

PUMP TEST REPORT

**FORMER MOBIL SERVICE STATION 99-MST - 979
MAIN STREET (1001 MAIN STREET)
BROWNFIELD CLEANUP PROGRAM SITE NO.
C9915260
CITY OF BUFFALO, ERIE COUNTY, NEW YORK**

Prepared by:



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Prepared for:

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September 2016

C&S Project No:

N46.001.001

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EXECUTIVE SUMMARY

In response to a recent meeting with the New York State Department of Environmental Conservation (NYSDEC) regarding the remaining groundwater contamination under the newly constructed Conventus Building, C&S Engineers, Inc. (C&S) conducted a pump test to evaluate the efficacy of various remedial alternatives. The following summarizes the site conditions and the findings and conclusions of these efforts.

1. Contamination was present on the Site due to a release of gasoline at a service station formerly located in the southwest portion of the Site.
2. The Site has undergone extensive remediation, and these efforts included the removal of unsaturated soils that were the source of contamination; light, non-aqueous phase liquids (LNAPL); and contaminated groundwater. However, residual contamination exists in the groundwater present at the Site. Additionally, contaminated groundwater exists immediately upgradient of the Site. LNAPL was also observed immediately upgradient of the Site during recent (2015) sampling.
3. The remedial efforts were designed to eliminate all potential exposure routes; vertical and horizontal groundwater recharge; and off-site migration of groundwater contamination.
4. Groundwater contamination appears to be restricted to a thin lens of material that ranges in thickness from 0.5 to 3 feet. This material consists of sand and gravel while the surrounding soils are fine-grained and significantly less permeable. The lens was observed at depths of 32 to 35 feet below grade.
5. As part of the remedial efforts, sheet piling was installed to depths greater than 40 feet below grade (past the sand/gravel lens) around the entire site boundary with the intent of eliminating the hydraulic connection between the Site and surrounding properties. However, due to the presence of infrastructure associated with the underground rail along Main Street, the sheet piling did not reach the planned depth in the southwestern portion of the Site.
6. Recent periodic groundwater sampling on the Site has demonstrated significant decreases in contaminant concentrations in most wells at the Site, and, in some cases, concentrations have appeared to have reached asymptotic levels.
7. Groundwater levels indicate that the sheet piling has effectively eliminated groundwater flow away from (downgradient of) the Site. Groundwater sampling results have corroborated this finding.
8. The pump test results indicate that the gap in the sheet piling has resulted in a hydraulic connection between the Site and the upgradient, contaminated area along Main Street.
9. Because groundwater levels indicate that the contaminated area along Main Street immediately adjacent to the Site is upgradient of the Site, this area appears to act as a continuing source of groundwater contamination at the Site due to the gap in the sheet piling.

10. In 2014 and 2015, groundwater pumping at a nearby U.B. Medical School construction site significantly depressed groundwater levels on the Site as well as immediately upgradient along Main Street. Following cessation of pumping, water levels recovered to normal levels. At the same time, contaminant concentrations spiked in on-site and upgradient wells. LNAPL was also observed in an upgradient well at this time. The cause of the spike in on-site concentrations is believed to be the result of groundwater flowing from the upgradient contaminated area along Main Street through the gap in the sheet piling. This upgradient area appears to act as a continuing source of groundwater contamination at the Site.

Based on the evaluation above, the groundwater at the Conventus Site has been remediated to the extent possible. The removal of more than 67,000 tons of contaminated soils and a half million gallons of contaminated groundwater and LNAPL has resulted in the elimination of the contaminant source and the significant reduction in groundwater concentrations. The Site remedial efforts have worked as designed to eliminate all off-site migration of groundwater contamination and potential exposure routes.

Due to the presence of infrastructure associated with NFTA's train tunnel, a gap in the sheet piling was necessary during construction, creating a hydraulic connection between the Site and more highly contaminated groundwater immediately upgradient of the Site. Because of this hydraulic connection, no method will be effective in the long-term to remediate the remaining contaminant concentrations at the Site. The upgradient, off-site area will act as a continuing source of contaminant concentrations at the Site.

1.0 INTRODUCTION

In response to a recent meeting with the New York State Department of Environmental Conservation (NYSDEC) regarding the remaining groundwater contamination under the newly constructed Conventus Building, C&S Engineers, Inc. (C&S) conducted a pump test to evaluate the efficacy of various remedial alternatives. This report describes the results of those efforts.

2.0 SITE HISTORY

2.1 Conventus and Spill Site Groundwater Contamination Background

The Site is located at 1001 Main Street (formerly 979 Main Street) in the City of Buffalo. The Site was remediated by Conventus Partners, LLC, Kaleida Properties and Kaleida Health under the New York State Brownfield Cleanup Program (BCP) in 2013. Contamination was present on the Site due to a release of gasoline at a service station formerly located in the southwest portion of the Site.

Unsaturated soils at the Site were found to contain significant concentrations of petroleum, and, as such, acted as a continuing source of groundwater contamination. In addition to impacted soil, groundwater impacts were observed at the Site. The principal groundwater bearing zone beneath the site is located within the coarse sand and gravel layer between 32 and 35 feet below ground surface. This layer is of variable thickness (generally six inches to three feet) but is horizontally discontinuous. The layer is located within the central and northeastern portions of the Site, but does not extend completely to the southern, northwestern or southeastern areas of the Site and is confined by the dense fine sands and silt above and below the groundwater bearing zone. Groundwater beneath the Site flows from the west to the northeast, following the depositional area of the confined groundwater bearing zone. The preferential flow of groundwater within this confined zone serves as the transport media for the petroleum release that occurred on the southwestern portion of the Site.

The area impacted by the petroleum spill included not only the Site but an area upgradient of the Site, along Main Street, and a downgradient area, along Goodrich Street. Prior to the remediation, it was agreed that the on-site and off-site impacts would be managed under separate regulatory regimes. All on-site remediation would be conducted under the BCP while the offsite contamination, would continue to be addressed under the NYSDEC Spills Program (NYSDEC Spill #9500234). In January 3, 2013, as part of the remediation program for the off-site contamination (referred to as the “Spill Site”), the NYSDEC and Kaleida Health entered into a Stipulation Agreement. In that same year, the Conventus Site was entered into the BCP. Figure 1 shows the separate sites.

2.2 Conventus Site Remediation

To initiate the remedial program at the Site, sheet piling was installed to depths of 40 to 50 feet along all site boundaries to provide structural stability of the surrounding lands. This action was also planned to effectively eliminate any hydraulic communication between the water-bearing zone at the Site (located at 32 to 36 feet below grade) and off-site. This action was intended to eliminate any migration of contamination from the Main Street Spill Site onto the Site, as well as eliminate any potential for migration of contamination from the Site to areas downgradient. However, due to the presence of infrastructure associated with the underground NFTA train tunnels along Main Street, the sheet piling in the southwestern portion of the Site (adjacent to wells MSMW-3 and -4) did not completely reach the originally intended depth of 50 feet.

Groundwater recharge from the surface was also eliminated due to the construction of the building, which completely covers the Site's surface recharge area.

The remediation of the Site consisted of the removal of 67,458 tons of petroleum contaminated soils and the removal of 537,490 gallons of light, non-aqueous phase liquids (free petroleum product) and contaminated groundwater within the source area. Through these actions all contaminated unsaturated soils were removed, thereby eliminating the on-site source of petroleum contamination. Under the BCP, the Site successfully achieved Track 2 cleanup standards via these removal actions. The NYSDEC awarded the Certificate of Completion (COC) in December 2014.

2.3 Conventus and Spill Site Ongoing Monitoring

Also as part of the remediation, seven groundwater monitoring wells were installed on the bottom floor of underground parking. These wells were installed to monitor remaining groundwater contamination within the footprint of the Conventus Building.

These wells were given the following identifiers:

-) BCP-MW-1
-) BCP-MW-2
-) BCP-MW-3
-) BCP-MW-4
-) BCP-MW-5
-) BCP-MW-6
-) BCP-MW-7

Figure 2 shows the well locations and Table 1 summarizes the analytical results generated for these wells since 2013. Graphs 2 and 3 also present the summarized results while Graphs 4 through 9 show the results for the individual wells. These results show that the contaminant concentrations have decreased in most wells to asymptotic levels (BCP-MW-3, BCP-MW5, BCP-MW6 and BCP-MW7) following removal of the source soils, generally remained the same in others (BCP-MW2) and increased in BCP-MW1 and BCP-MW4. These observations are discussed in greater detail at the end of this section.

As part of the assessment of the Spill Site, four groundwater monitoring wells were installed along Main Street and one well was installed along Goodrich Street. These wells were given the following identifiers:

-) MSMW-1
-) MSMW-2
-) MSMW-3
-) MSMW-4
-) MW-2R

These wells are also shown on Figure 2. C&S has been conducting periodic groundwater sampling events on these wells under the New York State Spills program for Kaleida Health. Attachment A provides a summary of remedial activities and groundwater monitoring for these offsite wells. Recent sampling has demonstrated that petroleum

concentrations remain high in wells MSMW-2, -3, and -4 along Main Street (upgradient of the Site), while the placement of sheet piles along the northeastern portion of the Site has eliminated impacts to MW-02R-2 along Goodrich Street (downgradient of the Site).

One specific observation to note from the sampling program at the Spill Site along Main Street is the presence of approximately two inches of free petroleum product, or light non-aqueous phase liquid (LNAPL), in well MSMW-2 in August 2015. This observation followed a period in which water levels in all wells on both the Conventus Site and the Spill Site were much lower than usual, and in some cases completely absent. For example, on March 12, 2015, Spill Site wells MS-MW-03 and MS-MW-04 were dry, and Conventus Site wells BCP-MW-1 and BCP-MW-6 were also dry. The explanation for the unusually low water levels was that a proximal property (the State University at New York at Buffalo's Jacobs School of Medicine and Biomedical Science) was undergoing redevelopment during the latter portion of 2014 and the early portion of 2015, and the construction activities included the removal of very large volumes of water from the construction excavation via pumping. This resulted in a significant depression of the water table throughout the area.

Following the cessation of pumping at the proximal construction site, water levels on the Conventus and Spill Sites increased and eventually returned to normal levels. It is believed that the free petroleum product observed in MSMW-2 was a direct result of groundwater liberating free product as water levels rose through unsaturated soils along Main Street. Another result of the recharge of the groundwater following the cessation of pumping occurred on the Conventus Site, where groundwater contaminant concentrations spiked, most notably in BCP-MW-1, BCP-MW-4 and BCP-MW-6 (Graphs 4, 6 and 8).

The following describes these observations in greater detail:

- J BCP-MW-1: Concentrations in this well were low until a significant spike occurred following period in which groundwater levels dropped anomalously due to pumping at the proximal construction site. Concentrations peaked immediately following the dry period and have decreased below NYSDEC guidance levels during the most recent sampling event.
- J BCP-MW-2:  This well has not been sampled during any quarterly event due to a lack of water in the well.
- J BCP-MW-3: Total VOC concentrations have been reduced by half, although the concentrations have appeared to reach asymptotic levels, as no significant change in concentration has occurred over the past four sampling events.
- J BCP-MW-4: Contaminant concentrations in this well were generally stable prior to the pumping activities at the nearby construction site. Following the cessation of pumping, contaminant concentrations increased significantly. Recent sampling has shown that the contaminant concentrations peaked in August 2015 and have since decreased.

- J BCP-MW-5: Contaminant concentrations have decreased significantly in this well since sampling began. The concentrations have been stable for the past four sampling events, and these concentrations demonstrate nearly a two third reduction in concentrations.

- J BCP-MW-6: Contaminant concentrations in this well were relatively low prior to the pumping activities at the nearby construction site. Following the cessation of pumping, contaminant concentrations increased significantly, more than doubling. Recent sampling has shown that the contaminant concentrations peaked in August 2015 and have since decreased to levels significantly below initial levels. The concentrations appear to have reached asymptotic levels.

- J BCP-MW-7: Contaminant concentrations peaked to relatively low levels in early 2014 and have since remained very low or non-detect.

These results suggest that a significant source of groundwater contamination is present. The fact that water levels were significantly depressed while pumping was occurring at a nearby construction site indicates that some degree of hydraulic connection exists between the Site and areas outside the site, despite the presence of the sheet piling. The coupling of these observations with increases in contaminant concentrations in a number of on-site wells and the presence of LNAPL in one of the off-site, upgradient wells suggests that an off-site source may have impacted the groundwater under the Site.

2.4 Conventus Site – Pump Test Rationale

As part of the COC, a Site Management Plan (SMP) was established for the Site. The SMP required:

- J Quarterly groundwater monitoring for two years;
- J Annual Site wide inspection; and
- J Periodic in-situ chemical treatment to reduce BTEX concentrations to asymptotic levels.

The COC also conditionally granted Track 4 Cleanup status to the Site, with the caveat that if groundwater concentrations can be reduced to levels acceptable to the NYSDEC within five years, the Site will be awarded Track 2 status.

In response, since the award of the COC, three in-situ chemical treatments were implemented on the Site from December 2013 through June 2015. Based on conversations between NYSDEC, C&S and Conventus Partners, LLC, it was determined that additional groundwater treatment options should be evaluated and potentially implemented before the end of the five-year timeframe.

In these discussions, it was determined that one critical aspect of developing the final remedial approach for the groundwater at the Site was to determine if contaminated groundwater on Main Street would continue to impact remedial activities on the Conventus Site. The reason for this focus is that the presence of the NFTA infrastructure impeded the advancement of sheet piling to the planned terminal depth of 50 feet in the

southwestern portion of the Site. The concern exists that, because the sheet piling did not completely extend through and well past the water-bearing zone due to the adjacent NFTA tunnel, hydraulic communication would exist between the Site and the off-site contaminated groundwater to the southwest, along Main Street. If such communication exists and groundwater would continue to flow from the impacted off-site areas onto the Site, the reduction of contaminant concentrations on-site would only be short-lived, as contaminated groundwater from Spill Site would flow on-site and re-contaminate the Conventus Site.

To determine the presence or lack of communication between the Site and the upgradient Main Street Spill site to the southwest, C&S proposed performing a pump test on one of the monitoring wells on the Conventus Site and measuring water levels in the wells along Main Street during the pumping.

3.0 METHODS

Prior to the performance of the pump test, C&S measured the water levels on June 18, 2016 in the off-site and on-site monitoring wells for purposes of creating a comprehensive groundwater flow map. At this time, C&S also installed pressure transducers in the following wells:

-) BCP-MW-1
-) BCP-MW-6
-) MSMW-1
-) MSMW-2
-) MSMW-3
-) MSMW-4

These pressure transducers provided background water levels prior to, during and after the pumping tests at one-minute intervals. The pressure transducers were removed on June 21, 2016 at 0600 hours. Water levels were also measured in each of the on-site wells in which transducers were not installed periodically during the course of each pumping event.

The pump test was conducted on BCP-MW-6, an 8-inch diameter monitoring well, located on the bottom floor of underground parking of the Site adjacent to Main Street. A Geotech SS Geosub pump was used to evacuate water from the pumping well. The pumped groundwater was transferred into a 55-gallon steel drum with 200 pounds of activated carbon and discharged to the sewer under a Buffalo Sewer Authority permit.

A step test was performed to determine the optimal pumping rate on June 19, 2016. Following determination of the optimal pumping rate at 2.75 gallons per minute, the rate at which drawdown was at a maximum without dewatering the well, BCP-MW-6 was pumped for an 8-hour period on June 20, 2016 at that rate. The pressure transducers were removed from the wells the day after the cessation of pumping to measure the amount of recovery.

4.0 **RESULTS**

The results of the comprehensive water level measurements and the pumping test indicate that a hydraulic connection exists between the Site and the off-site and upgradient, contaminated area along Main Street.

The June 18, 2016 water levels and inferred groundwater contours are shown on Figure 3. The groundwater contours suggest the following:

- J Groundwater flow is generally limited to a slight gradient from the corner of Main and High Streets toward the Site, through the gap in the sheet piling discussed above. The elevations of MSMW-4 and BCP-MW1 demonstrate this gradient, as the elevation in MSMW-4 is almost two feet higher than the elevation in the BCP-MW1, which is approximately 40 feet away.
- J The groundwater contours in the remainder of the Site suggest a general lack of flow, as gradients are generally towards the center of the Site. This result suggests that the sheet piling has been effective in eliminating hydraulic connection to areas outside the Site, with the exception of the southwestern corner, as discussed above.
- J The sheet piling effectively eliminates hydraulic connection between MSMW-1 and the Site, as the contours appear be anomalous in this portion of Figure 3. Additionally, the significant gradient between MSMW-1 and BCP-MW6 (more than eight feet) adds further support to the lack of a hydraulic connection between MSMW-1 and the Site.
- J Similarly, the sheet piling effectively eliminates hydraulic connection between MW-02R-2 and the Site, as the contours appear be anomalous in this portion of the Site. Additionally, the current gradient between MW-02R-2 and BCP-MW5 is actually to the southwest (towards the Site) rather than the northeast direction of groundwater flow prior to the installation of the sheet piling. The lack of detectable concentrations of contaminants in MW-02R-2 during recent sampling events, following remediation, also demonstrates the efficacy of the remedial efforts in this portion of the Site.

The water level measurements in the wells with pressure transducers are shown in Figure 3. These measurements indicate the following.

- J Static conditions are present throughout the wells prior to pumping on July 20, 2016. This indicates that any responses during days on which pumping occurs would be reflective of changes due to the pumping test rather than from outside influences. The cause of the dramatic changes in two transducers on July 19, 2016 are from removing the transducers to check on their functionality, as noted on the figure.
- J The water levels in the pumping well (BCP-MW6) decreased by almost four feet during pumping on both days.
- J Water levels in all wells with transducers except MSMW-1 showed significant decreases in elevation during the two pumping episodes. The decreases coincide

with the duration of pumping and can therefore only be attributed to the pumping itself. These observations indicate:

- The immediate response of water levels in BCP-MW1 was expected due to its proximity and presence within the building footprint along with the pumping well;
- Three of the four off-site wells along Main Street showed a decrease in elevation – a number of interesting observations can be made about these results:
 - The closest well to the pumping well, MSMW-1 did not show a response to pumping. This suggests that the sheet piling, which did extend to the planned depth of 50 feet in this area, effectively eliminated the communication between this well and the Site.
 - MSMW-4 and MSMW-3, which are the two wells adjacent to the areas in which the sheet piling was not advanced to its full planned depth, responded quickly to the on-site pumping. This demonstrates a direct hydraulic connection from these off-site locations to the Site.
 - MSMW-2, which is located adjacent to an area where sheet piling was advanced to its full planned depth, reacted to the pumping but the decrease in water levels was delayed when compared to wells MSMW-4 and MSMW-3. This suggests a hydraulic connection through the gap in the sheet piling, but the relative delay indicates that the pressure changes first needed to travel around the gap in the sheet piles.

J The wells that responded to pumping showed a recovery, although in each case the recovery was muted and none of the wells recovered to their original water levels within the monitoring period. This suggests a general lack of water within the limited water-bearing zone.

5.0 DISCUSSION

The Conventus Site was the subject of a significant remedial program that consisted of the removal of 67,458 tons of petroleum contaminated soils and the removal of 537,490 gallons of water and light, non-aqueous phase liquids (LNAPL) and contaminated groundwater. Sheet piling was also installed to eliminate hydraulic connections from the Site's water-bearing zone with the surrounding properties. Through these efforts the soil contamination was completely remediated at the bulk of the groundwater contamination at the Site was addressed. However, the groundwater retains some minor petroleum impacts. To evaluate potential remedial options for this residual contamination, C&S conducted a pumping test at the Conventus Site.

This pumping test demonstrated that the installation of the sheet piling at the Site is largely but not wholly effective in eliminating hydraulic connections with the surrounding properties. In areas where the sheet piling was installed to its planned depths, hydraulic connections no longer exist. Therefore, the migration of contaminants off-site is no longer a concern. This is supported by the elimination of detectable concentrations of contaminants in MW-02R-2.

However, due to the presence of underground structures associated with the NFTA rail tunnel, sheet piling in the southwestern portion of the property along Main Street was prevented from reaching the target depth. The results of this pump test have shown that this gap in the sheet piles has resulted in the continued hydraulic connection of the on-site wells to off-site and upgradient wells.

As discussed in the background section above, the water levels in the Spill Site and the Conventus Site wells were depressed due to the pumping operations on an adjacent property. Following the cessation of pumping on the adjacent property, water levels rose and LNAPL was observed in three wells, including the two closest to the gap in the sheet piling along Main Street. Because this gap has resulted in a continued hydraulic connection between the Main Street Spill Site and the Conventus Site groundwater, it can be concluded that the increase in contaminant concentrations in the Conventus Site wells is likely due to groundwater flowing from the Main Street Spill Site (which contains free product) onto the Conventus Site.

C&S has used these results to evaluate various remediation scenarios to address the groundwater contamination remaining at the Site. Most options were eliminated for access or technical reasons, and the three remaining approaches evaluated are described below.

- J In Situ or Enhanced In-Situ Bioremediation – Previous work at the Site demonstrated that the groundwater contains very little carbon due to the nature of the surrounding soils. This has resulted in a dearth of microbes available to treat the groundwater in situ. This lack of microbes eliminates the viability of this approach for the Site. Even if this approach was feasible, the presence of groundwater contamination at the immediately upgradient Spill Site indicates that the Site would only become re-contaminated via the flow of contaminated groundwater along Main Street onto the Site.

- J Pump and Treat – The results of this pumping test have demonstrated that a hydraulic connection exists between the off-site and on-site wells. One of these off-site wells (MSMW-2) is significantly more contaminated than the on-site wells, and concentrations in samples collected from this well are three times higher or more than the on-site concentrations. As discussed previously, approximately two inches of LNAPL was sitting on top of the groundwater in MSMW-2. C&S has placed oil absorbent socks in this well and periodically changes out the absorbent socks. LNAPL has not been observed in any of the other wells on Main Street.

If one or more of the on-site wells is pumped on a permanent basis, this would only serve to draw in the more contaminated groundwater from off-site and result in increases in contaminant concentrations on-site. Additionally, the slow and incomplete recovery of all of the monitored wells that showed a response to pumping suggests that the on-site water-bearing zone would be quickly dewatered. This would also result in continued recharge from the upgradient contaminated area to the southwest of the Site.

- J Chemical Oxidant Injections – Three rounds of chemical oxidant injections have already occurred at the Site, as reported to the NYSDEC in periodic reports. These injections have not been effective in significantly reducing contaminant concentrations in groundwater. The more significant decreases in contaminant concentrations occurred following the mass excavation and contaminated groundwater and LNAPL removal. Based on its relative ineffectiveness, this approach does not appear to be feasible in significantly reducing contaminant concentrations in the groundwater.

In addition, even if this approach was feasible, the presence of groundwater contamination at the immediately upgradient Spill Site indicates that the Site would only become re-contaminated in the future via the flow of contaminated groundwater along Main Street onto the Site.

- J Slurry Wall Construction – To eliminate the gap in the sheet piling (and eliminate the hydraulic connection between the off-site and on-site wells), C&S evaluated the potential for constructing a slurry wall. This approach is not feasible because the presence of the Conventus building eliminates the potential to drill within the Site. This area can also not be accessed from Main Street due to the infrastructure associated with NFTA's train tunnel. Therefore, the construction of a slurry wall in the southwestern portion of the Site is not possible.

6.0 CONCLUSIONS

The following summarizes the site conditions and the findings and conclusions of these efforts:

1. Contamination was present on the Site due to a release of gasoline at a service station formerly located in the southwest portion of the Site.
2. The Site has undergone extensive remediation, and these efforts included the removal of unsaturated soils which were the source of contamination; light, non-aqueous phase liquids (LNAPL); and contaminated groundwater. However, residual contamination exists in the groundwater present at the Site. Additionally, contaminated groundwater exists immediately upgradient of the Site. LNAPL was also observed immediately upgradient of the Site during recent (2015) sampling.
3. The remedial efforts were designed to eliminate all potential exposure routes; vertical and horizontal groundwater recharge; and off-site migration of groundwater contamination.
4. Groundwater contamination appears to be restricted to a thin lens of material that ranges in thickness from 0.5 to three feet. This material consists of sand and gravel while the surrounding soils are fine-grained and significantly less permeable. The lens was observed at depths of 32 to 36 feet below grade.
5. As part of the remedial efforts, sheet piling was installed to depths greater than 40 feet below grade (past the sand/gravel lens) around the entire site boundary with the intent of eliminating the hydraulic connection between the Site and surrounding properties. However, due to the presence of infrastructure associated with the underground rail along Main Street, the sheet piling did not reach the planned depth in the southwestern portion of the Site.
6. Recent periodic groundwater sampling on the Site has demonstrated significant decreases in contaminant concentrations in most wells at the Site, and, in some cases, concentrations have appeared to have reached asymptotic levels.
7. Groundwater levels indicate that the sheet piling has effectively eliminated groundwater flow away from (downgradient of) the Site. Groundwater sampling results have corroborated this finding.
8. The pump test results indicate that the gap in the sheet piling has resulted in a hydraulic connection between the Site and the upgradient, contaminated area along Main Street.
9. Because groundwater levels indicate that the contaminated area along Main Street immediately adjacent to the Site is upgradient of the Site, this area may act as a continuing source of groundwater contamination at the Site due to the gap in the sheet piling.
10. In 2014 and 2015, groundwater pumping at a nearby construction site significantly depressed groundwater levels on the Site as well as immediately

upgradient along Main Street. Following cessation of pumping, water levels recovered to normal levels. At the same time, contaminant concentrations spiked in on-site and upgradient wells. LNAPL was also observed in an upgradient well at this time. The cause of the spike in on-site concentrations is believed to be the result of groundwater flowing from the upgradient contaminated area along Main Street through the gap in the sheet piling. This upgradient area appears to act as a continuing source of groundwater contamination at the Site.

As described above, the groundwater at the Conventus Site has been remediated to the extent possible. The removal of more than 67,000 tons of contaminated soils and a half million gallons of contaminated groundwater and LNAPL has resulted in the elimination of the contaminant source and the significant reduction in groundwater concentrations.

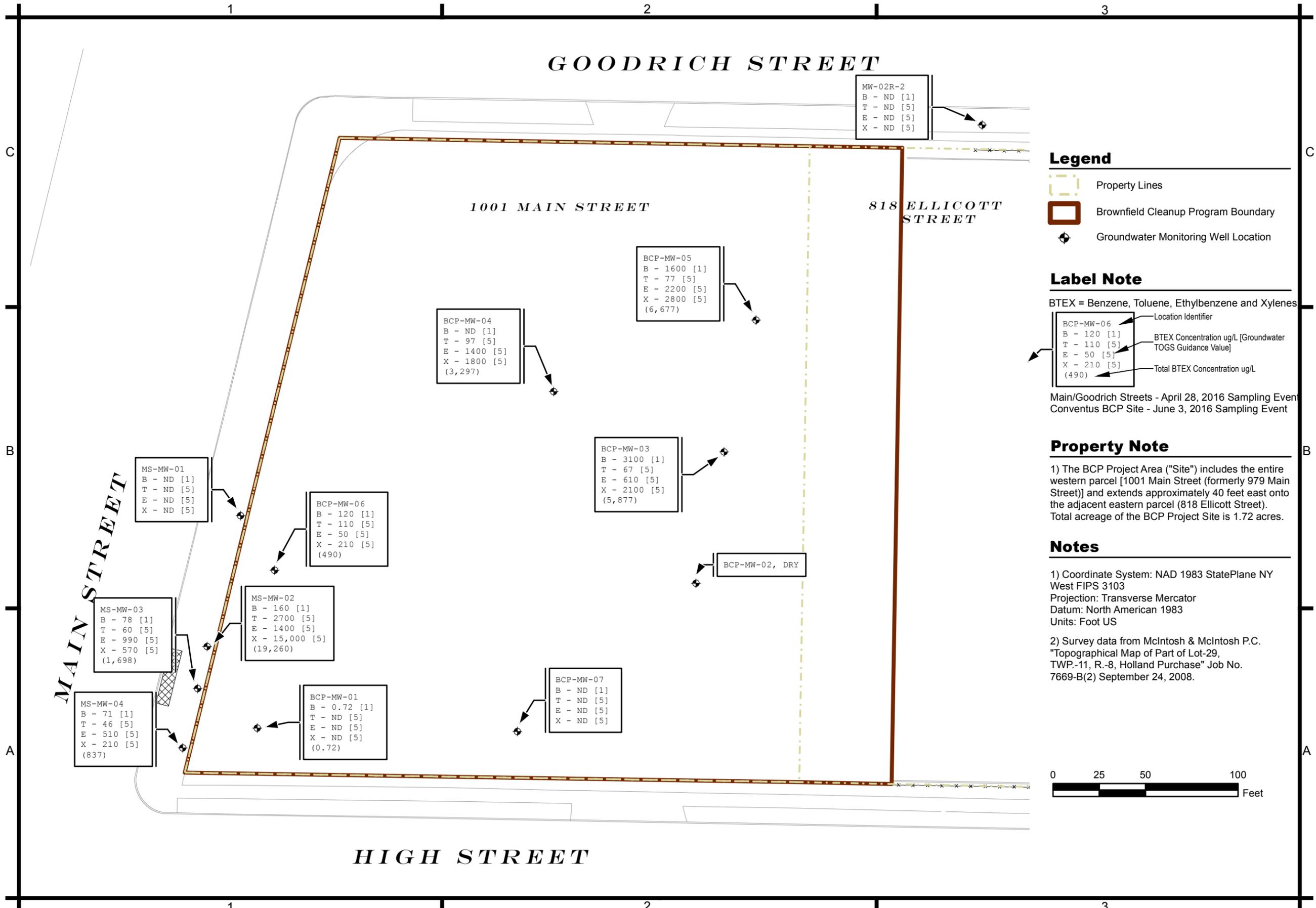
For three years following the source removal, the residual groundwater contamination has been monitored and periodically treated using in-situ methods. Based on the contaminant trends, petroleum concentrations have reached asymptotic levels in most on-site wells. The sheet piling around the Site has worked as designed and has eliminated all off-site migration of residual groundwater contamination. Additionally, potential exposure routes to the residual groundwater contamination have been eliminated due to the removal of the unsaturated source soils, the presence of the concrete slab of the building, and the cessation of off-site migration.

Due to the presence of infrastructure associated with NFTA's train tunnel, a gap in the sheet piling was necessary during construction, creating a hydraulic connection between the Site and more highly contaminated groundwater immediately upgradient of the Site. Because of this hydraulic connection, no method will be effective in the long-term to remediate the remaining contaminant concentrations at the Site. The upgradient, off-site area will act as a continuing source of contaminant concentrations at the Site.

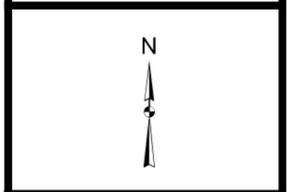
Therefore, we respectfully request the NYSDEC deem the site remediation complete with no further action and grant permanent Track 2 Cleanup status to the Conventus Site.

FIGURES

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\Projects\BCP_GW_WELL_LOCATIONS.mxd



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**FORMER MOBIL STATION 99-MST
 979 MAIN ST (1001 MAIN ST)
 BROWNFIELD CLEANUP PROGRAM
 BUFFALO, NEW YORK**

Legend

- Property Lines
- Brownfield Cleanup Program Boundary
- Groundwater Monitoring Well Location

Label Note

BTEX = Benzene, Toluene, Ethylbenzene and Xylenes

BCP-MW-06	Location Identifier
B - 120 [1]	BTEX Concentration ug/L [Groundwater TOGS Guidance Value]
T - 110 [5]	
E - 50 [5]	
X - 210 [5]	
(490)	Total BTEX Concentration ug/L

Main/Goodrich Streets - April 28, 2016 Sampling Event
 Conventus BCP Site - June 3, 2016 Sampling Event

Property Note

1) The BCP Project Area ("Site") includes the entire western parcel [1001 Main Street (formerly 979 Main Street)] and extends approximately 40 feet east onto the adjacent eastern parcel (818 Ellicott Street). Total acreage of the BCP Project Site is 1.72 acres.

Notes

- 1) Coordinate System: NAD 1983 StatePlane NY West FIPS 3103
 Projection: Transverse Mercator
 Datum: North American 1983
 Units: Foot US
- 2) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

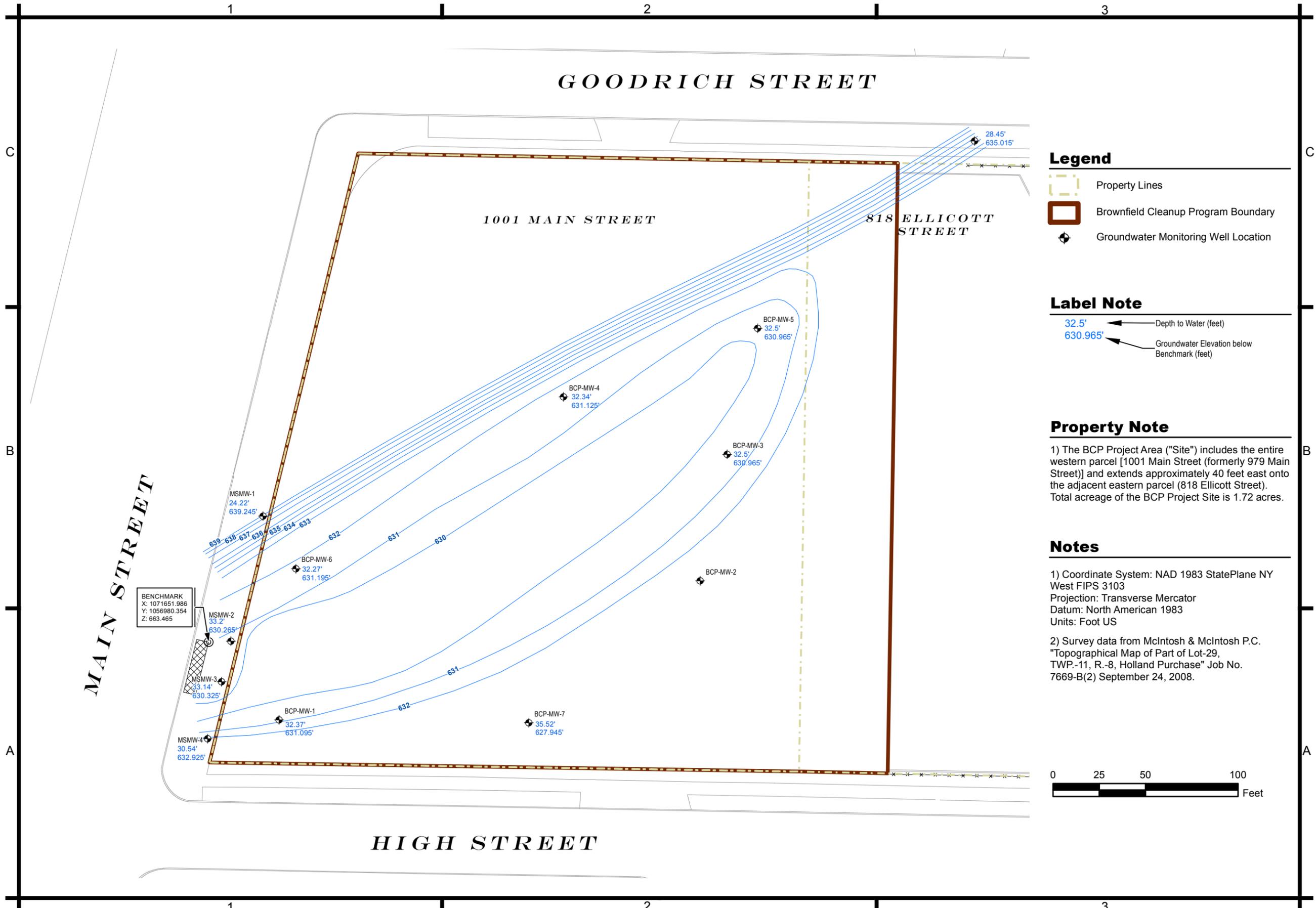


MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO: K11.002.001		
DATE: JUNE 15, 2016		
DRAWN BY: C. MARTIN		
DESIGNED BY: C. MARTIN		
CHECKED BY: D. RIKER		
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW		

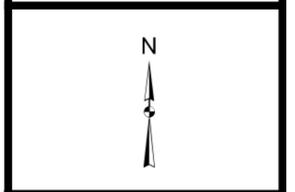
OFFSITE & ONSITE
 GROUNDWATER
 WELLS

FIGURE 2

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\PUMP_TEST_GW_CONTOURS.mxd



C&S COMPANIES
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**FORMER MOBIL STATION 99-MST
 979 MAIN ST (1001 MAIN ST)
 BROWNFIELD CLEANUP PROGRAM**

BUFFALO, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	K11.002.001	
DATE:	JUNE 15, 2016	
DRAWN BY:	C. MARTIN	
DESIGNED BY:	C. MARTIN	
CHECKED BY:	D. RIKER	

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

GROUNDWATER CONTOUR

FIGURE 3



TABLES

**Table 1 - On-site Groundwater Analytical Results
Summary of Detected Compounds
Former Mobil Station 99-MST 979 Main Street (1001 Main Street) Brownfield Cleanup**

Sample Name	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-1	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-3	BCP-MW-4	BCP-MW-4	BCP-MW-4	BCP-MW-4	BCP-MW-4	BCP-MW-4		
	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2014	12/15/2015	3/22/2016	6/3/2016	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2015	3/22/2016	6/3/2016	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015			
Date Collected	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG		
Matrix	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Unit	NYSDEC Ambient Water Quality Standards & Guidance Values																											
Volatile Organic Compound	Surface Water	Groundwater																										
	2-HEXANONE	50	50	ND	ND	ND		ND	ND	3.5	ND	ND	ND	ND	3	ND	ND	1.7	ND	ND								
ACETONE	50	50	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	98	ND	17	ND	ND	ND	ND	ND	ND	10	250	170	67	ND	210.00
BENZENE	1	1	ND	ND	ND		35	39	5.7	1.4	0.72	6,600	4,500	4,700	3,700	4,300	4,100	2,100	2,200	1,900	3,100	42	29	15	26	24	242	
ETHYLBENZENE	5	5	ND	ND	ND		2	1.5	ND	ND	ND	1,200	1,600	1,500	1,600	1,500	1,700	1,400	1,600	1,600	610	4.7	34	32	560	1,000	680	
ISOPROPYLBENZENE (CUMENE)	5	5	ND	ND	ND		1.3	ND	ND	ND	ND	ND	37	ND	32	ND	9.8	15.0	26									
METHYL ETHYL KETONE (2-BUTANONE)	50	50	ND	ND	ND		ND	45	ND	ND	ND	ND	71	ND	6.7	ND	ND	8.50	ND									
METHYLENE CHLORIDE	5	5	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	35	ND	ND	1 J	ND	ND	ND	
TOLUENE	5	5	ND	ND	ND		19	38	0.55	ND	ND	110	150	150	110	110	130	100	110	110	67	1.1	190	110	53	57	140	
1,1,2-TRICHLOROETHANE			ND	ND	ND		ND	ND	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
XYLENES, TOTAL	5	5	ND	ND	ND		6.4	4.2	ND	ND	ND	3,700	3,600	3,200	4200	4000	3900	2200	2600	2200	2100	29	180	160	800	1,200	3100	
No Standard																												
CARBON DISULFIDE			ND	ND	0.94		ND	ND	ND	ND	ND	ND	ND	0.31	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9 J	ND	ND	ND	
CYCLOHEXANE			ND	ND	ND		35	59	61	51	72	120	320	270	390	330	210	100	93	110	170	8.2	11	7	170	170	110	
METHYL ISOBUTYL KETONE			ND	ND	ND		ND	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
METHYLCYCLOHEXANE			ND	ND	0.47		3.2	17	15	11	ND	ND	130	150	120	160	96	34	33	36 J	170	7.5	3.7	3.1	87	92	69	
Total VOCs	0	0	1.41	-	101.90	216.70	85.75	63.40	72.72	11,730	10,506	9,970	10,179	10,400	10,136	5,934	6,636	5,920	6,252	102.5	697.7	497.1	1,774.5	2,566.5	4,577.0			
Total BTEX	0	0	0	-	62	83	6	1.4	0.7	11,610	9,850	9,550	9,610	9,910	9,830	5,800	6,510	5,810	5,877	76.8	433	317	1,439	2,281	4,162			

Notes:
1) BCP MW-2 was dry and not sampled
2) For the March 11, 2015 monitoring event well MW-1, MW-5, MW-6 and MW-7 were dry or not enough water was inside the well for a representative sample.
3) WG = groundwater

Sample Name	BCP-MW-4				BCP-MW-5				BCP-MW-6				BCP-MW-6														
	Date Collected	12/15/2015	1/27/2016	3/22/2016	6/3/2016	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/14/2015	1/27/2016	3/22/2016	6/3/2016		
Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG		
Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
NYSDEC Ambient Water Quality Standards & Guidance Values																											
Volatile Organic Compound	Surface Water	Groundwater																									
2-HEXANONE	50	50	ND	ND	ND	ND	11	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		190	ND	ND	ND	ND	ND	
ACETONE	50	50	ND	ND	ND	ND	ND	520	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		480	340	ND	ND	ND	ND	
BENZENE	1	1	ND	21	ND	21	5,600	4,800	4,900		3,700	4,100	1,800	1,800	1,700	1,600	190	33	16		470	890	250	230	200	120	
ETHYLBENZENE	5	5	1,100	1300	1,400	1400	1,900	1,600	1,600		2,800	2,600	1,600	1,900	2,200	2,200	130	20	31		36	210	22	44	67	50	
ISOPROPYLBENZENE (CUMENE)	5	5	ND	ND	ND	ND	28	29	ND		ND	ND	ND	ND	ND	ND	4.4	ND	1.9 J			ND	ND	ND	ND	ND	
METHYL ETHYL KETONE (2-BUTANONE)	50	50	ND	ND	ND	ND	10	350	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		110	ND	ND	ND	ND	ND	
METHYLENE CHLORIDE	5	5	ND	52	ND	42	ND	ND	ND		ND	ND	ND	ND	77	96	ND	ND	ND		ND	ND	ND	ND	ND	ND	
TOLUENE	5	5	180	270	150	97	170	220	310		290	290	70	80	88	77	810	42	79		1,000	1,900	85	120	78	120	
1,1,2-TRICHLOROETHANE			ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	
XYLENES, TOTAL	5	5	1,800	2600	2,100	1800	10,000	6,800	8,300		9,100	10,000	2,600	3,100	3,300	2,800	750	85	150		740	1,100	140	190	130	210	
No Standard																											
CARBON DISULFIDE			ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	
CYCLOHEXANE			160	220	250	340	230	340	240		430	260	230	250	280	430	68	ND	130		270	41	62	110	110	91	
METHYL ISOBUTYL KETONE			ND	ND	ND	ND	23	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	
METHYLCYCLOHEXANE			86	100	110	140	100	170	150		190	130	92	100	100	140	46	16	18		170	27	24	21	10	24	
Total VOCs			3,326.0	4,563.0	4,010.0	3,840.0	18,072	14,829	15,500	-	16,510	17,380	6,392	7,230	7,745	7,343	1,998.4	196	424	-	3,466	4,508	583	715	595	615	
Total BTEX			3,080	4,191	3,650	3,318	17,670	13,420	15,110	-	15,890	16,990	6,070	6,880	7,288	6,677	1,880	180	276	-	2,246	4,100	497	584	475	500	

- Notes:
- 1) BCP MW-2 was dry and not sampled
 - 2) For the March 11, 2015 monitoring event well MW-1, MW-5, MW-6 and MW- were dry or not enough water was inside the well for a representative sample.
 - 3) WG = groundwater

			Sample Name	BCP-MW-7	BCP-MW-7	BCP-MW-7	BCP-MW-7	BCP-MW-7	BCP-MW-7	BCP-MW-7	BCP-MW-7	BCP-MW-7
			Date Collected	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	3/22/2016	6/3/2016
			Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NYSDEC Ambient Water Quality Standards & Guidance Values												
Volatile Organic Compound	Surface Water	Groundwater										
2-HEXANONE	50	50	ND	ND	4.8		ND	ND	ND	ND	ND	ND
ACETONE	50	50	ND	3	ND		ND	ND	ND	ND	ND	ND
BENZENE	1	1	0.51	8.8	14		ND	ND	ND	ND	ND	ND
ETHYLBENZENE	5	5	ND	ND	3		ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE (CUMENE)	5	5	ND	ND	ND		ND	ND	ND	ND	ND	ND
METHYL ETHYL KETONE (2-BUTANONE)	50	50	ND	ND	ND		ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	5	5	ND	ND	ND		ND	ND	ND	ND	ND	ND
TOLUENE	5	5	ND	0.56	4.7		ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE												
XYLENES, TOTAL	5	5	0.96	4.8	94		ND	ND	ND	0.99	1	ND
No Standard												
CARBON DISULFIDE			ND	ND	0.97		ND	ND	ND	ND	ND	ND
CYCLOHEXANE			ND	4.3	9.6		ND	ND	0.71	ND	ND	ND
METHYL ISOBUTYL KETONE			ND	ND	ND		ND	ND	ND	ND	ND	ND
METHYLCYCLOHEXANE			ND	1.7	5.1		0.18	ND	ND	ND	ND	ND
Total VOCs			1.47	23.16	136.17		0.18	-	0.71	-	-	-
Total BTEX			0.51	14.16	115.7		-	-	-	-	-	-

Notes:

- 1) BCP MW-2 was dry and not sampled
- 2) For the March 11, 2015 monitoring event well MW-1, MW-5, MW-6 and MW- were dry or not enough water was inside the well for a representative sample.
- 3) WG = groundwater

Table 2 - Off-site Groundwater Analytical Results
Summary of Detected Compounds
Former Mobil Station 99-MST 979 Main Street (1001 Main Street) Brownfield Cleanup

NYSDEC Ambient Water Quality Standards & Guidance Values	Sample Name	MSMW-01	MSMW-01	MSMW-01	MSMW-01	MSMW-01	MSMW-01	MSMW-02	MSMW-02	MSMW-02	MSMW-02	MSMW-02	MSMW-03	Units
	Date Collected	12/21/2012	7/23/2014	5/4/2015	8/21/2015	12/16/2015	4/28/2016	12/21/2012	7/23/2014	8/21/2015	12/16/2015	4/28/2016	12/21/2012	
Groundwater	Sample Matrix	WG	WG	WG	WG	WG	ug/L							
Volatile Organic Compound														
Acetone	50	ND	ND	ND	ND	3,000.0	B							
Benzene	1	ND	400.0	350.0	310.0	160.0	123.0							
Ethylbenzene	5	ND	1.1	ND	ND	ND	ND	ND	2,900.0	1,200.0	1,500.0	1,400.0	2,370.0	
2-Hexanone	50	ND	92.0	J	ND	130.0	447.0	J						
Toluene	5	ND	2,400.0	1,500.0	1,900.0	2,700.0	2,920.0							
Xylene, Total	5	ND	7.2	ND	ND	ND	ND	ND	13,000.0	DL	13,000.0	10,000.0	15,000.0	14,450.0
Naphthalene	10	ND	ND	ND	ND	1,180.0								
No Standard														
2-Butanone (MEK)		ND	ND	ND	ND	ND	ND							
Chloroform		ND	0.4	J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane		ND	0.4	J	ND	ND	ND	ND	660.0	450	ND	440	1,130.0	
Isopropylbenzene		ND	58.0	ND	ND	ND	ND							
Methylcyclohexane		ND	0.2	J	ND	ND	ND	ND	250.0	170	J	150.0	220	678.0
Methylene Chloride		ND	160.0	240	B	210.0	ND	ND						
n-Propylbenzene		ND	ND	ND	ND	467.0								
1,2,4-Trimethylbenzene		ND	ND	ND	ND	4,710.0								
1,3,5-Trimethylbenzene		ND	ND	ND	ND	1,430.0								
Total VOC		0.0	9.3	0.0	0.0	0.0	0.0	0.0	19,920.0	16,910.0	14,070.0	20,050.0	32,905.0	
Total BTEX		0.0	8.3	0.0	0.0	0.0	0.0	0.0	18,700.0	16,050.0	13,710.0	19,260.0	19,863.0	

Notes:

Only analytes detected in one or more samples shown.

Blank space indicates compound not detected.

U - Not Detected. This compound was analyzed-for but not detected.

J - Estimated value due to either the compound was detected below the reporting limit or estimated concentration for Tentatively Identified Compound.

B - Compound was also detected in associated Method Blank.

P- Indicates a pesticide/aroclor target analyte had a percent difference greater than 25% between the two gc columns the lower of the two results is repo

WG-groundwater

	Sample Name	MSMW-03	MSMW-03	MSMW-04	MSMW-04	MSMW-04	MSMW-04	MSMW-04	MSMW-04	MW-2R	MW-2R-2
	Date Collected	7/23/2014	4/28/2016	12/28/2012	7/23/2014	8/21/2015	12/16/2015	4/28/2016	7/23/2014	4/28/2016	
	Sample Matrix	WG	WG	WG	WG	WG	WG	WG	WG	WG	WG
	Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NYSDEC Ambient Water Quality Standards & Guidance Values											
Volatle Organic Compound	Groundwater										
Acetone	50	22.0	J	ND	< 1000	22.0	26	ND	ND	ND	ND
Benzene	1	80.0		78.0	59.9	J	150.0	140.0	180.0	71.0	ND
Ethylbenzene	5	190.0		990.0	2,370.0		180.0	140.0	420.0	510	ND
2-Hexanone	50	ND		8	< 500	ND	ND	ND	ND	ND	ND
Toluene	5	34.0		60.0	9,890.0		39.0	5.8	48.0	46.0	ND
Xylene, Total	5	360.0		570.0	14,850.0		160.0	64.0	190.0	210.0	2.4
Naphthalene	10	ND		ND	686.0		ND	ND	ND	ND	ND
No Standard											
2-Butanone (MEK)		12.0	J	11	ND		7.2	J	ND	ND	ND
Chloroform		ND		ND	ND		ND		ND	ND	ND
Cyclohexane		52.0		260	< 1000		52.0	100	170.0	190	1.1
Isopropylbenzene		6.6		27	ND		8.1	6	14.0	13	ND
Methylcyclohexane		25.0		78	165.0	J	33.0	43	70.0	58	0.9
Methylene Chloride		9.8		ND	ND		6.6	23	B	ND	ND
n-Propylbenzene		ND		ND	205.0		ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene		ND		ND	2,300.0		ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene		ND		ND	668.0		ND	ND	ND	ND	ND
Total VOC		791.4		2,082.3	31,193.9		657.9	547.7	1,092.0	1,098.0	4.4
Total BTEX		664.0		1,698.0	27,169.9		529.0	349.8	838.0	837.0	0.0

Notes:

Only analytes detected in one or more samples shown.

Blank space indicates compound not detected.

U - Not Detected. This compound was analyzed-for but not detected.

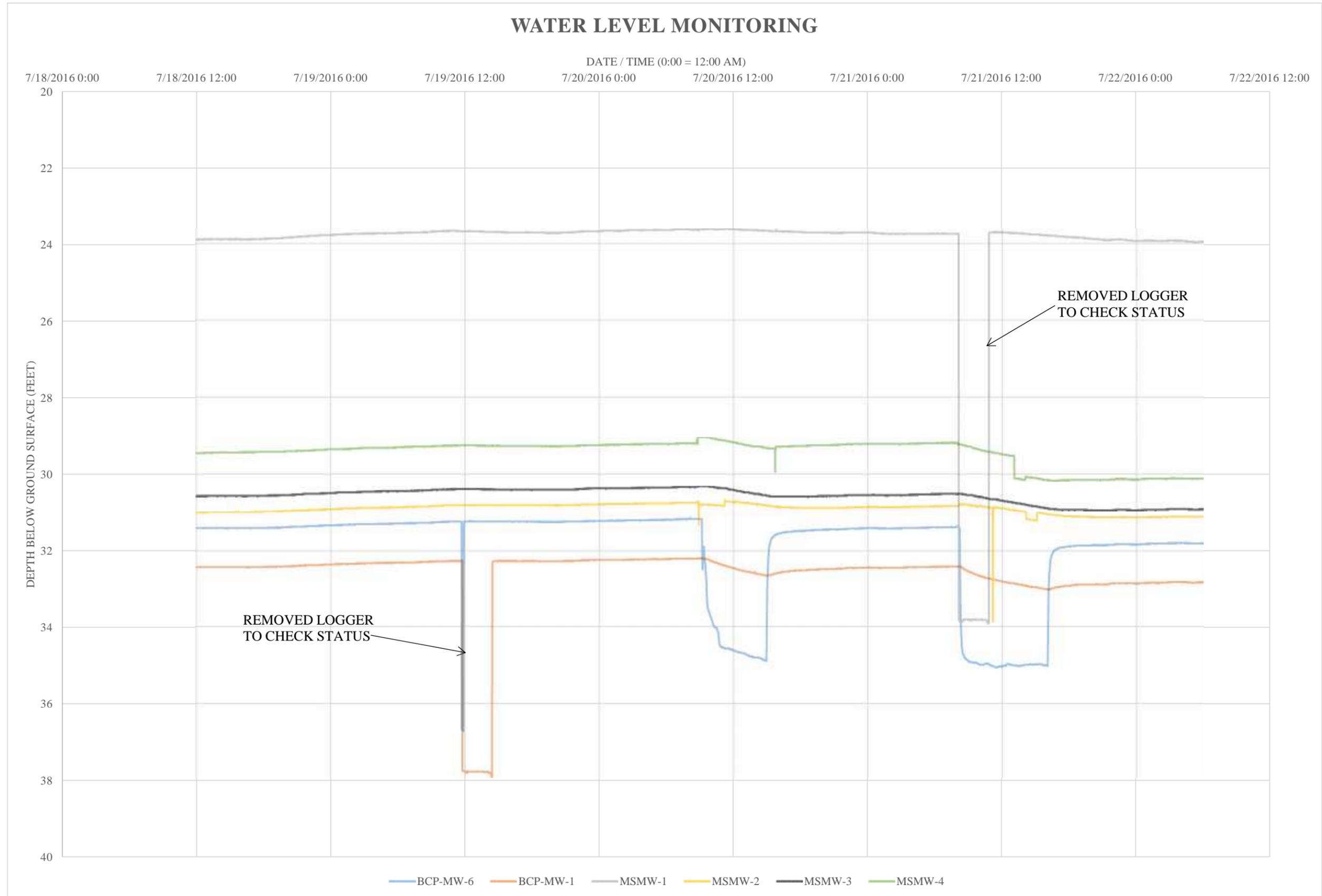
J - Estimated value due to either the compound was detected below the reporting limit or estimated concentration for Tentatively Identified Compound.

B - Compound was also detected in associated Method Blank.

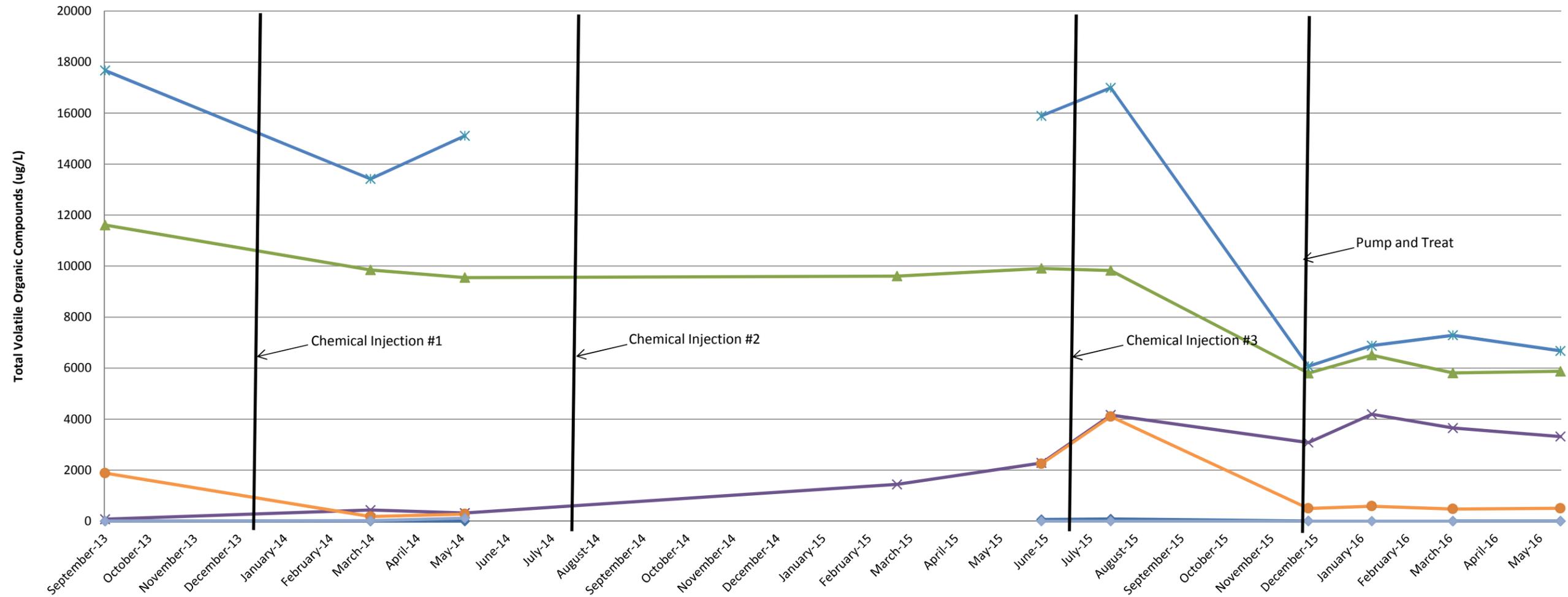
P- Indicates a pesticide/aroclor target analyte had a percent difference greater than 25% between the two gc columns the lower of the two results is repo

WG-groundwater

GRAPHS

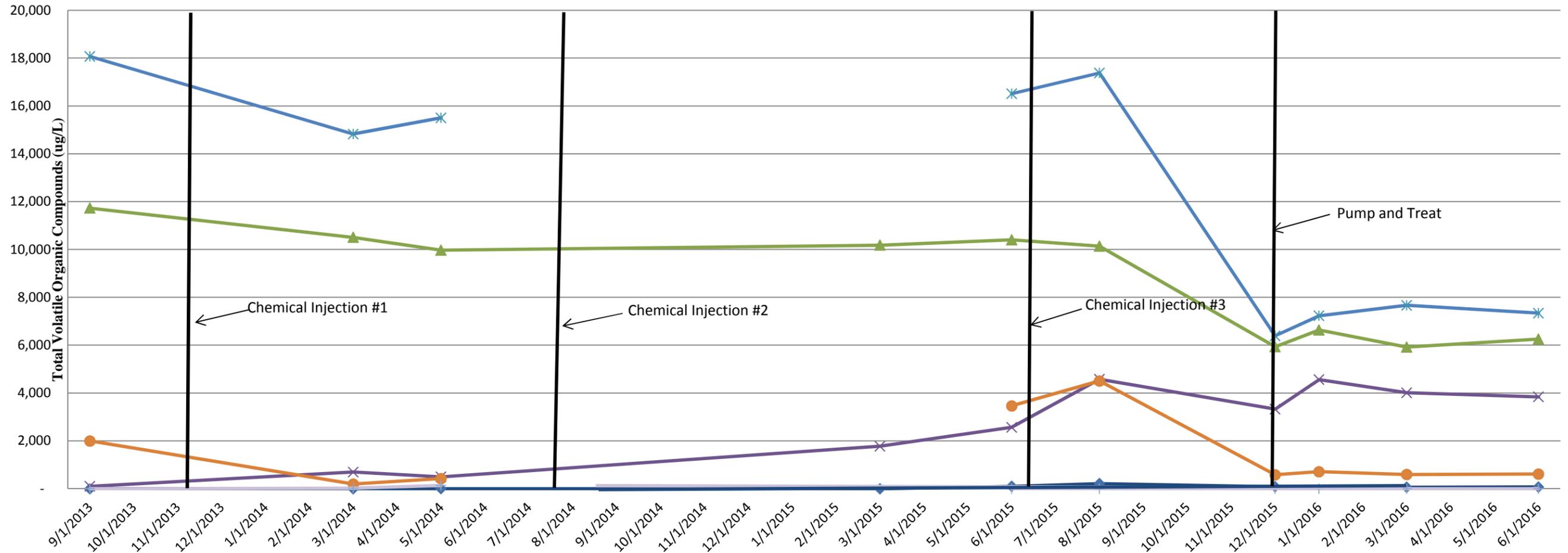


GROUNDWATER TREATMENT MONITORING - TOTAL BTEX



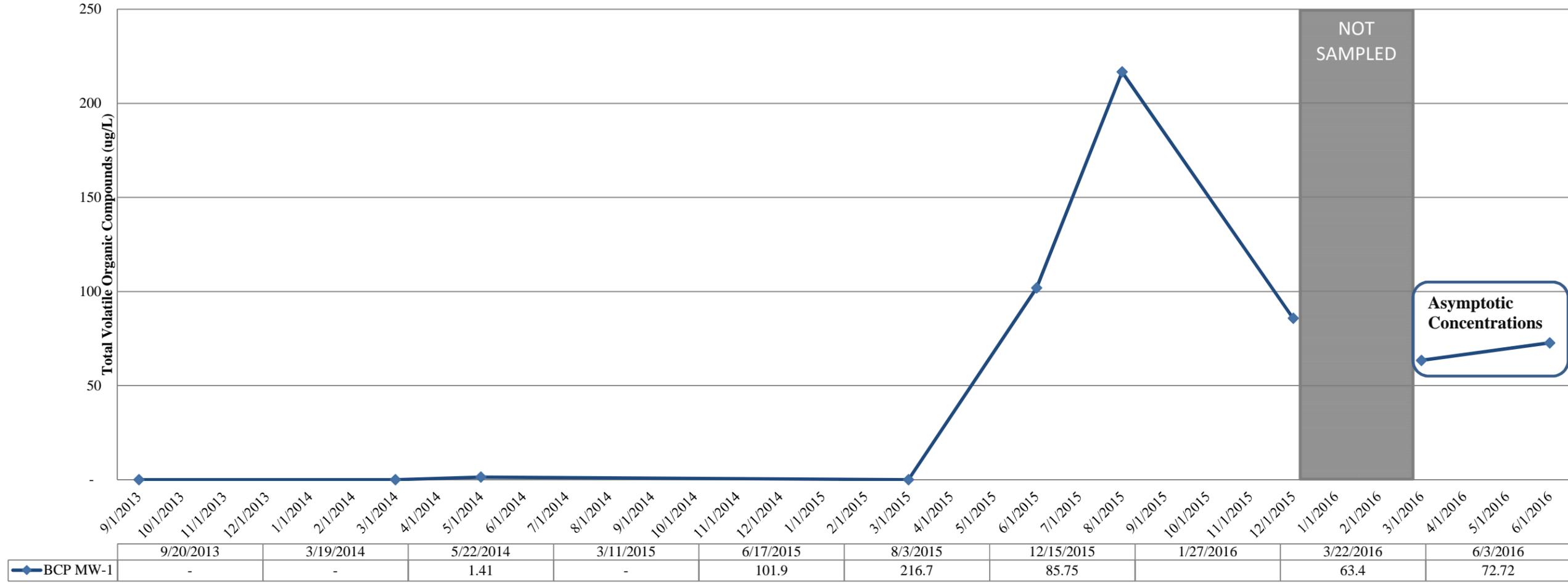
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BCP MW-1	0	0	0		62	83	6.25		1.4	0.72
BCP MW-2										
BCP MW-3	11,610	9,850	9,550	9,610	9,910	9,830	5,800	6,510	5,810	5,877
BCP MW-4	76.8	433	317	1,439	2,281	4,162	3,080	4,191	3,650	3,318
BCP MW-5	17,670	13,420	15,110		15,890	16,990	6,070	6,880	7,288	6,677
BCP MW-6	1,880	180	276		2,246	4,100	497	584	475	500
BCP MW-7	1	14.16	115.7		0	0	0	0	0	0

GROUNDWATER TREATMENT MONITORING - TOTAL VOC



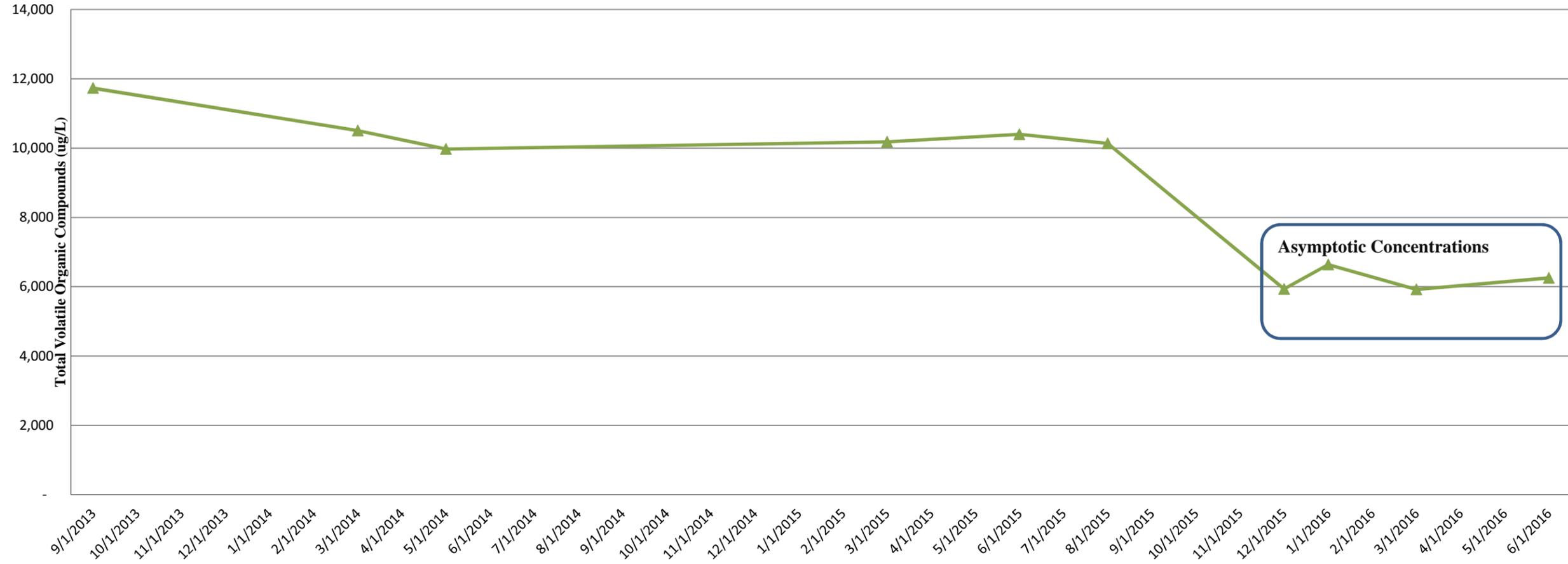
	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016
BCP MW-1	-	-	1.41	-	101.9	216.7	85.75		63.4	72.72
BCP MW-2										
BCP MW-3	11,730	10,506	9,970	10,179.01	10,400	10,136	5,934	6,636	5,920	6,252
BCP MW-4	102.5	697.7	497.1	1,774.5	2,566.50	4,577	3,326	4,563	4,010	3,840
BCP MW-5	18,072	14,829	15,500		16,510	17,380	6,392	7,230	7,668	7,343
BCP MW-6	1,998.4	196	424		3,466	4,508	583	715	595	615
BCP MW-7	1.47	23.16	136.17		0.18	-	0.71	-	-	-

BCP-MW-1: GROUNDWATER TREATMENT MONITORING - TOTAL VOC



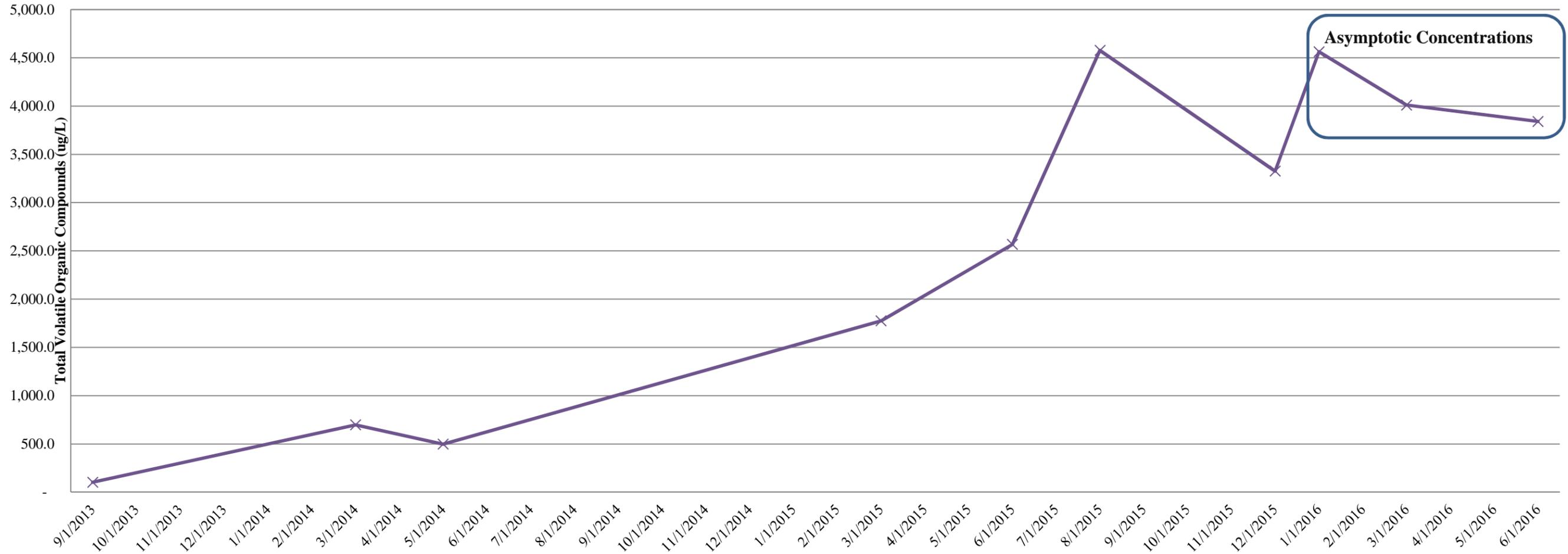
No groundwater sample was collected from this well on January 27, 2016. During the winter of 2016, C&S conducted a limited pump and treat to evaluate groundwater conditions by pumping from BCP-MW-3, 4, 5 and 6. In January 2016, samples were collected from these four wells only.

BCP-MW-3: GROUNDWATER TREATMENT MONITORING - TOTAL VOC



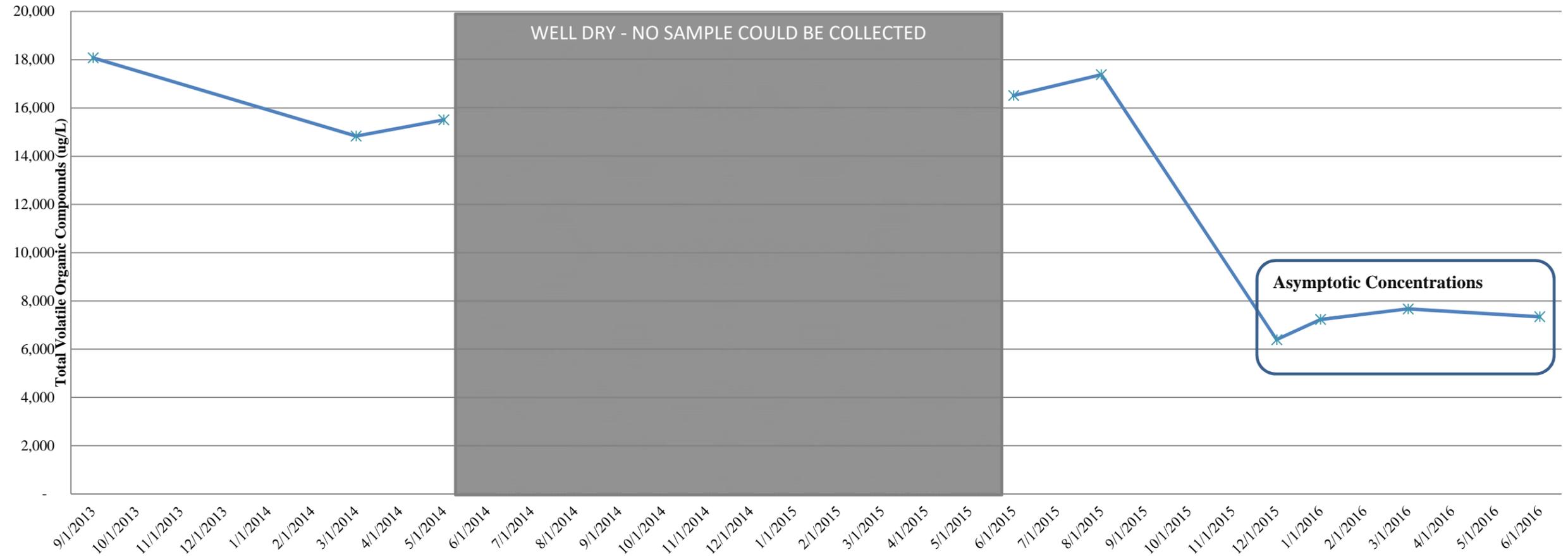
	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016
BCP MW-3	11,730	10,506	9,970	10,179.01	10,400	10,136	5,934	6,636	5,920	6,252

BCP-MW-4: GROUNDWATER TREATMENT MONITORING - TOTAL VOC



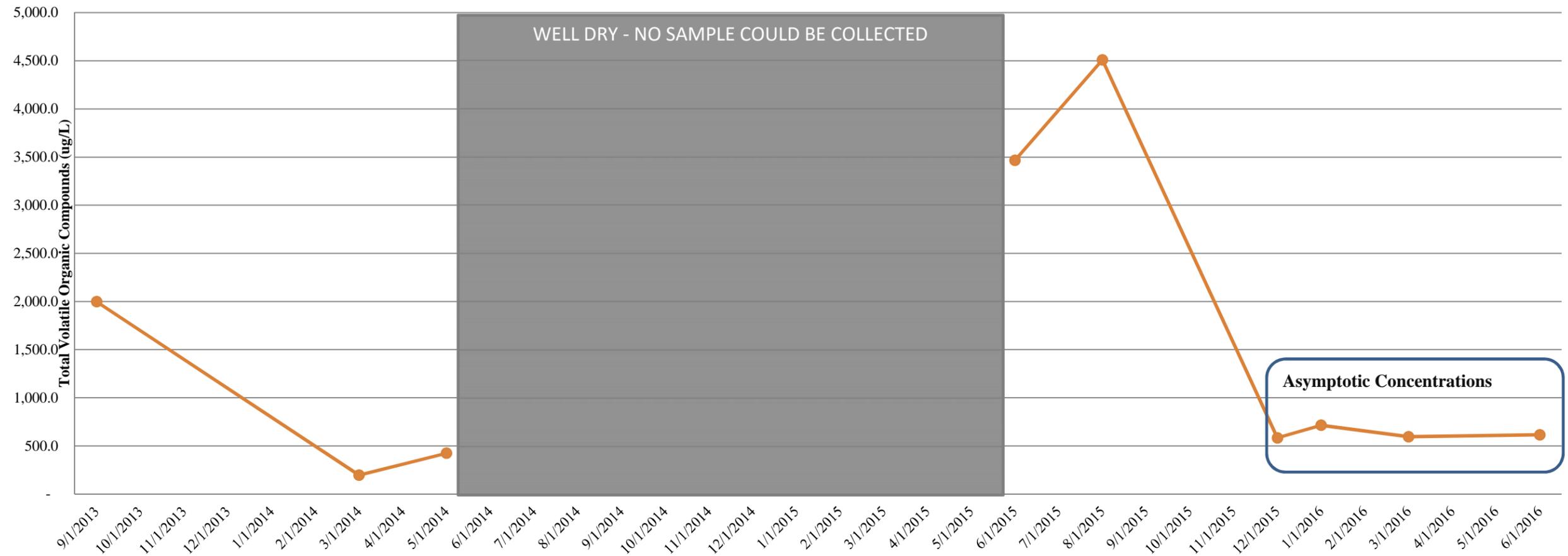
✕ BCP MW-4	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016
	102.5	697.7	497.1	1,774.5	2,566.50	4,577	3,326	4,563	4,010	3,840

BCP-MW-5: GROUNDWATER TREATMENT MONITORING - TOTAL VOC



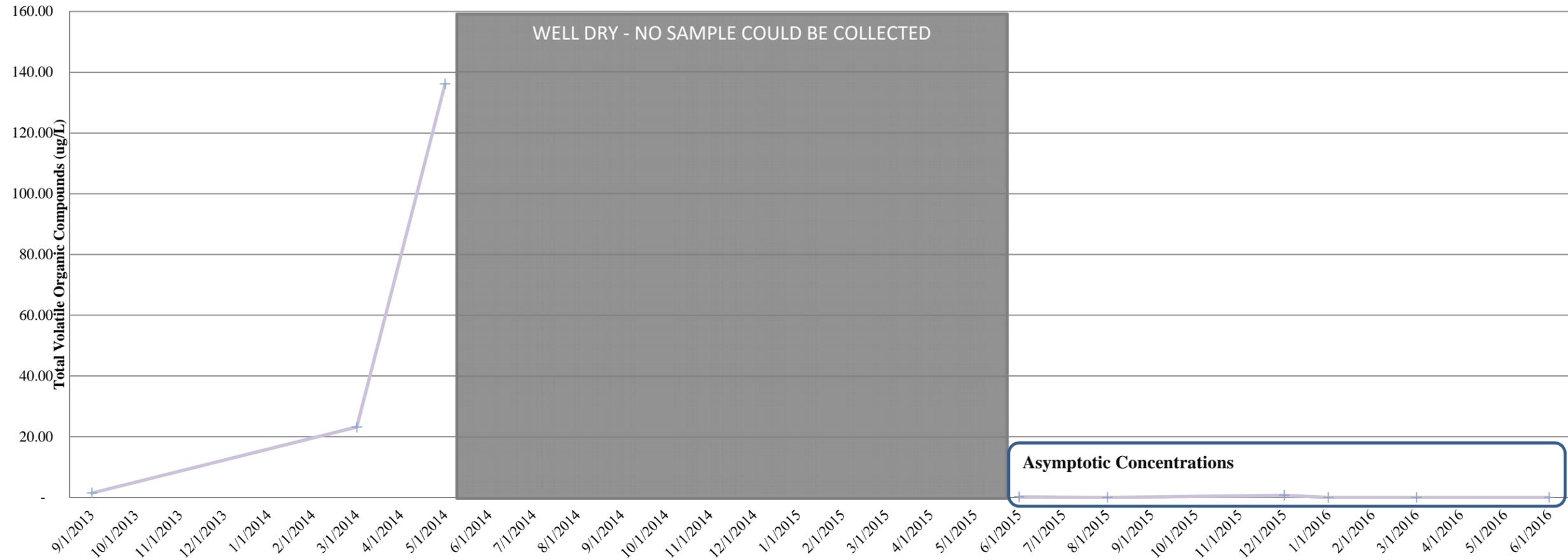
◆ BCP MW-5	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016
	18,072	14,829	15,500		16,510	17,380	6,392	7,230	7,668	7,343

BCP-MW-6: GROUNDWATER TREATMENT MONITORING - TOTAL VOC



● BCP MW-6	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016
	1,998.4	196	424		3,466	4,508	583	715	595	615

BCP-MW-7: GROUNDWATER TREATMENT MONITORING - TOTAL VOC



BCP MW-7	9/20/2013	3/19/2014	5/22/2014	3/11/2015	6/17/2015	8/3/2015	12/15/2015	1/27/2016	3/22/2016	6/3/2016
	1.47	23.16	136.17		0.18	-	0.71	-	-	-

No groundwater sample was collected from this well on January 27, 2016. During the winter of 2016, C&S conducted a limited pump and treat to evaluate groundwater conditions by pumping from BCP-MW-3, 4, 5 and 6. In January 2016, samples were collected from these four wells only.