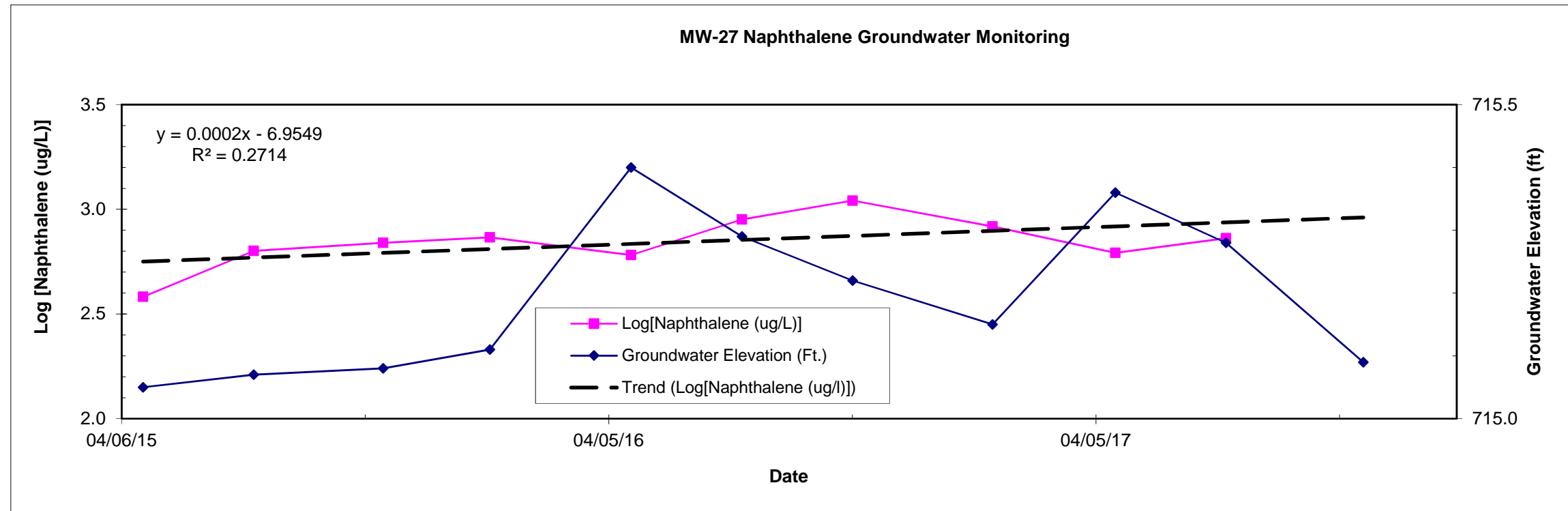


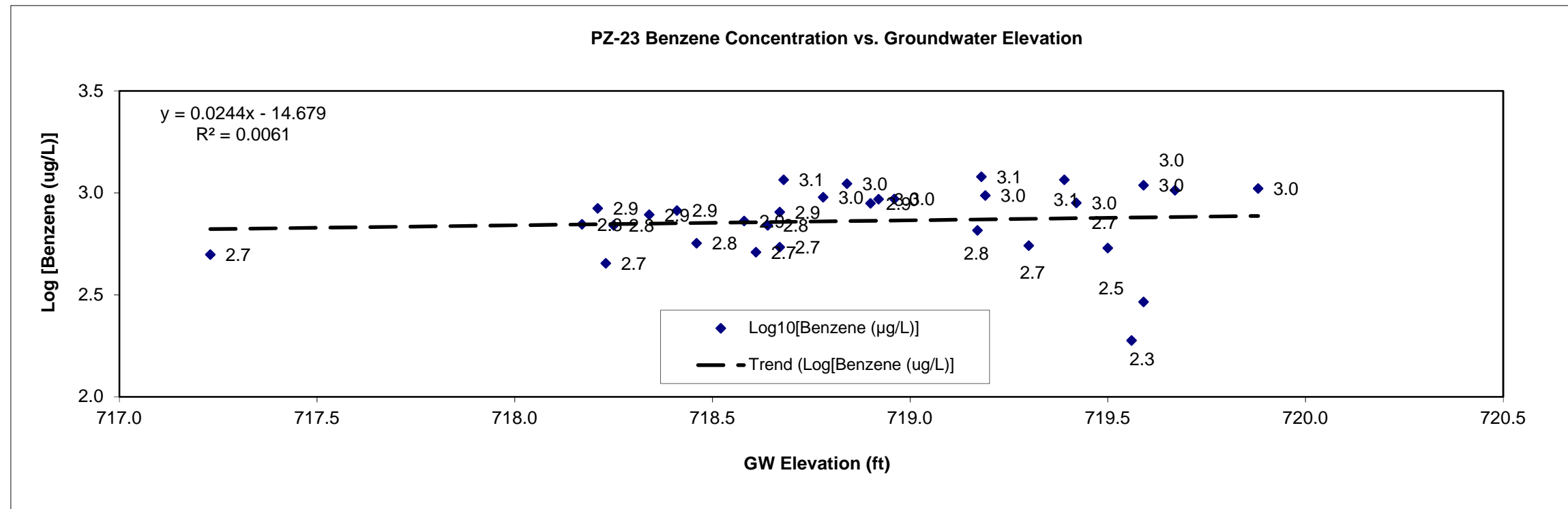
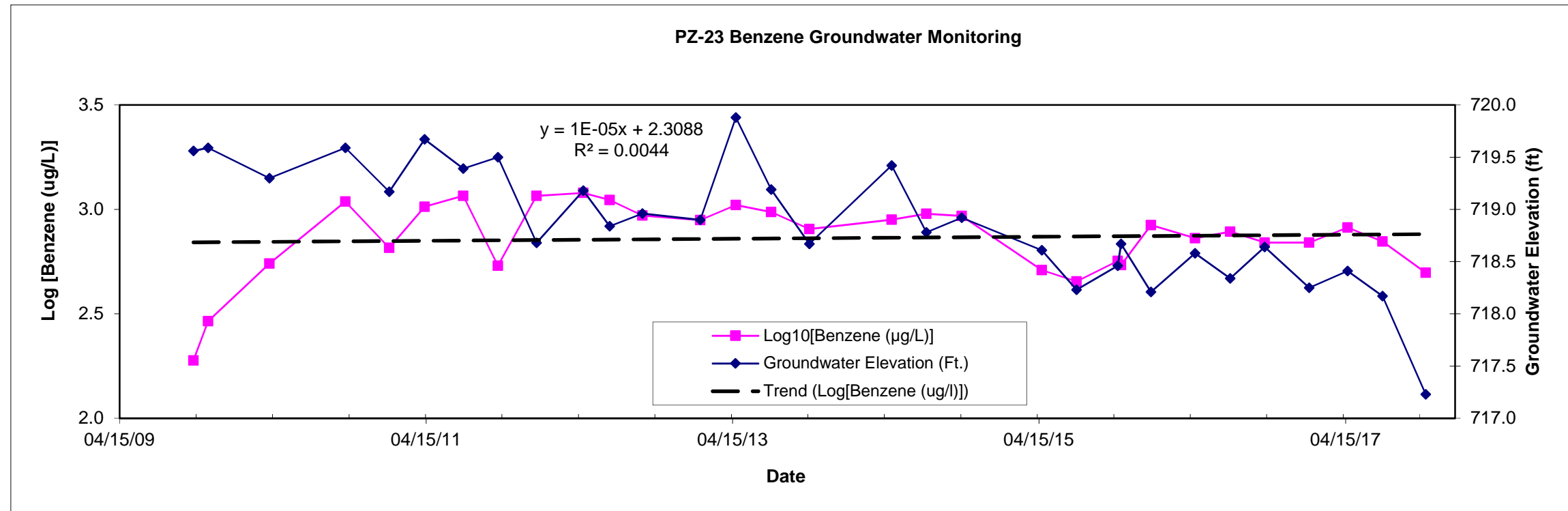


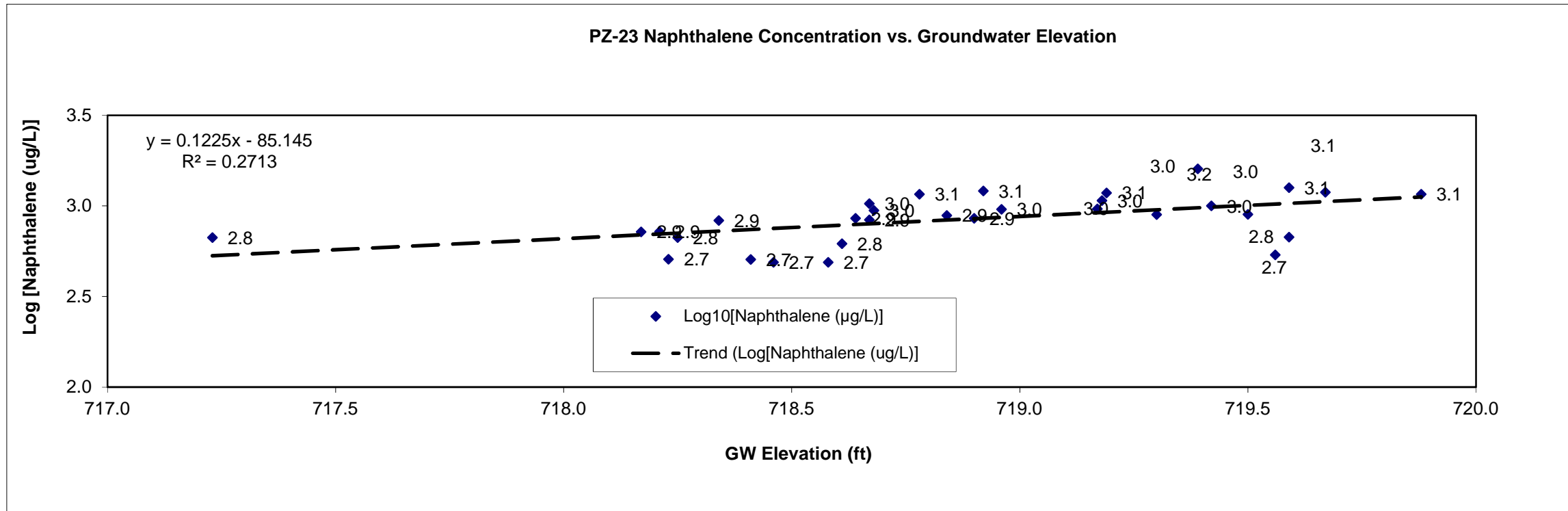
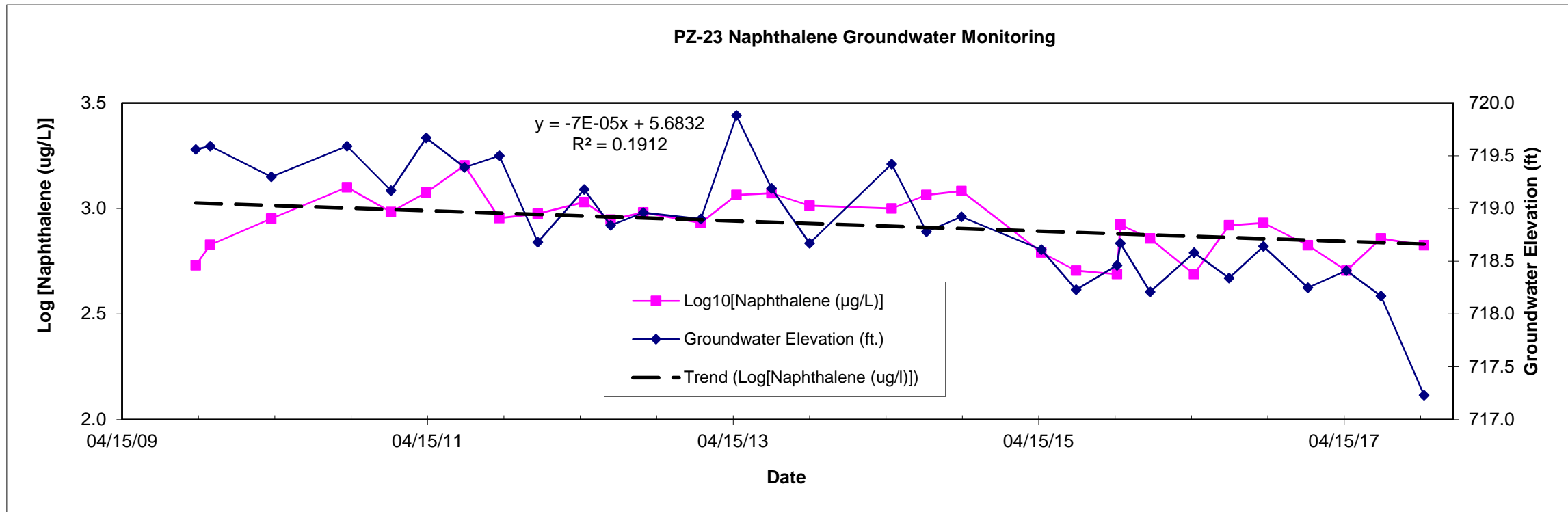


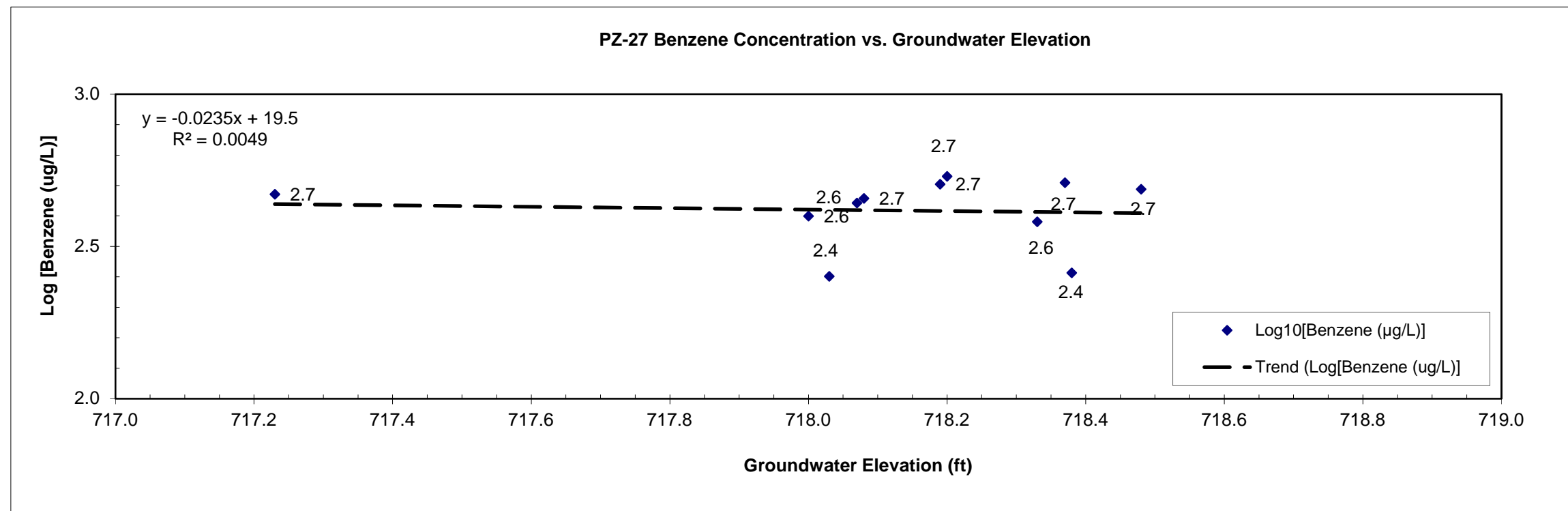
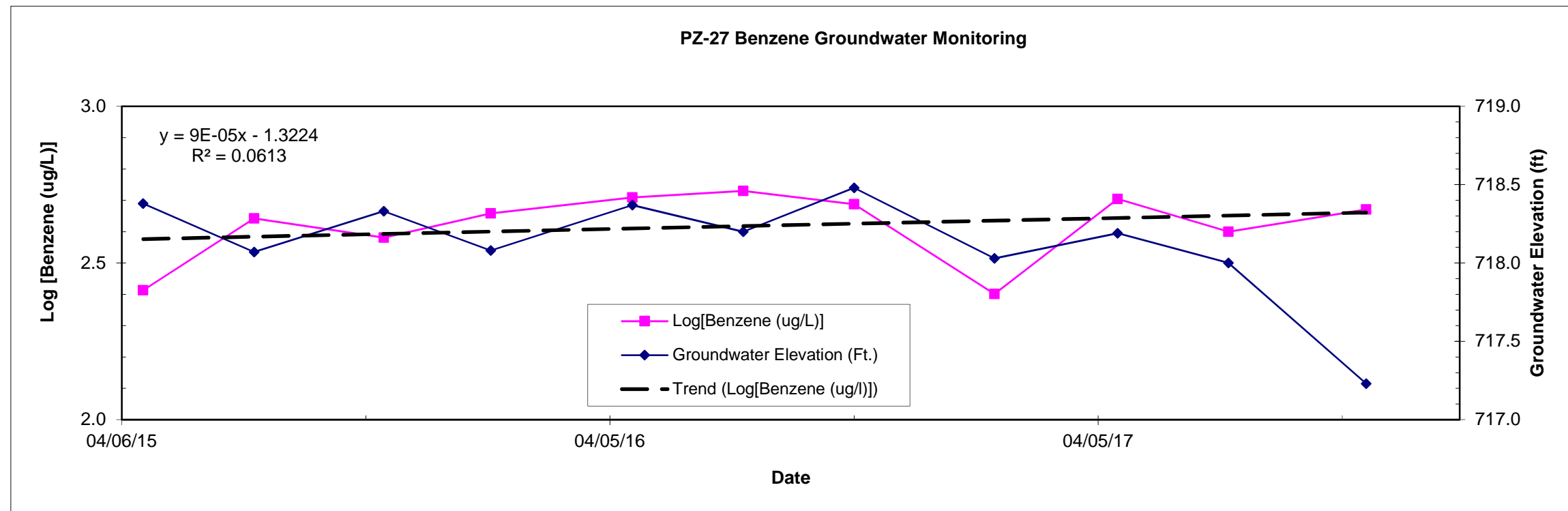


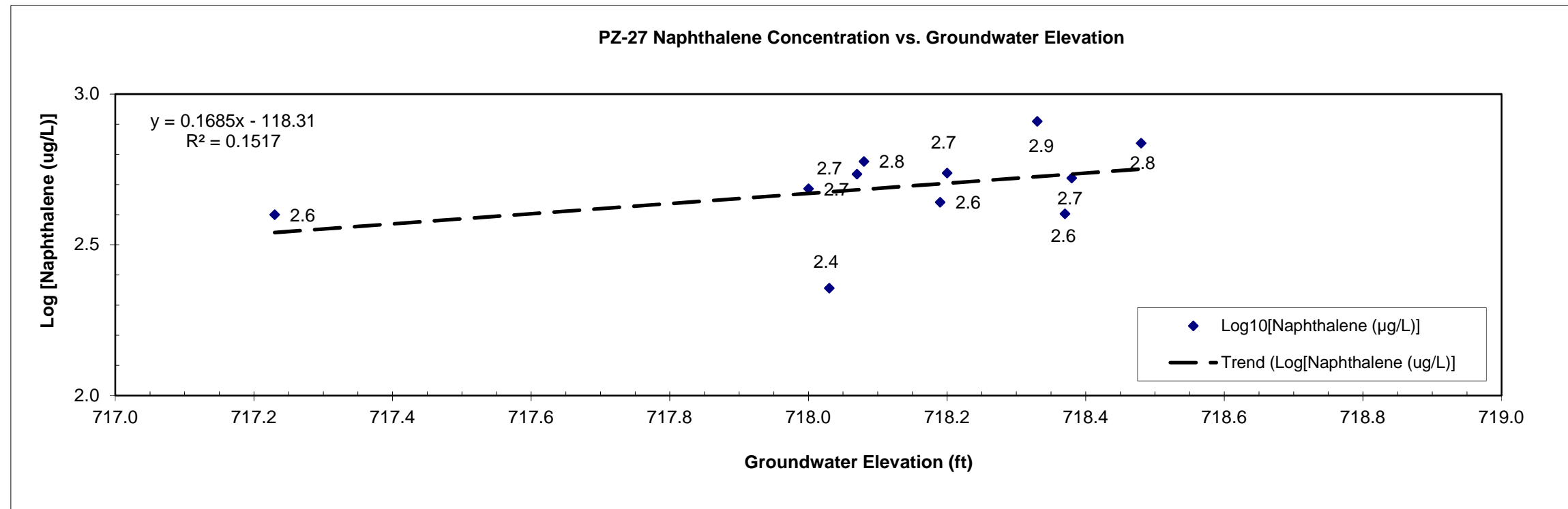
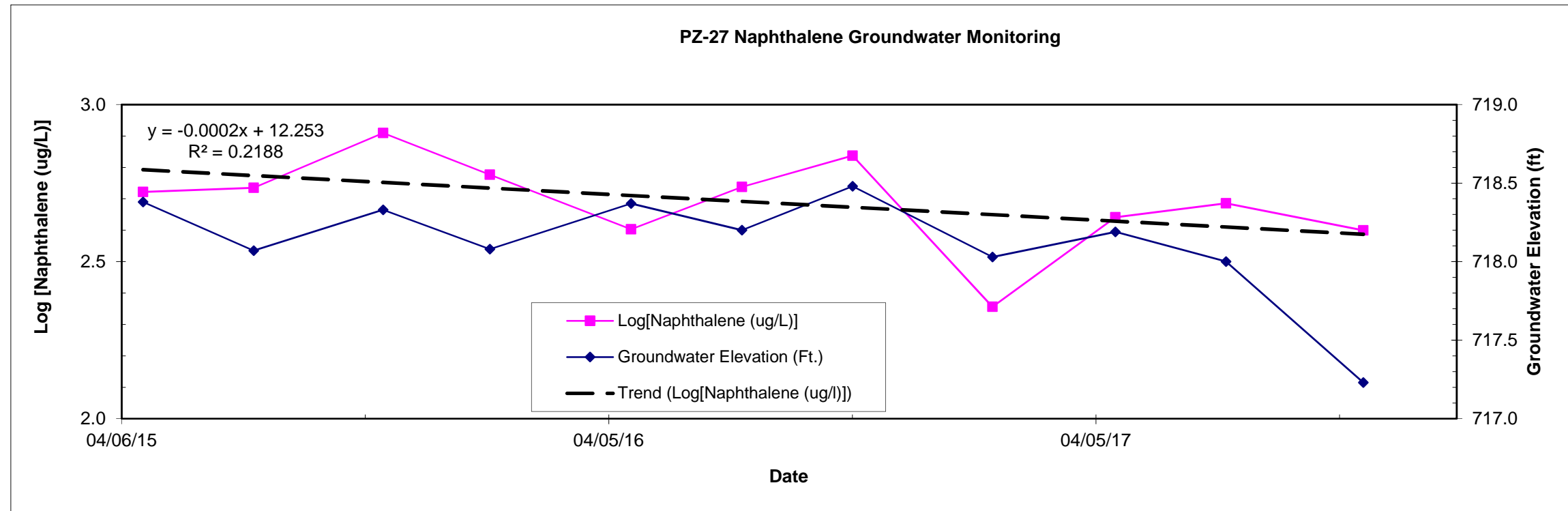




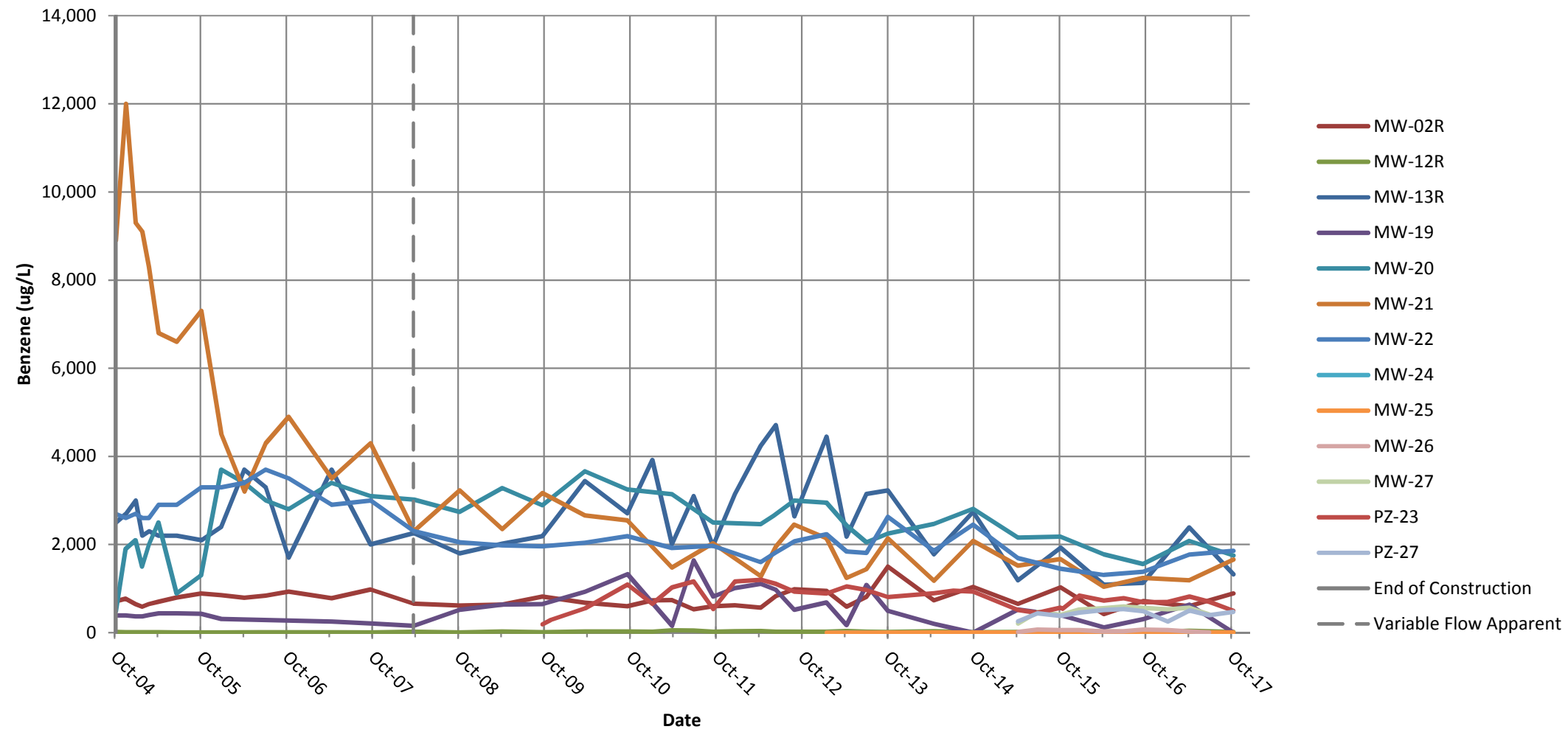




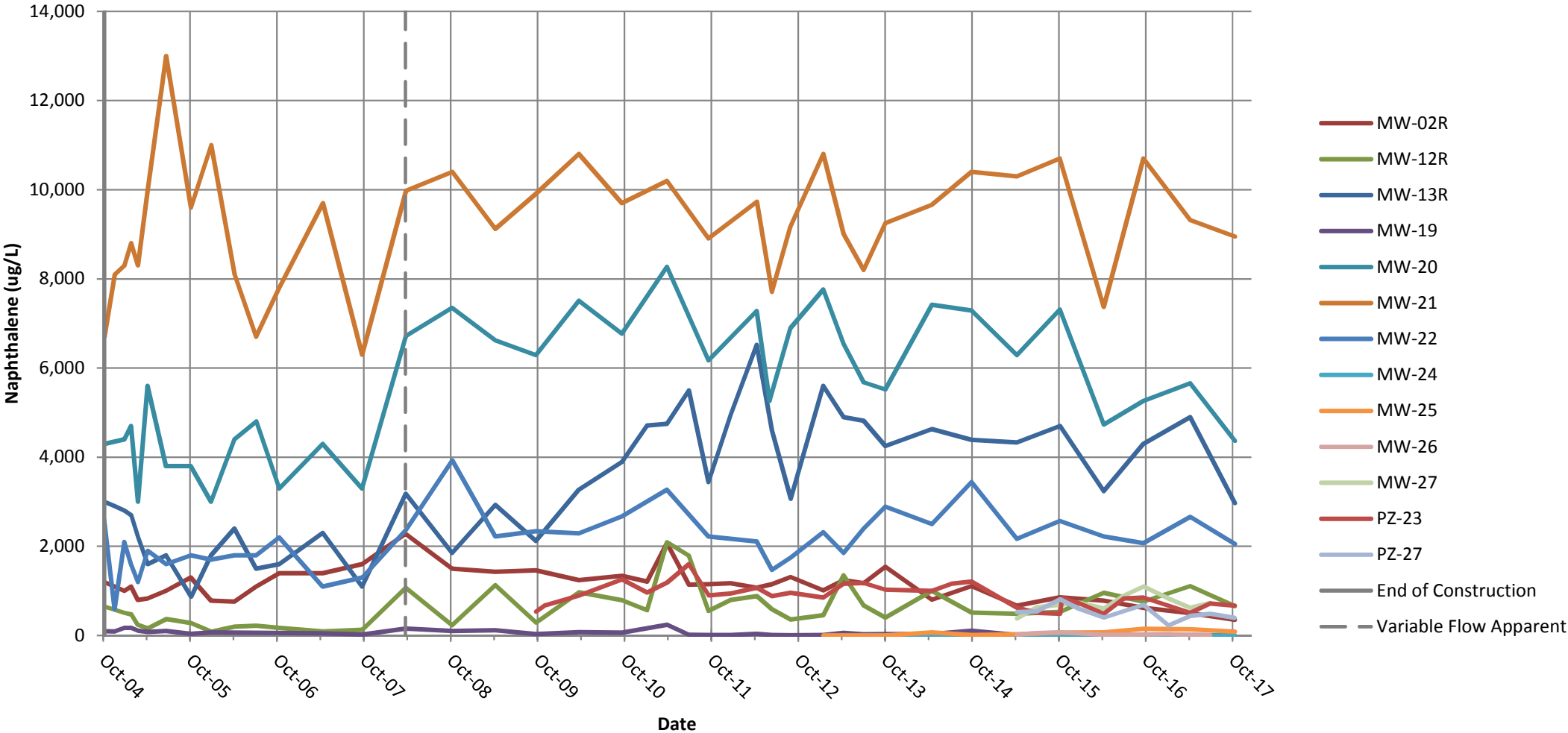




Benzene in Areas 1 and 2



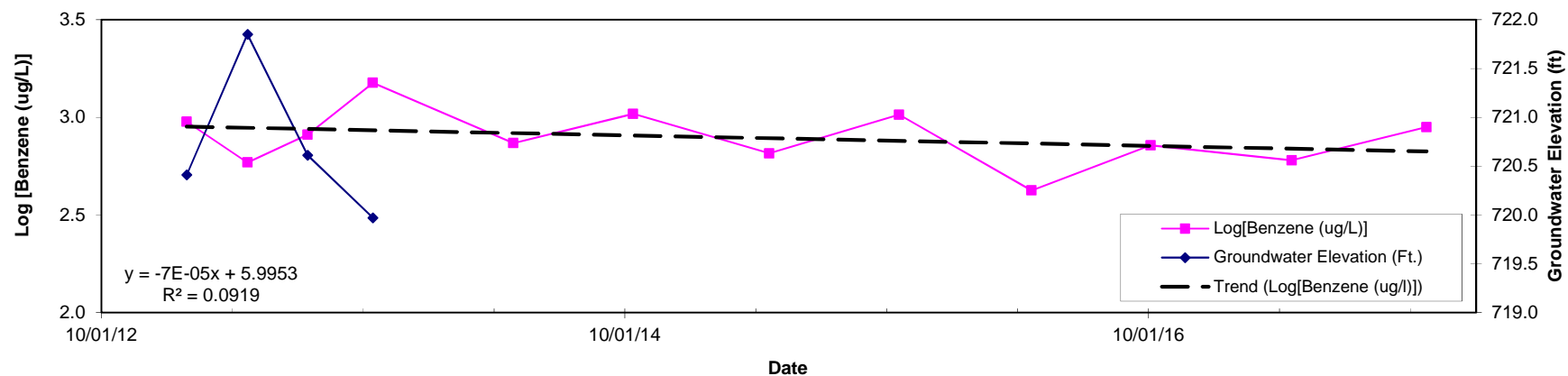
Naphthalene in Areas 1 & 2



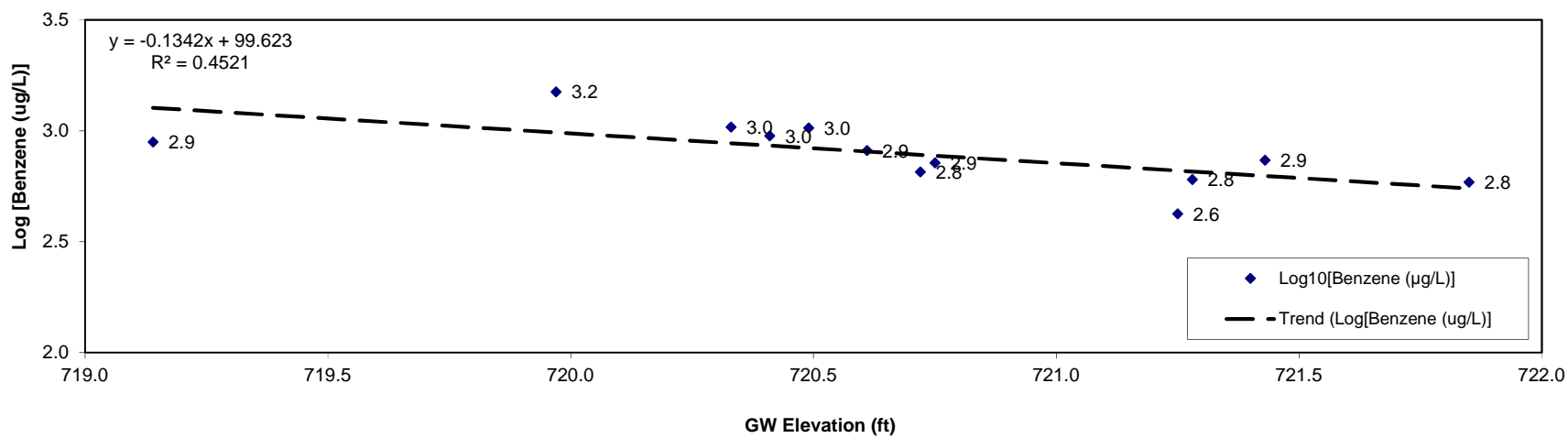


Appendix D2
Benzene and Naphthalene
Groundwater 5 Year
Trend Graphs

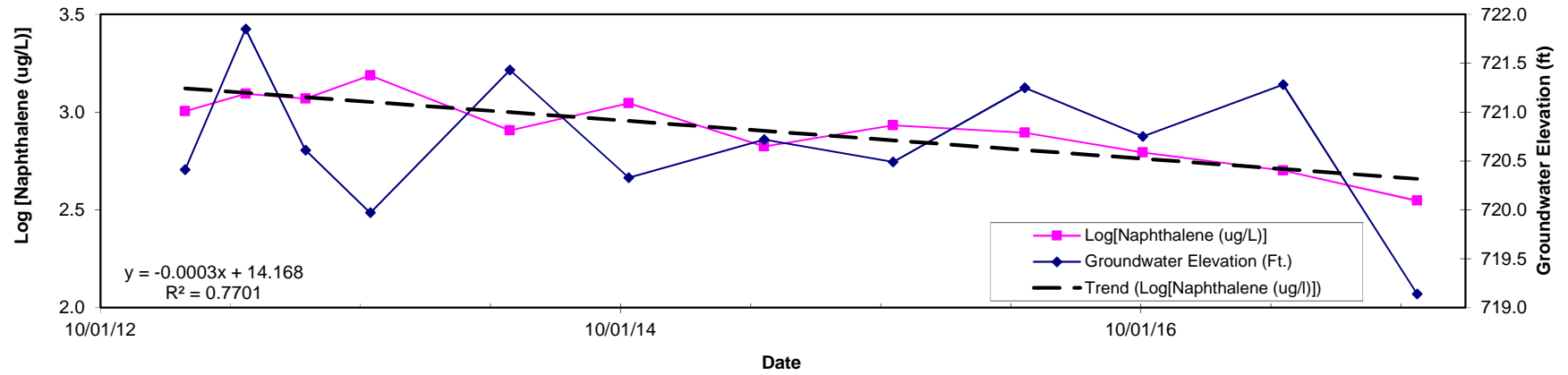
MW-02R Benzene Groundwater Monitoring



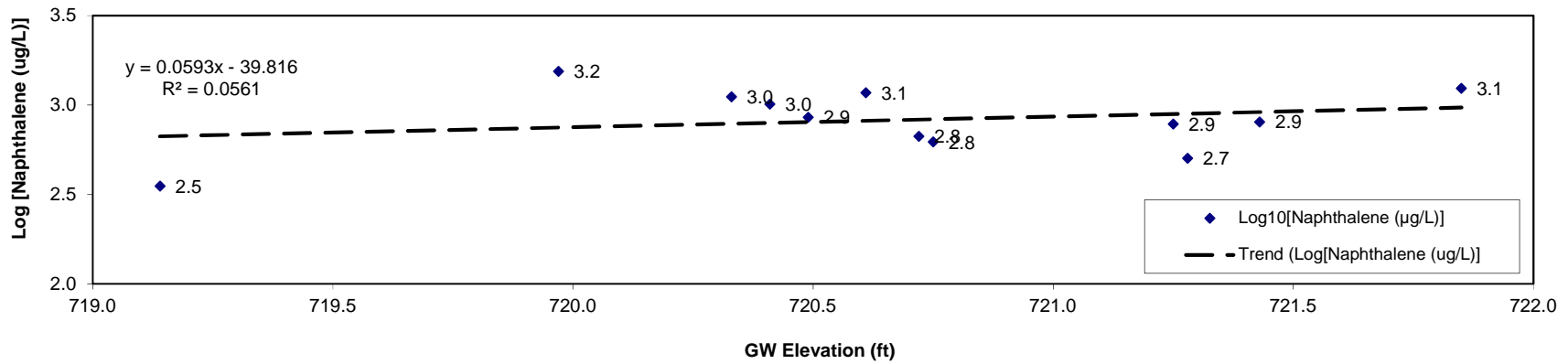
MW-02R Benzene Concentration vs. Groundwater Elevation

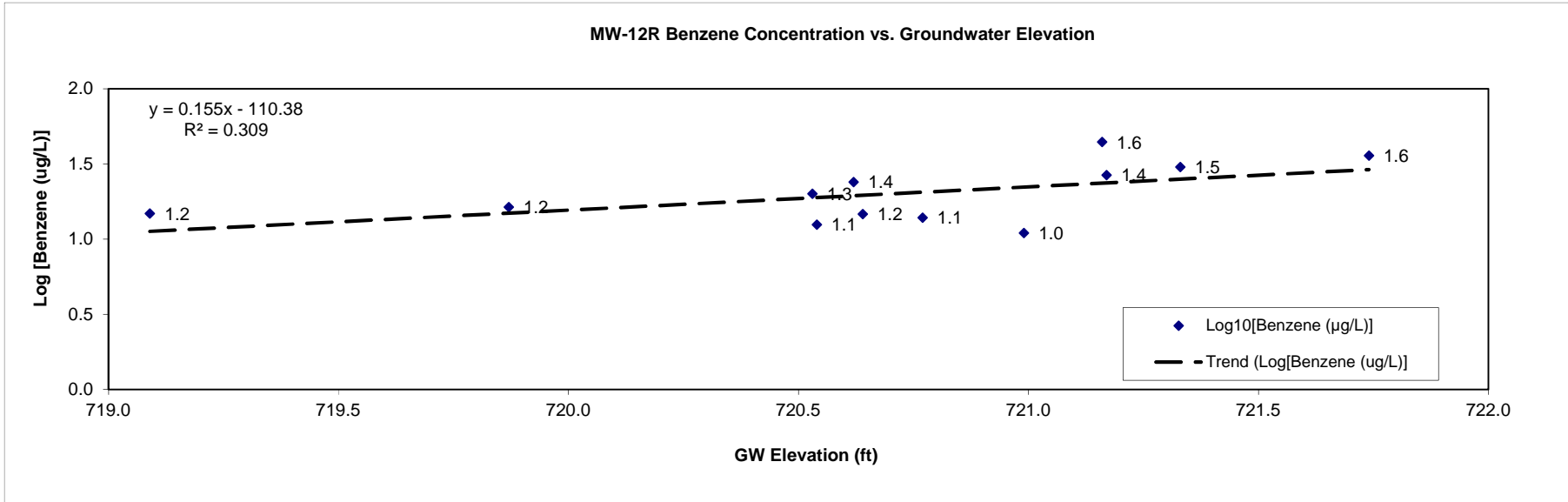
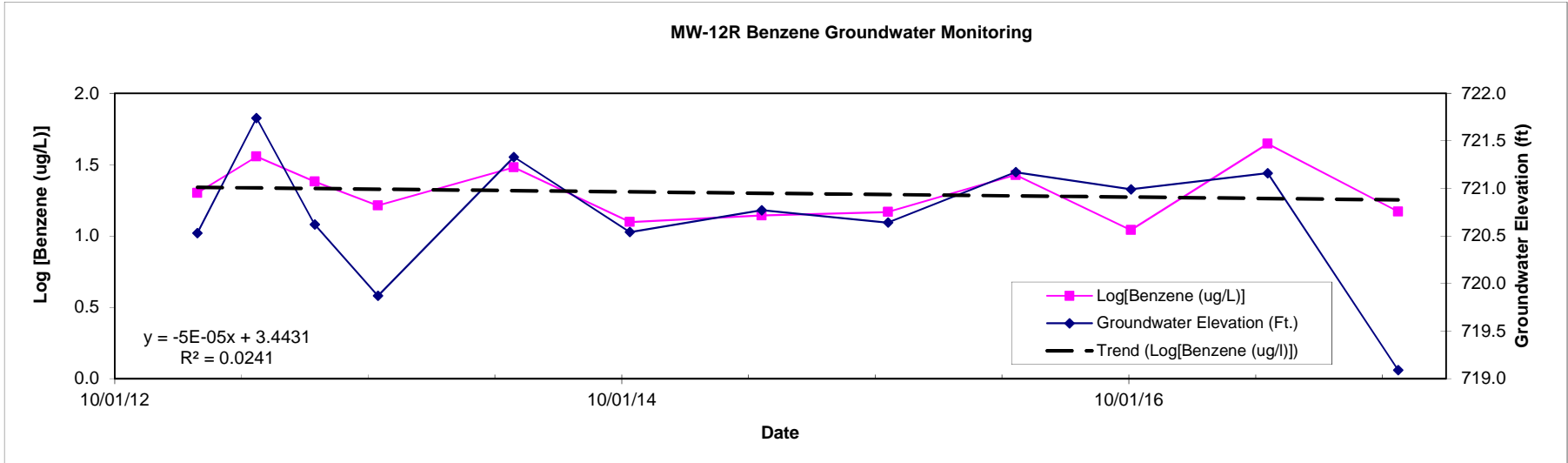


MW-02R Naphthalene Groundwater Monitoring

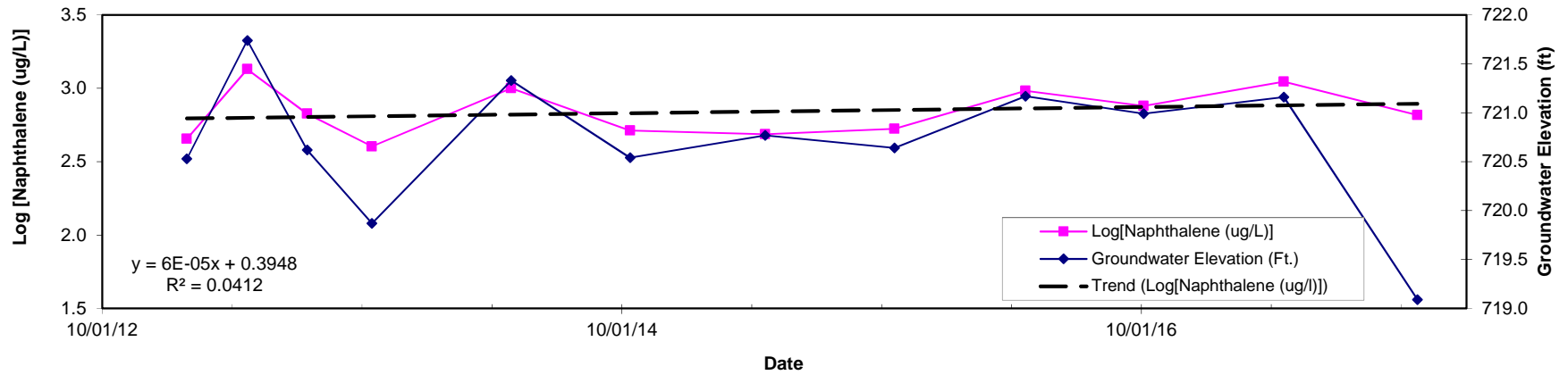


MW-02R Naphthalene Concentration vs. Groundwater Elevation

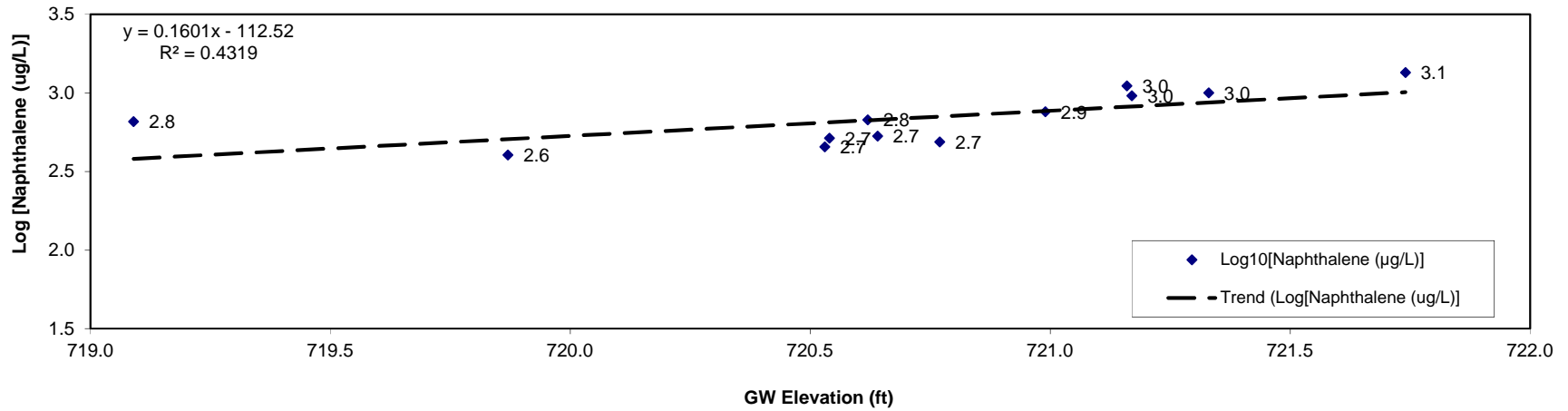




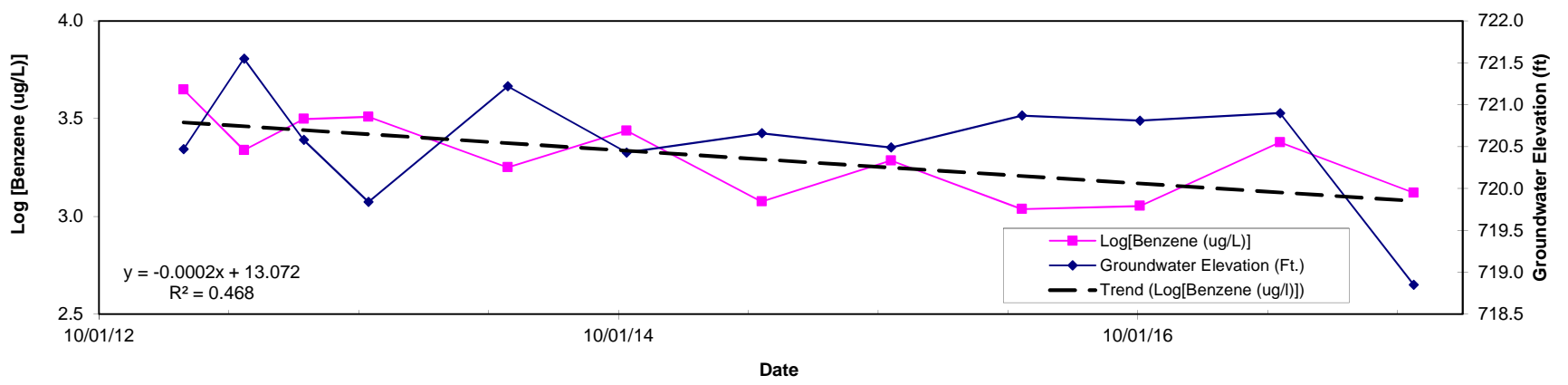
MW-12R Naphthalene Groundwater Monitoring



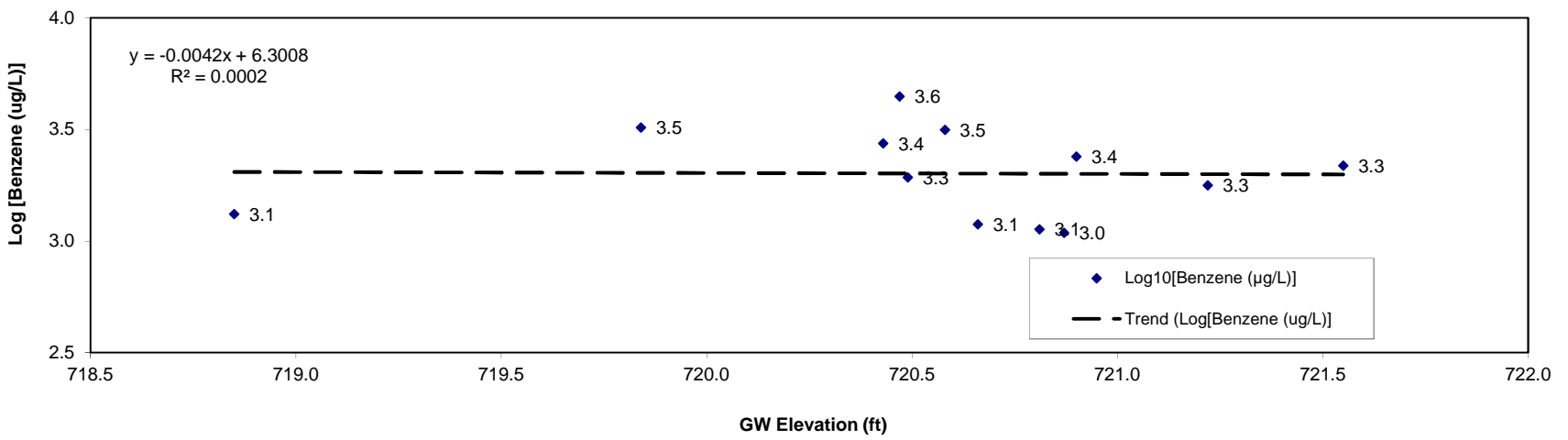
MW-12R Naphthalene Concentration vs. Groundwater Elevation

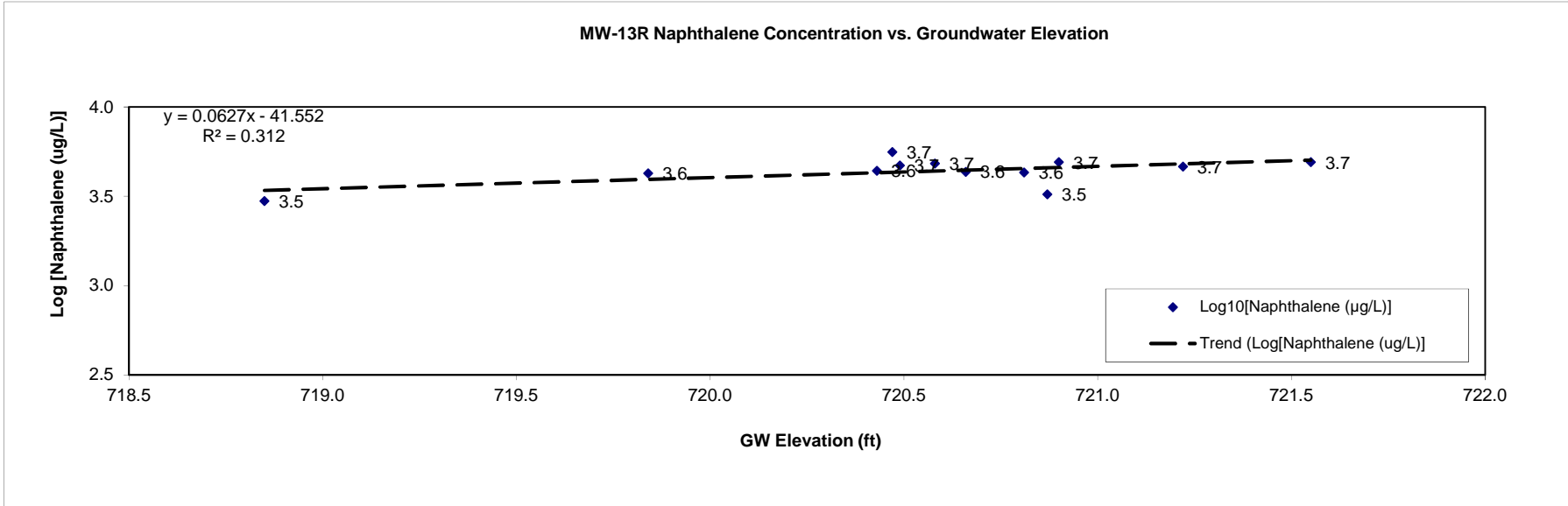
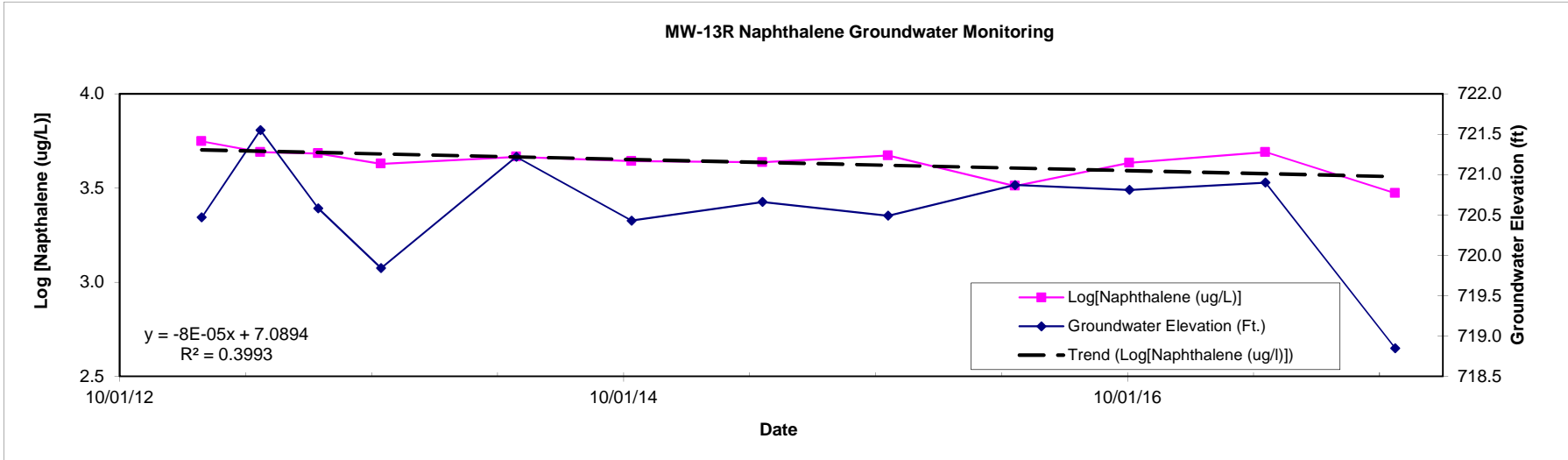


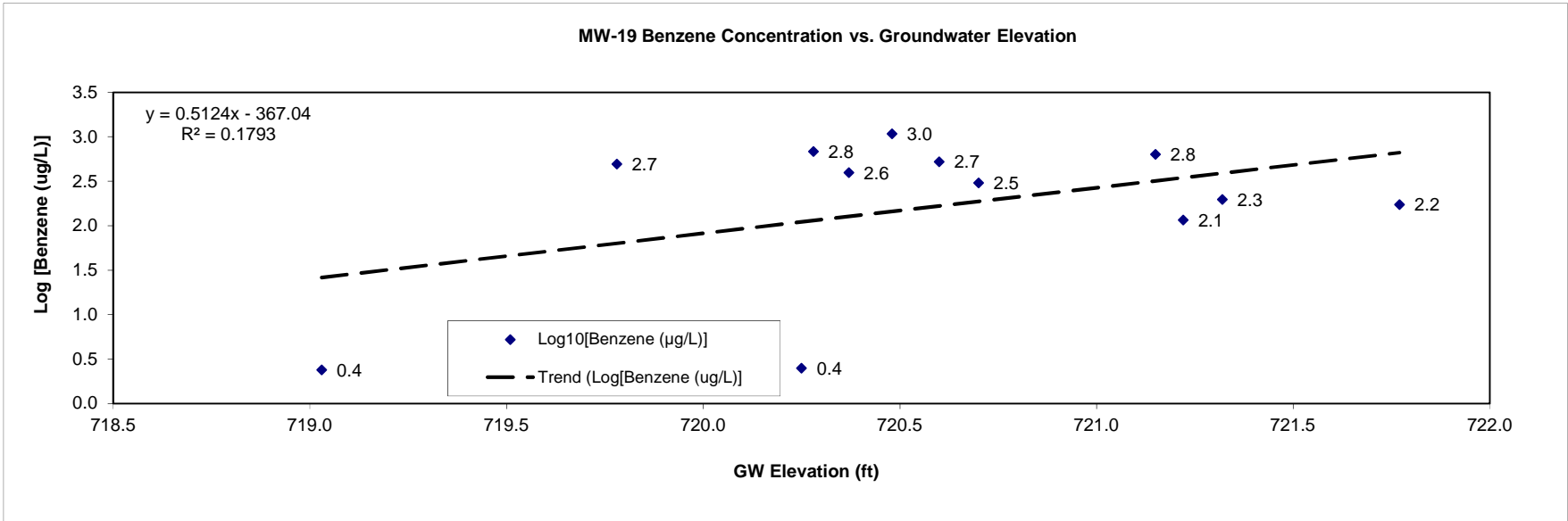
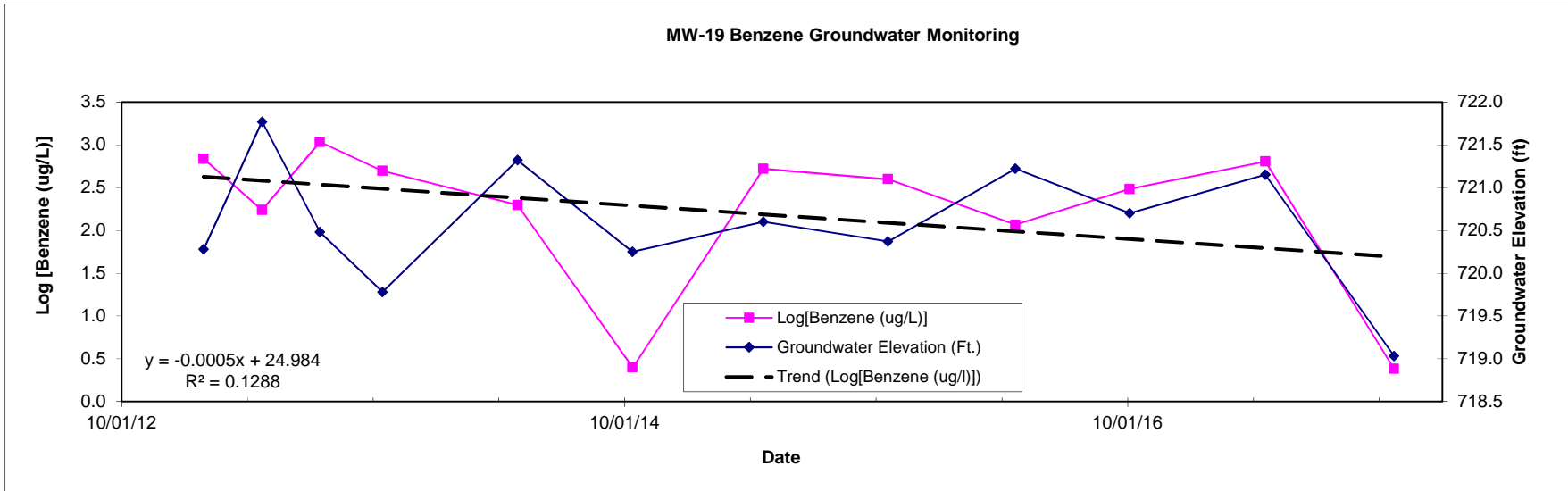
MW-13R Benzene Groundwater Monitoring

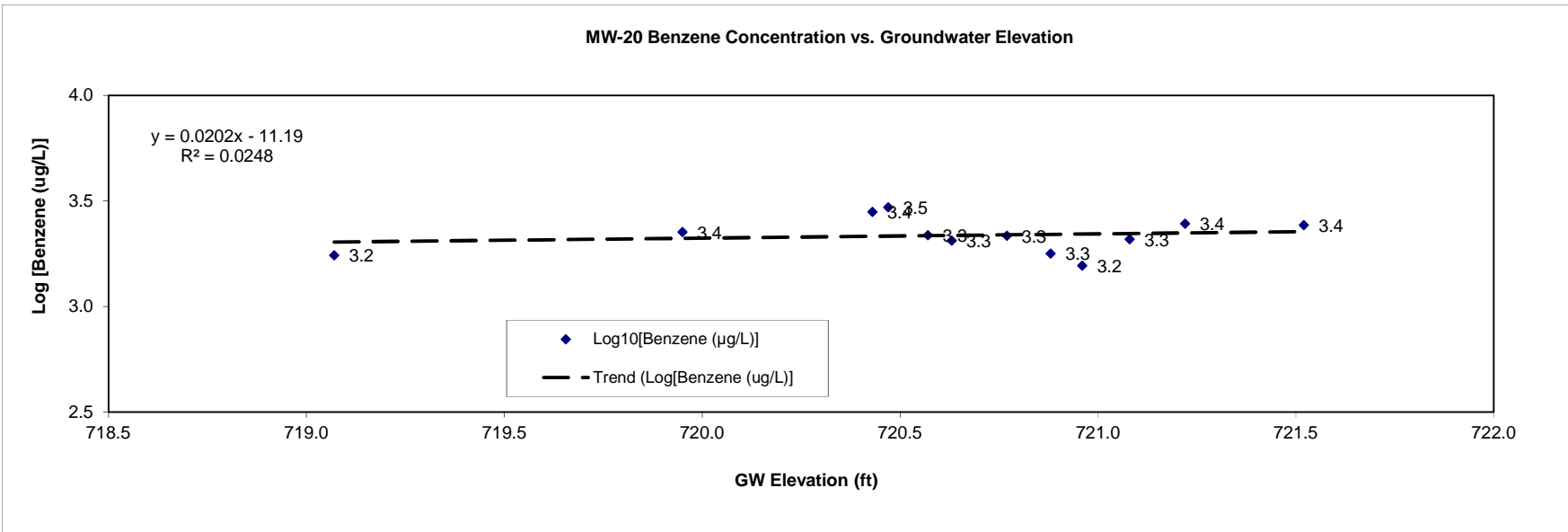
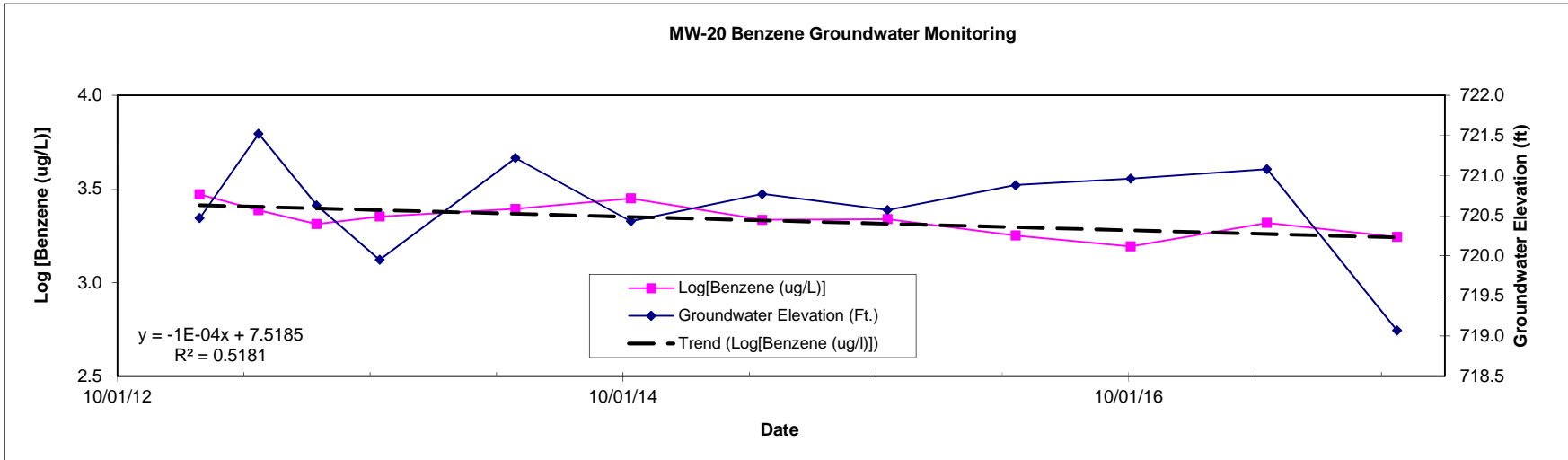


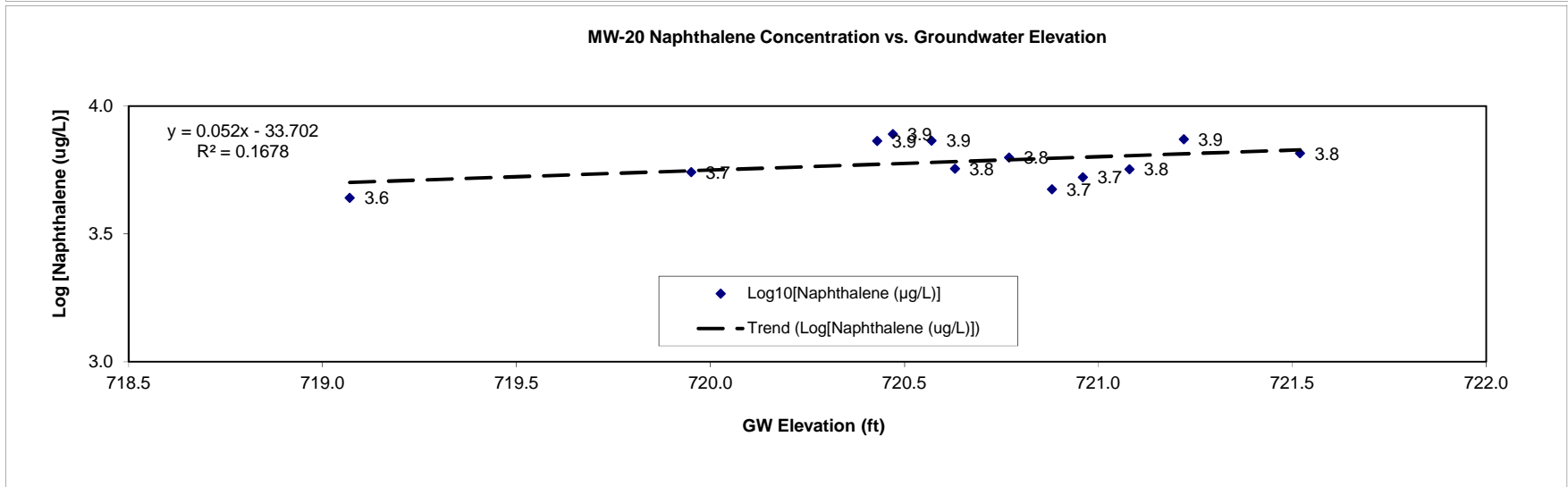
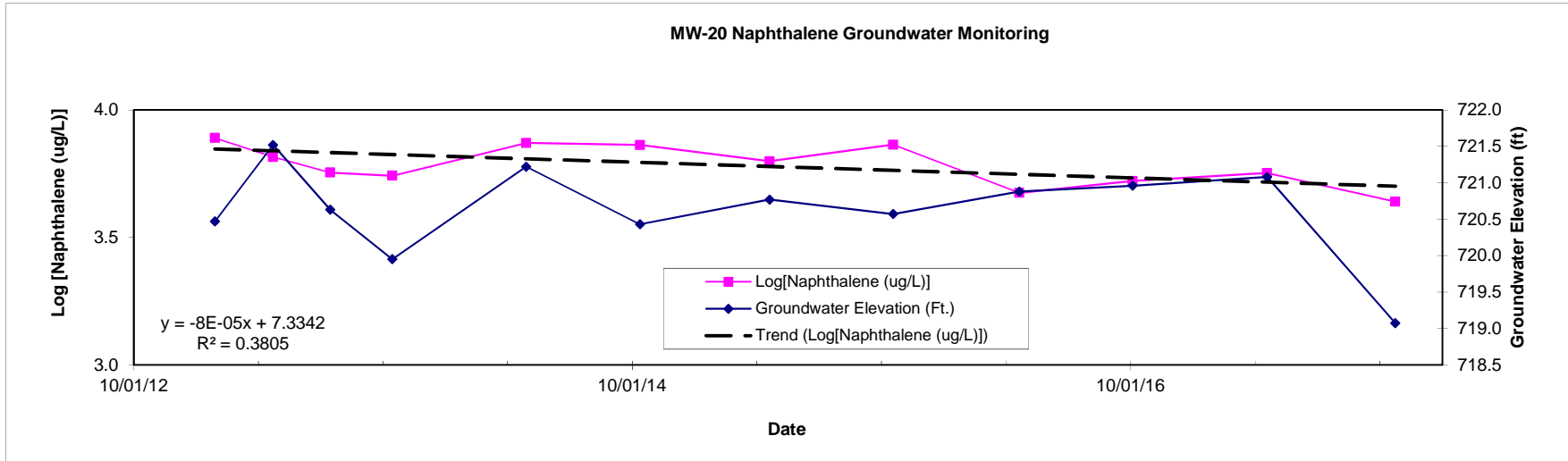
MW-13R Benzene Concentration vs. Groundwater Elevation

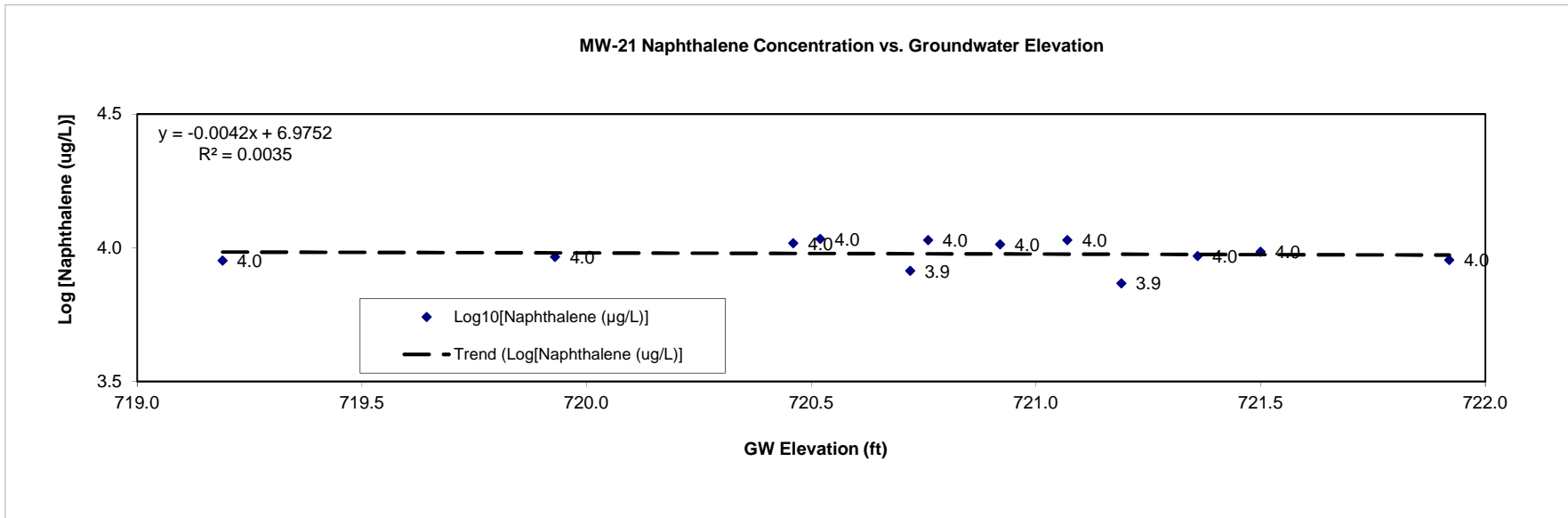
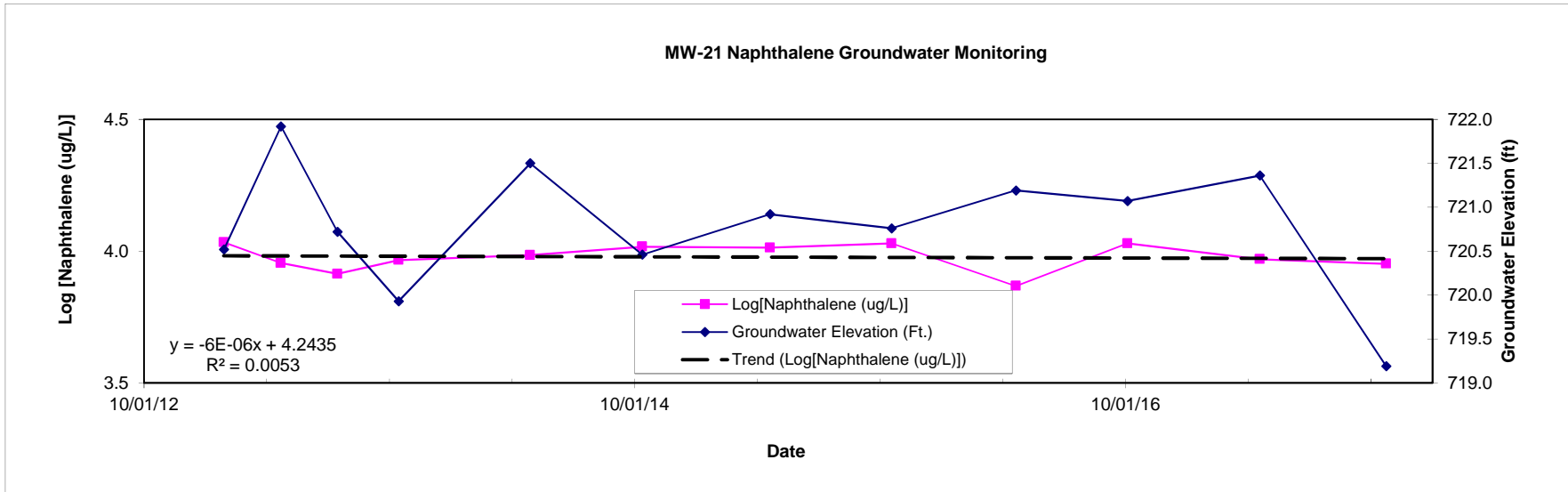


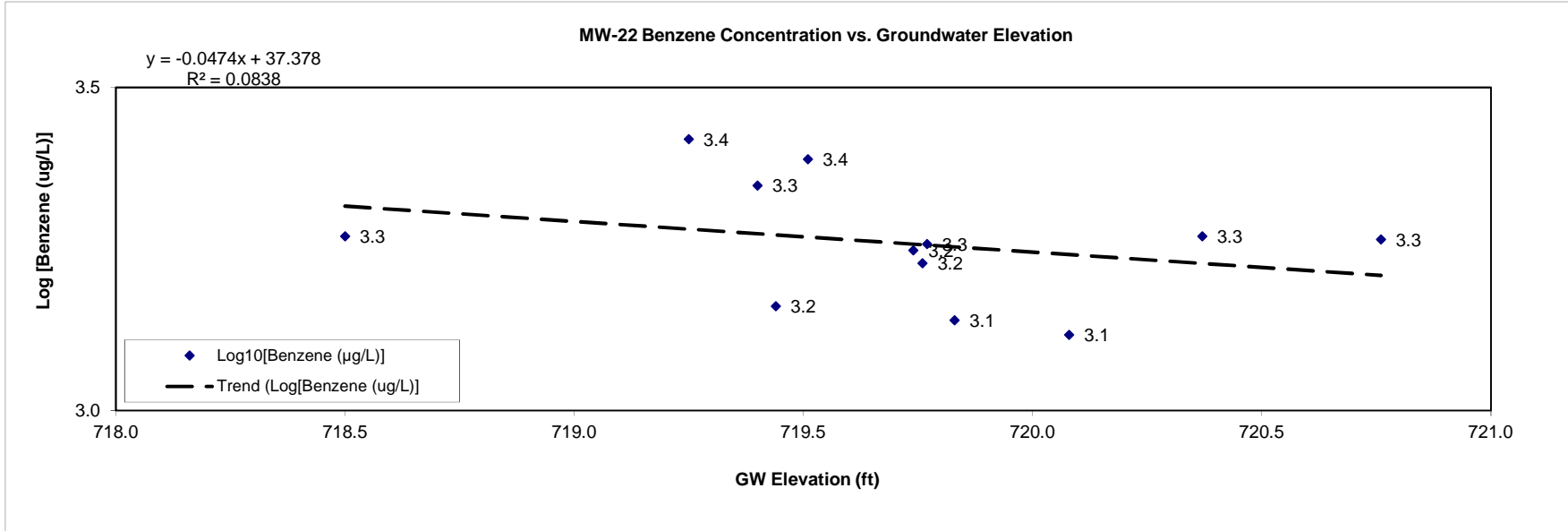
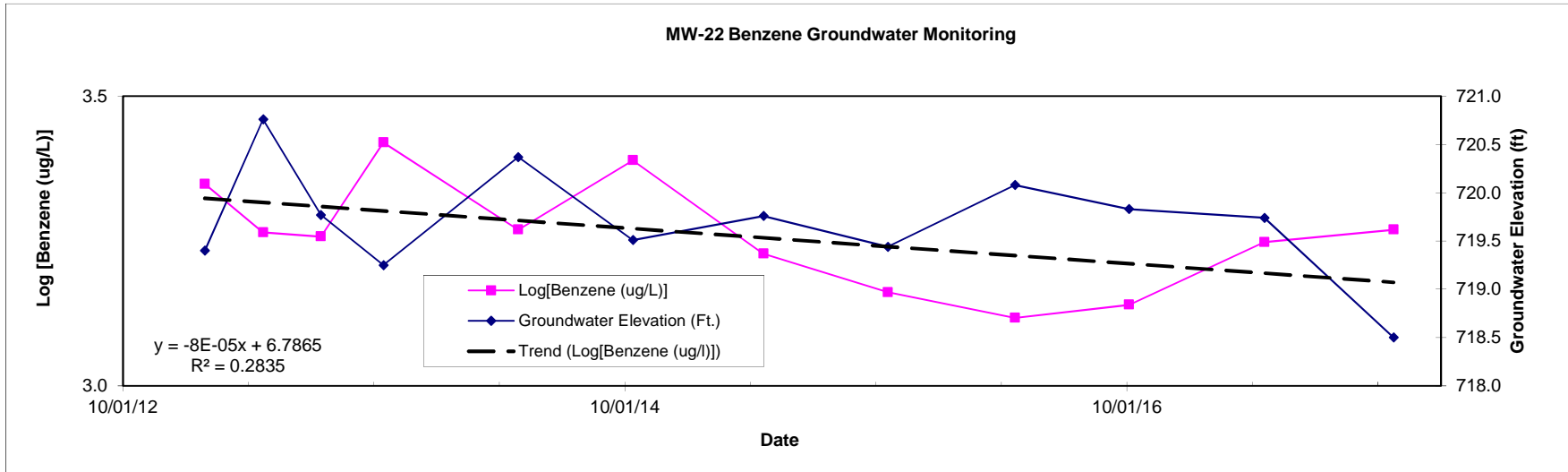


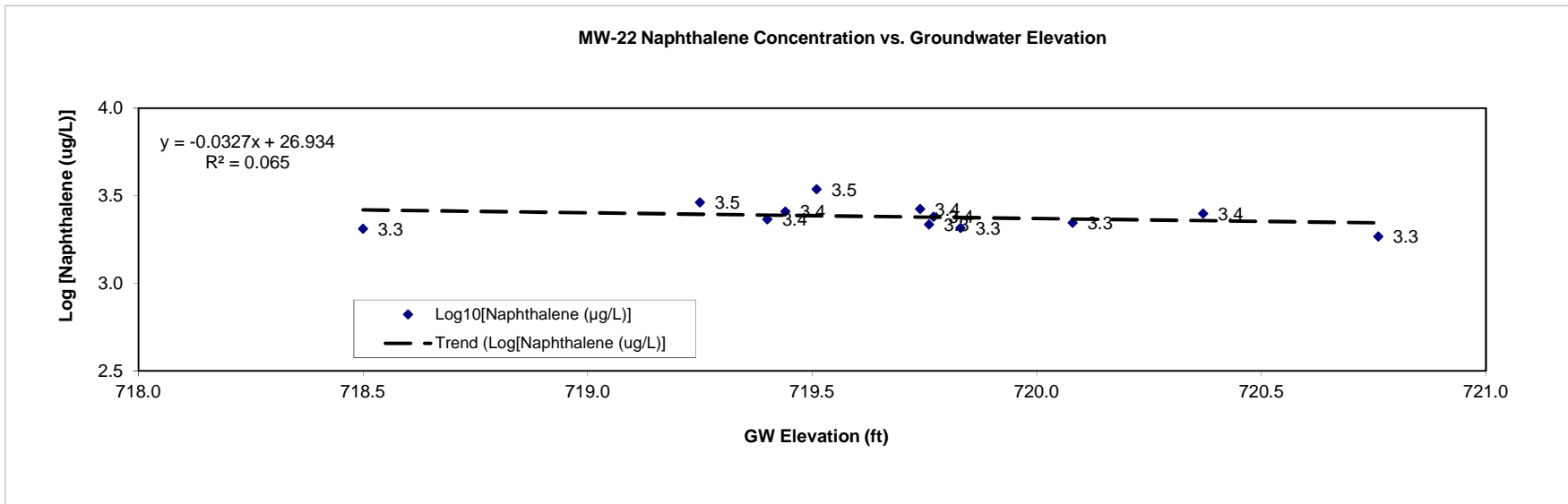
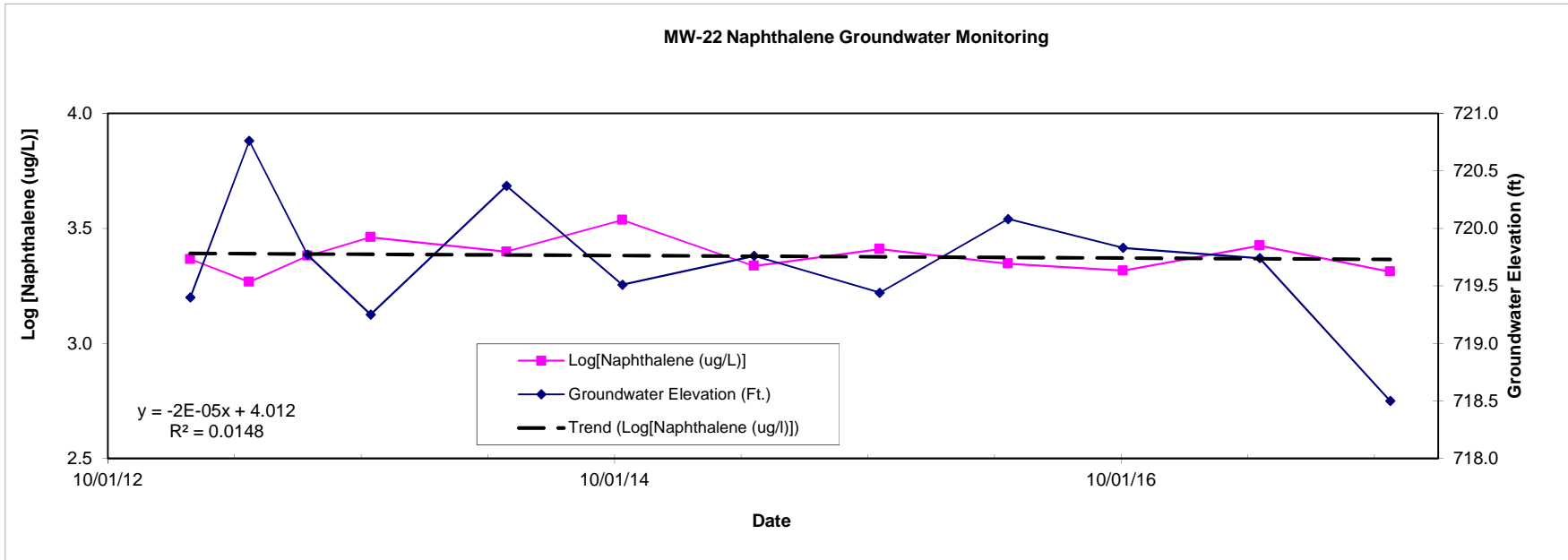


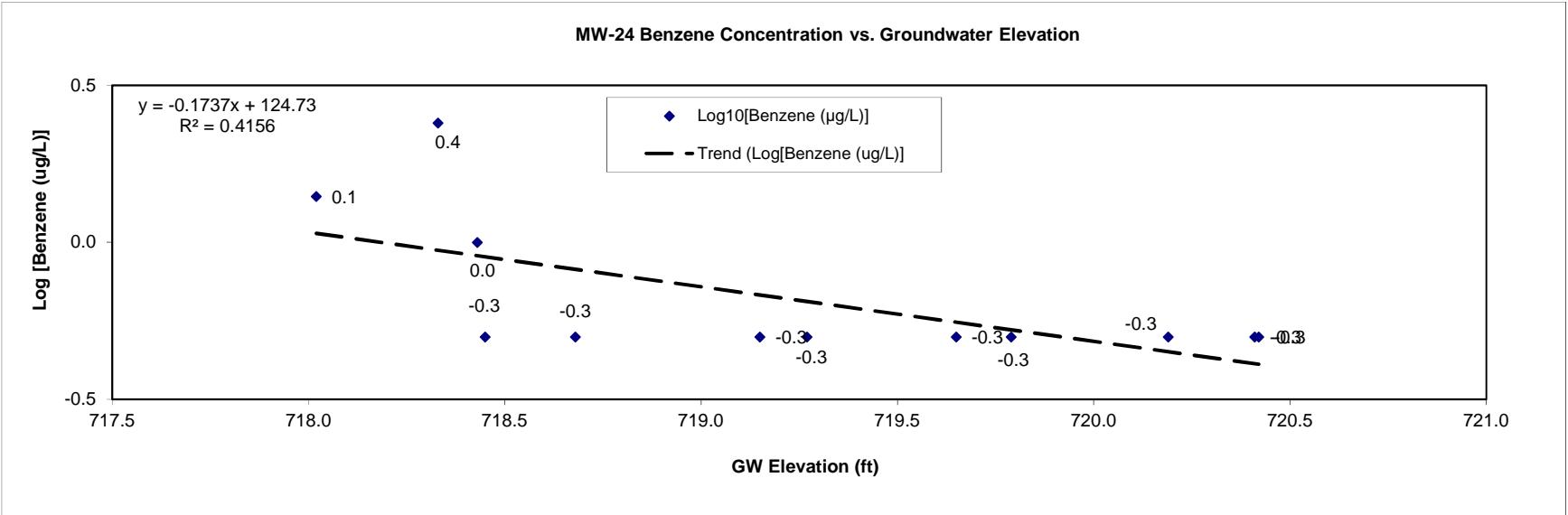
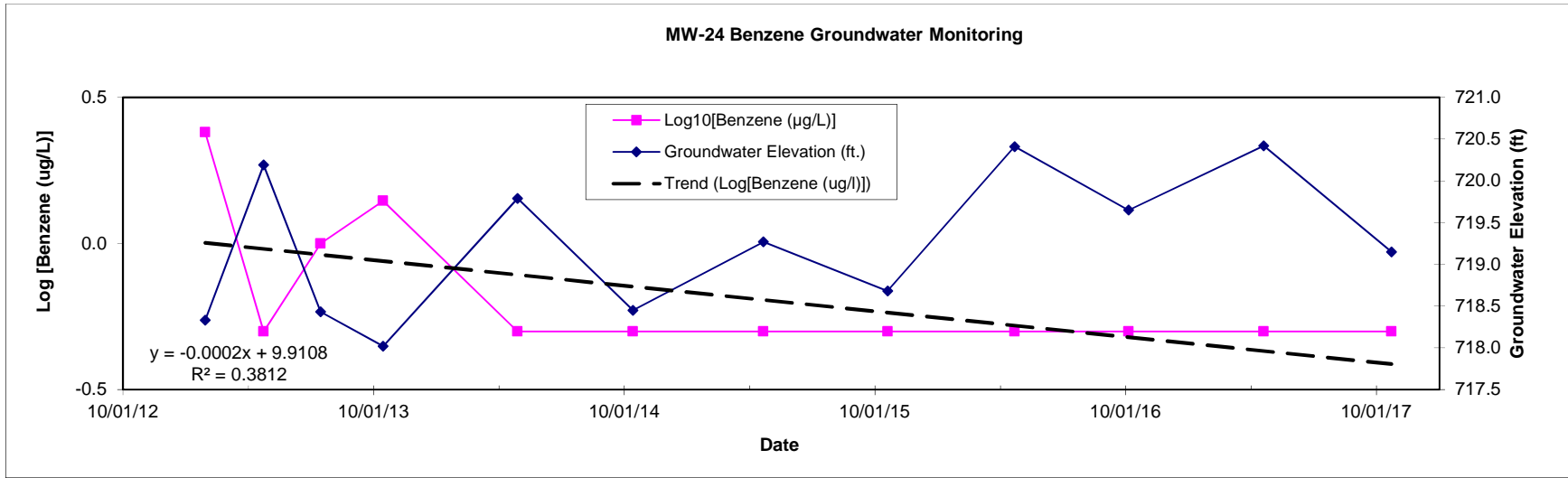




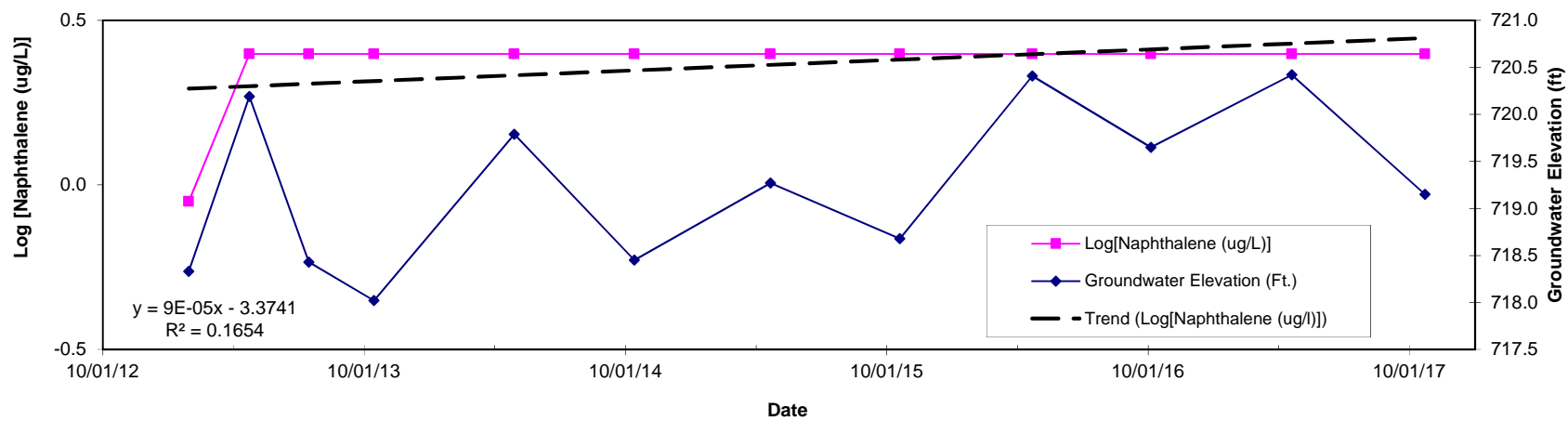




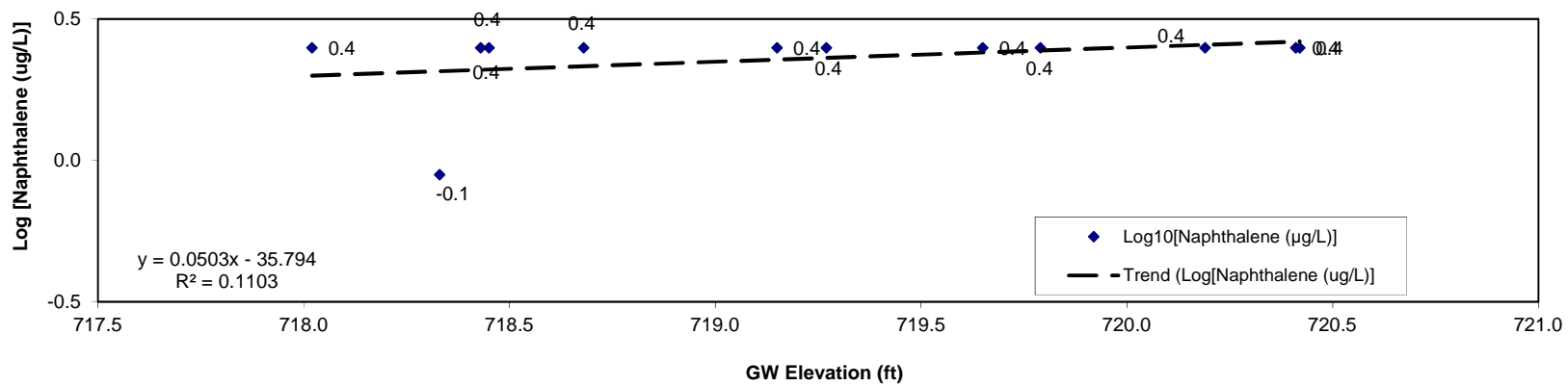


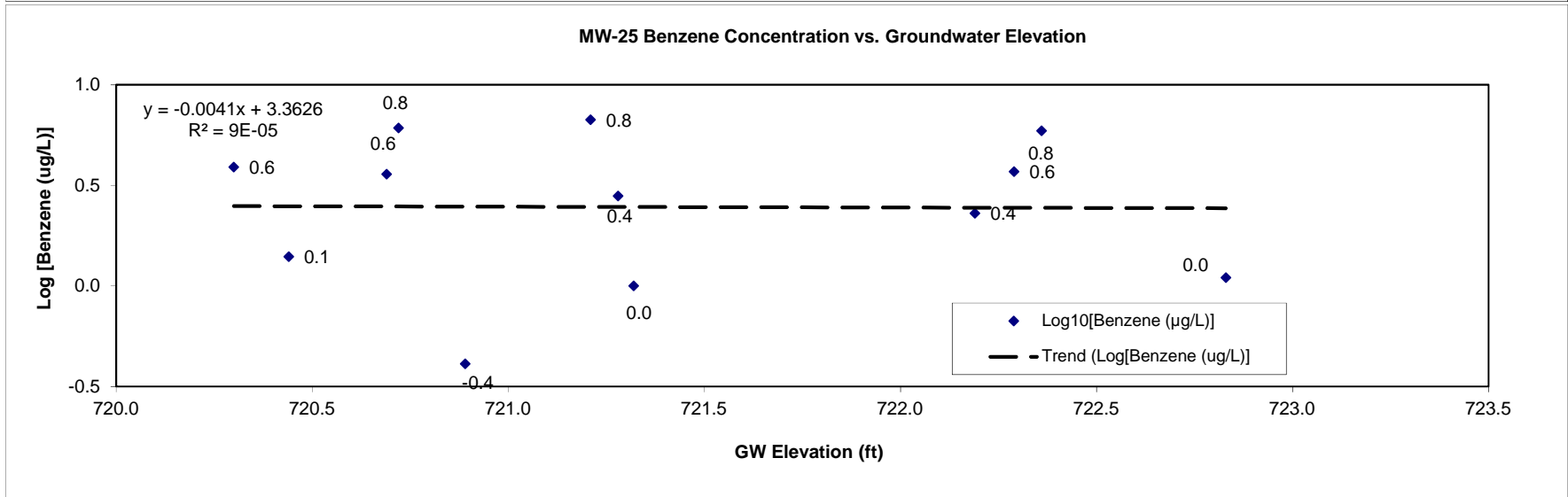
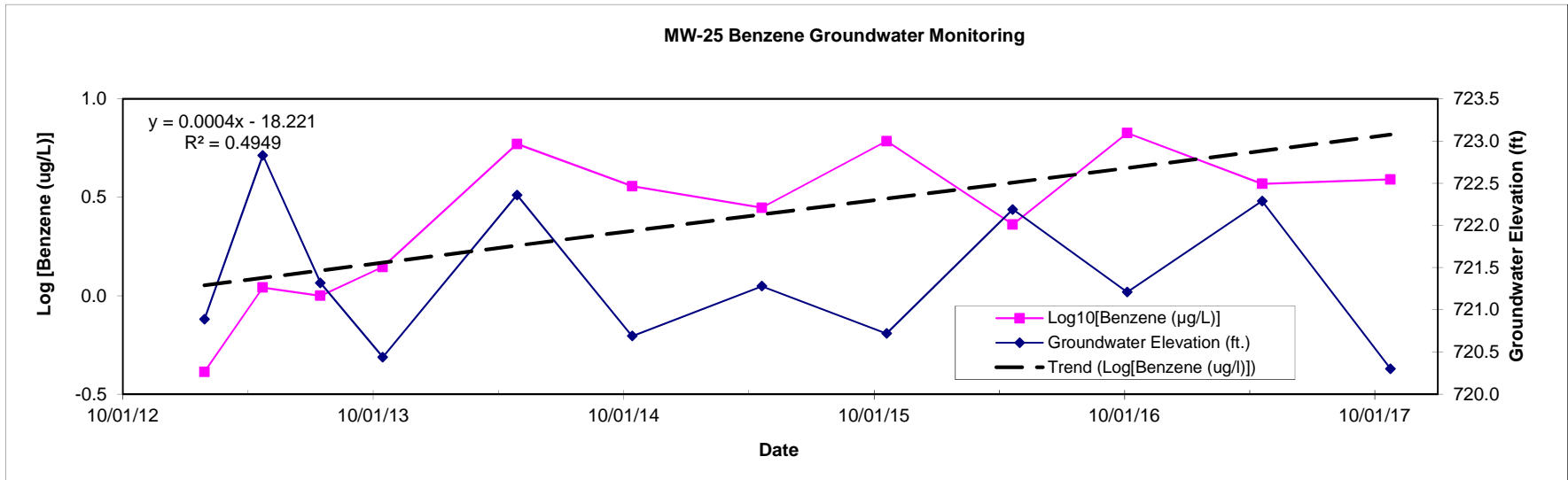


MW-24 Naphthalene Groundwater Monitoring

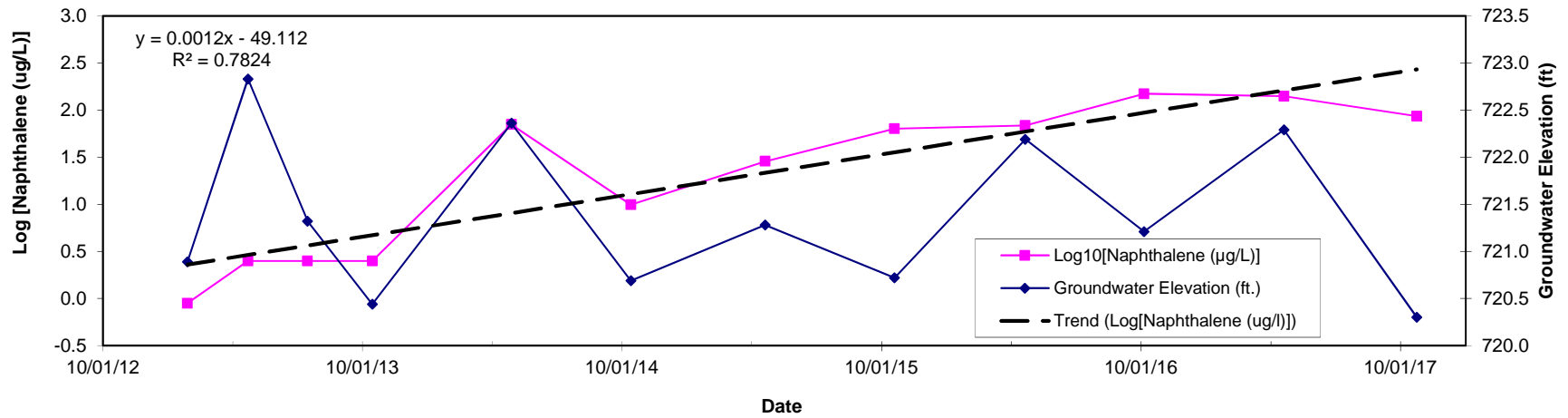


MW-24 Naphthalene Concentration vs. Groundwater Elevation

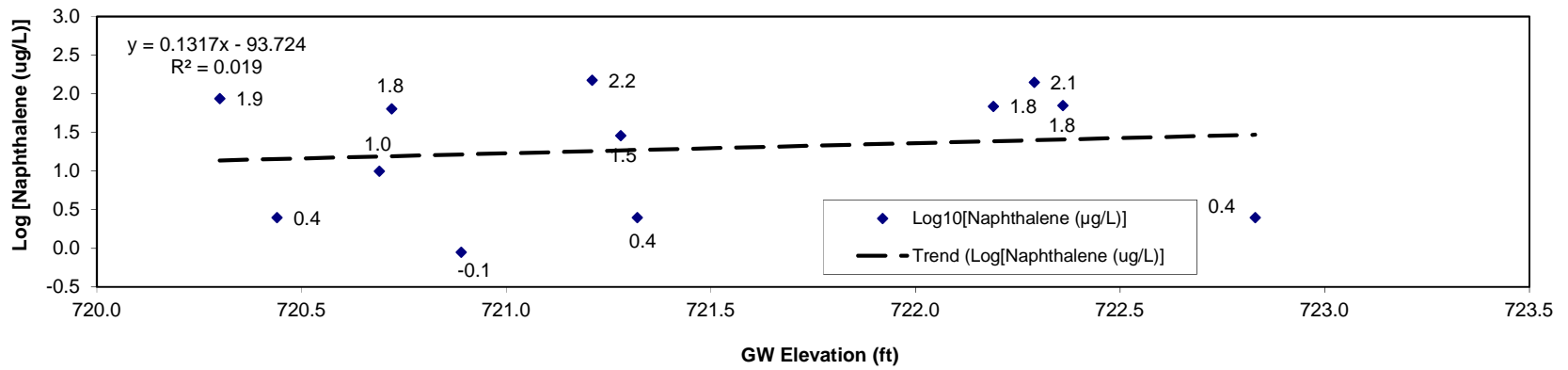


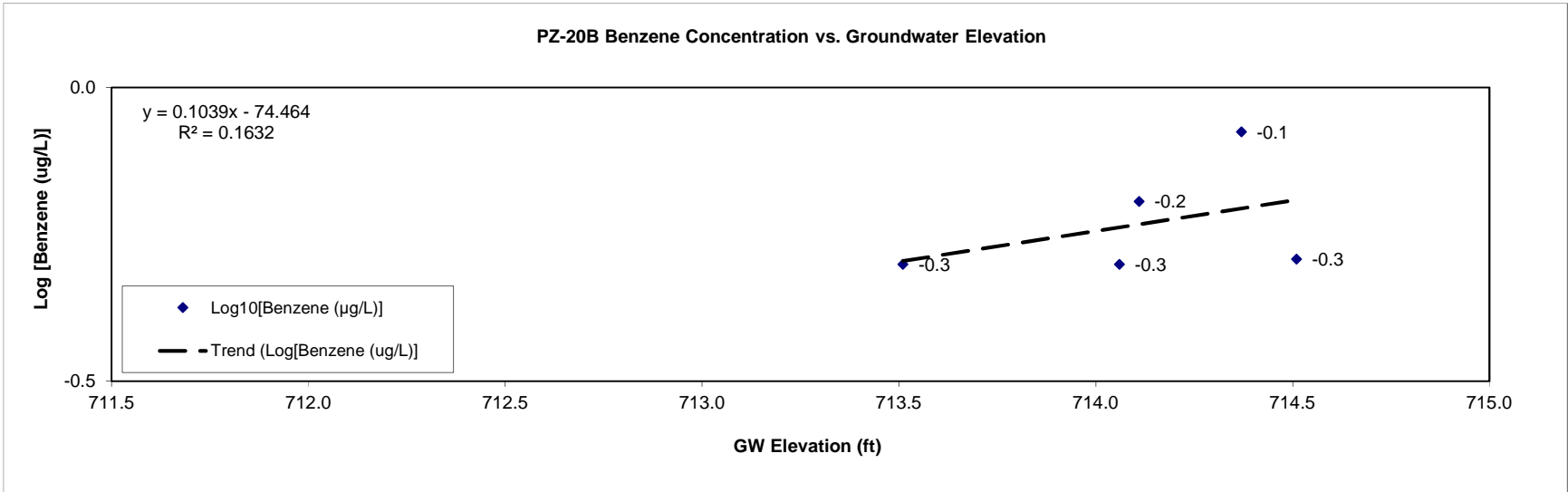
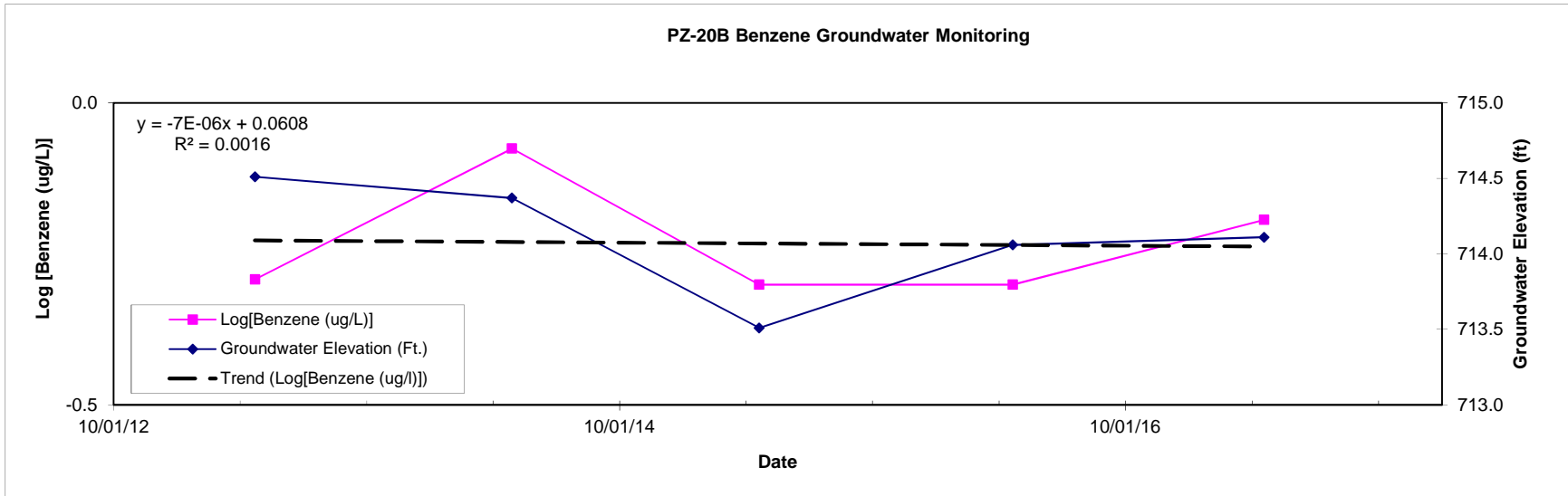


MW-25 Naphthalene Groundwater Monitoring

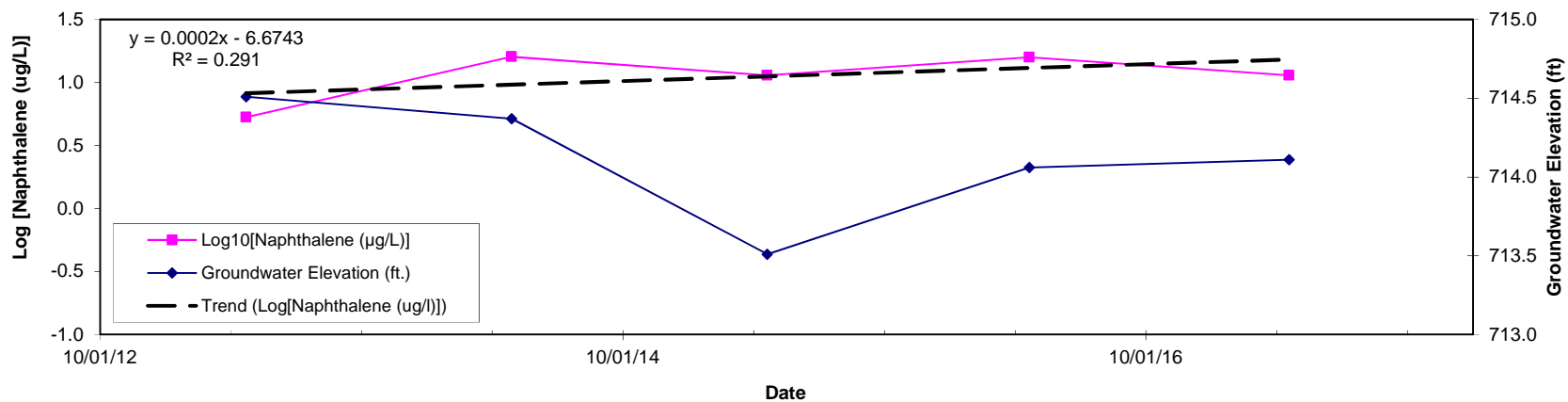


MW-25 Naphthalene Concentration vs. Groundwater Elevation

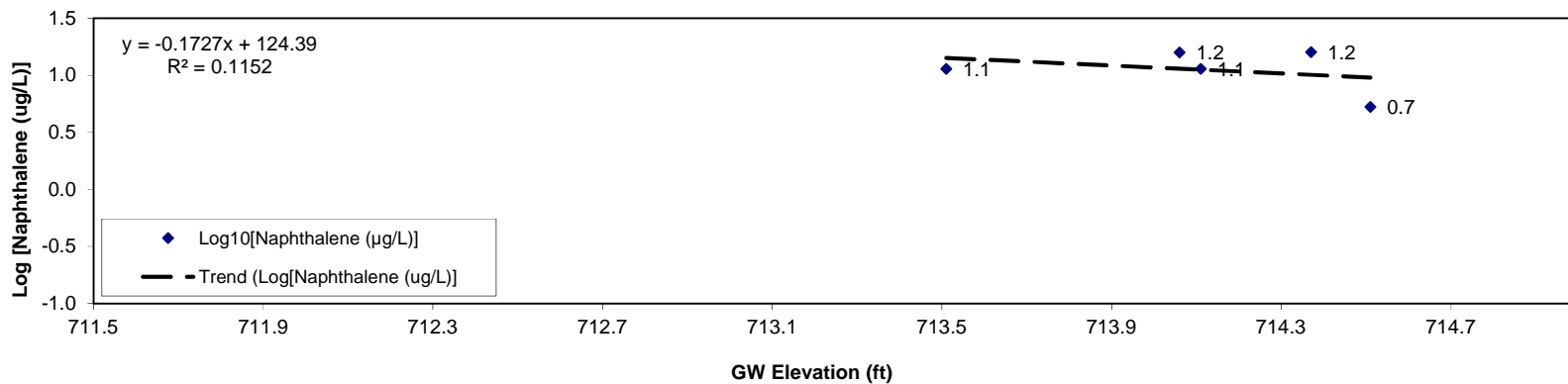


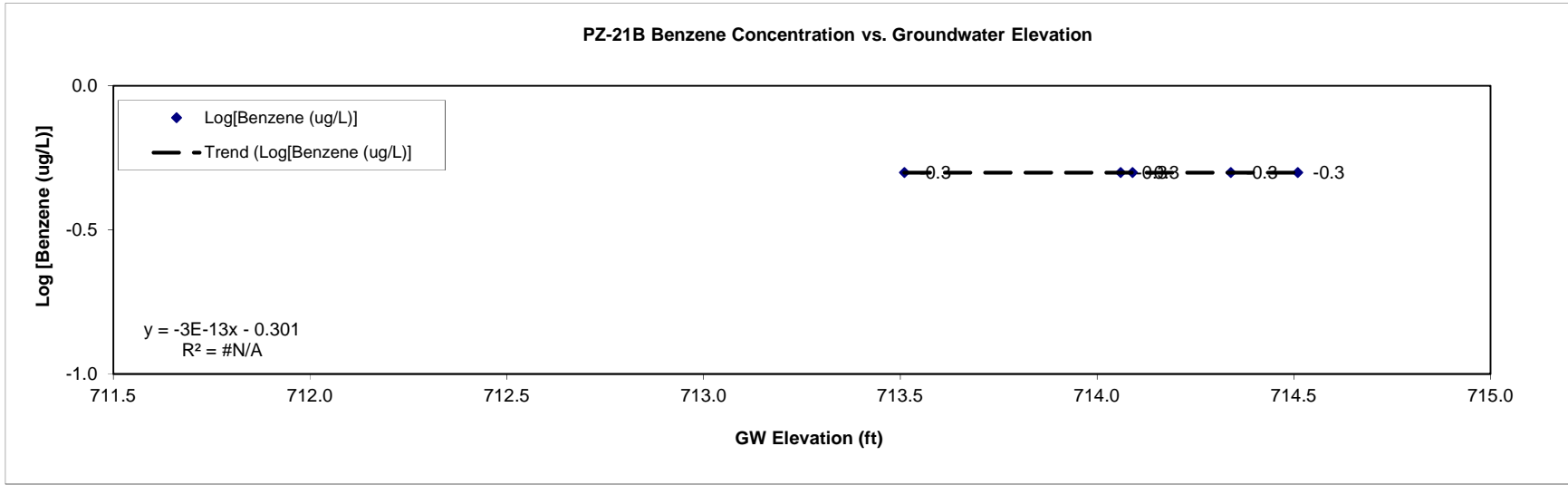
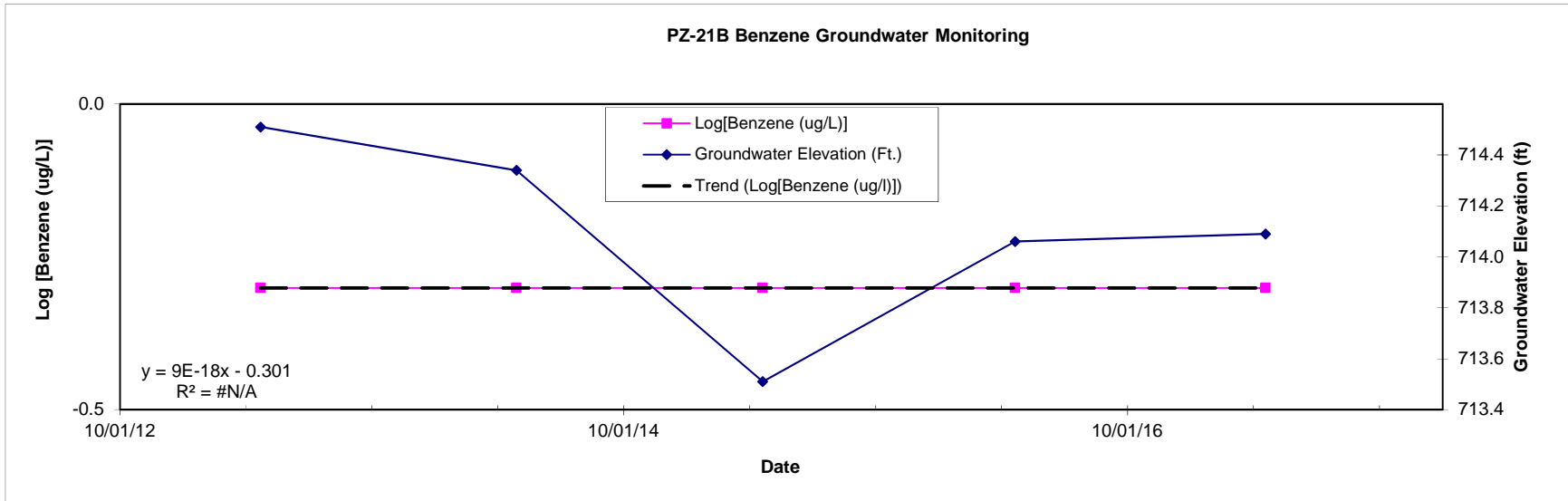


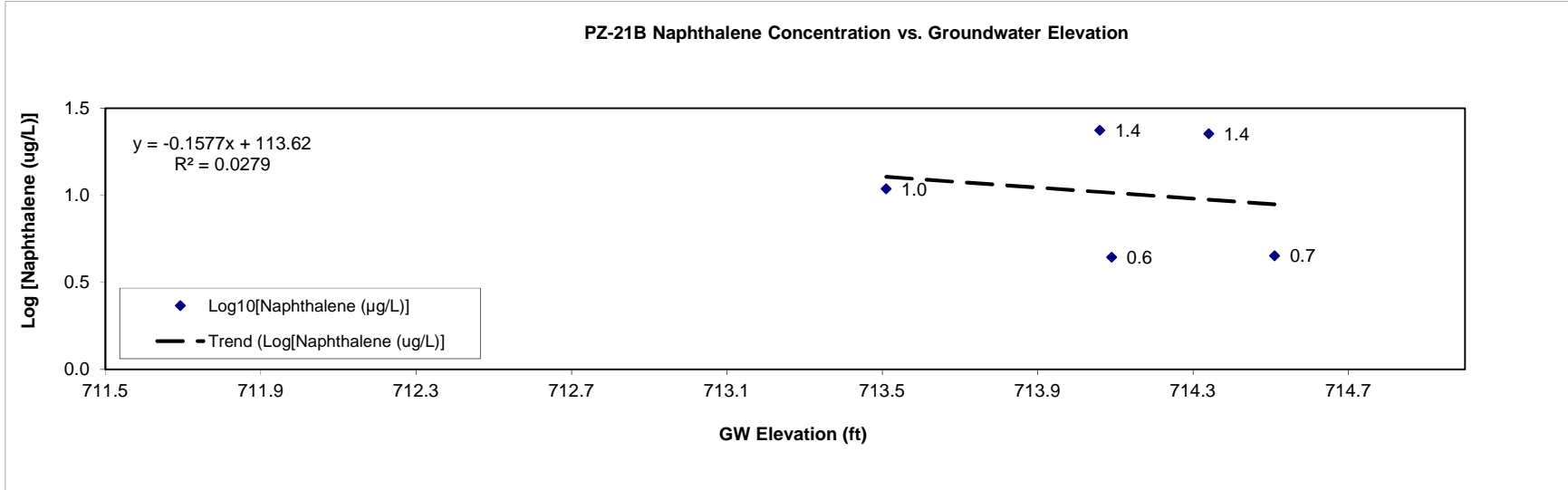
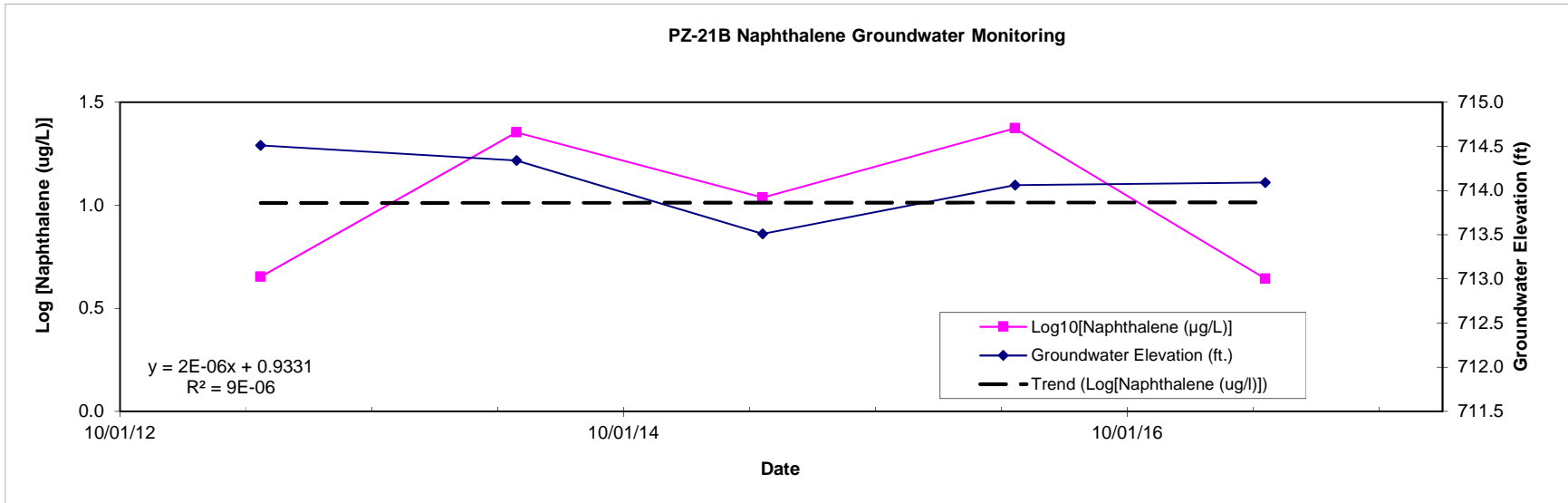
PZ-20B Naphthalene Groundwater Monitoring

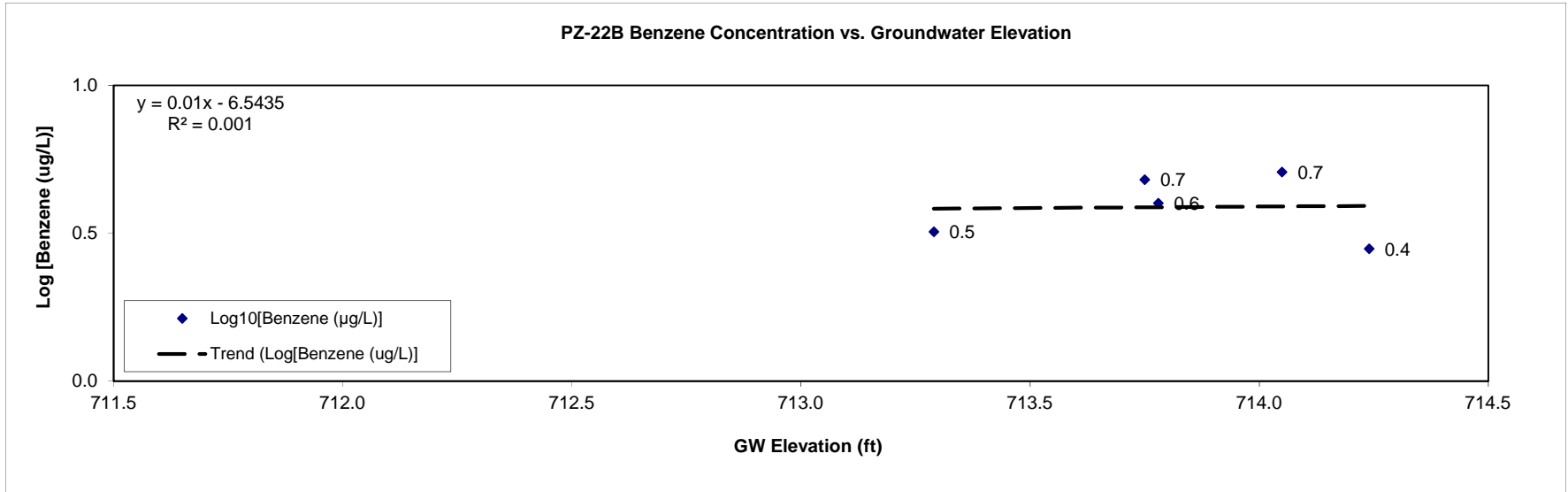
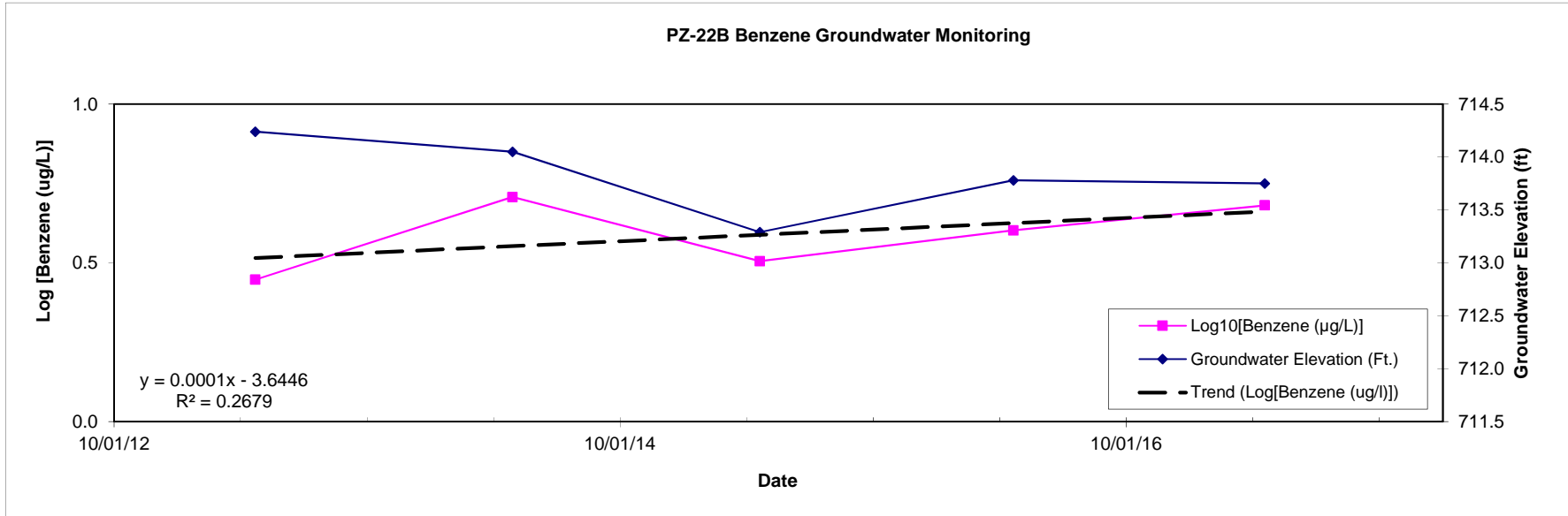


PZ-20B Naphthalene Concentration vs. Groundwater Elevation

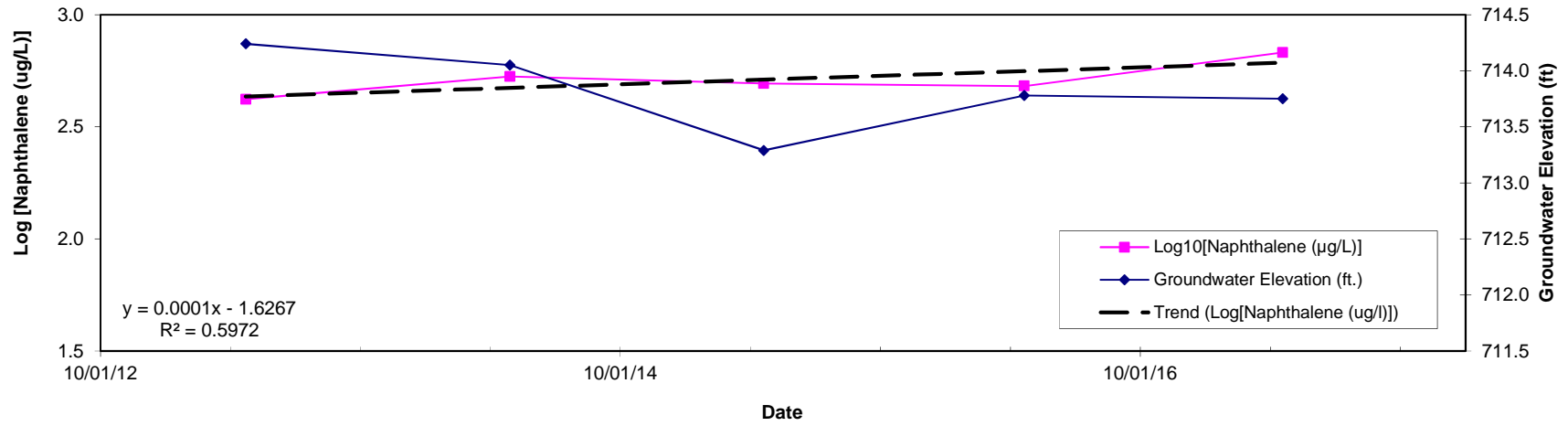




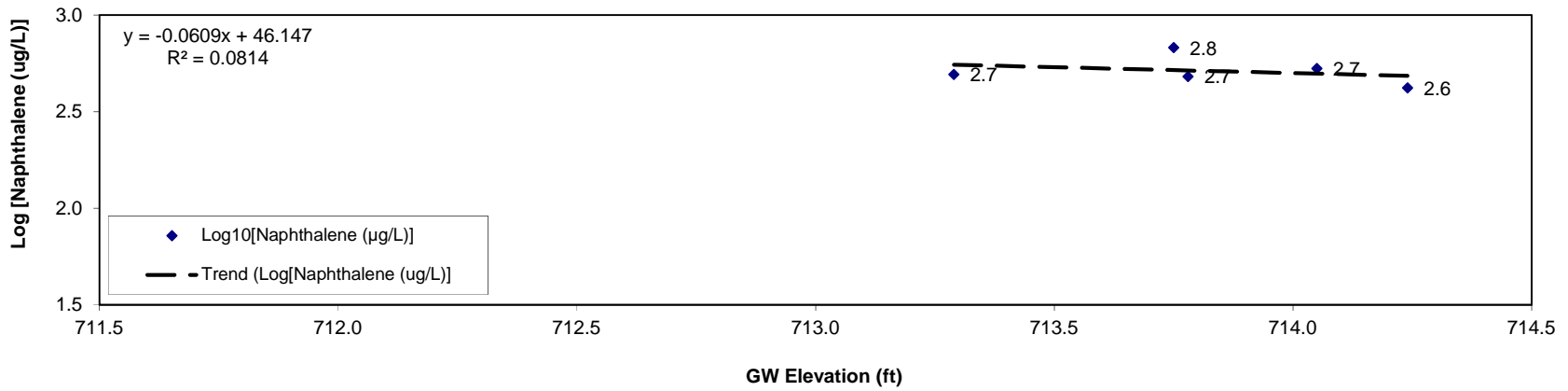


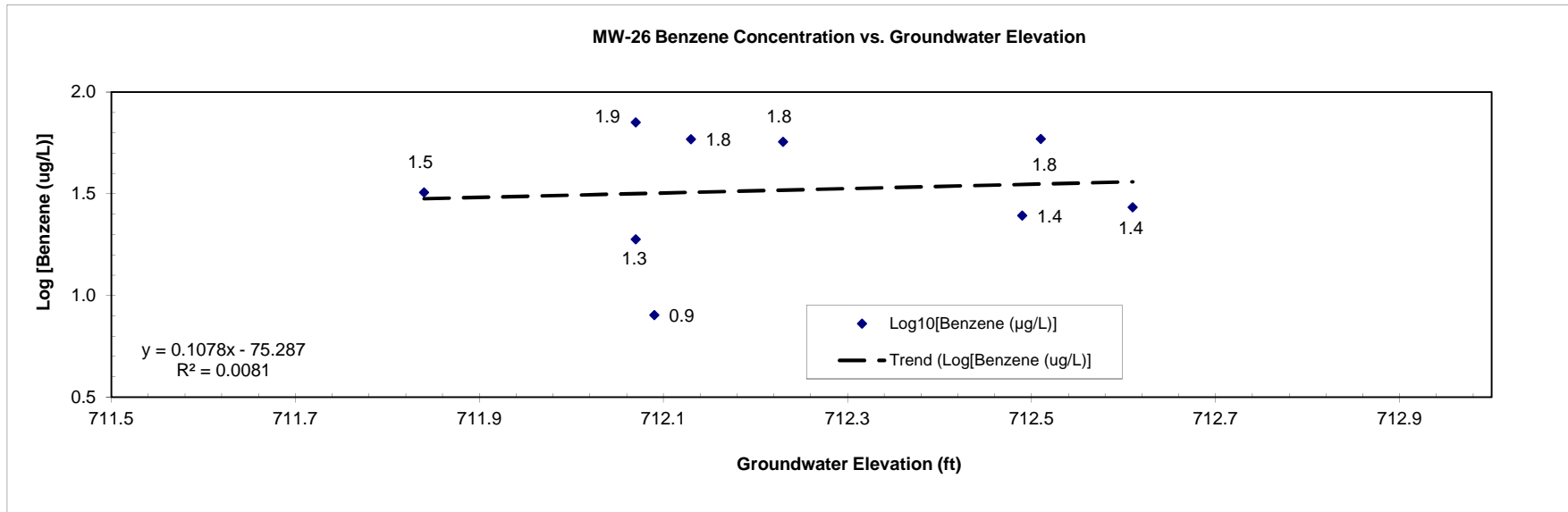
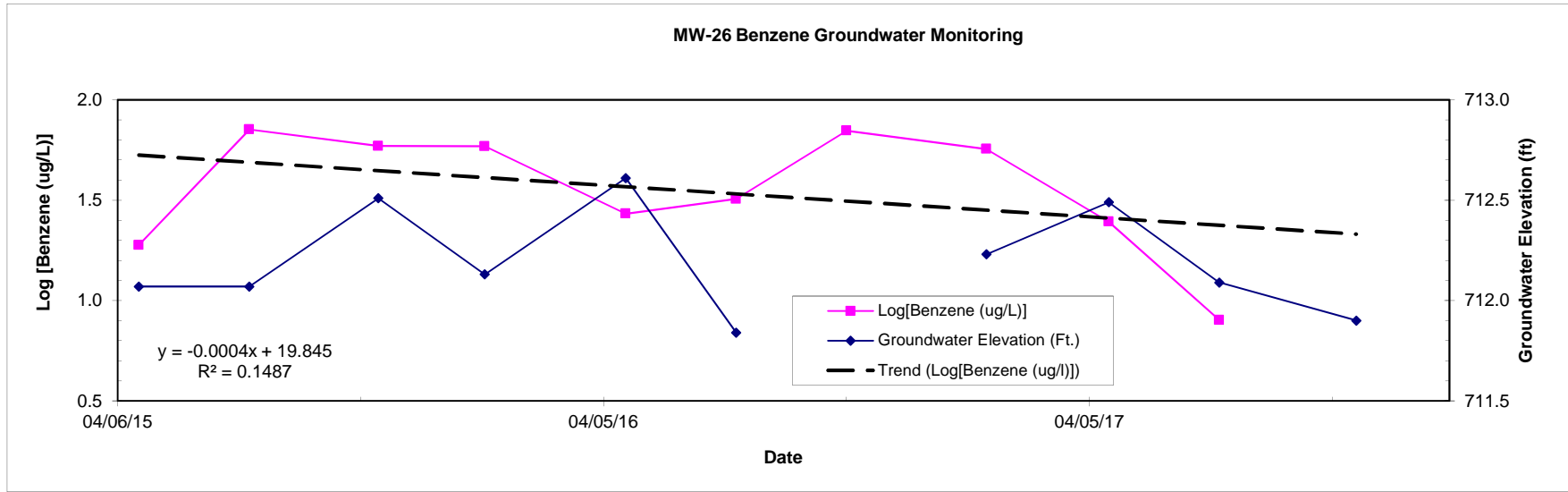


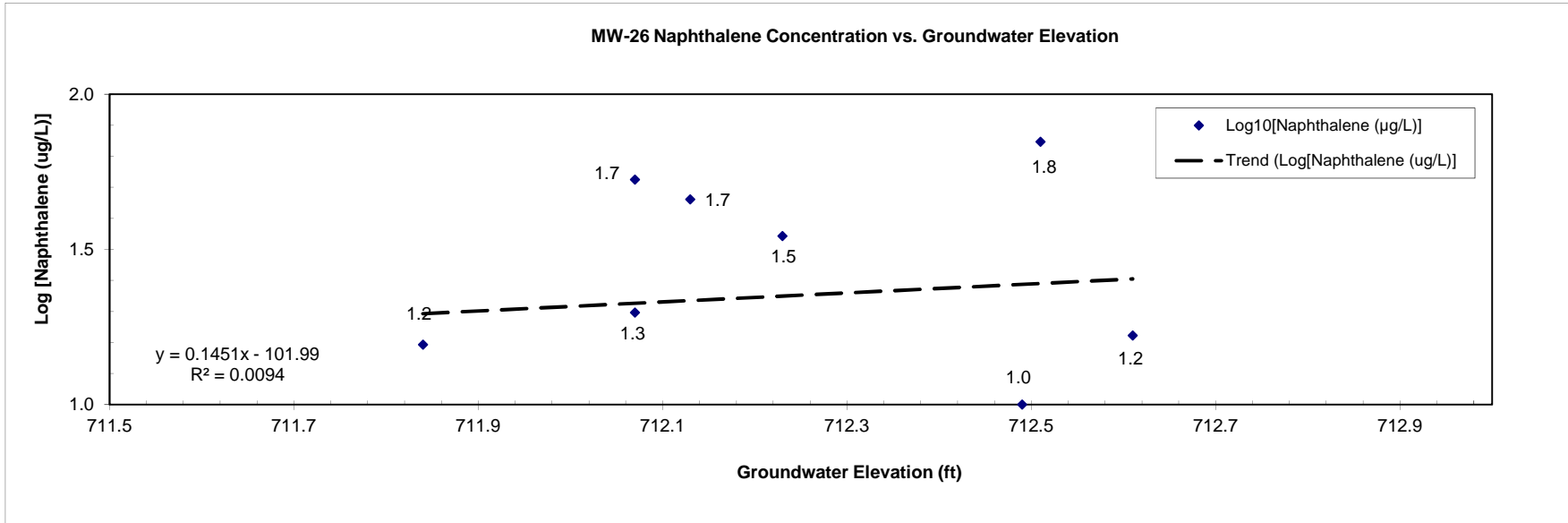
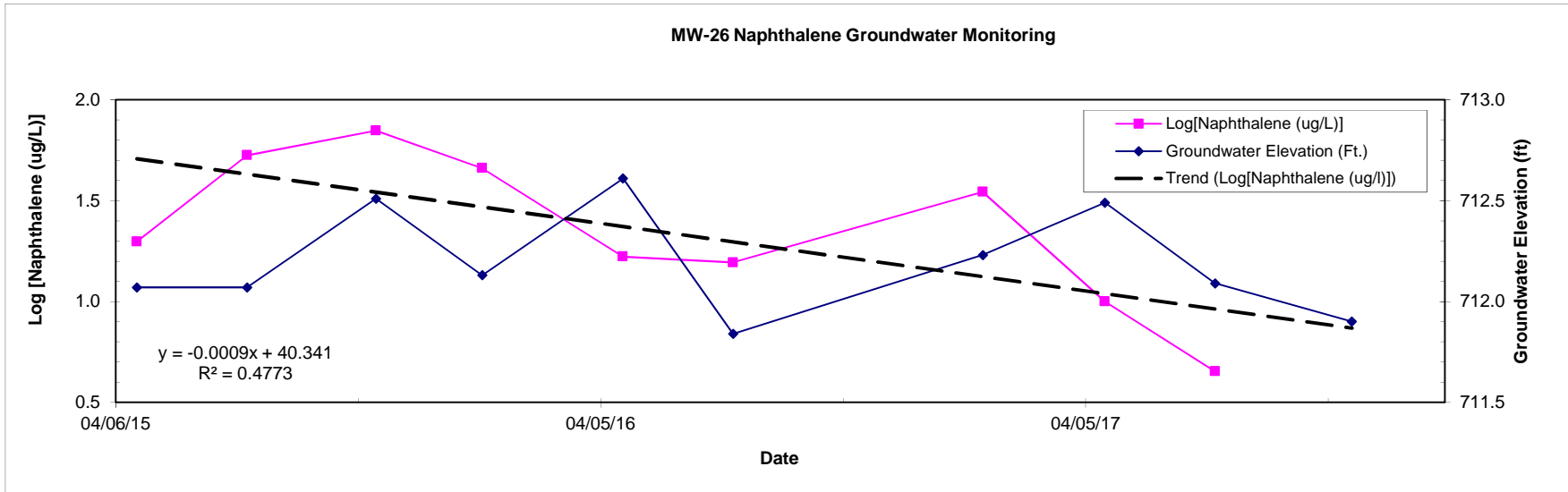
PZ-22B Naphthalene Groundwater Monitoring

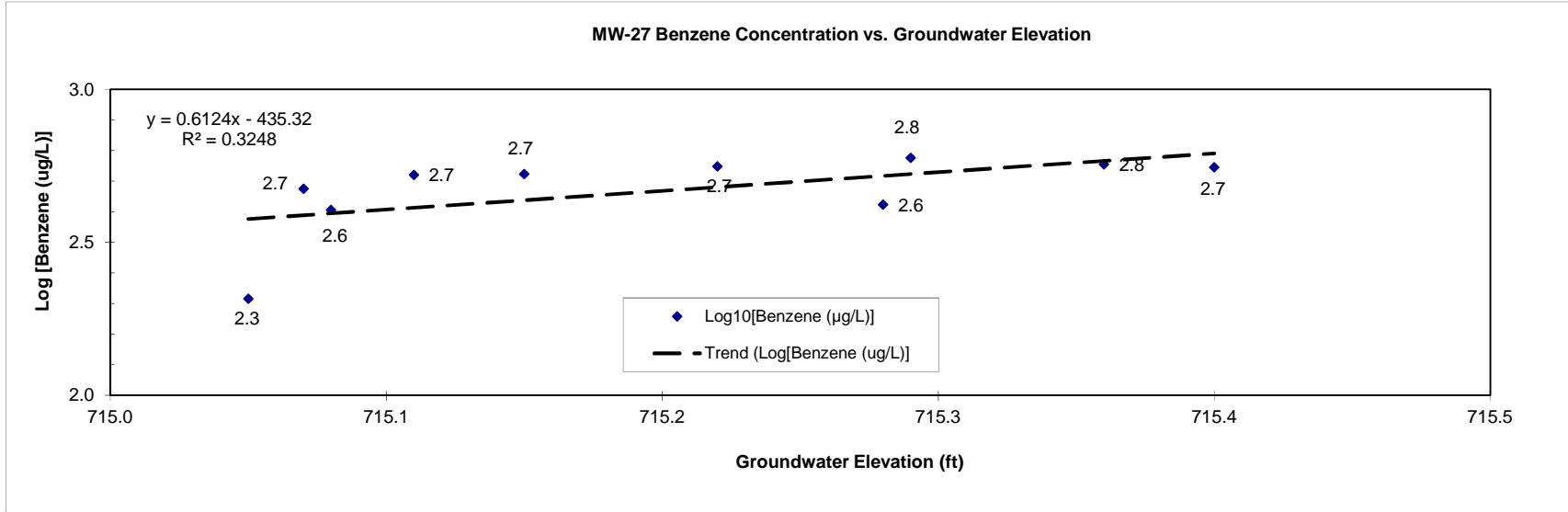
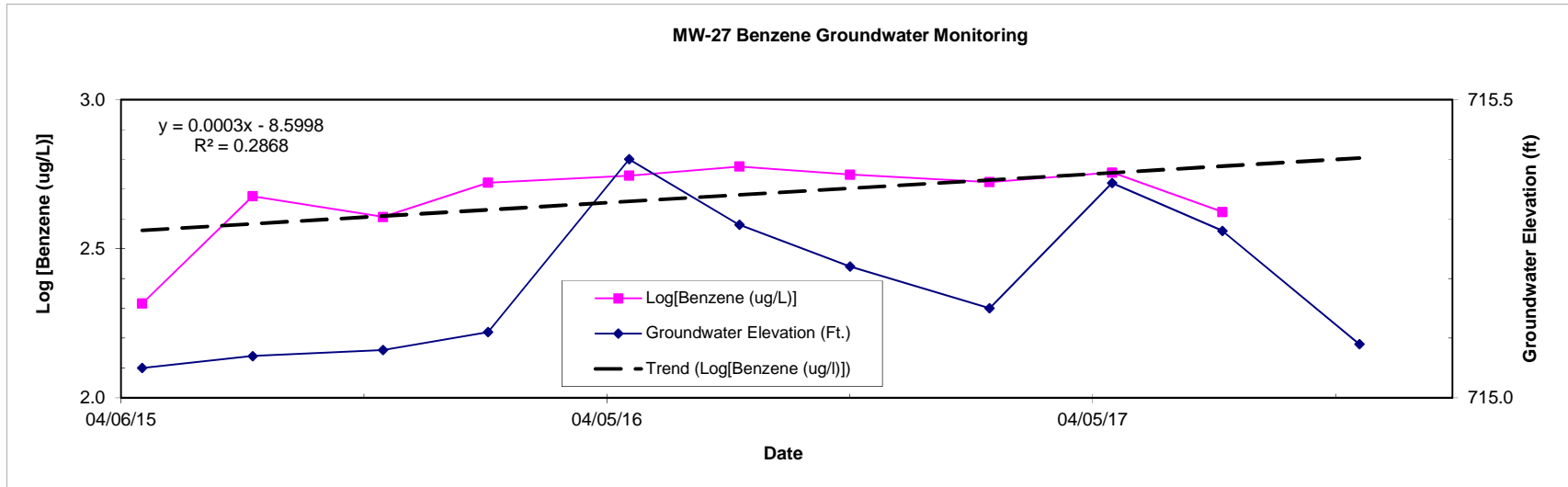


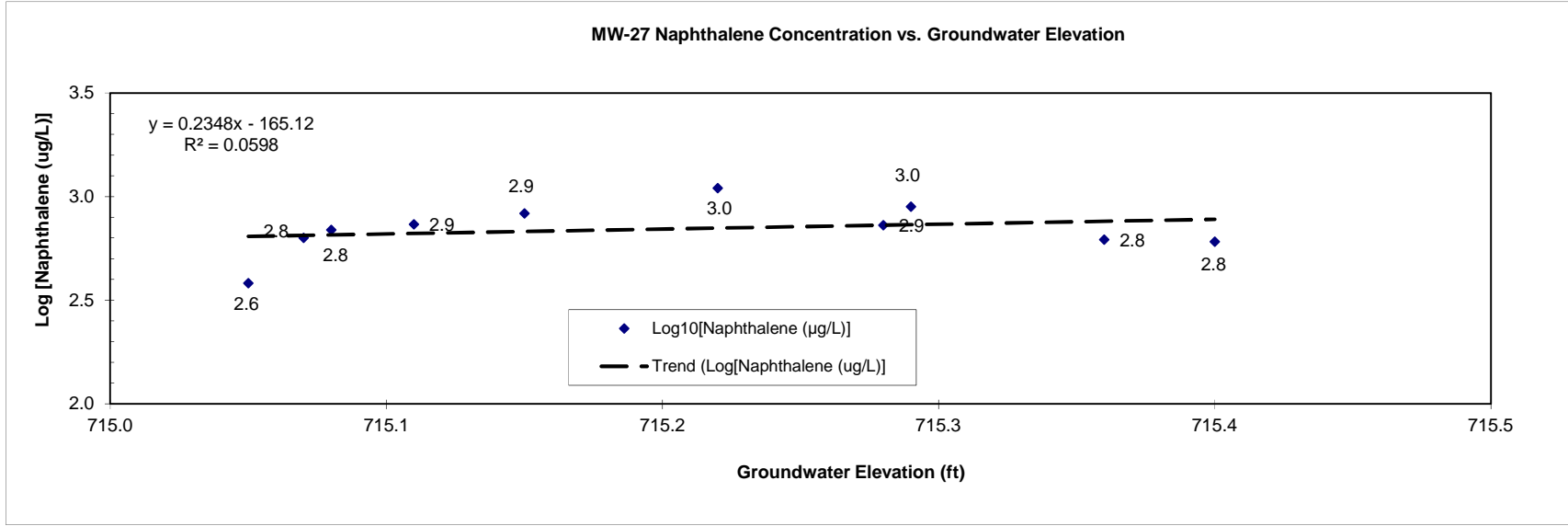
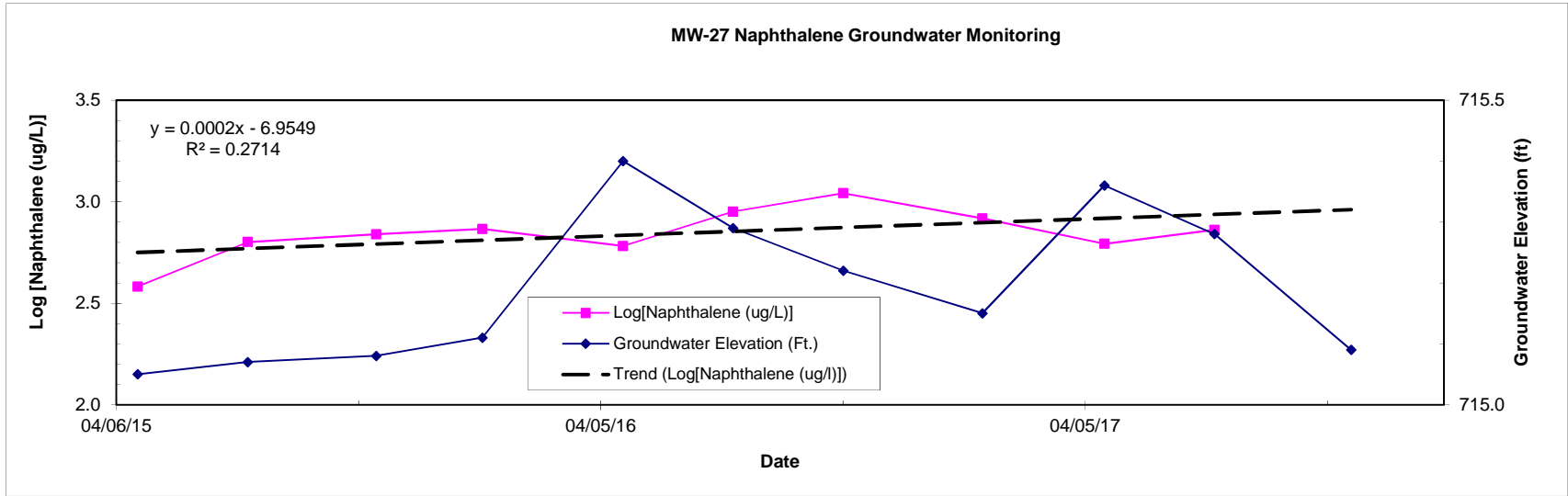
PZ-22B Naphthalene Concentration vs. Groundwater Elevation

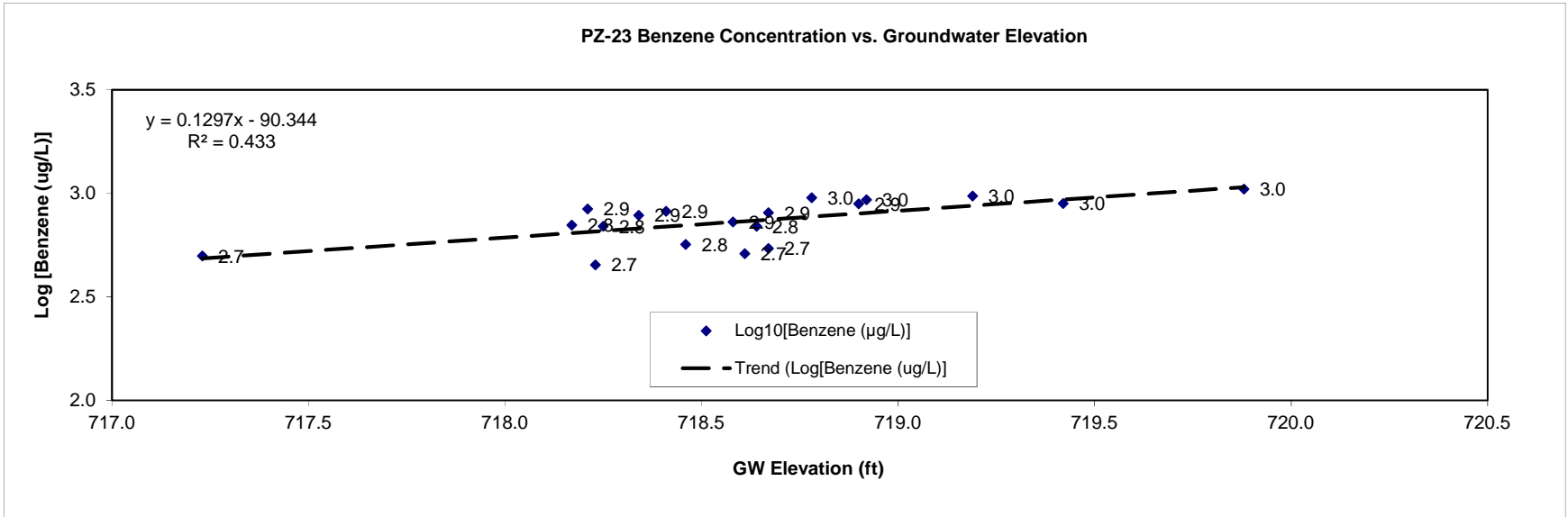
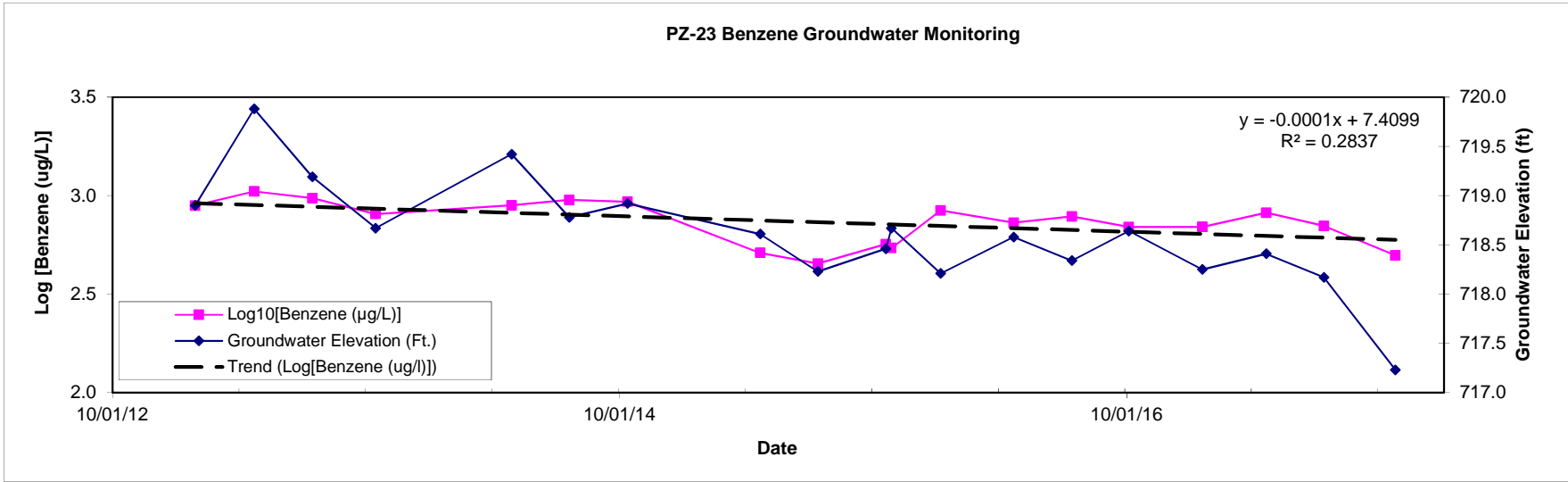




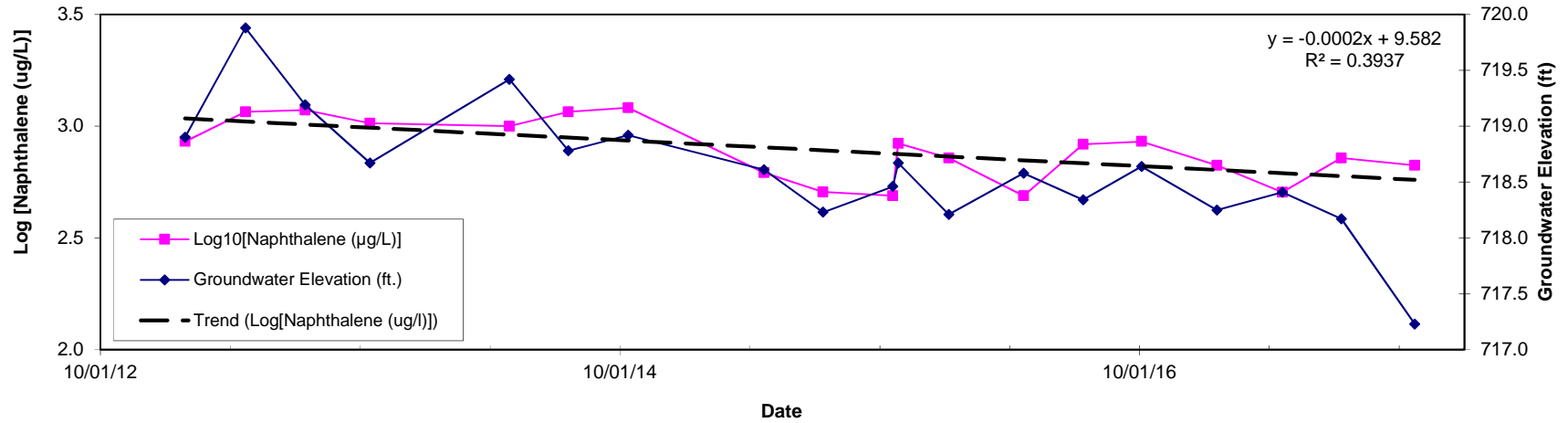




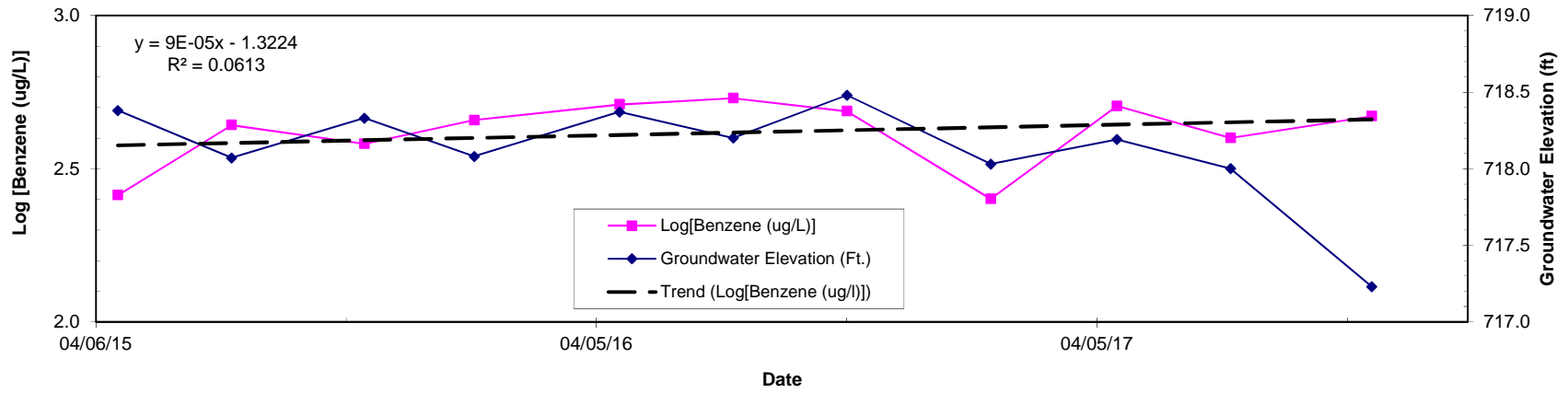




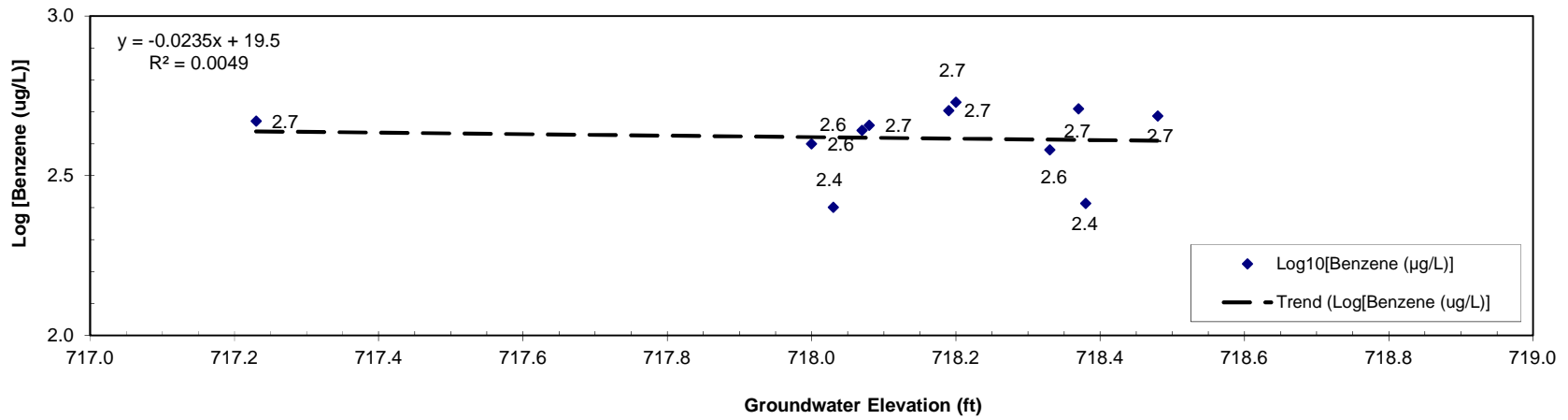
PZ-23 Naphthalene Groundwater Monitoring



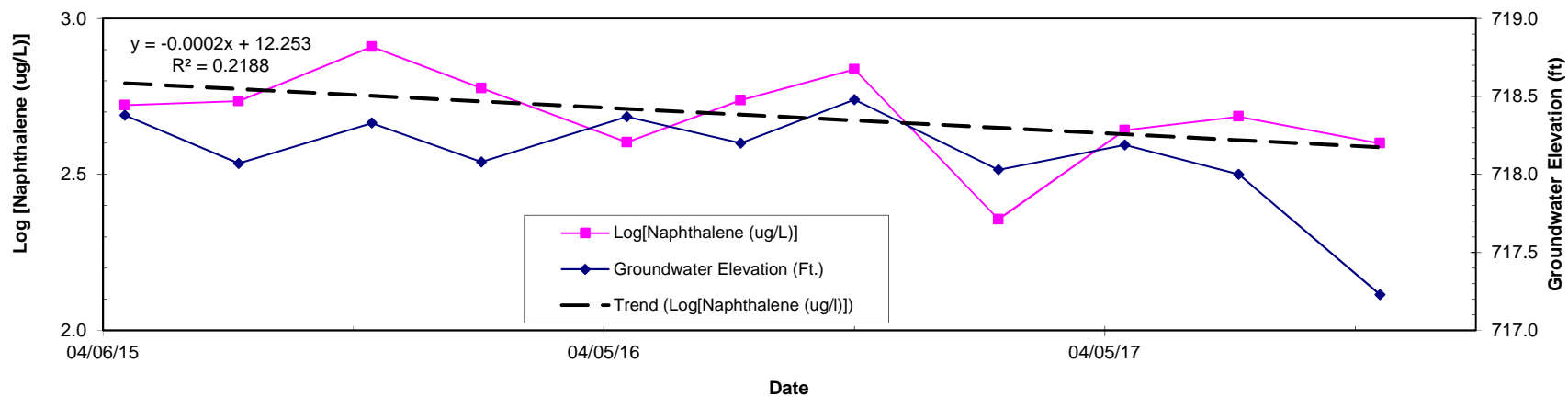
PZ-27 Benzene Groundwater Monitoring



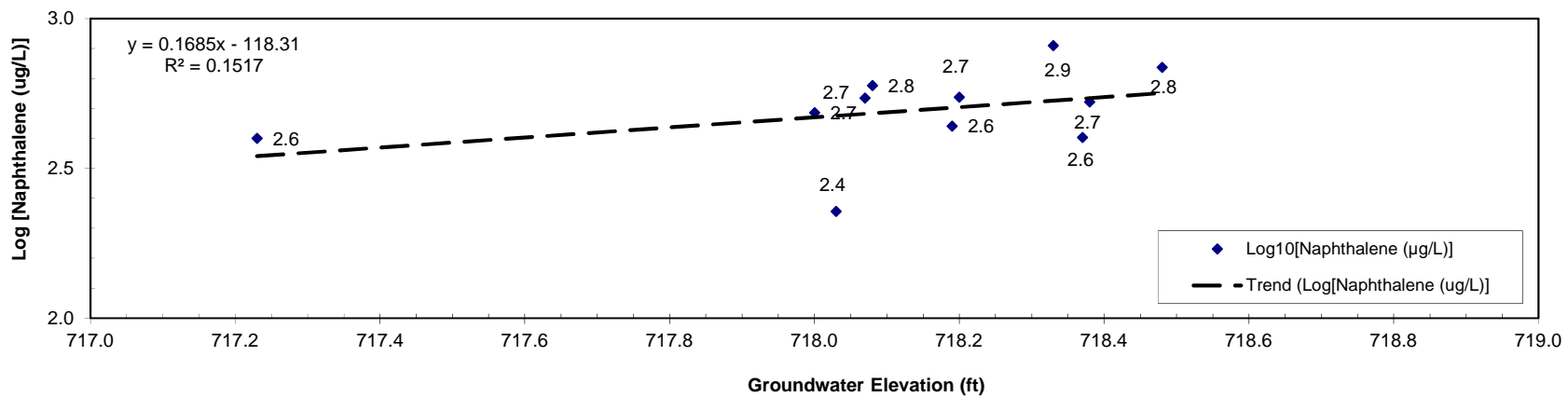
PZ-27 Benzene Concentration vs. Groundwater Elevation



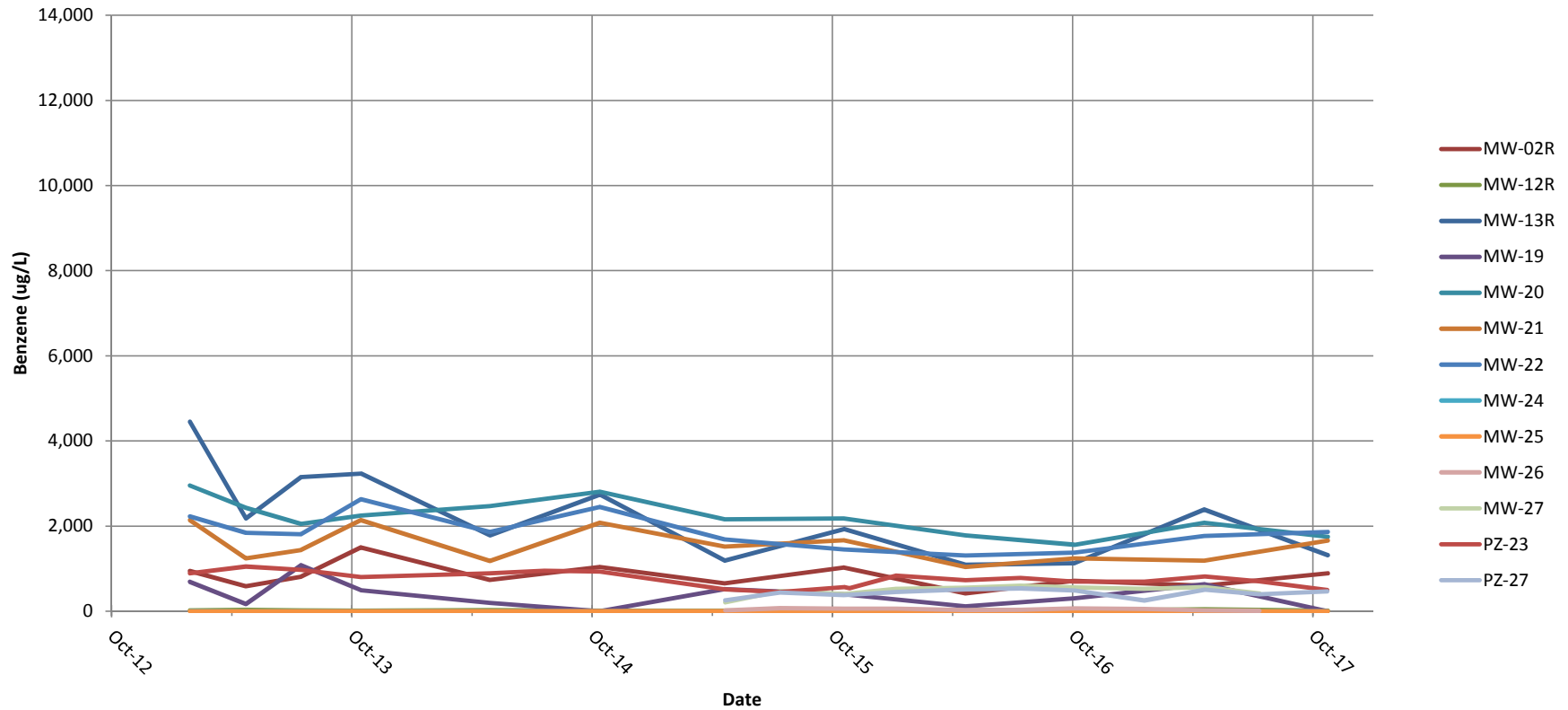
PZ-27 Naphthalene Groundwater Monitoring



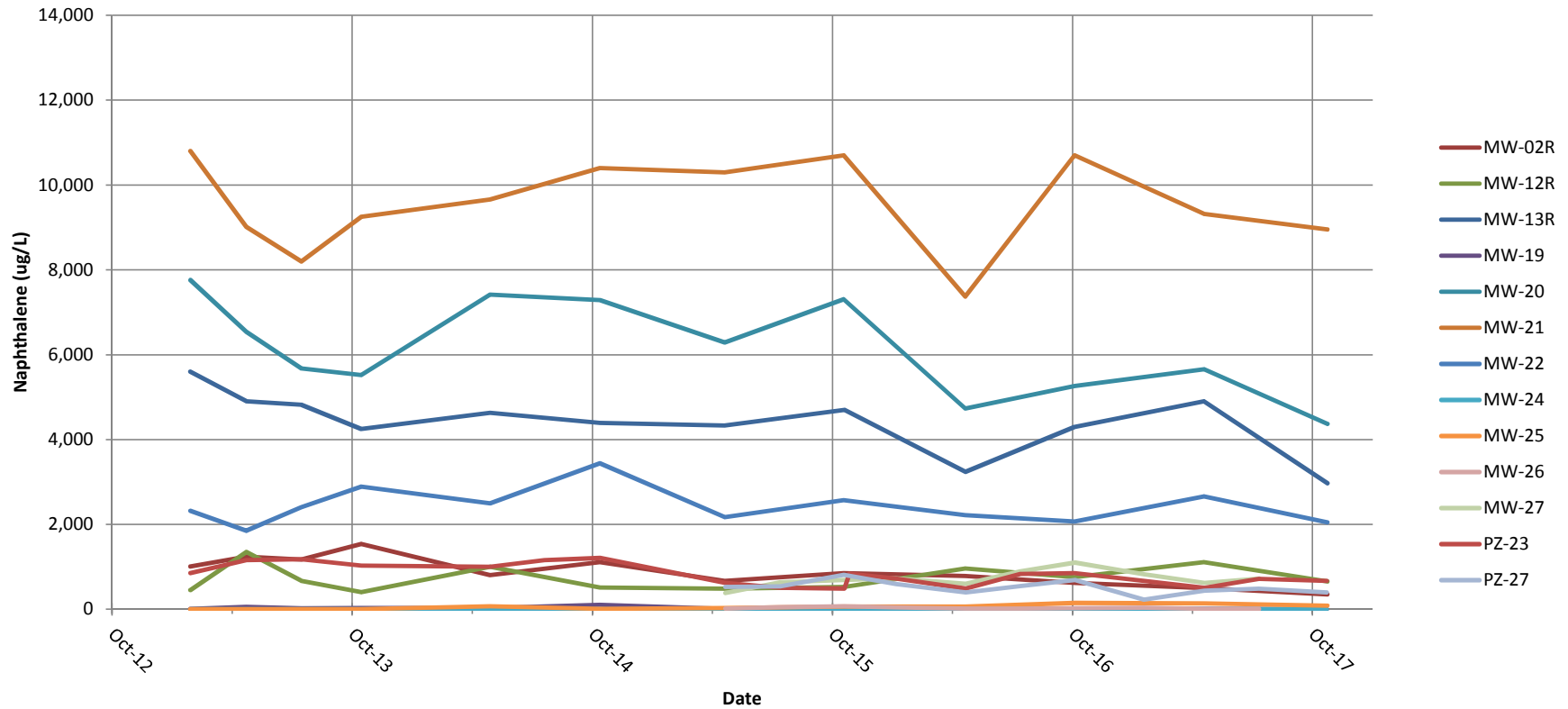
PZ-27 Naphthalene Concentration vs. Groundwater Elevation



Benzene in Areas 1 and 2



Naphthalene in Areas 1 & 2



OBG

THERE'S A WAY

