Periodic Review Report

(Reporting Period December 14, 2015 to April 15, 2017)

Site: 310 Saw Mill River Road
Site Parcel ID: Section 2, Block 2359, Lots 11 & 13
Yonkers, New York 10701

Prepared Pursuant to Voluntary Cleanup Agreement

NYSDEC Site Number: B00179-3
SAC Site Number: C302295

Prepared For:

Yonkers Parking Authority
8 Buena Vista Ave
Yonkers, New York 10701

June 2017

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1 Summary

1.1 Site, Nature and Extent of Contamination, and Remedial History

Henningson, Durham & Richardson Architecture and Engineering, P.C. in association with HDR Engineering, Inc. (HDR) was contracted by the Yonkers Parking Authority (YPA) to perform monitoring and sampling and prepare the 2017 Periodic Review Report (PRR) for the 310 Saw Mill River Road Site (Site) in Yonkers, Westchester County, New York. The Site was formally a gasoline service station and was remediated under a New York State Department of Environmental Conservation (NYSDEC) State Assistance Contract (SAC # C302295).

Through Interim Remedial Measures (IRMs), YPA removed lead-based paint (LBP) and asbestos containing materials (ACM) prior to the demolition and removal of a building on the Site. In addition, petroleum underground storage tanks (USTs) and associated petroleum impacted soils were removed from the site. After completion of the remedial work, some contamination was left in the subsurface, which is hereafter referred to as "remaining contamination." After completion of the IRM activities the site was capped with six inches of asphalt. Five groundwater monitoring wells were installed on the Site.

A NYSDEC Record of Decision (ROD) for the Site was released in March 2008 (NYSDEC Site No. B00179-3). The remedy selection was "No Further Action" with monitored natural attenuation (MNA) groundwater monitoring and an environmental easement which limits the Site to restricted residential, commercial use and industrial use, restricted ground water usage, and required maintenance of the asphalt cap as the preferred alternative for the Site.

Remaining contamination at the Site includes residual soils contaminated with gasoline and petroleum-related volatile organic compounds (VOCs) and groundwater at the Site contaminated with gasoline and petroleum-related VOCs as well.

1.2 Effectiveness of the Remedial Program

The program has prevented unacceptable exposure to the site contaminants and is meeting the remedial goals which are: (1) prevention of exposure to remaining contamination in the soils below the slab by maintaining a competent cover system (asphalt parking lot and sidewalks), (2) prevention of intrusion of sub-slab vapors (there are no buildings on the site), and (3) prevention of exposure to contaminated groundwater.

The Site Management Plan has the following six elements:

1. Asphalt Cap (and sidewalks) over residual contamination remaining at the site;
2. Groundwater Monitoring Program;
3. Soil Excavation Plan;
4. Land Use Restrictions;
5. Groundwater Use Restrictions; and
6. Reporting Requirements.

1.3 Compliance

The monitoring, and sampling activities have been in compliance with the site management plan (SMP) with the following exception:

1. An annual groundwater sampling event was scheduled to be conducted in the fall of 2016; however, due to budgetary constraints and scheduling issues, the groundwater monitoring event was postponed until March 2017. There was no adverse impact from the delay in the groundwater sampling event.

1.4 Recommendations

1. Requirements for discontinuing site management activities including groundwater monitoring and annual inspections of the asphalt cap have not been met. Requirements for discontinuing the site management activities would include groundwater results that do not exceed the NYSDEC drinking water standards and guidance values for the petroleum-related compounds that were detected at the Site.

2. As approved by NYSDEC, the groundwater sampling program has been revised; the sampling parameters were reduced and the number of on-Site wells included in the groundwater sampling program was reduced to two downgradient on-Site monitoring wells. This revised groundwater sampling program should be continued.

3. HDR recommends a biennial groundwater monitoring frequency.

4. As approved by NYSDEC after the October 2015 groundwater sampling event, a sock of oxygen-releasing compound (ORC) will remain in MW-1 to promote aerobic degradation of the remaining petroleum-related groundwater contamination in the area of MW-1. The ORC sock will be replaced on a quarterly basis.

5. The Site Management Plan will be revised to reflect the installation of the ORC sock in MW-1 and also the reduction in the number of monitoring wells and analytical parameters included in the groundwater monitoring program.

2 Site Overview

2.1 Description

The site is in in a mixed commercial and residential area. The site location is shown in Figure 1, an aerial map of the area (Figures follow the References section of this report). Figure 2 shows the Site Plan and the location of the monitoring wells. The Site is identified as Section 2, Block 2359, Lots 11 and 13. The Site is situated on an approximately 0.38 acre area bounded by Lockwood Avenue with commercial use and residences to the north, a commercial maintenance building and stone wall to the south, a stone retaining wall and residences to the east, and Saw Mill River Road and residential/commercial property to the west.

Documentation shows that the original owner of the Site was Cities Service Company and that the on-Site building was mainly used as office space. In 1941, Cities Service Company extended the building to include a vehicle maintenance service station. In 1965, Cities Service Company changed its name to CITGO, which owned the property until 1996. Rex Oil Company and Rex Realty of Connecticut, Inc. followed as owners of the Site. In May 2001, YPA obtained the Site under eminent domain from Rex Realty of Connecticut, Inc. The Site, currently operated by YPA, is now being operated as a municipal parking lot for the surrounding commercial businesses.

Groundwater and some soils along the west side of the Site contain residual petroleum-related VOCs above regulatory standards or guidance values. Overburden groundwater in this area flows west towards the Saw Mill River, approximately ¼ mile west of the Site. Contaminant concentrations in the groundwater have shown a generally slow decreasing trend since the wells were installed in January 2004.

2.2 Remedial Program

The site was remediated under a NYSDEC SAC (SAC # C302295) between YPA and NYSDEC, as part of the New York State Environmental Restoration Program (ERP) under the 1996 Clean Water/Clean Air Bond Act Brownfields Program and is listed as NYSDEC Site #B00179-3 as approved by NYSDEC in January 2003. The Site Investigation (SI), including IRMs, was performed in accordance with the May 2003 NYSDEC approved Final SI Work Plan (Final SIWP) and the January 2004 and February 2005 Amendments to the Final Work Plan (SIWP Amendments). The SI and IRMs were summarized in the NYSDEC-approved Final SI/Remedial Alternatives Report (SI/RAR) dated February 2008. The Final SI/RAR also provided an evaluation of the no-action alternative and several remedial action alternatives available and their associated costs. The NYSDEC issued a Proposed Remedial Action Plan (PRAP) for the Site based on the SI/RAR in February 2008. The ROD, presenting the selected remedy for the Site, was issued in March 2008; the selected remedy was “No Further Action” with a monitored natural attenuation groundwater monitoring program. The Site Management Plan (SMP) for the site was submitted to NYSDEC in December 2011; it was revised in May 2015 to clarify the long-term monitoring program. The Final Engineering Report (FER) for the

Site was submitted to NYSDEC in August 2015. Yonkers Parking Authority was issued an approval for the FER and a Certificate of Completion for the Site on 14 December 2015.

The remedial program consists of IRMs implemented at the Site in accordance with the NYSDEC-approved work plan and work plan amendments. Prior to the commencement of the SI activities, YPA implemented activities to remove the sources of petroleum on the Site and to identify and remove LBP and ACM from the building located within the property boundary. Following the asbestos removal in October 2003, the hydraulic lifts were removed and the building was demolished. All demolition debris was removed from the Site and properly disposed. Petroleum UST removal activities were conducted between October and December 2003. These activities consisted of the removal of on-Site USTs and associated petroleum-contaminated soil. A total of 4,883 tons of petroleum-contaminated soil, 116,300 gallons of free-product/petroleum-contaminated groundwater and 12 USTs were removed from the Site.

Immediately after the UST removal activities, approximately 300 gallons of liquid Oxygen-Release Compound (ORC) was applied to the open trenches prior to backfilling with clean fill. The ORC was added to help accelerate the breakdown of residual petroleum in the soil and groundwater in the western portion of the Site in the vicinity of MW-1.

The IRM activities also consisted of the construction of an on-Site groundwater diversion drain and paving of the entire Site to minimize the on-Site groundwater intrusion and flow. The groundwater diversion drain was constructed by digging a trench along the east and south side of the Site. The side of the trench that was downgradient with respect to groundwater flow was lined with an impermeable plastic membrane. The trench was then backfilled with gravel and a perforated plastic pipe was installed in the trench. This perforated pipe was connected to a solid pipe which was then connected directly to the storm water sewer located near the intersection of Lockwood Avenue and Saw Mill River Road. The groundwater diversion drain was constructed to divert shallow groundwater moving on to the Site from the east and divert it around any residual contaminated soil remaining on-Site.

Following the backfilling of the diversion drain, the entire Site was evenly re-graded with an approximate 4 foot slope toward the western side of the property to enable surface water runoff toward two catch basins and off-site storm drains on Saw Mill River Road. The entire Site was then paved with six inches of asphalt. Figure 3 provides the asphalt cap system details for the Site.

The property was remediated to Restricted Use Commercial Soil Clean-up Objectives and is currently being used for vehicle parking. The Institutional and Engineering Controls Certification Form is included as Appendix A of this report.

Groundwater sampling events at the Site, since the investigation and remediation activities were completed, were conducted in February 2012, January 2013, October 2015, and March 2017.

3 Remedy Performance, Effectiveness, and Protectiveness

There is a Declaration of Covenants and Restrictions with the land records in the Westchester County clerk's office that outlines the restrictions for the Site:

1. "The Controlled Property may be used for: **Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii),Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)**

2. All Engineering Controls (ECs) must be operated and maintained and inspected as specified in the SMP and groundwater or other monitoring must be preformed as defined in the SMP

3. All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP

In accordance with the SMP, the Site ECs and Institutional Controls (ICs) in place are designed to:

- Prevent ingestion/direct contact with contaminated soil;
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil;
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards;
- Prevent contact with or inhalation of volatiles from contaminated groundwater;
- Restore groundwater to pre-disposal/pre-release conditions, to the extent practicable;
- Prevent the discharge of contaminants to surface water;
- Prevent contaminated groundwater from migrating off-Site; and
- Prevent migration of contaminants that would result in off-Site groundwater or surface water contamination.

Exposure to remaining contamination in soil/fill at the Site is prevented by a soil cover system placed over the Site. This cover system is comprised of a minimum of 6 inches of bituminous asphalt pavement, and concrete-covered sidewalks.

The area is served by municipal water and use of groundwater is prohibited by Westchester County regulations such that there can be no use of groundwater in this area.

4 IC/EC Plan Compliance

4.1 IC/EC Requirements and Compliance

Per the SMP, a Site Evaluation includes compliance of the remedy with the requirements of the site specific ROD. The requirements of the site Specific ROD include cap over remaining contamination, water use restrictions, and land use restrictions. Each of these requirements are discussed below.

4.1.1 Cap Over Remaining Contamination

Description. As noted previously, the Site is capped by a combination of the asphalt pavement and concrete sidewalks. The cap is an EC included in the Declaration of Covenants and Restrictions and must be maintained. Any excavation activities that disturb the soils below the cap must first be approved by the NYSDEC and must follow the requirements in the Excavation Plan in the SMP. During the groundwater monitoring event conducted in March 2017, the cap was inspected and photos were taken to document the cap condition. The March 2017 cap inspection photolog is attached as Appendix B.

Goal Status. Since the FER was submitted and accepted by NYSDEC there have been no alterations or disturbances to the asphalt cap or sidewalks at the Site.

The cap is in place and meets the requirements of the SMP.

Corrective Measures. Currently there are no deficiencies and corrective measures are not needed. The current topcoat of asphalt is showing some typical surface cracks in the asphalt. However, it appears the asphalt layer below the topcoat is in good condition; there are no deep cracks or significant potholes that would expose the public to the soils below the asphalt. YPA is planning to reseal or resurface the parking lot in 2018.

4.1.2 Water Use Restrictions

Description. The restriction is an IC included in the Declaration of Covenants and Restrictions that prohibits use of the site's groundwater unless NYSDEC approves otherwise. In addition, Westchester County does not allow use of groundwater for drinking water.

Goal Status. The restriction is fully in place and there are no on-Site or nearby drinking water wells. There are five shallow 2-inch diameter monitoring wells used for the on-Site monitoring program.

Corrective Measures. There are no deficiencies and corrective measures are not needed.

Conclusions and Recommendations. No changes are needed.

4.1.3 Land Use Restrictions

Description. The restriction is an IC included in the Declaration of Covenants and Restrictions that limits use of the site to restricted use, commercial use or industrial use.

Goal Status. The restriction is fully in place. The Site use is for a municipal parking lot managed and maintained by YPA. There are no plans to change the usage of the Site.

Corrective Measures. There are no deficiencies and corrective measures are not needed.

Conclusions and Recommendations. No changes are needed.

4.2 IC/EC Certification

A copy of the requisite certification is presented in Appendix A. The Qualified Environmental Professional (QEP) section of the certification has been signed by G. Noemi Castillo, P.E. from HDR, and the former project manager for remedial operations at the site who is still involved with the project for consultation as the senior project manager. The original certification document has been separately submitted to the NYSDEC project manager.

5 Monitoring Plan Compliance

5.1 Components of the Monitoring Plan

The ROD stated that a long-term groundwater monitoring program would be instituted as part of the MNA groundwater monitoring program for the Site with groundwater samples collected and analyzed on a periodic basis for five years and analyzed for VOCs. This program would allow the effectiveness of the soil removal and the application of ORC to the soils and groundwater after the remediation activities were completed (and prior to the installation of the asphalt cap). The ROD stated that if some petroleum-related VOCs did not decrease over time the application of additional ORC treatments would be considered to accelerate the breakdown and natural attenuation of these compounds. As mentioned previously, four groundwater monitoring events have been conducted at the Site since 2012 after the ROD was issued in 2008 (February 2012, January 2013, October 2015, and March 2017). Five monitoring wells were installed on the Site in January 2004. After the October 2015 sampling event was completed a review of the historical groundwater data from the five monitoring wells between 2004 and 2015 was conducted. Based on this historical data review, a recommendation was made by HDR in the Groundwater Sampling Summary Report for the October 2015 sampling event, submitted to NYSDEC in April 2016, to eliminate the two upgradient wells and one of the three downgradient monitoring wells from the monitoring program. Subsequent sampling events will include groundwater samples from MW-1 and MW-3.

The upgradient wells had not revealed any contamination coming on to the Site from the upgradient direction and a previous literature search did not reveal any potential petroleum-related contamination sources upgradient of the Site in this area. Another recommendation in the October 2015 Groundwater Sampling Summary Report included the elimination of the semi-volatile organic compound (SVOC) analysis and several of the MNA parameters that were included in the SMP Monitoring Plan. A review of the historical groundwater data revealed that naphthalene was the only petroleum-related SVOC detected in the monitoring wells. HDR has requested that the analytical laboratory include naphthalene in the VOC parameter list for the groundwater sampling at this Site. MNA parameters sulfide, alkalinity, and total organic carbon (TOC) were not revealing any trends and were recommended to be eliminated from the monitoring program.

After the October 2015 sampling event, HDR also recommended the installation of an ORC sock in MW-1. Historically MW-1 has been the only on-Site monitoring well that contains petroleum-related VOCs above NYSDEC drinking water regulatory standards or guidance values (NYSDEC TOGs 1.1.1). Since 2012, MW-4 and MW-5 have contained no detectable petroleum-related VOCs. MW-2 and MW-3, downgradient/side gradient wells, have contained chlorinated VOCs (CVOCs) that were not attributed to the Site. CVOC concentrations in MW-2 have been below drinking water standards since 2012 and CVOC concentrations in MW-3 have been steadily decreasing since 2012. The groundwater monitoring summary report for the October 2015 sampling event was submitted in April 2016 and is included in Appendix C.

The recommendations included in the October 2015 Groundwater Sampling Summary Report were approved by Mr. David Crosby, the NYSDEC project manager for the Site; the groundwater program revision recommendation approval correspondence is also included in Appendix C.

As approved by NYSDEC, in May 2016, HDR installed a "sock" of EHC-O™ (a controlled oxygen and nutrient releasing technology compound) in MW-1 to provide an engineered delivery of oxygen and nutrients to promote aerobic degradation of the remaining petroleum-related groundwater contamination in the area of MW-1. The EHC-O™ sock was removed from MW-1 on October 2016 to allow the groundwater chemistry to return to its natural state prior to the March 2017 sampling event. After the March 2017 groundwater sampling event, a new EHC-O™ sock was installed in MW-1.

In accordance with the SMP, the groundwater samples collected in 2012, 2013, and 2015 were analyzed for the following parameters:

- VOCs;
- SVOCs;
- Nitrate;
- Sulfate;
- Sulfide;
- Chloride;
- Alkalinity;
- Methane/Ethane/Ethene; and
- Total Organic Carbon (TOC)

As part of the MNA, the following field parameters were initially included as part of the groundwater sampling program:

- Dissolved Oxygen;
- Oxidation-Reduction Potential (ORP);
- pH;
- Temperature;
- Conductivity;
- Turbidity;
- Carbon Dioxide; and
- Ferrous Iron

In accordance with the approved recommendations included in the Groundwater Data Summary Report for the October 2015 sampling event, the following

analyses/parameters were removed from the analytical requirements for the long-term groundwater monitoring program.

- SVOCs (although HDR requested that the analytical laboratory include naphthalene as part of the VOC parameter list for subsequent sampling events; it was the only petroleum-related SVOC that had been detected at the Site (MW-1) since the 2012 sampling event);
- Sulfide;
- Alkalinity; and
- TOC

5.2 Summary of the Monitoring Completed

During this periodic review reporting period (December 14, 2015 through April 15, 2017), groundwater sampling of the on-Site monitoring wells was conducted on March 21, 2017.

Copies of the field data sheets for the recent March 2017 groundwater sampling event is presented in Appendix D as part of the groundwater sampling event documentation. The Electronic Data Deliverable files (EDDs) for analytical data for this sampling event have been submitted to NYSDEC for the Site; however, the Laboratory Analytical Report for this recent groundwater sampling event is included in Appendix D as well.

Table 1 includes a summary of the VOC data from MW-1 and MW-3. Table 2 includes the results of the MNA parameters analyzed by the analytical laboratory from the sampling events conducted since 2012. Table 3 includes a summary of the VOC and SVOC data from the on-Site wells since the wells were installed in 2004 and Table 4 includes the results of the field chemistries collected as part of the MNA assessment that have been collected from the on-Site wells since 2012.

5.3 Comparisons with Remedial Objectives

Table 1, Table 2 and Table 3 includes all sample results (detected parameters) for these well locations along with the applicable drinking water (Class GA) groundwater standards and/or guidance values where applicable. Locations of the monitoring wells are depicted on Figure 2.

5.3.1 VOC Results

Hampton Clarke, Inc. (HCI) analyzed the laboratory samples. HCI subcontracted the methane/ethane/ethane analysis to Pace Analytical (Pace). Where applicable, the sample results are compared to the NYSDEC 6NYCRR Part 703, Surface and Groundwater Quality Standards (NYSDEC Standards) and/or NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 guidance values (NYSDEC Guidelines) used for groundwater analytes for which NYSDEC Standards are not published.

It should be noted that the NYSDEC Standards/Guidelines are based on the aquifer being a source of drinking water (Class GA standards). The groundwater from the Site is not used as a source of potable water.

MW-1 contained the only petroleum-related compounds in exceedance of NYSDEC Standards/Guidelines for VOCs. MW-3 only contained tetrachloroethene (PCE) at a concentration of 5.3 µg/l; just above its Class GA standard of 5 µg/l.

MW-1 contained eleven petroleum-related VOCs in exceedance of NYSDEC Standards/Guidelines including 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, isopropylbenzene, m&p-xylene, o-xylene, 4-isopropyltoluene, n-propylbenzene, sec-butylbenzene, toluene, and naphthalene. Although no LNAPL was detected during the sampling event, a petroleum odor was detected from the water removed from MW-1.

Naphthalene, which has been detected in MW-1 as part of the SVOC analytical parameters analyzed during previous sampling events, was included in the VOC parameters for this monitoring event. When compared to the previous sampling events, naphthalene was detected at a similar concentration during this sampling event.

Cis-1,2-dichloroethene was detected in MW-1 at a concentration just above the NYSDEC Class GA standard of 5 µg/l in MW-1.

A comparison of the historical VOC and SVOC analytical results from the monitoring wells that exceeded NYSDEC Standards/Guidelines is included in Table 3. These tables provide a comparison of the data collected in January 2004, June 2005, May 2006 (MW-1 only), February 2012, January 2013, October 2015, and March 2017 from the monitoring wells on the Site.

MW-1 is the only well at the Site that historically has contained elevated concentrations of petroleum-related analytes. Overall the VOC and SVOC concentrations have declined over time although there was an increase in total VOCs during the January 2013 sampling event compared with the February 2012 and prior sampling events. The total VOC concentration detected in the MW-1 sample in February 2012 was 2,521 µg/l, which is significantly lower than the results of the previous sampling events. Results from the January 2013 sampling event however, revealed an increase from February 2012 in total VOC concentration with a concentration of 7,116 µg/l; similar to the overall VOC concentration observed during the May 2006 sampling event at MW-1. The total VOCs detected in MW-1 during the March 2017 sampling event are similar to the total VOCs in this well during the October 2015 sampling event. The total VOC concentration detected in the MW-1 samples in October 2015 and March 2017 were 3,162 and 2,973 µg/l, respectively. It should be noted that for historical comparison purposes, blind duplicate results were not included in the discussion; however, the blind duplicate data is included in Table 3.

The VOC results from the March 2017 groundwater sampling event reveal the following:

- In general, the concentrations of benzene and toluene have shown a significant decrease over time in MW-1. Benzene has not been detected since the May 2006 sampling event. Benzene was not detected in MW-1 in the October 2015, January 2013, or February 2012 sampling events while it was detected at 19 µg/l

in 2006 and it was detected at 150 µg/l in 2004. Toluene was detected at a concentration of 40 µg/l (the toluene concentration in October 2015 was 30 µg/l) Toluene concentrations in MW-1 in January 2004 and June 2005 were 2,100 and 5,000 µg/l, respectively.

- Ethylbenzene and xylene concentrations have been relatively steady with an overall decreasing trend as shown in Table 3. Ethylbenzene was initially detected in MW-1 at 280 µg/l in January 2004 and 6,800 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, ethylbenzene concentrations in MW-1 have ranged between 1,300 and 860 µg/l. During the recent March 2017 sampling event, the ethylbenzene concentration was 520 µg/l (the ethylbenzene concentration in October 2015 was 420 µg/l). Total xylenes were initially detected in MW-1 at 5,700 µg/l in January 2004 and 39,000 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, total xylenes concentrations in MW-1 have ranged between 3,160 and 870 µg/l. During the recent March 2017 sampling event, the total xylene concentration was 720 µg/l in MW-1 (the total xylenes concentration in October 2015 was 890 µg/l).
- The concentrations of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene have been relatively steady with an overall decreasing trend as shown in Table 3 as well. Initially 1,2,4-Trimethylbenzene was initially detected in MW-1 at 1,400 µg/l in January 2004 and 9,300 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, 1,2,4-trimethylbenzene concentrations in MW-1 have ranged between 510 and 1,900 µg/l. During the recent March 2017 sampling event, the 1,2,4-trimethylbenzene concentration was 840 µg/l (the 1,2,4-trimethylbenzene concentration in October 2015 was 1,000 µg/l). Initially 1,3,5-Trimethylbenzene was initially detected in MW-1 at 460 µg/l in January 2004 and 2,600 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, 1,3,5-trimethylbenzene concentrations in MW-1 have ranged between 33 and 310 µg/l. During the recent March 2017 sampling event, the 1,3,5-trimethylbenzene concentration was 52 µg/l in MW-1 (the 1,3,5-trimethylbenzene concentration in October 2015 was 150 µg/l).
- The concentrations of isopropylbenzene and n-propylbenzene have been relatively steady with increases and decreases over time. Isopropylbenzene was initially detected in MW-1 at 33 µg/l in January 2004 and 180 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, isopropylbenzene concentrations in MW-1 have ranged between 49 and 130 µg/l. During the recent March 2017 sampling event, the isopropylbenzene concentration was 53 µg/l (the isopropylbenzene concentration in October 2015 was 70 µg/l). N-Propylbenzene was initially detected in MW-1 at 8 µg/l in January 2004 and 220 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, n-propylbenzene concentrations in MW-1 have ranged between 140 and 330 µg/l. During the recent March 2017 sampling event, the n-propylbenzene concentration was 150 µg/l in MW-1 (the n-propylbenzene concentration in October 2015 was 180 µg/l).
- Naphthalene concentrations in MW-1 have shown a slight overall increase over time. Naphthalene was initially detected in MW-1 at 20 µg/l in January 2004 and 78 µg/l in June 2005. In subsequent sampling events between May 2006 and

January 2013, naphthalene concentrations in MW-1 have ranged between 31 and 120 µg/l. During the recent March 2017 sampling event, the naphthalene concentration was 140 µg/l (the naphthalene concentration in October 2015 was 150 µg/l).

- The concentrations of cis-1,2-dichloroethene have been relatively steady over time in MW-1. Cis-1,2-Dichloroethene was initially detected in MW-1 at an estimated concentration of 2 µg/l in January 2004 and 7 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, cis-1,2-dichloroethene concentrations in MW-1 have ranged between below a detection limit of 6 µg/l in May 2006 to a concentration of 7.7 µg/l in January 2013. During the recent March 2017 sampling event, the cis-1,2-dichloroethene concentration was 6.0 µg/l (the cis-1,2-dichloroethene concentration in October 2015 was 4.0 µg/l).
- MW-3 continues to show a decrease in CVOC concentrations over time. Historically the groundwater collected from this well has only contained elevated levels of CVOCs with some very low level (estimated) concentrations of petroleum-related compounds during the previous sampling events. During this recent sampling event MW-3 contained PCE at a concentration of 5.3 µg/l; this is the lowest concentration of PCE detected in this well since the wells were installed. The total VOCs in MW-3 have decreased from 1,015 µg/l in 2004 to 5.3 µg/l in March 2017.

As approved by NYSDEC, downgradient well MW-2 and upgradient wells MW-4 and MW-5 were not sampled during the March 2017 groundwater monitoring event after the October 2015 sampling event. The results of the historical groundwater sampling at the Site revealed very little to no detectable concentrations of VOCs or SVOCs in these monitoring wells.

5.3.2 Natural Attenuation Parameter Results

The analyses conducted to monitor the natural attenuation processes at the Site revealed chloride detections above the Class GA standard of 250 mg/l in both wells with concentrations of 450 and 510 mg/l for MW-1 and MW-3, respectively. These concentrations were similar to the results of the samples collected in 2012, 2013, and 2015.

A review of the results of the natural attenuation parameters (field parameters and laboratory parameters) analyzed during the March 2017 sampling event indicated that the water from MW-1 contained very low concentrations of DO when the field chemistries had stabilized at the end of the purge interval (0.5 mg/l) indicating anaerobic groundwater conditions in the area of MW-1. It should be noted that the “sock” of EHC-O™ (controlled oxygen and nutrient releasing technology compound) was removed from MW-1 on 21 October 2016 in anticipation of sampling the wells in November 2016. The groundwater sampling event was delayed until March 21, 2017; it is possible that any increased oxygen levels from the ORC in the water may have been depleted during the sampling delay interval.

The results of the remaining natural attenuation parameters at this well location continue to indicate methanogenesis is the primary degradation process occurring in the area of MW-1. Methanogenesis generally occurs under anaerobic conditions as the other electron acceptors become depleted. The DO results in MW-3 (downgradient/side gradient well) was 4.9 mg/l which indicates significant oxygen depletion is only occurring in the area of MW-1. Table 2 contains the results of the wet chemistry analytical parameters analyzed by HCI and Table 4 contains the field chemistries measured by HDR during the sampling event.

Often oxygen in the groundwater can be depleted quickly by aerobic microbes such that anaerobic processes which rely on electron acceptors other than oxygen become the primary method for the degradation of the petroleum compounds. Electron acceptors under anaerobic conditions generally follow in this order: nitrate, iron, and sulfate. Different microbes that use different electron acceptors will become the primary method of degradation depending on the electron acceptor that is available.

As shown on Table 4, ORP results in MW-1 were -127 millivolts (mV) after purge conditions had stabilized, indicating anaerobic conditions in the area of MW-1. The ORP in MW-3 (downgradient/side gradient) was +163 mV in MW-3. The low ORP and O_2 results at MW-1 are indicators of an anaerobic groundwater condition.

MW-1 contained no detectable nitrate and MW-3 contained 5.4 mg/l of nitrate. Lower concentrations of nitrate in the area of MW-1 compared with MW-3 is an indicator of an anaerobic degradation condition where nitrate is being depleted by the nitrate microbes because it is acting as an electron receptor in the area of MW-1.

The ferrous iron concentration in MW-1 and MW-3 were both 0.2 mg/l. Elevated concentrations of ferrous iron are often an indication of anaerobic degradation because ferrous iron is a byproduct from iron reduction by iron microbes. The ferrous iron results do not provide an indication of anerobic or aerobic conditions.

MW-1 contained 86 mg/l of sulfate and MW-3 contained 46 mg/l of sulfate. During the October 2015 sampling event MW-1 and MW-3 contained sulfate concentrations of 5.7 and 38 mg/l, respectively. Similar to nitrate, lower concentrations of sulfate in areas of higher petroleum-related contamination is often an indicator of an anaerobic degradation condition where the sulfate is being depleted because it is acting as an electron receptor. This sulfate data suggests that there could be some degradation occurring from sulfate microbes.

After the nitrate, iron, and sulfate anaerobic electron acceptors are depleted, methanogenesis becomes the primary degradation process where and microbes known as methanogens respire methane (and sometimes CO_2) as they degrade the contaminants. As shown from the data Table 2, concentrations of methane/ethane/ethene are significantly higher in MW-1 compared to the concentration in MW-3. MW-1 contained 500 µg/l of methane and 1.6 µg/l of ethane and MW-3 contained no detectable concentrations of methane or ethane. However, during the previous sampling events MW-1 contained methane concentrations ranging from 610 µg/l in February 2012 to 2,200 µg/l in October 2015 and ethane concentrations ranging from 1.9 µg/l in February 2012 to 3.3 µg/l in October 2015. The CO_2 concentrations in MW-1 and MW-3 were 33 and 11 mg/l, respectively. The methane data, and the

concentrations of nitrate, and sulfate suggests that methanogenesis is occurring as the primary anaerobic degradation process for the hydrocarbons in the area of MW-1

However, the reduced concentrations of methane and the increased concentration of sulfate in MW-1 compared with previous sampling events may be an indication that the oxygen and nutrient introduction in MW-1 had temporarily changed the electron acceptor conditions in the well and the conditions were trending back towards methanogenesis after the oxygen and nutrient sock was removed from the MW-1.

Studies have shown that degradation of petroleum-related compounds in groundwater is more effective and generally quicker under aerobic conditions than anaerobic conditions. Methanogenesis is considered to be the slowest anaerobic degradation process. The results of the March 2017 as well as the previous sampling events provide evidence that the degradation processes are slowly continuing at the Site in the area of MW-1. The overall trend suggests that the contamination that remains at the Site has degraded and further degradation of the VOC concentrations in the groundwater will likely continue to occur slowly over time; the use of the EHC-O™ sock may help accelerate the degradation process.

Overall, the CVOCs detected in the samples from wells have consistently decreased since the monitoring well monitoring program was initiated in 2004.

5.4 Monitoring Deficiencies

There were no monitoring deficiencies during this PRR interval between December 14, 2015 and April 15, 2017 with the exception of a delay in the March 2017 sampling event which was originally scheduled to be conducted in the Fall of 2016. However, this delay did not cause any adverse affects for the monitoring program or potential contamination exposure to the public.

5.5 Conclusions and Recommendations

The monitoring being conducted demonstrates that the data is progressing towards the remediation goals. The addition of the ORC sock in MW-1 is likely to accelerate the degradation process of the petroleum-related VOCs in the area of MW-1. The CVOC concentrations in MW-3 continue to decrease; based on the current decreasing trend the CVOC concentration is likely to be below the Class GA standard during the next groundwater sampling event.

The current groundwater monitoring program (with the reduced parameter list) should be continued for MW-1 and MW-3 at a biennial frequency with the next sampling event scheduled for Spring 2019. HDR recommends the continued use of the ORC sock in MW-1 with replacement on a quarterly frequency. The ORC sock will be removed from the well a minimum one month prior to each sampling event and re-installed immediately after each sampling event.

6 Operation and Maintenance Plan Compliance

6.1 Components

There are no significant operations and maintenance activities required for the Site.

The Site cap must remain in place, and long-term groundwater monitoring should continue.

As part of the quarterly ORC change-out schedule, the asphalt cap will be inspected for damage or comprised locations where the public could potentially be exposed to the remaining contamination in the soil below the cap. On an annual basis, photographs will be taken to document the condition of the cap.

6.2 Summary of O&M Completed

The cap was inspected on March 21, 2017 during the recent groundwater monitoring event. A cap inspection photolog was prepared and is included as Appendix B.

6.3 Evaluation

During the reporting period, the Site cap functioned as designed and a round of groundwater samples were collected and analyzed for assessment of the groundwater conditions at the Site.

6.4 Deficiencies

There were no deficiencies in complying with the O&M Plan during this reporting period.

6.5 Conclusions and Recommendations

No modifications to the O&M Plan are required.

7 Overall PRR Conclusions and Recommendations

7.1 Compliance with Site Management Plan

1. For each component of the Site Management Plan (IC/EC, Monitoring Plan, O&M Plan), all requirements were met during this reporting period.
2. The SMP will be revised to reflect the revisions to the groundwater monitoring plan (reduction in the number of wells sampled and a reduced analytical parameter list).
3. The SMP will be revised to reflect the installation of the ORC sock in MW-1.
4. There were no requirements that were not met with the exception of a delay in the recent groundwater sampling event (March 2017) which was originally scheduled to be conducted in the Fall of 2016. However, this delay did not cause any adverse affects for the monitoring program nor did it cause potential contamination exposure to the public.
5. New compliance plans/schedules are not required.

7.2 Performance and Effectiveness of the Remedy

The Site Management Plan is achieving the remedial objectives for the site:

1. The Site cap is in good condition.
2. Groundwater at the site is not being used.
3. Excavation through the cap over the historic fill is controlled and has not been required up to this point.

7.3 Recommendations

1. The current groundwater monitoring program (with the reduced parameter list) should be continued for MW-1 and MW-3 at a biennial frequency with the next sampling event scheduled for Spring 2019.
2. HDR recommends the continued use of the ORC sock in MW-1 that is replaced on a quarterly frequency and is removed from the well approximately one month prior to each sampling event.

7.4 Future PRR Submittals

The asphalt cap is in good condition and the groundwater monitoring results show no adverse trends. Therefore, HDR recommends a triennial frequency for subsequent PRR submittals.

8 References

NYSDEC March 2008 Environmental Restoration - Record of Decision - 310 Saw Mill River Road Site.

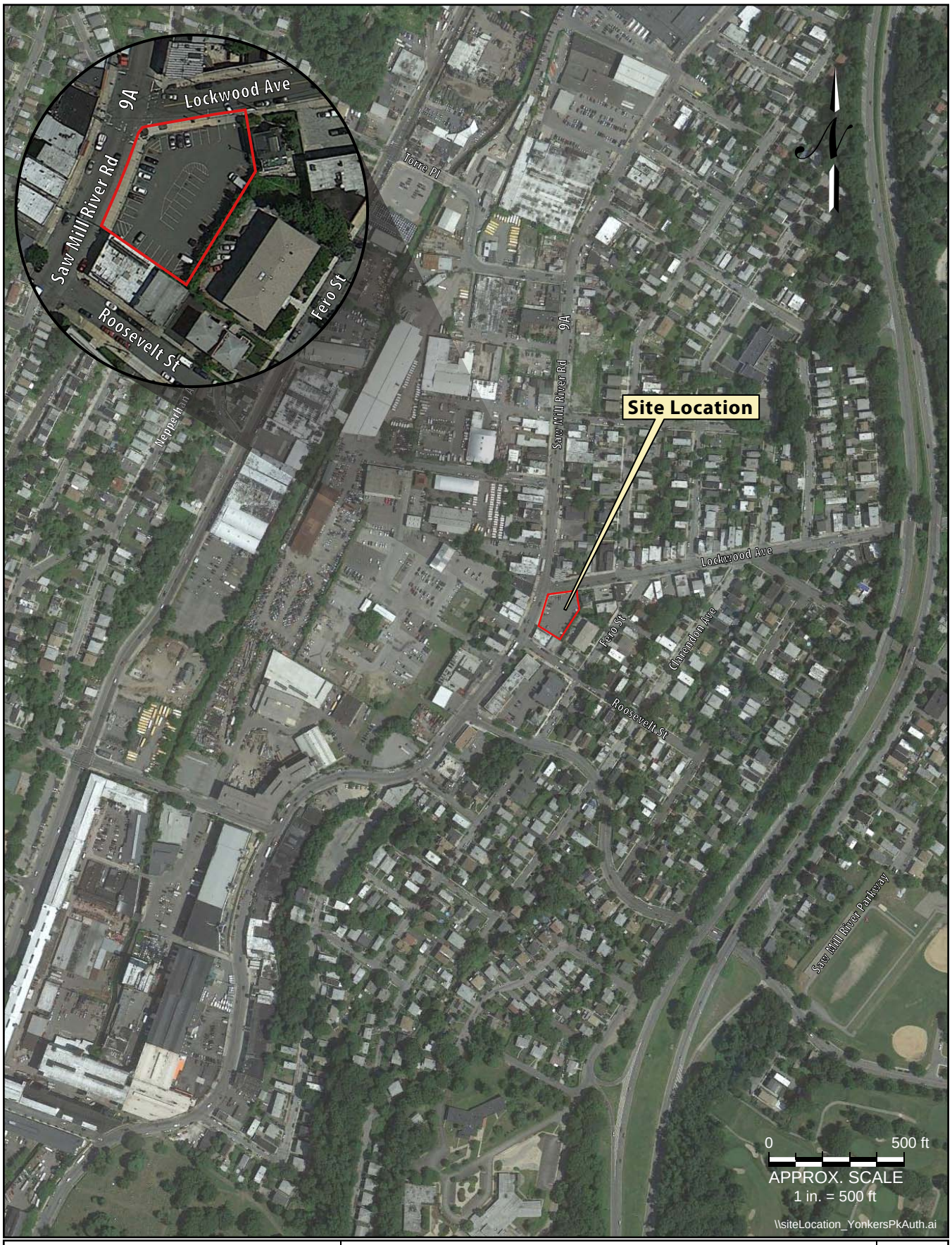
HDR May 2003 Final Site Investigation Work Plan (SIWP)

HDR January 2004 Final Site Investigation Work Plan Amendment

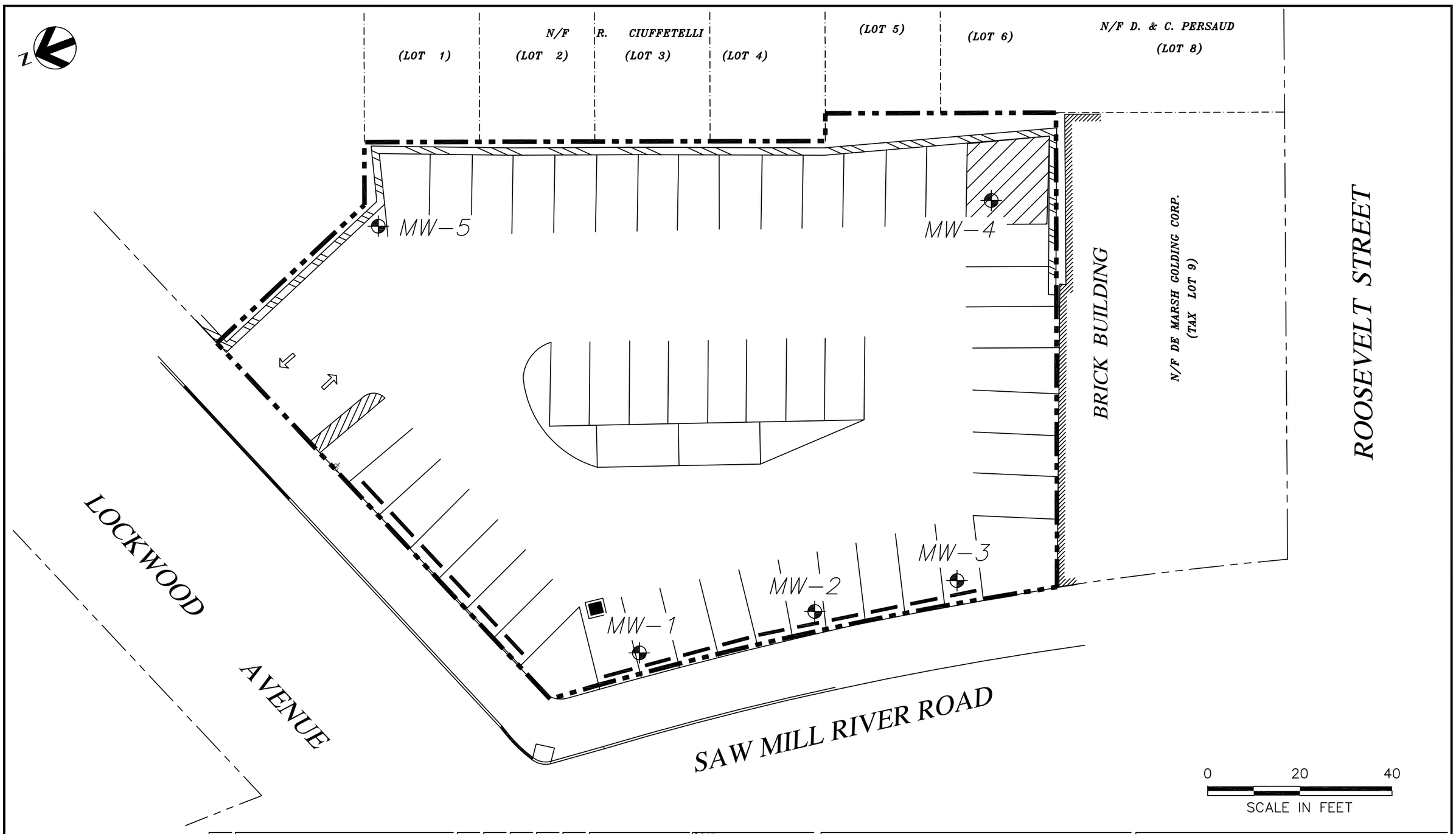
HDR February 2005 Final Site Investigation Work Plan Amendment

HDR February 2008 Final Site Investigation / Remedial Alternatives Report

Figures



Henningson, Durham & Richardson Architecture and Engineering, P.C. 711 Westchester Ave. White Plains, NY 10604	**Site Location** **Yonkers Parking Authority** **Periodic Review Report** **310 Saw Mill River Road, Yonkers, NY**	**Figure 1**



HDR
Henningson, Durham and Richardson Architecture & Engineering, P.C.
711 Westchester Avenue
White Plains, NY 10604

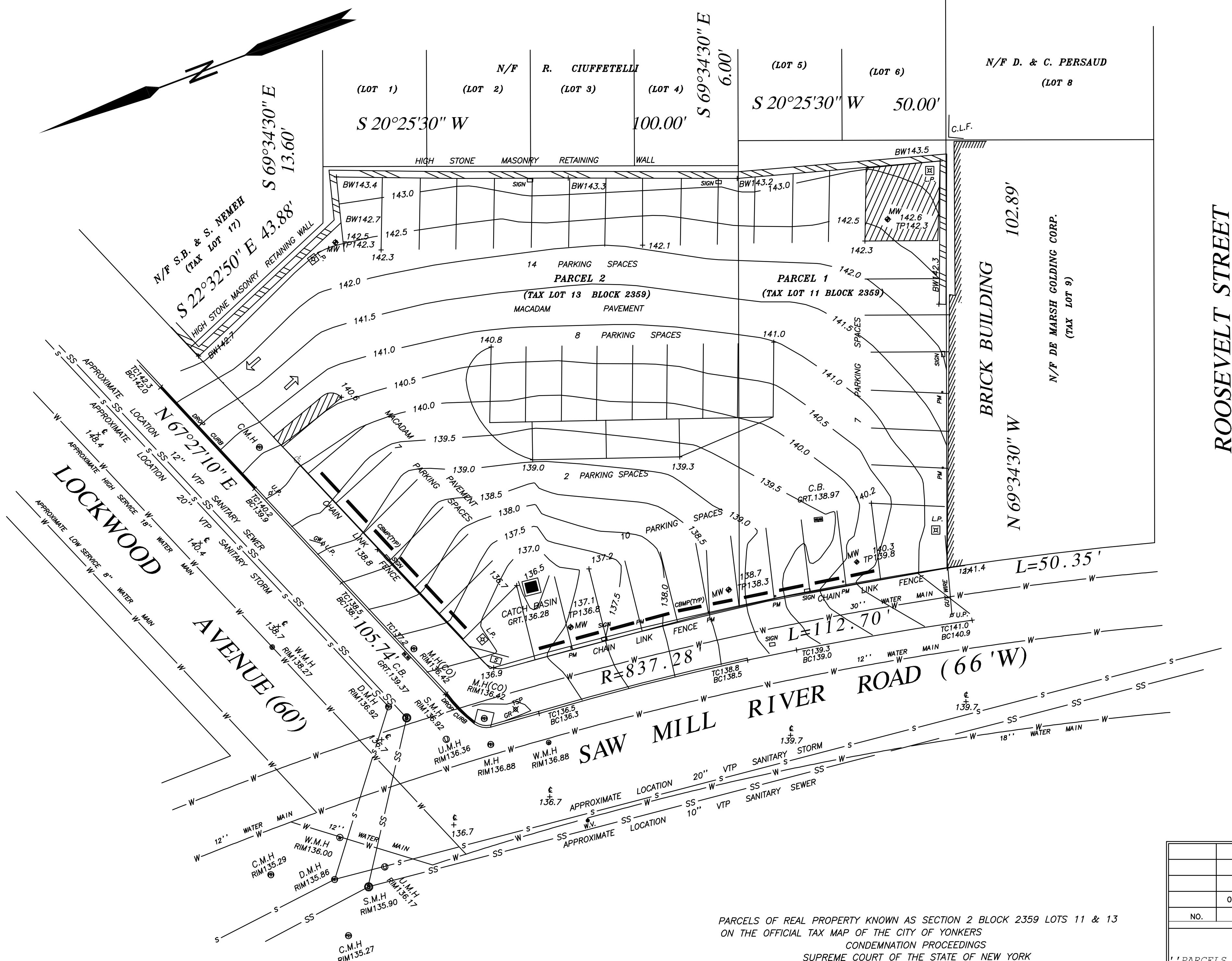
Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.
C	ANNUAL GROUNDWATER SAMPLING – SUMMARY REPORT	04/12	NI	NS		NS
B	PROPOSED REMEDIAL ACTION PLAN	07/07	NI	NS		NS
A	DRAFT SI/RAR	10/05	NI	NC		JM

Project Manager: N. SANTIAGO
Architect | I&C/Process
Civil | Mechanical
Electrical | Structural
Geology | Drawn By: N. INGRASSIA

YONKERS PARKING AUTHORITY
Periodic Review Report

SITE PLAN

Date: 04/24/12
Scale: AS SHOWN
Project No.: 11786
Figure No.: 2
Issue: C



LEGEND

⊕	C.M.H	CON ED MANHOLE
⊕	D.M.H	DRAINAGE MANHOLE
●	S.M.H	SEWER MANHOLE
⊕	M.H(CO)	MANHOLE CLEAN OUT
⊕	U.M.H	UTILITY MANHOLE
⊕	W.M.H	WATER MANHOLE
▭	C.B.	CATCH BASIN
	U.P.	UTILITY POLE
	TSP	TRAFFIC SIGNAL POLE
	LP.	LIGHT POLE ON CONCRETE BASE
	G.V.	GAS VALVE
	W.V.	WATER VALVE
•	PM	PARKING METER
	BC	BOTTOM CURB
	TC	TOP CURB
	BW	BOTTOM WALL
	TW	TOP WALL
	SS	SANITARY SEWER
	S	STORM (DRAINAGE)
	W	WATER MAIN
	GRT.	GRATE
	GW	GUY WIRE
	INV	INVERT
	OE	OVERHEAD TRANSMISSION LINES
	UE	UNDERGROUND TRANSMISSION LINES
	MW	MONITORING WELL
	CBMP	CONCRETE BUMPER
	GR	GUARD RAIL
S		SIGN

NOTES:

Contour Interval 0.5'

Unauthorized alteration or additions to this survey map are a violation of section 7209 sub-section 2, of the New York State Education Law.

No guarantee is implied by this map as to the existence or non-existence of any easements of record that would affect subject property, unless surveyor has been furnished a complete copy of the title report.

Dimensions shown from structures to property lines are not intended to be used for construction of fences, structures or other improvements.

Underground utilities as shown hereon are located from field and municipal data available at this time and should be verified by the contractor at the time of construction.

PARCELS OF REAL PROPERTY KNOWN AS SECTION 2 BLOCK 2359 LOTS 11 & 13 ON THE OFFICIAL TAX MAP OF THE CITY OF YONKERS

CONDEMNATION PROCEEDINGS
SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK – INDEX No. 02329–01

IN THE MATTER OF THE PROCEEDINGS PURSUANT TO THE NEW YORK EMINENT DOMAIN PROCEDURE LAW BY

YONKERS PARKING AUTHORITY
PETIONER–CONDEMNOR
– AGAINST –
REX REALTY OF CONNECTICUT, INC.
OWNER

ORDER AND JUDGMENT FILED AND ENTERED AT WESTCHESTER COUNTY CLERK ON APRIL 20, 2001

NO.	DATE	REVISION	BY
	03/23/04	SURVEY– TOPOGRAPHY– MONITORING WELLS	

SURVEY
OF
''PARCELS 1 & 2 YONKERS PARKING AUTHORITY–ACQ MAP BLOCK 2359 LOTS 11 & 12, CITY OF YONKERS, WESTCHESTER COUNTY, NEW YORK FILED IN THE WESTCHESTER COUNTY CLERK'S DIVISION OF LAND RECORDS JUNE 6,2001 AS MAP # 26797

PROJECT	C04–123
SCALE	1" = 16'
SURVEYED	02/27/04
DRAWN	04/23/04
DRAWN	J.P.
CHECKED BY	W.J.S.
DRAWING NO.	

ARISTOTLE BOURNAZOS, P.C.
Land Surveyors-Planners
20 Cedar Street,New Rochelle, N.Y. 10801
Phone: (914)633-0100 Fax: (914) 633-1762

HDR
Henningson, Durham and Richardson
Architecture & Engineering, P.C.
711 Westchester Avenue
White Plains, NY 10604

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager: N. SANTIAGO
Architect:
I&C/Process:
Civil:
Mechanical:
Electrical:
Structural:
Geology:
Drawn By: N. INGRASSIA

YONKERS PARKING AUTHORITY
Periodic Review Report

SITE WIDE COVER SYSTEM PLAN

Date: 02/18/13
Project No. 111550
Figure No. 3
Scale: AS SHOWN
Issue:

Tables

Table 1

Groundwater Data Summary - VOCs
Yonkers Parking Authority - 310 Saw Mill River Road, Yonkers, NY
(March 2017)

HDR Sample ID		NYSDEC Class GA Standards (a)	MW-1			MW-3			FB-20170321			TB-20170321		
Lab Sample ID			AC96872-002			AC96872-001			AC96872-005			AC96872-006		
Date Sampled			3/21/17			3/21/17			(Equipment Blank) 3/21/17			(Trip Blank) 3/21/17		
VOCs (µg/L)	**CAS No.**		**Results**	**Flg**	**RL**	**Results**	**Flg**	**RL**	**Results**	**Flg**	**RL**	**Results**	**Flg**	**RL**
1,2,4-Trimethylbenzene	95-63-6	5	**840**		5	ND		1	ND		1	ND		1
1,3,5-Trimethylbenzene	108-67-8	5	**52**		5	ND		1	ND		1	ND		1
2-Butanone	78-93-3	50 GV	ND		5	ND		1	ND		1	ND		1
4-Isopropyltoluene	99-87-6	5	**5.2**		5	ND		1	ND		1	ND		1
Acetone	67-64-1	50 GV	ND		25	ND		10	ND		10	ND		10
Benzene	71-43-2	1	ND		2.5	ND		0.5	ND		0.5	ND		0.5
Chloroform	67-66-3	7	ND		5	ND		1	ND		1	ND		1
cis-1,2-Dichloroethene	540-59-0	5	**6.0**		5	ND		1	ND		1	ND		1
Cyclohexane	110-82-7	NS	**290**		5	ND		1	ND		1	ND		1
Ethylbenzene	100-41-4	5	**520**		5	ND		1	ND		1	ND		1
Isopropylbenzene	98-82-8	5	**53**		5	ND		1	ND		1	ND		1
m&p-Xylenes	108-38-3 106-42-3	5	**610**		5	ND		1	ND		1	ND		1
Methylcyclohexane	108-87-2	NS	**150**		5	ND		1	ND		1	ND		1
Methylene chloride	75-09-2	5	ND		5	ND		1	ND		1	ND		1
Methyl tert-butyl ether (MTBE)	1634-04-4	10 GV	ND		2.5	ND		0.5	ND		0.5	ND		0.5
Naphthalene	91-20-3	10GV	**140**		5	ND		1						
n-Butylbenzene	104-51-8	5	ND		5	ND		1	ND		1	ND		1
n-Propylbenzene	103-65-1	5	**150**		5	ND		1	ND		1	ND		1
o-Xylene	95-47-6	5	**110**		5	ND		1	ND		1	ND		1
sec-Butylbenzene	135-98-8	5	**7.0**		5	ND		1	ND		1	ND		1
Tetrachloroethene	127-18-4	5	ND		5	**5.3**		1	ND		1	ND		1
Toluene	108-88-3	5	**40**		5	ND		1	ND		1	ND		1
Trichloroethene	79-01-6	5	ND		5	ND		1	ND		1	ND		1
Xylenes (total)	(see above)	5	**720**		5	ND		1	ND		1	ND		1
		Total VOCs:	*2973*			*5.3*			*ND*			*ND*		
		Total BTEX:	*1280*			*ND*			*ND*			*ND*		

(a) - NYSDEC Part 703 & TOGS 1.1.1, June 1998.
ND - Not detected at analytical reporting limit.
* - standard for these compounds is any detectable concentration.
35 - Indicates exceedance of applicable standard or guidance value.
Note - The results represent detected parameters only. Please refer to the laboratory data packages in the appendix of this report.
J* - Sample result considered estimated based on data usability evaluation.

Table 2

Groundwater Data Summary - MNA Parameters
Yonkers Parking Authority - 310 Saw Mill River Road, Yonkers, NY
(2012 - 2017)

Sample ID / Lab Sample ID / Date Sampled	NYSDEC Class GA Standards (a)	MW-1 AC64272-003 2/16/12			MW-1-Dup ^ AC64272-004 2/16/12 (Blind Duplicate)			MW-1 AC70157-002 1/10/13			MW-1 (Dup) ^ AC70157-003 1/10/13			MW-1 AC87767-004 10/22/15			MW-1 AC96872-002 3/21/17		
		Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL
Wet Chemistry																			
Chloride (mg/L)	250	**460**		50	**450**		50	**340**		50	**350**		50	**400**		50	**450**		40
Nitrate + Nitrite as N (mg/L)	10	ND		1.0	ND		1.0	ND		1.0	ND		1.0	ND		1.0	ND		1.0
Sulfate (mg/L)	250	24		2.0	24		2.0	8.3		2.0	9.1		2.0	5.7		2.0	86		4.0
Methane (µg/L)	NS	610		0.10	700		0.10	980	J*	0.10	860	J*	0.10	2,200		0.50	500		0.50
Ethane (µg/L)	NS	1.9		0.025	2.2		0.025	2.6	J*	0.025	2.4	J*	0.025	3.3		0.1	1.6		0.1
Ethene (µg/L)	NS	0.14		0.025	0.15		0.025	0.44	J*	0.025	0.39	J*	0.025	0.072	j	0.1	ND		0.1
Carbon Dioxide (mg/L)		ANC			ANC			ANC			ANC			ANC			33		5.0
Alkalinity, Total as $CaCO_3$ (mg/L)	NS	200		10	200		10	220		10	230		10	250		10	ANC		
Total Sulfide (mg/L)	0.050 GV	**2.4**		2.0	**2.4**		2.0	ND		2.0	**3.2**		2.0	ND		2.0	ANC		
Total Organic Carbon (TOC) (mg/L)	NS	4.4		1.0	4.2		1.0	6.5		5.0	6.3		1.0	ND		1.0	ANC		

Sample ID / Lab Sample ID / Date Sampled	NYSDEC Class GA Standards (a)	MW-2 AC64272-002 2/16/12			MW-2 AC70157-001 1/10/13			MW-2 AC87767-003 10/22/15			MW-3 AC64272-001 2/16/12			MW-3 AC70136-005 1/9/13			MW-3 AC87723-005 10/21/15			MW-3 AC96872-001 3/21/17		
		Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL
Wet Chemistry																						
Chloride (mg/L)	250	**440**		50	**380**		20	**400**		50	**570**		50	**490**		40	**350**		40	**510**		40
Nitrate + Nitrite as N (mg/L)	10	2.2		1.0	ND		1.0	1.5		1.0	9.5		1.0	4.8		1.0	4.7		1.0	5.4		1.0
Sulfate (mg/L)	250	91		10	51		4.0	60		10.0	76		10.0	49		2.0	38		2.0	46		4.0
Methane (µg/L)	NS	4.9		0.10	12	J*	0.10	3.0		0.5	0.05	j	0.1	0.05	j	0.1	ND		0.5	ND		0.50
Ethane (µg/L)	NS	0.051		0.025	0.11	J*	0.025	0.055	j	0.1	0.002	j	0.025	ND		0.025	ND		0.1	ND		0.1
Ethene (µg/L)	NS	0.058		0.025	0.062	J*	0.025	0.033	j	0.1	0.036		0.025	0.010	j	0.025	0.0050	j	0.1	ND		0.1
Carbon Dioxide (mg/L)	NS	ANC			ANC			ANC			ANC			ANC			ANC			11		5.0
Alkalinity, Total as $CaCO_3$ (mg/L)	NS	170		10	200		10	200		10	130		10	140		10	190		10	ANC		
Total Sulfide (mg/L)	0.050 GV	ND		2.0	ND		2.0	ND		2.0	**3.2**		2.0	ND		2.0	ND		2.0	ANC		
Total Organic Carbon (TOC) (mg/L)	NS	3.7		1.0	ND		5.0	ND		1.0	1.5		1.0	ND		5.0	ND		5.0	ANC		

Sample ID / Lab Sample ID / Date Sampled	NYSDEC Class GA Standards (a)	MW-4 AC64255-001 2/15/12			MW-4 AC70136-001 1/9/13			MW-4 AC87723-001 10/21/15			MW-5 AC64255-002 2/15/12			MW-5 AC70136-002 1/9/13			MW-5 AC87723-002 10/21/15		
		Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL
Wet Chemistry																			
Chloride (mg/L)	250	**510**		50	**630**		50	**380**		20	210		20	160		10	**470**		40
Nitrate + Nitrite as N (mg/L)	10	10		1.0	4.0		1.0	6.9		1.0	3.8		1.0	3.7		1.0	4.3		1.0
Sulfate (mg/L)	250	78		10	41		2.0	30		2.0	43		2	36		2.0	29		2.0
Methane (µg/L)	NS	0.11		0.10	0.091	j	0.10	7.6		0.5	0.057	j	0.10	0.054	j	0.10	ND		0.5
Ethane (µg/L)	NS	0.0051	j	0.025	ND		0.025	ND		0.1	0.0037	j	0.025	ND		0.025	ND		0.1
Ethene (µg/L)	NS	0.042		0.025	0.0088	j	0.025	0.0053	j	0.1	0.031		0.025	0.011	j	0.025	0.0069	j	0.1
Carbon Dioxide (mg/L)	NS	ANC			ANC			ANC			ANC			ANC			ANC		
Alkalinity, Total as $CaCO_3$ (mg/L)	NS	120		10	140		10	120		10	95		10	110		10	75		10
Total Sulfide (mg/L)	0.050 GV	**2.4**		2.0	ND		2.0	ND		2.0	ND		2	ND		2	ND		2
Total Organic Carbon (TOC) (mg/L)	NS	2.1		1.0	ND		5.0	ND		1.0	1.2		1.0	ND		1.0	ND		5.0

(a) - NYSDEC Part 703 & TOGS 1.1.1, June 1998.
ND - Not detected at quantitation limit.
j - Concentration detected at a value below the RL and above the MDL
35 - Indicates exceedance of applicable standard or guidance value
J* - Sample result considered estimated based on data usability evaluation
GV - Guidance value.
NS - No standard or guidance value available
RL - Reporting Limit
Flg - Data Qualifier Flag
^ - MW-1-Dup is the blind duplicate sample of MW-1.
- March 2017 Sampling Event

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

			Jan-04				Jun-05			
Sample ID		**NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines**	**MW-1**		**MW-1 DUP**		**MW-1**		**MW-1 DUP**	
Lab Sample Number			1030545		1030546		1076768.D		1076769A.D	
Sampling Date			1/8/2004		1/8/2004		6/13/2005		6/13/2005	
Matrix			WATER		WATER		WATER		WATER	
Parameter			DL 10:1				DL 10:1		DL 20:1	
VOCs (µg/L)	Benzene	1	**150**		**180**		**80**	**D**	**15**	**JD**
	Bromobenzene	5	5	U	50	U	**8**	**JD**	100	U
	Bromomethane	5	5	U	50	U	**9**	**JD**	100	U
	sec-Butylbenzene	5	**7**		**8**	**J**	**33**	**JD**	100	U
	2-Butanone	50 GV	5	U	50	U	50	U	100	U
	Chloroform	7	5	U	50	U	**19**	**JD**	100	U
	Cyclohexane	NS	ANC		ANC		ANC		ANC	
	1,1-Dichloroethene	5	5	U	50	U	**30**	**JD**	100	U
	cis-1,2-Dichloroethene	5	2	J	50	U	**7**	**JD**	100	U
	1,1-Dichloroethane	5	5	U	50	U	**14**	**J**	100	U
	1,2-Dichloroethane	0.6	5	U	50	U	**7**	**JD**	100	U
	1,2-Dichloropropane	1	5	U	50	U	**42**	**JD**	100	U
	2,2-Dichloropropane	5	5	U	50	U	**22**	**JD**	100	U
	Ethyl benzene	5	**280**		**30**	**J**	**6800**	**D**	**180**	**D**
	Isopropylbenzene	5	**33**		**20**	**J**	**180**	**D**	100	U
	4-Isopropyltoluene	5	**7**		**13**	**J**	**40**	**JD**	**17**	**JD**
	n-Butylbenzene	5	5	U	50	U	50	U	100	U
	Methylcyclohexane	NS	ANC		ANC		ANC		ANC	
	Methylene chloride	5	5	U	50	U	920	U	140	U
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	50	U	**21**	**JD**	100	U
	Naphthalene	10 GV	5	U	50	U	**1300**	**D**	**88**	**JD**
	n-Propylbenzene	5	**8**		50	U	**220**	**D**	100	U
	Styrene	5	**45**		50	U	50	U	100	U
	Tetrachloroethylene	5	1	J	50	U	**23**	**JD**	100	U
	1,1,2,2-Tetrachloroethane	5	5	U	50	U	**26**	**JD**	100	U
	1,2,4,5-Tetramethylbenzene	5	**73**		**150**		**390**	**D**	**54**	**JD**
	Toluene	5	**2100**	**D**	**2000**		**5000**	**D**	**800**	**D**
	1,2,3-Trichlorobenzene	5	5	U	50	U	**8**	**JD**	100	U
	1,2,4-Trichlorobenzene	5	5	U	50	U	**8**	**JD**	100	U
	Trichloroethylene	5	5	U	50	U	50	U	100	U
	1,1,1-Trichloroethane	5	5	U	50	U	50	U	**56**	**JD**
	1,2,4-Trimethylbenzene	5	**1400**	**D**	**2700**		**9300**	**D**	**1500**	**D**
	1,3,5-Trimethylbenzene	5	**460**		**800**		**2600**	**D**	**440**	**D**
	m/p-Xylene	5	**3600**	**D**	**6600**		**25000**	**D**	**4300**	**D**
	o-Xylene	5	**2100**	**D**	**4000**		**14000**	**D**	**2400**	**D**
	TOTAL VOCs:	-	10266		16501		65237		9850	
	TOTAL BTEX:	-	8230		12810		50880		7695	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	2	U	**130**		2	
	2-Methylphenol	1*	**10**		**9**		1	U	**3**	
	4-Methylphenol	1*	**7**		**8**		2	U	**4**	
	2,4-Dimethylphenol	1*	**9**		**8**		1	U	1	U
	2-Methylnaphthalene	-	46		9		12		1	
	Naphthalene	0.4 (10 GV)	**20**		**2**	U	**78**		**30**	

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D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
Bold - Result detected above reporting limit.
* - Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
NS - No standard available
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- 3/2017 sampling event (only VOCs, including naphthalene analyzed)

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

			May-06				Feb-12			
Sample ID		**NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines**	**MW-1**		**MW-1 DUP**		**MW-1**		**MW-1 DUP**	
Lab Sample Number			212946-001		212946-002		AC64272-002		AC64272-003	
Sampling Date			5/17/2006		5/17/2006		2/16/2012		2/16/2012	
Matrix			WATER		WATER		WATER		WATER	
Parameter			DL 10:1		DL 10:1		DL 5.1:1		DL 5.1:1	
VOCs (µg/L)	Benzene	1	**19**	**J**	**17**	**J**	2.5	U	2.5	U
	Bromobenzene	5	6	U	6	U	ANC		ANC	
	Bromomethane	5	12	U	12	U	5	U	5	U
	sec-Butylbenzene	5	0.9	U	0.9	U	**6.5**		**6.1**	
	2-Butanone	50 GV	6	U	6	U	5	U	5	U
	Chloroform	7	7	U	7	U	5	U	5	U
	Cyclohexane	NS	ANC		ANC		ANC		ANC	
	1,1-Dichloroethene	5	7	U	7	U	5	U	5	U
	cis-1,2-Dichloroethene	5	6	U	6	U	**7.6**		**7.1**	
	1,1-Dichloroethane	5	6	U	6	U	5	U	5	U
	1,2-Dichloroethane	0.6	6	U	6	U	2.5	U	2.5	U
	1,2-Dichloropropane	1	9	U	9	U	5	U	5	U
	2,2-Dichloropropane	5	0.6	U	0.6	U	ANC		ANC	
	Ethyl benzene	5	**1300**		**1100**		**860**		**810**	
	Isopropylbenzene	5	**57**		**47**	**J**	**49**		**48**	
	4-Isopropyltoluene	5	0.8	U	0.8	U	5	U	5	U
	n-Butylbenzene	5	ANC		ANC		5	U	5	U
	Methylcyclohexane	NS	ANC		ANC		ANC		ANC	
	Methylene chloride	5	4	U	4	U	5	U	5	U
	Methyl tert-butyl ether (MTBE)	10 GV	0.3	U	0.3	U	2.5	U	2.5	U
	Naphthalene	10 GV	*160*		*120*		ANC		ANC	
	n-Propylbenzene	5	**140**		**110**		**140**		**130**	
	Styrene	5	0.5	U	0.5	U	5	U	5	U
	Tetrachloroethylene	5	5	U	5	U	5	U	5	U
	1,1,2,2-Tetrachloroethane	5	4	U	4	U	5	U	5	U
	1,2,4,5-Tetramethylbenzene	5	5	U	5	U	ANC		ANC	
	Toluene	5	**200**		**170**		**45**		**41**	
	1,2,3-Trichlorobenzene	5	1.1	U	1.1	U	ANC		ANC	
	1,2,4-Trichlorobenzene	5	0.9	U	0.9	U	ANC		ANC	
	Trichloroethylene	5	5	U	5	U	5	U	5	U
	1,1,1-Trichloroethane	5	4	U	4	U	5	U	5	U
	1,2,4-Trimethylbenzene	5	**750**		**640**		**510**		**510**	
	1,3,5-Trimethylbenzene	5	**250**		**200**		**33**		**42**	
	m/p-Xylene	5	**1700**		**1400**		**660**		**750**	
	o-Xylene	5	**540**		**460**		**210**		**250**	
	TOTAL VOCs:	-	5116		4264		2521		2594	
	TOTAL BTEX:	-	3759		3147		1778		1854	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	ANC		ANC		2.1	U	2.1	U
	2-Methylphenol	1*	ANC		ANC		0.53	U	0.52	U
	4-Methylphenol	1*	ANC		ANC		0.53	U	0.52	U
	2,4-Dimethylphenol	1*	**6**	j	**9**	j	2.1	U	2.1	U
	2-Methylnaphthalene	NS	ANC		ANC		2.1	U	2.9	
	Naphthalene	0.4 (10 GV)	**120**		**120**		**31**		**43**	

Data Qualifiers and Notes:

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35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
Bold - Result detected above reporting limit.
* - Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
NS - No standard available
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- 3/2017 sampling event (only VOCs, including naphthalene analyzed)

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

			Jan-13				Oct-15		Mar-17	
Sample ID		**NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines**	**MW-1**		**MW-1 (DUP)**		**MW-1**		**MW-1**	
Lab Sample Number			AC70157-002		AC701567-003		AC87767-004		AC96872-002	
Sampling Date			1/10/2013		1/10/2013		10/22/2015		3/21/2017	
Matrix			WATER		WATER		WATER		WATER	
Parameter			DL 5:1		DL 5:1		DL 1:1		DL 1:1	
VOCs (µg/L)	Benzene	1	2.5	U	2.5	U	0.5	U	2.5	U
	Bromobenzene	5	ANC		ANC		ANC		ANC	
	Bromomethane	5	5	U	5	U	1	U	5	U
	sec-Butylbenzene	5	**11**		**14**		**7.2**		**7.0**	
	2-Butanone	50 GV	5	U	5	U	**19**		5	U
	Chloroform	7	5	U	5	U	1	U	5	U
	Cyclohexane	NS	ANC		ANC		**250**		**290**	
	1,1-Dichloroethene	5	5	U	5	U	1	U	5	U
	cis-1,2-Dichloroethene	5	**7.7**		**9.4**		**4.0**		**6.0**	
	1,1-Dichloroethane	5	5	U	5	U	1	U	5	U
	1,2-Dichloroethane	0.6	2.5	U	2.5	U	0.5	U	2.5	U
	1,2-Dichloropropane	1	5	U	5	U	1	U	5	U
	2,2-Dichloropropane	5	ANC		ANC		ANC		ANC	
	Ethyl benzene	5	**1100**		**1300**		**420**		**520**	
	Isopropylbenzene	5	**130**		**110**		**70**		**53**	
	4-Isopropyltoluene	5	**8.1**		**7.0**		**3.6**		**5.2**	
	n-Butylbenzene	5	**8.9**		**6.7**		**5.4**		5	U
	Methylcyclohexane	NS	ANC		ANC		**130**		**150**	
	Methylene chloride	5	5	U	5	U	1	U	5	U
	Methyl tert-butyl ether (MTBE)	10 GV	2.5	U	2.5	U	0.5	U	0.5	U
	Naphthalene	10 GV	ANC		ANC		ANC		**140**	
	n-Propylbenzene	5	**330**		**270**		**180**		**150**	
	Styrene	5	5	U	5	U	1	U	5	U
	Tetrachloroethylene	5	5	U	5	U	1	U	5	U
	1,1,2,2-Tetrachloroethane	5	5	U	5	U	1	U	5	U
	1,2,4,5-Tetramethylbenzene	5	ANC		ANC		ANC		ANC	
	Toluene	5	**150**		**130**		**30**		**40**	
	1,2,3-Trichlorobenzene	5	ANC		ANC		ANC		ANC	
	1,2,4-Trichlorobenzene	5	ANC		ANC		ANC		ANC	
	Trichloroethylene	5	5	U	5	U	**2.5**		5	U
	1,1,1-Trichloroethane	5	5	U	5	U	1	U	5	U
	1,2,4-Trimethylbenzene	5	**1900**		**1500**		**1000**		**840**	
	1,3,5-Trimethylbenzene	5	**310**		**230**		**150**		**52**	
	m/p-Xylene	5	**2500**		**2000**		**620**		**610**	
	o-Xylene	5	**660**		**800**		**270**		**110**	
	TOTAL VOCs:	-	7116		6377		3162		2973	
	TOTAL BTEX:	-	4410		4230		1340		1280	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2.2	U	2.1	U	2.2	U	ANC	
	2-Methylphenol	1*	0.56	U	0.53	U	0.56	U	ANC	
	4-Methylphenol	1*	0.56	U	0.53	U	0.56	U	ANC	
	2,4-Dimethylphenol	1*	**4.9**		**6.3**		0.76		ANC	
	2-Methylnaphthalene	NS	16		20		22		ANC	
	Naphthalene	0.4 (10 GV)	**120**		**140**		**150**		**(see VOCs)**	

Data Qualifiers and Notes:

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D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
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Bold - Result detected above reporting limit.
* - Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
NS - No standard available
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- 3/2017 sampling event (only VOCs, including naphthalene analyzed)

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-2									
Lab Sample Number			1030547		1076770.D		AC64272-002		AC70157-001		AC8757-001	
Sampling Date			1/9/2004		6/13/2005		2/16/2012		1/10/2013		10/22/2015	
Matrix			WATER		WATER		WATER		WATER		WATER	
Parameter												
VOCs (µg/L)	cis-1,2-Dichloroethene	5	**270**		**66**		1.2		1.2		1	U
	trans-1,2-Dichloroethene	5	0.77	J	5	U	1	U	1	U	1	U
	Chloroform	7	5	U	5	U	1	U	1	U	1	U
	p-Ethyltoluene	5	4	J	5	U	ANC		ANC		ANC	
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	5	U	1	U	0.50	U	0.50	U
	Naphthalene	10 GV	5	U	1	J	ANC		ANC		ANC	
	Tetrachloroethylene	5	**91**		2	J	1		4.1		1.7	
	1,2,4,5-Tetramethylbenzene	5	0.83	J	5	U	1	U	1	U	1	U
	Toluene	5	0.77	J	5	U	1	U	1	U	1	U
	1,2,4-Trichlorobenzene	5	5	U	1	J	1	U	1	U	1	U
	Trichloroethylene	5	**42**		5	U	1	U	3.7		1.0	
	Vinyl chloride (Chloroethene)	2	5	U	**6**		1	U	1.1		1	U
	m/p-Xylene	5	10	U	2	J	1	U	1	U	1	U
	o-Xylene	5	**8**		1	J	1	U	1	U	1	U
	TOTAL VOCs:	-	417		79		2.2		10.1		2.7	
	Total BTEX:	-	19		3		ND		ND		ND	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	**58**		2.1	U	2.0	U	2.1	U
	Butylbenzylphthalate	50 GV	2	U	*5*	U	5	U	5	U	2.1	U
	Naphthalene	0.4 (10 GV)	**9**		5	U	0.50	U	0.50	U	0.53	U

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* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- March 2017 Sampling Event

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-3											
Lab Sample Number			1030548		1076771.D		AC64272-001		AC70136-005		AC87723-005		AC96872-001	
Sampling Date			1/9/2004		6/13/2005		2/16/2012		1/9/2013		10/21/2015		3/21/2017	
Matrix			WATER		WATER		WATER		WATER		WATER		WATER	
Parameter														
VOCs (µg/L)	cis-1,2-Dichloroethene	5	**22**		5	U	1	U	1	U	1	U	1	U
	trans-1,2-Dichloroethene	5	5	U	5	U	1	U	1	U	1	U	1	U
	Chloroform	7	5	U	5	U	1	U	5.8		1	U	1	U
	p-Ethyltoluene	5	0.8	J	5	U	ANC		ANC		ANC		ANC	
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	5	U	1	U	0.50	U	0.50	U	0.50	U
	Naphthalene	10 GV	5	U	5	U	ANC		ANC		ANC		1	U
	Tetrachloroethylene	5	**970**	**D**	**73**		**51**		**10**		**6.2**		**5.3**	
	1,2,4,5-Tetramethylbenzene	5	5	U	5	U	1	U	1	U	1	U	1	U
	Toluene	5	1	J	5	U	1	U	1	U	1	U	1	U
	1,2,4-Trichlorobenzene	5	5	U	5	U	1	U	1	U	1	U	1	U
	Trichloroethylene	5	**16**		5	U	1	U	1	U	1	U	1	U
	Vinyl chloride (Chloroethene)	2	5	U	5	U	1	U	1	U	1	U	1	U
	m/p-Xylene	5	0.9	J	5	U	1	U	1	U	1	U	1	U
	o-Xylene	5	4	J	5	U	1	U	1	U	1	U	1	U
	TOTAL VOCs:	-	1015		73		51		15.8		6.2		5.3	
	Total BTEX:	-	6		ND		ND		ND		ND		ND	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	**1000**	*D*	5	U	5	U	5	U	ANC	
	Butylbenzylphthalate	50 GV	2	U	*5*	U	5	U	5	U	2.0		ANC	
	Naphthalene	0.4 (10 GV)	2	U	5	U	0.50	U	0.50	U	0.50	U	ANC	

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* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this particular analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- March 2017 Sampling Event

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-4					
Lab Sample Number			1030549	AC96872-002	1076772.D	AC64255-001	AC70136-001	AC87723-001
Sampling Date			1/9/2004	3/21/2017	6/13/2005	2/16/2012	1/9/2013	10/21/2015
Matrix			WATER	WATER	WATER	WATER	WATER	WATER
Parameter								
VOCs (µg/L)	cis-1,2-Dichloroethene	5	5 U	5 U	5 U	1 U	1 U	1 U
	trans-1,2-Dichloroethene	5	5 U	5 U	5 U	1 U	5 U	5 U
	Chloroform	7	5 U	5 U	5 U	4.9	6.3	1 U
	p-Ethyltoluene	5	5 U	5 U	5 U	ANC	ANC	ANC
	Methyl tert-butyl ether (MTBE)	10 GV	5 U	29 U	5 U	1 U	0.50 U	0.50 U
	Naphthalene	10 GV	5 U	5 U	5 U	ANC	ANC	ANC U
	Tetrachloroethylene	5	5 U	210 U	5 U	1 U	1 U	1 U
	1,2,4,5-Tetramethylbenzene	5	5 U	5 U	5 U	1 U	1 U	1 U
	Toluene	5	5 U	1 U	5 U	1 U	1 U	1 U
	1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	1 U	1 U	1 U
	Trichloroethylene	5	5 U	5 U	5 U	1 U	1 U	1 U
	Vinyl chloride (Chloroethene)	2	5 U	5 U	5 U	1 U	1 U	1 U
	m/p-Xylene	5	5 U	5 U	5 U	1 U	1 U	1 U
	o-Xylene	5	5 U	400 U	5 U	1 U	1 U	1 U
	TOTAL VOCs:	-	ND	41	ND	4.9	6.3	ND
	Total BTEX:	-	ND	ND	ND	ND	ND	ND
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2 U	2 U	5 U	5 U	5 U	5 U
	Butylbenzylphthalate	50 GV	2 U	100 U	5 U	5 U	5 U	5 U
	Naphthalene	0.4 (10 GV)	2 U	2 U	5 U	0.50 U	0.50 U	0.50 U

Data Qualifiers and Notes:

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D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
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* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
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ANC - Analysis not conducted for this analyte during this sampling event.
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- March 2017 Sampling Event

Table 3

Historical Groundwater Data Summary - VOCs & SVOCs
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY
(2004 - 2017)

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-5									
Lab Sample Number			1030550		1076775.D		AC64255-002		AC70136-002		AC87723-002	
Sampling Date			1/9/2004		6/13/2005		2/16/2012		1/9/2013		10/21/2015	
Matrix			WATER		WATER		WATER		WATER		WATER	
Parameter												
VOCs (µg/L)	cis-1,2-Dichloroethene	5	5	U	5	U	1	U	1	U	1	U
	trans-1,2-Dichloroethene	5	5	U	5	U	1	U	1	U	1	U
	Chloroform	7	5	U	5	U	1	U	1	U	3.3	
	p-Ethyltoluene	5	5	U	5	U	ANC		ANC		ANC	
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	5	U	1	U	0.50	U	0.50	U
	Naphthalene	10 GV	5	U	5	U	ANC		ANC		ANC	
	Tetrachloroethylene	5	5	U	5	U	1	U	1	U	1	U
	1,2,4,5-Tetramethylbenzene	5	5	U	5	U	1	U	1	U	1	U
	Toluene	5	5	U	5	U	1	U	1	U	1	U
	1,2,4-Trichlorobenzene	5	5	U	5	U	1	U	1	U	1	U
	Trichloroethylene	5	5	U	5	U	1	U	1	U	1	U
	Vinyl chloride (Chloroethene)	2	5	U	5	U	1	U	1	U	1	U
	m/p-Xylene	5	5	U	5	U	1	U	1	U	1	U
	o-Xylene	5	5	U	5	U	1	U	1	U	1	U
	TOTAL VOCs:	-	ND		ND		ND		ND		3.3	
	Total BTEX:	-	ND		ND		ND		ND		ND	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	5	U	5	U	5	U	5	U
	Butylbenzylphthalate	50 GV	2	U	5	U	5	U	5	U	5	U
	Naphthalene	0.4 (10 GV)	2	U	1	J	0.50	U	0.50	U	0.50	U

Data Qualifiers and Notes:

U - Compound was not detected at or above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- March 2017 Sampling Event

Table 4

Groundwater Data Summary- Field Water Quality Parameters
Yonkers Parking Authority - 310 Saw Mill River Road, Yonkers, NY
(2012 - 2017)

Sample ID	MW-1								MW-2					
Sample Date	2/16/12		1/10/13		10/22/15		3/21/17		2/16/12		1/10/13		10/22/15	
	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample
Field Chemistry Parameters														
Ferrous Iron (mg/l)	0.7	0.9	0.6	0.9	-	0.9	-	0.2	0.2	0.2	0.0	0.2	-	0.1
Carbon Dioxide (mg/l)	34	26	48	26	-	26	-	25	28	22	12	22	-	30
Dissolved Oxygen (mg/l)	3.8	0.8	3.4	5.6	0.0	0.5	0.5	0.4	2.0	2.0	4.4	4.4	0.0	0.0
Oxidation-Reduction Potential (mV)	-146	-147	-157	-108	-183	-115	-127	-128	-52	-42	135	168	21	21
Specific Conductivity (mS/cm)	2.10	2.11	1.65	1.70	1.58	1.68	2.05	2.06	2.05	2.95	1.82	1.79	1.83	1.83
pH (Units)	7.5	7.5	7.5	7.5	7.4	7.5	6.4	6.4	7.4	7.4	7.4	7.4	7.2	7.2
Turbidity (NTUs)	4	0	1	3	1	12	6	6	0	0	9	5	0	0

Sample ID	MW-3								MW-4					
Sample Date	2/16/12		1/9/13		10/21/15		3/21/17		2/15/12		1/9/13		10/21/15	
	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample
Field Chemistry Parameters														
Ferrous Iron (mg/l)	0.0	0.0	0.0	0.0	-	0.0	-	0.2	0.0	0.0	0.0	0.0	-	0.2
Carbon Dioxide (mg/l)	15	24	18	22	-	22	-	20	10	24	10	10	-	20
Dissolved Oxygen (mg/l)	7.4	7.6	7.5	8.8	1.2	1.6	4.9	4.8	8.0	8.1	14.5	11.5	2.0	2.8
Oxidation-Reduction Potential (mV)	160	157	220	220	119	137	163	165	184	181	213	216	136	156
Specific Conductivity (mS/cm)	2.37	2.37	2.20	1.96	1.64	1.63	2.09	2.09	2.24	2.23	2.37	2.36	1.47	1.47
pH (Units)	6.8	6.8	6.9	7.0	6.9	6.9	5.9	5.9	6.6	6.6	6.7	6.7	6.7	6.7
Turbidity (NTUs)	0	1	2	5	0	3	0	0	0	21	10	41	6	420

Sample ID	MW-5					
Sample Date	2/15/12		1/9/13		10/21/15	
	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample
Field Chemistry Parameters						
Ferrous Iron (mg/l)	0.0	0.0	0.0	0.1	-	0.1
Carbon Dioxide (mg/l)	10	15	32	16	-	25
Dissolved Oxygen (mg/l)	6.4	6.9	9.4	16.1	2.7	3.1
Oxidation-Reduction Potential (mV)	191	198	220	232	244	238
Specific Conductivity (mS/cm)	0.99	1.01	0.85	0.86	1.70	1.70
pH (Units)	6.5	6.6	6.5	6.5	6.30	6.40
Turbidity (NTUs)	8	2	4	7	2	35

Note: - Horiba U52 Multi Water Quality Checker used to measure DO, ORP, Sp Cond., pH, & Turbidity

Note: - HACH field test kits used to measure CO_2 and Ferrous Fe

- March 2017 Sampling Event

Appendix A

IC/EC Certification

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. B00179

Site Name 310 Saw Mill River Road

Site Address: 310 Saw Mill River Road Zip Code: 10701
City/Town: Yonkers
County: Westchester
Site Acreage: 0.4

Reporting Period: December 14, 2015 to April 15, 2017

	YES	NO
1. Is the information above correct?	X	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	X
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	X
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	X
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Restricted-Residential, Commercial, and Industrial	X	☐
7. Are all ICs/ECs in place and functioning as designed?	X	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_____ _____
Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. B00179 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
Sec 2, Block 2359, Lot 11 &	Yonkers Parking Authority	Ground Water Use Restriction Soil Management Plan Landuse Restriction Building Use Restriction Site Management Plan Monitoring Plan IC/EC Plan

1.) Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to restricted residential and commercial use, which would also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

2.) Development of a site management plan which would include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the pavement. Should the site be excavated for any purpose in the future, excavated soil would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) monitoring groundwater; (c) identification of any use restrictions on the site; (d) evaluate the potential for vapor intrusion for any buildings developed on the site, including mitigation of any impacts identified; and (e) provisions for the continued proper monitoring and maintenance of the components of the remedy.

3.) The property owner would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

4) Since the remedy results in untreated hazardous substances remaining at the site, a long-term monitoring program would be instituted. Groundwater samples will be taken from the on-site wells on a periodic basis for five years and analyzed for VOCs. This program would allow the effectiveness of the soil removal and ORC to be monitored and would be a component of the long-term management for the site. Should concentrations of trimethylbenzene, toluene, and xylene not continue to decrease over time, injection of chemical additives such as ORC will be considered to accelerate the breakdown and natural attenuation of these compounds.

The proposed future use for the 310 Saw Mill River Road Site is the same as it's current use, a parking lot, although future proposals for the property may include adding commercial and restricted residential use.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
Sec 2, Block 2359, Lot 11 & 13	Cover System

Management of the final cover system (paved areas) to restrict excavation below the pavement. Should the site be excavated for any purpose in the future, excavated soil would be tested, properly handled to protect the health and safety of workers in conformance with the approved Site Management Plan.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
X	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_____ _____

Signature of Owner, Remedial Party or Designated Representative Date

IC CERTIFICATIONS
SITE NO. B00179

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Gail Burns (print name) at 8 Buena Vista Ave., Yonkers, NY 10701 (print business address),

am certifying as Owner's designated representative - YPA (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Gail Burns
Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

6/20/17
Date

IC/EC CERTIFICATIONS

Box 7

Qualified Environmental Professional Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I G. Noemi Castillo, P.E. (print name) at HDR Engineering 711 Westchester Avenue, White Plains, NY 10604-3504 (print business address),

am certifying as a Qualified Environmental Professional for the Owner (Owner or Remedial Party)

_____	_____	_____
Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification	Stamp (Required for PE)	Date

Appendix B

Annual Inspection Photolog

PHOTO 1: ASPHALT CAP (LOOKING NORTHEAST)

PHOTO 2: ASPHALT CAP (LOOKING NORTHEAST)

PHOTO 3: ASPHALT CAP (LOOKING EAST)

PHOTO 4: ASPHALT CAP (LOOKING SOUTHEAST)

PHOTO 5: ASPHALT CAP (LOOKING WEST)

PHOTO 6: ASPHALT CAP (LOOKING WEST)

PHOTO 7: MONITORING WELL

PHOTO 8: ASPHALT SURFACE CRACKS

PHOTO 9: ASPHALT SURFACE CRACKS

PHOTO 10: ASPHALT SURFACE CRACKS

PHOTO 11: ASPHALT SURFACE - (SMALL SECTION MISSING - ASPHALT LAYER UNDER THIS)

PHOTO 12: ASPHALT SURFACE CRACKS

Appendix C

October 2015
Groundwater Sampling
Summary Report

October 2015 – Groundwater Sampling Summary Report

GROUNDWATER SAMPLING SUMMARY REPORT YEAR THREE (OCTOBER 2015)

310 SAW MILL RIVER ROAD YONKERS, NEW YORK NYSDEC SITE # B00179-3

Prepared for:

Yonkers Parking Authority
8 Buena Vista Avenue
Yonkers, New York 10701

Prepared by:

Henningson, Durham & Richardson
Architecture and Engineering, P.C.
711 Westchester Avenue
White Plains, New York 10604

April 2016

Contents

Attachments

1 INTRODUCTION

Henningson, Durham & Richardson Architecture and Engineering, P.C., in association with HDR Engineering, Inc., (HDR) conducted on behalf of the Yonkers Parking Authority (YPA), an additional groundwater sampling event for 310 Saw Mill River Road, Yonkers, New York (Site), on October 21 and 22, 2015. Previous sampling groundwater sampling events were conducted in February 2012 and January 2013. The groundwater sampling event was performed in accordance with the New York State Department of Environmental Conservation (NYSDEC) approved Site Management Plan (SMP), dated December 2011 (revised May 5, 2015), prepared by HDR for the YPA. Figure 1 provides the location of the Site (see Attachment A). The results of this October 2015 groundwater sampling event continue to support the monitored natural attenuation alternative selected for the Site. A summary of the groundwater sampling activities and results are provided below for NYSDEC review and approval

2 SITE BACKGROUND

Based on the January 17, 2003 letter from the NYSDEC, the investigation of the Site was approved for New York State assistance as an Environmental Restoration Project as part of the New York State (NYS) Environmental Restoration Program (ERP) under the 1996 Clean Water/Clean Air Bond Act Brownfields Program and is listed as NYSDEC Site #B00179-3. The Site Investigation (SI), including Interim Remedial Measures (IRMs), was performed in accordance with the May 2003 NYSDEC approved Final SI Work Plan (Final SIWP) and the January 2004 and February 2005 Amendments to the Final Work Plan (SIWP Amendments). The SI and IRMs were summarized in the NYSDEC-approved Final SI/Remedial Alternatives Report (SI/RAR) dated February 2008. The Final SI/RAR also provided an evaluation of the no-action alternative and several remedial action alternatives available and their associated costs. The NYSDEC issued a Proposed Remedial Action Plan (PRAP) for the Site based on the SI/RAR in February 2008. The Record of Decision (ROD) presenting the selected remedy for the Site was issued in March 2008. The Site Management Plan (SMP) for the site was submitted to NYSDEC in December 2011; it was revised in May 2015 to clarify the long-term monitoring program. The Final Engineering Report (FER) for the Site was submitted to NYSDEC in August 2015. Yonkers Parking Authority was issued an approval for the FER and a Certificate of Completion for the Site on 14 December 2015.

Per the NYSDEC ROD, the release of hazardous substances, including petroleum products, from this Site have been addressed through the implementation of IRMs. The 4,981 tons of petroleum-contaminated soils removed from the Site has significantly reduced the threat to public health and the environment. Therefore, based on the results of the SI/RAR and the criteria for evaluation of alternatives identified in the ROD, the NYSDEC has selected no further action as the remedy for the Site. However, this Site remedy includes the following components, which are further described in the SMP:

1) Imposition of an Institutional Control (IC) in the form of an environmental easement;

2) Development of a SMP, including the following ICs and Engineering Controls (EC):

   a. Management of the final cover system;

   b. Groundwater monitoring;

   c. Identification of use restrictions;

   d. Evaluation of the potential for vapor intrusion for any buildings developed on Site; and

   e. Provisions for the continued proper monitoring and maintenance of the components of this selected remedy.

3) Periodic certification of ICs and ECs; and

4) A long term (groundwater) monitoring plan.

Therefore, the groundwater sampling activities summarized in this report were performed as a requirement of the ROD and the SMP to assess the performance of the monitored natural attenuation remedy.

3 GROUNDWATER SAMPLING – OCTOBER 2015

On October 21 and 22, 2015, HDR performed the following additional groundwater sampling activities related to the Site:

- Obtained one (1) groundwater sample from each of the five on-Site monitoring wells for analysis of Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) as well as several parameters used to determine the conditions for natural attenuation at the Site.
- An equipment rinseate blank sample (FB-01) was collected and analyzed for VOCs and SVOCs and a trip blank sample (TB-01) that accompanied the sample coolers was analyzed for VOCs as a QA/QC measure.

Groundwater sampling was conducted in accordance with Environmental Protection Agency (EPA) Guidance for Low Stress Ground Water Sampling protocols. Analysis of the groundwater samples was performed by Hampton Clarke Inc. (HCI), a NYSDOH-approved laboratory, as a subcontractor to HDR. HCI subcontracted the methane/ethane/ethene analysis to Pace Analytical Services, Inc. (Pace Labs; formerly Microseeps, Inc.), a NYSDOH-approved laboratory.

Prior to purging the monitoring wells, depth-to-water (DTW) measurements were collected from the five wells on October 21, 2015. When the wells were initially opened, the wells were checked for light non-aqueous phase liquid (LNAPL) with an oil-water interface probe. There was no measureable LNAPL in any of the wells. Figure 2 shows the location of the monitoring wells within the Site.

Sampling was conducted with PVC submersible pumps and dedicated tubing. The pump was lowered to approximately the mid-screen interval of the monitoring well. The tubing was connected to a flow cell that housed the water quality meter probe for the purging process. The wells were purged at flow rates ranging from 240 to 360 milliliters per

minute (ml/min). The DTW was monitored during the pumping interval to document the water level draw down. As needed, the pumping rate was adjusted to minimize the draw down. A Horiba U-52 Multiparameter Water Quality Meter was used to monitor temperature, pH, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity. In addition, carbon dioxide (CO_2), and ferrous iron (Fe^{2+}) concentrations were measured with HACH® field test kits during the sample interval. After the groundwater chemistries had stabilized, the sample containers supplied by the laboratory were filled from the discharge hose of the pump. The total amount of groundwater purged from the monitoring wells prior to stabilization of the water quality measurements and the initiation of the collection of the samples in the sample containers ranged from 4 to 17 gallons. The well sampling logs are included in Attachment B of this report.

Samples were collected from each well for analysis by the analytical laboratory for the following parameters:

- VOCs
- SVOCs
- Alkalinity
- Chloride
- Nitrate
- Sulfate
- Sulfide
- Methane/Ethane/Ethene
- Total Organic Carbon (TOC)

After sample collection, the sample containers were placed in an iced cooler under chain-of-custody protocols. HCI provided a courier to pick up the samples the following morning after each day of sampling. When the sampling was completed at each monitoring well, the purged water was re-introduced back into the well in accordance with the SMP. The sample pumps were cleaned prior to sampling using the following procedures:

- Tap water and non-phosphate detergent was placed in a wash tube and the pump was placed in it and run for approximately 5 minutes.
- The outside of the pump was scrubbed with the tap water-detergent water
- The pump was removed from the wash tube and rinsed with deionized water
- The pump was placed in a rinse tube filled with deionized water and run for approximately 5 minutes.
- The pump was removed from the rinse tube and placed in a clean plastic bag.

An equipment rinsate blank (FB-01) was conducted on one of the pumps that was field-cleaned and a section of new dedicated tubing prior to its use to purge and sample a well at the Site to document that the cleaning procedures were sufficient to remove potential contaminants from the pump. No VOC or SVOC analytes were detected above the reporting limit in the equipment rinsate blank.

On October 21, 2015, upgradient groundwater monitoring wells MW-4 and MW-5, along with MW-3 were purged and sampled using the low-flow techniques described above. Additional sample volume was collected from MW-5 for VOC and SVOC matrix spike/matrix spike duplicate (MS/MSD) analyses by the analytical laboratory. On the following day, October 22, 2015, MW-1 and MW-2 were purged and sampled. In addition, the rinsate blank was performed prior to purging and sampling MW-2. The

sample crew noted a petroleum-type odor from the water during the purging and sampling of MW-1. Historically this monitoring well has contained the highest concentrations of petroleum-related compounds at the Site.

4 ANALYTICAL RESULTS

4.1 VOC and SVOC Results

Table 1 provided in Attachment A summarizes the groundwater VOCs and SVOCs that were detected in one or more of the samples collected during this sampling event. Table 2 contains the results of the wet chemistries analyzed by HCI (or their subcontractor) as part of the monitoring program outlined in the SMP. The sample results are compared to the NYSDEC 6NYCRR Part 703, Surface and Groundwater Quality Standards (NYSDEC Standards) and/or NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 guidance values (NYSDEC Guidelines) used for groundwater analytes for which NYSDEC Standards are not published.

It should be noted that the NYSDEC Standards/Guidelines are based on the aquifer being a source of drinking water (Class GA standards). The groundwater from the Site is not used as a source of potable water. Laboratory groundwater analytical results are provided in Attachment C.

A data usability summary report (DUSR) was prepared by HDR. The DUSR is included with the contract analytical data packages in Attachment C. The DUSR concludes that the groundwater samples and the data provided by HCI are usable as reported with a few exceptions.

MW-1 contained the only petroleum-related compounds in exceedance of NYSDEC Standards/Guidelines for VOCs. MW-1 also contained one SVOC (naphthalene) in exceedance of NYSDEC Standards/Guidelines. MW-3 contained tetrachloroethene (PCE) at a concentration of 6.2 µg/l; just above its Class GA standard of 5 µg/l.

MW-1 contained ten petroleum-related VOCs in exceedance of NYSDEC Standards/Guidelines including 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, isopropylbenzene, m&p-xylene, o-xylene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and toluene. Although no LNAPL was detected during the sampling event, a petroleum odor was detected from the water removed from MW-1.

MW-4 contained no detectable VOCs or SVOCs; MW-2 and MW-5 contained no detectable SVOCs. MW-2 and MW-5 contained low-level concentrations of a couple of VOCs, well below their respective NYSDEC Standards/Guidelines. MW-2 contained low-level concentrations of PCE and trichloroethene (TCE), both of which are chlorinated VOCs (CVOCs), at concentrations below their respective NYSDEC Standards/Guidelines. MW-5 contained chloroform at a concentration below its NYSDEC Standards/Guidelines. MW-3 contained one SVOC (butylbenzylphthalate) at a concentration well below its NYSDEC guidance value.

A comparison of the historical VOC and SVOC analytical results from the monitoring wells that exceeded NYSDEC Standards/Guidelines is included in Table 3, which is

provided in Attachment A. These tables provide a comparison of the data collected in January 2004, June 2005, May 2006 (MW-1 only), February 2012, January 2013, and October 2015 from the monitoring wells on the Site.

MW-1 is the only well at the Site that contains elevated concentrations of petroleum-related analytes. Overall the VOC and SVOC concentrations have declined over time although there was an increase in total VOCs during the January 2013 sampling event compared with the February 2012 and prior sampling events. The total VOCs detected in MW-1 during the October 2015 sampling event are similar to the total VOCs in this well during the February 2012 sampling event. The total VOC concentration detected in the MW-1 sample in February 2012 was 2,520 µg/l, which is significantly lower that the results of the previous sampling events. Results from the January 2013 sampling event however, revealed an increase from February 2012 in total VOC concentration with a concentration of 7,116 µg/l; similar to the overall VOC concentration observed during the May 2006 sampling event at MW-1. The total VOC concentration detected in the MW-1 sample in October 2015 was 3,160 µg/l.

The VOC and SVOC results from the October 2015 groundwater sampling event reveal the following:

- In general, the concentrations of benzene and toluene have shown a significant decrease over time in MW-1. Benzene has not been detected since the May 2006 sampling event. Benzene was not detected in MW-1 in the October 2015, January 2013, or February 2012 sampling events while it was detected at 19 µg/l in 2006 and it was detected at 180 µg/l in 2004. Toluene was detected at its lowest concentration of 30 µg/l since the wells were initially sampled in January 2004. Toluene concentrations in MW-1 in January 2004 and June 2005 were 2,100 and 5,000 µg/l, respectively.
- Ethylbenzene and xylene concentrations have been relatively steady with an overall decreasing trend as shown in Table 3. Ethylbenzene was initially detected in MW-1 at 280 µg/l in January 2004 and 6,800 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, ethylbenzene concentrations in MW-1 have ranged between 1,300 and 860 µg/l. During the recent October 2015 sampling event, the ethylbenzene concentration was 420 µg/l. Total xylenes were initially detected in MW-1 at 5,700 µg/l in January 2004 and 39,000 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, total xylenes concentrations in MW-1 have ranged between 3,160 and 870 µg/l. During the recent October 2015 sampling event, the total xylene concentration was 890 µg/l in MW-1.
- The concentrations of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene concentrations have been relatively steady with an overall decreasing trend as shown in Table 3 as well. 1,2,4-Trimethylbenzene was initially detected in MW-1 at 1,400 µg/l in January 2004 and 9,300 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, 1,2,4-trimethylbenzene concentrations in MW-1 have ranged between 510 and 1,900 µg/l. During the recent October 2015 sampling event, the 1,2,4-trimethylbenzene concentration was 1,000 µg/l. 1,3,5-Trimethylbenzene was initially detected in MW-1 at 460 µg/l in January 2004 and 2,600 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, 1,3,5-trimethylbenzene

concentrations in MW-1 have ranged between 33 and 310 µg/l. During the recent October 2015 sampling event, the 1,3,5-trimethylbenzene concentration was 150 µg/l in MW-1.

- The concentrations of isopropylbenzene and n-propylbenzene concentrations have been relatively steady with increases and decreases over time. Isopropylbenzene was initially detected in MW-1 at 33 µg/l in January 2004 and 180 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, isopropylbenzene concentrations in MW-1 have ranged between 49 and 130 µg/l. During the recent October 2015 sampling event, the isopropylbenzene concentration was 70 µg/l. N-Propylbenzene was initially detected in MW-1 at 8 µg/l in January 2004 and 220 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, n-propylbenzene concentrations in MW-1 have ranged between 140 and 330 µg/l. During the recent October 2015 sampling event, the 1 n-propylbenzene concentration was 180 µg/l in MW-1.
- Naphthalene concentrations in MW-1 have shown a slight overall increase over time. Naphthalene was initially detected in MW-1 at 20 µg/l in January 2004 and 78 µg/l in June 2005. In subsequent sampling events between May 2006 and January 2013, naphthalene concentrations in MW-1 have ranged between 31 and 120 µg/l. During the recent October 2015 sampling event, the naphthalene concentration was 150 µg/l, showing an increase from 31 to 150 µg/l over thee past three sampling events.
- MW-2 and MW-3 continue to show a continued decrease in CVOC concentrations over time. Historically the groundwater collected from these two wells have only contained elevated levels of CVOCs with some very low level (estimated) concentrations of petroleum-related compounds during the previous sampling events. During the October 2015 sampling event MW-2 contained PCE and TCE at low concentrations of 1.7 and 1.0 µg/l, respectively, which is below the Class GA standard of 5 µg/l for PCE and TCE. During this recent sampling event MW-3 contained PCE at a concentration of 6.2 µg/l; this is the lowest concentration of PCE detected in this well since the wells were installed. The total VOCs in MW-2 have decreased from 417 µg/l in 2004 to 2.7 µg/l in 2015. A slight increase in VOCs in MW-2 was observed in 2013 with a total VOC concentration of 10.1 µg/l. The total VOCs in MW-3 have decreased from 1,015 µg/l in 2004 to 6.2 µg/l in October 2015.
- Upgradient wells MW-4 and MW-5 continue to show very little to no detectable concentrations of VOCs or SVOCs. Chloroform was detected in MW-5 at a concentration of 3.3 µg/l; chloroform has not previously been detected at this location.

4.2 Natural Attenuation Parameter Results

The analyses conducted to monitor the natural attenuation processes at the Site revealed chloride detections above the Class GA standard of 350 mg/l in all of the wells at concentrations ranging from 350 to 470 mg/l. The chloride concentrations were similar to the results of the samples collected in 2012 and 2013. Total sulfide was not detected in any of the samples; however, it should be noted that the detection limit for total sulfide was 2 mg/l and the Class GA guidance value is 0.05 mg/l.

A review of the results of the natural attenuation parameters (field parameters and laboratory parameters) analyzed during the October 2015 sampling event indicated that the water from MW-1 contained no measurable DO when the field chemistries had stabilized at the end of the purge interval indicating anaerobic groundwater conditions in the area of MW-1; the results of the remaining natural attenuation parameters at this well location also indicate methanogenesis is the primary degradation process occurring in the area of MW-1. Methanogenesis generally occurs under anaerobic conditions as the other electron acceptors become depleted. The DO results in the two upgradient wells (MW-4 & MW-5) were between 2.0 and 3.1 mg/l which indicates oxygen depletion as the water flows under the Site. MW-2 and MW-3, downgradient/side gradient wells, had no measurable DO in MW-2 and a concentration of 1.6 milligrams per liter (mg/L) in MW-3. Table 2 contains the results of the wet chemistry analytical parameters analyzed by HCI and Table 4 contains the field chemistries measured by HDR during the sampling event. These tables are provided in Attachment A.

Often oxygen in the groundwater can be depleted quickly by aerobic microbes such that anaerobic processes which rely on electron acceptors other than oxygen become the primary method for the degradation of the petroleum compounds. Electron acceptors under anaerobic conditions generally follow in this order: nitrate, iron, and sulfate. Different microbes that use different electron acceptors will become the primary method of degradation depending on the electron acceptor that is available.

As shown on Table 4, ORP results in MW-1 were -183 millivolts (mV) after purge conditions had stabilized indicating anaerobic conditions in the area of MW-1. The ORP in the two upgradient wells (MW-4 & MW-5) were +136 and +244mV and ORP in the two downgradient/side gradient wells (&) were +21 in MW-2 and +119 in MW-3 (MW-2 is closest to MW-1). The low ORP results and the lack of oxygen at MW-1 are indicators of an anaerobic groundwater condition.

MW-1 contained no detectable nitrate and MW-2 (the well closest to MW-1) contained 1.5 mg/l of nitrate. Nitrate concentrations in the other three well ranged from 4.3 to 6.9 mg/l. Lower concentrations of nitrate in areas of higher petroleum-related contamination compared to upgradient conditions is an indicator of an anaerobic degradation condition where nitrate is being depleted by the nitrate microbes because it is acting as an electron receptor.

The ferrous iron concentration in MW-1 was 0.9 mg/l and the ferrous iron concentrations in the other four wells ranged from not detected to 0.2 mg/l. Higher concentrations of ferrous iron are an indication of anaerobic degradation because ferrous iron is a byproduct from iron reduction by iron microbes.

MW-1 contained 5.7 mg/L sulfate and the sulfate concentrations in the other four wells ranged from 29 to 60 mg/l. Similar to nitrate, lower concentrations of sulfate in areas of higher petroleum-related contamination compared to upgradient conditions is an indicator of an anaerobic degradation condition where the sulfate is being depleted because it is acting as an electron receptor.

After the nitrate, iron, and sulfate anaerobic electron acceptors are depleted, methanogenesis becomes the primary degradation process where and microbes known as methanogens respire methane (and sometimes CO_2) as they degrade the contaminants. As shown from the data Table 2, concentrations of

methane/ethane/ethene are significantly higher in MW-1 compared to the other wells (2 to 4 orders of magnitude higher). The CO_2 concentrations did not show a significantly higher concentration in the MW-1 sample; however, studies suggest the elevated CO_2 concentrations can be short-lived in this process. The methane data, and the concentrations of nitrate, sulfate, and ferrous iron suggests that methanogenesis is occurring as the primary anaerobic degradation process for the hydrocarbons in the area of MW-1.

Studies have shown that degradation of petroleum-related compounds in groundwater is more effective and generally quicker under aerobic conditions than anaerobic conditions. Methanogenesis is considered to be the slowest anaerobic degradation process. The results of the October 2015 sampling event provides evidence that the degradation processes are slowly continuing at the Site in the area of MW-1. The overall trend suggests that the contamination that remains at the Site has degraded and further degradation of the VOC concentrations in the groundwater will likely continue to occur slowly over time.

The CVOCs detected in the samples from wells have consistently decreased since the monitoring well monitoring was initiated in 2004.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The results of the October 2015 groundwater sampling event continues to support the monitored natural attenuation alternative selected for the Site and incorporated into the monitoring plan outlined in the SMP for the following reasons:

- The entire Site is paved and now exists as the Lockwood Avenue Parking Lot. Therefore, a pathway for human contact with soil contamination does not exist.
- MW-1 is the only well that contains petroleum-related contaminants that are above regulatory standards or guidance values.
- A large variation of groundwater sampling results in MW-1 was observed between the on-Site sampling events that took place in 2004, 2005, and 2006, and there was an increase in total VOCs in January 2013 compared with the data from February 2012. The results of the recent sampling event in October 2015 for MW-1 show an overall decrease compared with the results of the January 2013 sampling event and are similar to the results from the February 2012 sampling event. A comparison of the results from 2012, 2013, and 2015 shows there can be some concentration fluctuations up and down over time in the area of MW-1 for the petroleum-related contaminants; however, the overall trend from the time the wells were installed in 2004 shows an overall decreasing trend for VOC and SVOC concentrations in the groundwater in this area.
- The CVOCs detected at the Site continue to decrease.
- The results of the VOC analysis and the results of the natural attenuation indicator parameters measured during this sampling event provide evidence that hydrocarbons are likely being degraded under anaerobic conditions primarily by methanogenesis in the area of MW-1 where the petroleum-related contamination is still present in the groundwater.

- There are no human receptors for the groundwater (the water is non-potable).

5.2 Recommendations

Based on the results of the groundwater monitoring events since 2004, it is apparent that MW-1 is the only remaining monitoring well on the Site that contains petroleum-related contaminants above NYSDEC regulatory standards or guidance values. HDR is recommending a reduction in the sampling program requirements for subsequent groundwater sampling activities. HDR is recommending a reduction in the monitoring wells to be included in the routine sampling program to include MW-1 and MW-3. In addition, depth to water measurements will be collected from all five wells on the Site. MW-1 continues to have elevated petroleum-related VOCs and MW-3 has had CVOCs detected in it that continue to decrease in concentration. The two upgradient wells (MW-4 & MW-5) historically have contained no detectable VOCs or SVOCs since 2004 when the monitoring wells were installed. MW-2, along the downgradient side of the property between MW-1 and MW-3 has had no detectable CVOCs or SVOCs for the past three sampling events.

MW-1 and MW-3 are located along the downgradient side of the Site will provide groundwater quality data at the Site's downgradient property boundary. Based on a review of the groundwater data since 2004 and a review of the businesses upgradient of the Site, it does not appear that formerly there was a source of petroleum-related contaminants upgradient of the Site that would affect the groundwater at the Site.

HDR is recommending that the groundwater sample analytical parameters be reduced as follows:

- VOCs (the analytical laboratory will be requested to report naphthalene as part of their VOC analysis)
- Chloride
- Nitrate
- Sulfate
- Methane/Ethane/Ethene

Parameters measured in the field will include the following:

- Temperature
- pH
- Specific Conductivity
- DO
- ORP
- Turbidity
- CO_2
- Fe^{2+}

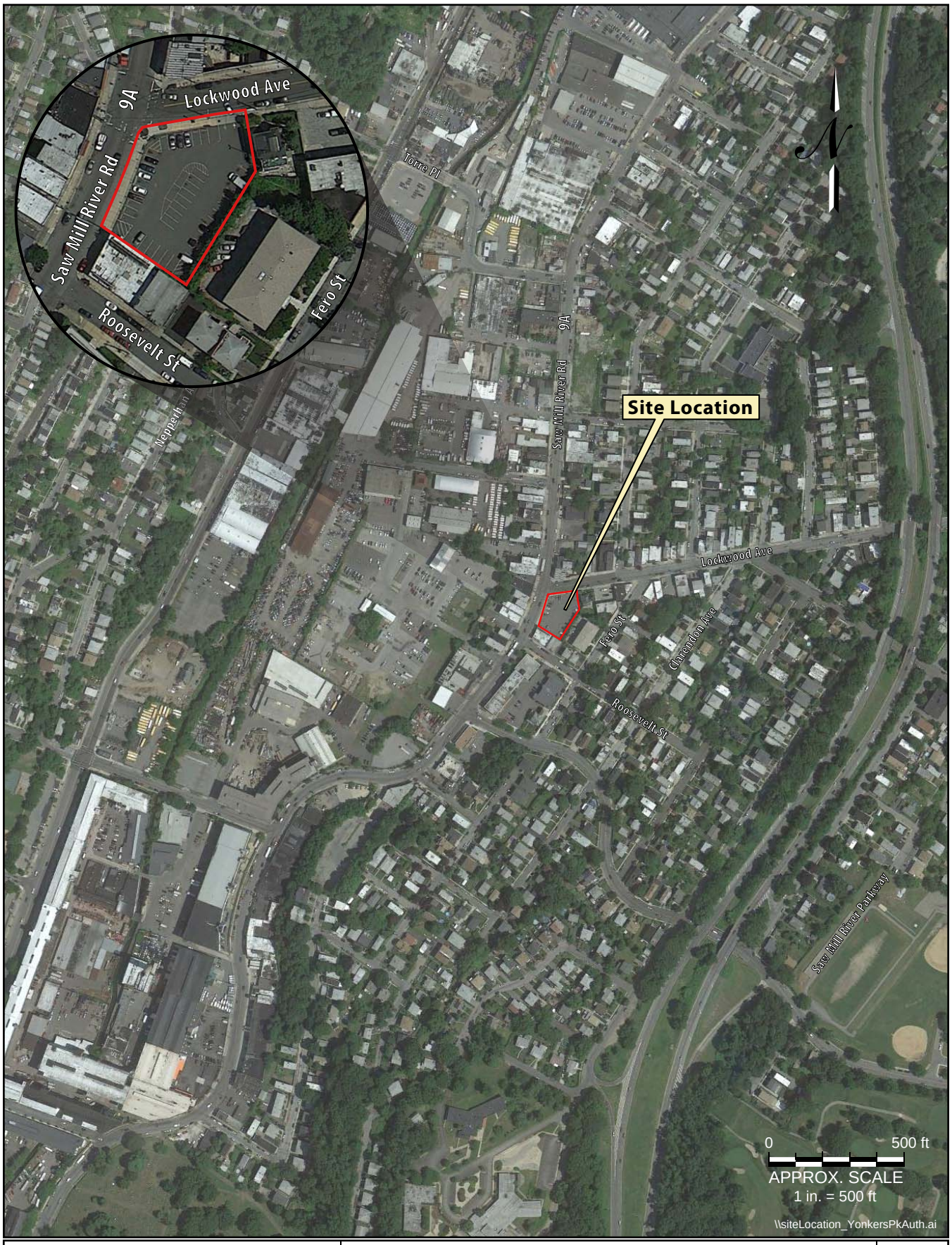
HDR is recommending the use of an oxygen-releasing compound to promote aerobic degradation of the remaining petroleum-related groundwater contamination in the area of MW-1. EHC-O™, a controlled oxygen and nutrient releasing technology compound, will be used to provide an engineered delivery of oxygen and nutrients in the area of MW-1. A "sock" of EHC-O™ will be placed in an O-SOX™ canister which will be suspended in the monitoring well at the top of the water column to allow the release of oxygen and

nutrients to the groundwater in the area of MW-1. The EHC-O™ "sock" will be replaced approximately every three months. Approximately one month prior to the annual groundwater sampling event, the O-SOX™ will be removed from MW-1 to allow the groundwater in this area to return to ambient conditions prior to sample collection.

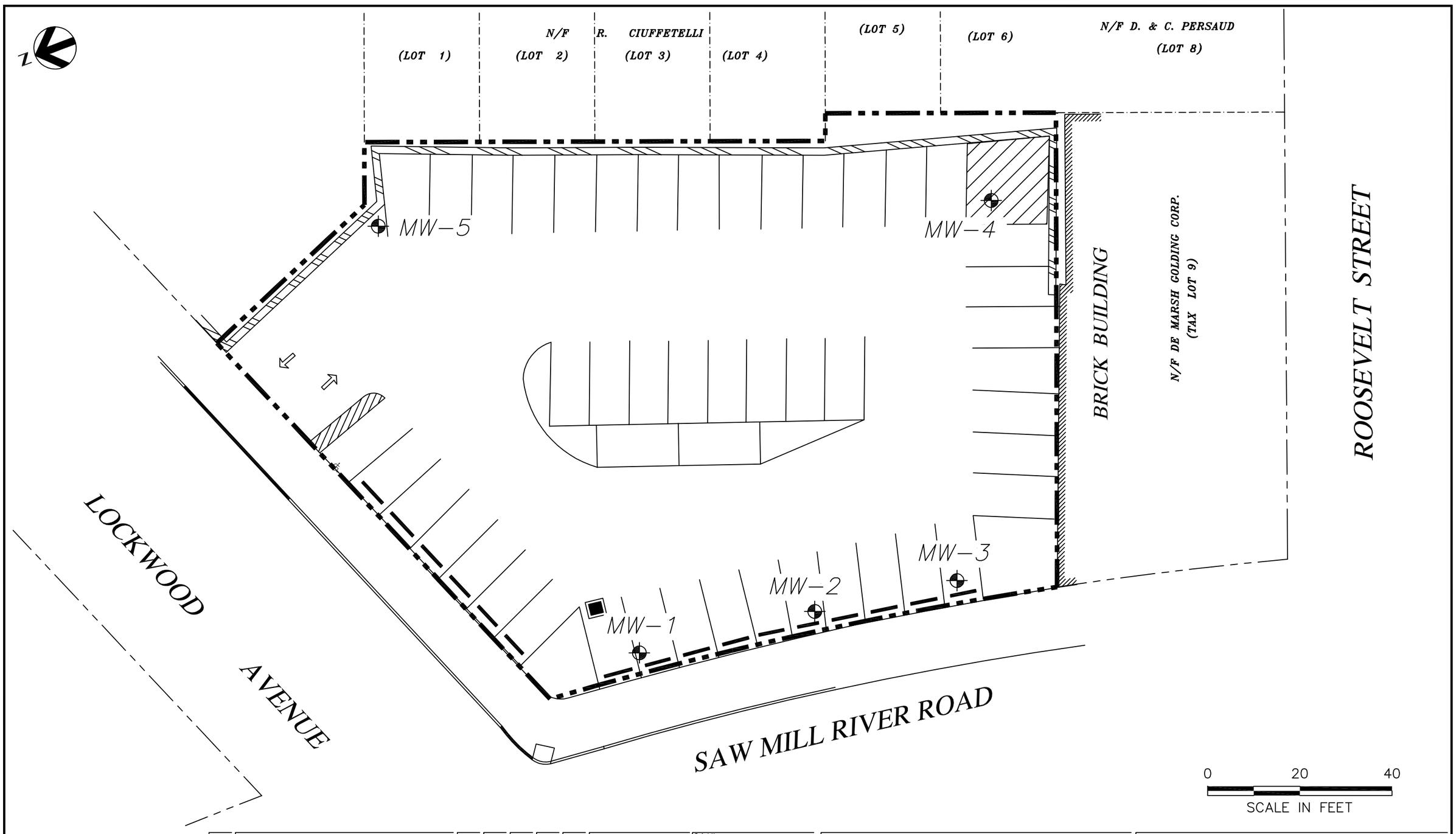
The next sampling event is scheduled for fall of 2016.

Attachment A

Figures & Tables



HDR Henningson, Durham & Richardson Architecture and Engineering, P.C. 711 Westchester Ave. White Plains, NY 10604	**Site Location** **Yonkers Parking Authority** **Annual Groundwater Sampling - Summary Report**	**310 Saw Mill River Road, Yonkers, NY**	**Figure 1**



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Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.
C	ANNUAL GROUNDWATER SAMPLING – SUMMARY REPORT	04/12	NI	NS		NS
B	PROPOSED REMEDIAL ACTION PLAN	07/07	NI	NS		NS
A	DRAFT SI/RAR	10/05	NI	NC		JM

Project Manager: N. SANTIAGO
Architect | I&C/Process
Civil | Mechanical
Electrical | Structural
Geology | Drawn By: N. INGRASSIA

YONKERS PARKING AUTHORITY
ANNUAL GROUNDWATER SAMPLING
SUMMARY REPORT

SITE PLAN

Date: 04/24/12 | Project No.: 11786 | Figure No.: 2 | Issue: C
Scale: AS SHOWN

Table 1

Groundwater Data Summary - VOCs and SVOCs
Yonkers Parking Authority - 310 Saw Mill River Road, Yonkers, NY
(October 2015)

HDR Sample ID		NYSDEC	MW-1			MW-2			MW-3			MW-4			MW-5			FB-01			TB-01		
Lab Sample ID		Class GA	AC87767-004			AC87767-003			AC87723-005			AC87723-001			AC87723-002			AC87767-001			AC87767-002		
Date Sampled		Standards (a)	10/22/15			10/22/15			10/21/15			10/21/15			10/21/15			(Equipment Blank) 10/22/15			(Trip Blank) 10/21-22/15		
			Results	Flg	RL	Results	Flg	RL	Results	Flg	RL	Results	Flg	RL	Results	Flg	RL	Results	Flg	RL	Results	Flg	RL
VOCs (µg/L)	**CAS No.**																						
1,2,4-Trimethylbenzene	95-63-6	5	**1000**		10	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
1,3,5-Trimethylbenzene	108-67-8	5	**150**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
2-Butanone	78-93-3	50 GV	19		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
4-Isopropyltoluene	99-87-6	5	3.6		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Benzene	71-43-2	1	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
Chloroform	67-66-3	7	ND		1	ND		1	ND		1	ND		1	3.3		1	ND		1	ND		1
cis-1,2-Dichloroethene	540-59-0	5	4.0		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Cyclohexane	110-82-7	NS	250		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Ethylbenzene	100-41-4	5	**420**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Isopropylbenzene	98-82-8	5	**70**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
m&p-Xylenes	108-38-3 106-42-3	5	**620**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Methylcyclohexane	108-87-2	NS	**130**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Methyl tert-butyl ether (MTBE)	1634-04-4	10 GV	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5	ND		0.5
n-Butylbenzene	104-51-8	5	**5.4**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
n-Propylbenzene	103-65-1	5	**180**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
o-Xylene	95-47-6	5	**270**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
sec-Butylbenzene	135-98-8	5	**7.2**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Tetrachloroethene	127-18-4	5	ND		1	1.7		1	**6.2**		1	ND		1	ND		1	ND		1	ND		1
Toluene	108-88-3	5	**30**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
Trichloroethene	79-01-6	5	2.5		1	1.0		1	ND		1	ND		1	ND		1	ND		1	ND		1
Xylenes (total)	(see above)	5	**890**		1	ND		1	ND		1	ND		1	ND		1	ND		1	ND		1
		Total VOCs:	*3162*			*2.7*			*6.2*			*ND*			*3.3*			*ND*			*ND*		
		Total BTEX:	*1340*			*ND*			*ND*			*ND*			*ND*			*ND*			*ND*		
SVOCs (µg/L)	**CAS No.**																						
2,4-Dimethylphenol	105-67-9	1	0.76		0.50	ND		0.53	ND		0.50	ND		0.50	ND		0.50	ND		0.50	NR		
2-Methylnaphthalene	91-57-6	NS	22		2.0	ND		2.1	ND		2.0	ND		2.0	ND		2.0	ND		2.0	NR		
Butylbenzylphthalate	85-68-7	50 GV	ND		2.0	ND		2.1	2.0		2.0	ND		2.0	ND		2.0	ND		2.0	NR		
Naphthalene	91-20-3	10 GV	**150**		0.50	ND		0.50	ND		0.50	ND		0.50	ND		0.50	ND		0.50	NR		
		Total SVOCs:	*173*			*ND*			*2.0*			*ND*			*ND*			*ND*			*NR*		
		Total PAHs:	*172*			*ND*			*ND*			*ND*			*ND*			*ND*			*NR*		

(a) - NYSDEC Part 703 & TOGS 1.1.1, June 1998.
ND - Not detected at analytical reporting limit.
* - standard for these compounds is any detectable concentration.
35 - Indicates exceedance of applicable standard or guidance value.
Note - The results represent detected parameters only. Please refer to the laboratory data packages in the appendix of this report.
J* - Sample result considered estimated based on data usability evaluation.
GV - Guidance value.
NS - No standard or guidance value available.
RL - Reporting Limit
Flg - Data Qualifier Flag
j - Concentration detected at a value below the RL and above the MDL.
^ - MW-1-Dup is the blind duplicate sample of MW-1.
R* - Sample result considered rejected based on data usability evaluation.

Table 2

Groundwater Data Summary - Monitored Natural Attenuation Parameters
Yonkers Parking Authority - 310 Saw Mill River Road, Yonkers, NY
(Feb 2012, Jan 2013 & Oct 2015)

Sample ID / Lab Sample ID / Date Sampled	NYSDEC Class GA Standards (a)	MW-1 AC64272-003 2/16/12			MW-1-Dup ^ AC64272-004 2/16/12 (Blind Duplicate)			MW-1 AC70157-002 1/10/13			MW-1 (Dup) ^ AC70157-003 1/10/13			MW-1 AC87767-004 10/22/15		
		Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL
Wet Chemistry																
Alkalinity, Total as $CaCO_3$ (mg/L)	NS	200		10	200		10	220		10	230		10	250		10
Chloride (mg/L)	250	**460**		50	**450**		50	**340**		50	**350**		50	**400**		50
Nitrate + Nitrite as N (mg/L)	10	ND		1.0	ND		1.0	ND		1.0	ND		1.0	ND		1.0
Total Organic Carbon (TOC) (mg/L)	NS	4.4		1.0	4.2		1.0	6.5		5.0	6.3		1.0	ND		1.0
Sulfate (mg/L)	250	24		2.0	24		2.0	8.3		2.0	9.1		2.0	5.7		2.0
Total Sulfide (mg/L)	0.050 GV	**2.4**		2.0	**2.4**		2.0	ND		2.0	**3.2**		2.0	ND		2.0
Methane (µg/L)	NS	610		0.10	700		0.10	980	J*	0.10	860	J*	0.10	2,200		0.50
Ethane (µg/L)	NS	1.9		0.025	2.2		0.025	2.6	J*	0.025	2.4	J*	0.025	3.3		0.1
Ethene (µg/L)	NS	0.14		0.025	0.15		0.025	0.44	J*	0.025	0.39	J*	0.025	0.072	j	0.1

Sample ID / Lab Sample ID / Date Sampled	NYSDEC Class GA Standards (a)	MW-2 AC64272-002 2/16/12			MW-2 AC70157-001 1/10/13			MW-2 AC87767-003 10/22/15			MW-3 AC64272-001 2/16/12			MW-3 AC70136-005 1/9/13			MW-3 AC87723-005 10/21/15		
		Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL
Wet Chemistry																			
Alkalinity, Total as $CaCO_3$ (mg/L)	NS	170		10	200		10	200		10	130		10	140		10	190		10
Chloride (mg/L)	250	**440**		50	**380**		20	**400**		50	**570**		50	**490**		40	**350**		40
Nitrate + Nitrite as N (mg/L)	10	2.2		1.0	ND		1.0	1.5		1.0	9.5		1.0	4.8		1.0	4.7		1.0
Total Organic Carbon (TOC) (mg/L)	NS	3.7		1.0	ND		5.0	ND		1.0	1.5		1.0	ND		5.0	ND		5.0
Sulfate (mg/L)	250	91		10	51		4.0	60		10.0	76		10.0	49		2.0	38		2.0
Total Sulfide (mg/L)	0.050 GV	ND		2.0	ND		2.0	ND		2.0	**3.2**		2.0	ND		2.0	ND		2.0
Methane (µg/L)	NS	4.9		0.10	12	J*	0.10	3.0		0.5	0.05	j	0.1	0.05	j	0.1	ND		0.5
Ethane (µg/L)	NS	0.051		0.025	0.11	J*	0.025	0.055	j	0.1	0.002	j	0.025	ND		0.025	ND		0.1
Ethene (µg/L)	NS	0.058		0.025	0.062	J*	0.025	0.033	j	0.1	0.036		0.025	0.010	j	0.025	0.0050	j	0.1

Sample ID / Lab Sample ID / Date Sampled	NYSDEC Class GA Standards (a)	MW-4 AC64255-001 2/15/12			MW-4 AC70136-001 1/9/13			MW-4 AC87723-001 10/21/15			MW-5 AC64255-002 2/15/12			MW-5 AC70136-002 1/9/13			MW-5 AC87723-002 10/21/15		
		Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL	Result	Flg	RL
Wet Chemistry																			
Alkalinity, Total as $CaCO_3$ (mg/L)	NS	120		10	140		10	120		10	95		10	110		10	75		10
Chloride (mg/L)	250	**510**		50	**630**		50	**380**		20	210		20	160		10	**470**		40
Nitrate + Nitrite as N (mg/L)	10	10		1.0	4.0		1.0	6.9		1.0	3.8		1.0	3.7		1.0	4.3		1.0
Total Organic Carbon (TOC) (mg/L)	NS	2.1		1.0	ND		5.0	ND		1.0	1.2		1.0	ND		1.0	ND		5.0
Sulfate (mg/L)	250	78		10	41		2.0	30		2.0	43		2	36		2.0	29		2.0
Total Sulfide (mg/L)	0.050 GV	**2.4**		2.0	ND		2.0	ND		2.0	ND		2	ND		2	ND		2
Methane (µg/L)	NS	0.11		0.10	0.091	j	0.10	7.6		0.5	0.057	j	0.10	0.054	j	0.10	ND		0.5
Ethane (µg/L)	NS	0.0051	j	0.025	ND		0.025	ND		0.1	0.0037	j	0.025	ND		0.025	ND		0.1
Ethene (µg/L)	NS	0.042		0.025	0.0088	j	0.025	0.0053	j	0.1	0.031		0.025	0.011	j	0.025	0.0069	j	0.1

(a) - NYSDEC Part 703 & TOGS 1.1.1, June 1998.
ND - Not detected at quantitation limit.
j - Concentration detected at a value below the RL and above the MDL.
35 - Indicates exceedance of applicable standard or guidance value.
J* - Sample result considered estimated based on data usability evaluation.
GV - Guidance value.
NS - No standard or guidance value available.
RL - Reporting Limit
Flg - Data Qualifier Flag
^ - MW-1-Dup is the blind duplicate sample of MW-1.
- October 2015 Sampling Event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

			Jan-04				Jun-05			
Sample ID		**NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines**	**MW-1**		**MW-1 DUP**		**MW-1**		**MW-1 DUP**	
Lab Sample Number			1030545		1030546		1076768.D		1076769A.D	
Sampling Date			1/8/2004		1/8/2004		6/13/2005		6/13/2005	
Matrix			WATER		WATER		WATER		WATER	
Parameter			DL 10:1				DL 10:1		DL 20:1	
VOCs (µg/L)	Benzene	1	**150**		**180**		**80**	**D**	**15**	**JD**
	Bromobenzene	5	5	U	50	U	**8**	**JD**	100	U
	Bromomethane	5	5	U	50	U	**9**	**JD**	100	U
	sec-Butylbenzene	5	**7**		**8**	**J**	**33**	**JD**	100	U
	2-Butanone	50 GV	5	U	50	U	50	U	100	U
	Chloroform	7	5	U	50	U	**19**	**JD**	100	U
	Cyclohexane	NS	ANC		ANC		ANC		ANC	
	1,1-Dichloroethene	5	5	U	50	U	**30**	**JD**	100	U
	cis-1,2-Dichloroethene	5	2	J	50	U	**7**	**JD**	100	U
	1,1-Dichloroethane	5	5	U	50	U	**14**	**J**	100	U
	1,2-Dichloroethane	0.6	5	U	50	U	**7**	**JD**	100	U
	1,2-Dichloropropane	1	5	U	50	U	**42**	**JD**	100	U
	2,2-Dichloropropane	5	5	U	50	U	**22**	**JD**	100	U
	Ethyl benzene	5	**280**		**30**	**J**	**6800**	**D**	**180**	**D**
	Isopropylbenzene	5	**33**		**20**	**J**	**180**	**D**	100	U
	4-Isopropyltoluene	5	**7**		**13**	**J**	**40**	**JD**	**17**	**JD**
	n-Butylbenzene	5	5	U	50	U	50	U	100	U
	Methylcyclohexane	NS	ANC		ANC		ANC		ANC	
	Methylene chloride	5	5	U	50	U	920	U	140	U
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	50	U	**21**	**JD**	100	U
	Naphthalene	10 GV	5	U	50	U	**1300**	**D**	**88**	**JD**
	n-Propylbenzene	5	**8**		50	U	**220**	**D**	100	U
	Styrene	5	**45**		50	U	50	U	100	U
	Tetrachloroethylene	5	1	J	50	U	**23**	**JD**	100	U
	1,1,2,2-Tetrachloroethane	5	5	U	50	U	**26**	**JD**	100	U
	1,2,4,5-Tetramethylbenzene	5	**73**		**150**		**390**	**D**	**54**	**JD**
	Toluene	5	**2100**	**D**	**2000**		**5000**	**D**	**800**	**D**
	1,2,3-Trichlorobenzene	5	5	U	50	U	**8**	**JD**	100	U
	1,2,4-Trichlorobenzene	5	5	U	50	U	**8**	**JD**	100	U
	Trichloroethylene	5	5	U	50	U	50	U	100	U
	1,1,1-Trichloroethane	5	5	U	50	U	50	U	**56**	**JD**
	1,2,4-Trimethylbenzene	5	**1400**	**D**	**2700**		**9300**	**D**	**1500**	**D**
	1,3,5-Trimethylbenzene	5	**460**		**800**		**2600**	**D**	**440**	**D**
	m/p-Xylene	5	**3600**	**D**	**6600**		**25000**	**D**	**4300**	**D**
	o-Xylene	5	**2100**	**D**	**4000**		**14000**	**D**	**2400**	**D**
	TOTAL VOCs:	-	10266		16501		65237		9850	
	TOTAL BTEX:	-	8230		12810		50880		7695	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	2	U	**130**		2	
	2-Methylphenol	1*	**10**		**9**		1	U	**3**	
	4-Methylphenol	1*	**7**		**8**		2	U	**4**	
	2,4-Dimethylphenol	1*	**9**		**8**		1	U	1	U
	2-Methylnaphthalene	-	46		9		12		1	
	Naphthalene	0.4 (10 GV)	**20**		**2**	U	**78**		**30**	

Data Qualifiers and Notes:

U - Compound was not detected above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* - Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
NS - No standard available
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- 10/2015 sampling event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

			May-06				Feb-12			
Sample ID		**NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines**	**MW-1**		**MW-1 DUP**		**MW-1**		**MW-1 DUP**	
Lab Sample Number			212946-001		212946-002		AC64272-002		AC64272-003	
Sampling Date			5/17/2006		5/17/2006		2/16/2012		2/16/2012	
Matrix			WATER		WATER		WATER		WATER	
Parameter			DL 10:1		DL 10:1		DL 5.1:1		DL 5.1:1	
VOCs (µg/L)	Benzene	1	**19**	**J**	**17**	**J**	2.5	U	2.5	U
	Bromobenzene	5	6	U	6	U	ANC		ANC	
	Bromomethane	5	12	U	12	U	5	U	5	U
	sec-Butylbenzene	5	0.9	U	0.9	U	**6.5**		**6.1**	
	2-Butanone	50 GV	6	U	6	U	5	U	5	U
	Chloroform	7	7	U	7	U	5	U	5	U
	Cyclohexane	NS	ANC		ANC		ANC		ANC	
	1,1-Dichloroethene	5	7	U	7	U	5	U	5	U
	cis-1,2-Dichloroethene	5	6	U	6	U	**7.6**		**7.1**	
	1,1-Dichloroethane	5	6	U	6	U	5	U	5	U
	1,2-Dichloroethane	0.6	6	U	6	U	2.5	U	2.5	U
	1,2-Dichloropropane	1	9	U	9	U	5	U	5	U
	2,2-Dichloropropane	5	0.6	U	0.6	U	ANC		ANC	
	Ethyl benzene	5	**1300**		**1100**		**860**		**810**	
	Isopropylbenzene	5	**57**		**47**	**J**	**49**		**48**	
	4-Isopropyltoluene	5	0.8	U	0.8	U	5	U	5	U
	n-Butylbenzene	5	ANC		ANC		5	U	5	U
	Methylcyclohexane	NS	ANC		ANC		ANC		ANC	
	Methylene chloride	5	4	U	4	U	5	U	5	U
	Methyl tert-butyl ether (MTBE)	10 GV	0.3	U	0.3	U	2.5	U	2.5	U
	Naphthalene	10 GV	*160*		*120*		ANC		ANC	
	n-Propylbenzene	5	**140**		**110**		**140**		**130**	
	Styrene	5	0.5	U	0.5	U	5	U	5	U
	Tetrachloroethylene	5	5	U	5	U	5	U	5	U
	1,1,2,2-Tetrachloroethane	5	4	U	4	U	5	U	5	U
	1,2,4,5-Tetramethylbenzene	5	5	U	5	U	ANC		ANC	
	Toluene	5	**200**		**170**		**45**		**41**	
	1,2,3-Trichlorobenzene	5	1.1	U	1.1	U	ANC		ANC	
	1,2,4-Trichlorobenzene	5	0.9	U	0.9	U	ANC		ANC	
	Trichloroethylene	5	5	U	5	U	5	U	5	U
	1,1,1-Trichloroethane	5	4	U	4	U	5	U	5	U
	1,2,4-Trimethylbenzene	5	**750**		**640**		**510**		**510**	
	1,3,5-Trimethylbenzene	5	**250**		**200**		**33**		**42**	
	m/p-Xylene	5	**1700**		**1400**		**660**		**750**	
	o-Xylene	5	**540**		**460**		**210**		**250**	
	TOTAL VOCs:	-	5116		4264		2521		2594	
	TOTAL BTEX:	-	3759		3147		1778		1854	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	ANC		ANC		2.1	U	2.1	U
	2-Methylphenol	1*	ANC		ANC		0.53	U	0.52	U
	4-Methylphenol	1*	ANC		ANC		0.53	U	0.52	U
	2,4-Dimethylphenol	1*	**6**	j	**9**	j	2.1	U	2.1	U
	2-Methylnaphthalene	NS	ANC		ANC		2.1	U	2.9	
	Naphthalene	0.4 (10 GV)	**120**		**120**		**31**		**43**	

Data Qualifiers and Notes:

U - Compound was not detected above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* - Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
NS - No standard available
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- 10/2015 sampling event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

			Jan-13				Oct-15	
Sample ID		**NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines**	**MW-1**		**MW-1 (DUP)**		**MW-1**	
Lab Sample Number			AC70157-002		AC701567-003		AC87767-004	
Sampling Date			1/10/2013		1/10/2013		10/22/2015	
Matrix			WATER		WATER		WATER	
Parameter			DL 5:1		DL 5:1		DL 1:1	
VOCs (µg/L)	Benzene	1	2.5	U	2.5	U	0.5	U
	Bromobenzene	5	ANC		ANC		ANC	
	Bromomethane	5	5	U	5	U	1	U
	sec-Butylbenzene	5	**11**		**14**		**7.2**	
	2-Butanone	50 GV	5	U	5	U	19	
	Chloroform	7	5	U	5	U	1	U
	Cyclohexane	NS	ANC		ANC		250	
	1,1-Dichloroethene	5	5	U	5	U	1	U
	cis-1,2-Dichloroethene	5	**7.7**		**9.4**		4.0	
	1,1-Dichloroethane	5	5	U	5	U	1	U
	1,2-Dichloroethane	0.6	2.5	U	2.5	U	0.5	U
	1,2-Dichloropropane	1	5	U	5	U	1	U
	2,2-Dichloropropane	5	ANC		ANC		ANC	
	Ethyl benzene	5	**1100**		**1300**		**420**	
	Isopropylbenzene	5	**130**		**110**		**70**	
	4-Isopropyltoluene	5	**8.1**		**7.0**		3.6	
	n-Butylbenzene	5	**8.9**		**6.7**		**5.4**	
	Methylcyclohexane	NS	ANC		ANC		130	
	Methylene chloride	5	5	U	5	U	1	U
	Methyl tert-butyl ether (MTBE)	10 GV	2.5	U	2.5	U	0.5	U
	Naphthalene	10 GV	ANC		ANC		ANC	
	n-Propylbenzene	5	**330**		**270**		**180**	
	Styrene	5	5	U	5	U	1	U
	Tetrachloroethylene	5	5	U	5	U	1	U
	1,1,2,2-Tetrachloroethane	5	5	U	5	U	1	U
	1,2,4,5-Tetramethylbenzene	5	ANC		ANC		ANC	
	Toluene	5	**150**		**130**		**30**	
	1,2,3-Trichlorobenzene	5	ANC		ANC		ANC	
	1,2,4-Trichlorobenzene	5	ANC		ANC		ANC	
	Trichloroethylene	5	5	U	5	U	2.5	
	1,1,1-Trichloroethane	5	5	U	5	U	1	U
	1,2,4-Trimethylbenzene	5	**1900**		**1500**		**1000**	
	1,3,5-Trimethylbenzene	5	**310**		**230**		**150**	
	m/p-Xylene	5	**2500**		**2000**		**620**	
	o-Xylene	5	**660**		**800**		**270**	
	TOTAL VOCs:	-	7116		6377		3162	
	TOTAL BTEX:	-	4410		4230		1340	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2.2	U	2.1	U	2.2	U
	2-Methylphenol	1*	0.56	U	0.53	U	0.56	U
	4-Methylphenol	1*	0.56	U	0.53	U	0.56	U
	2,4-Dimethylphenol	1*	**4.9**		**6.3**		0.76	
	2-Methylnaphthalene	NS	16		20		22	
	Naphthalene	0.4 (10 GV)	**120**		**140**		**150**	

Data Qualifiers and Notes:

U - Compound was not detected above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* - Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
NS - No standard available
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- 10/2015 sampling event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-2									
Lab Sample Number			1030547		1076770.D		AC64272-002		AC70157-001		AC8757-001	
Sampling Date			1/9/2004		6/13/2005		2/16/2012		1/10/2013		10/22/2015	
Matrix			WATER		WATER		WATER		WATER		WATER	
Parameter												
VOCs (µg/L)	cis-1,2-Dichloroethene	5	**270**		**66**		1.2		1.2		1	U
	trans-1,2-Dichloroethene	5	0.77	J	5	U	1	U	1	U	1	U
	Chloroform	7	5	U	5	U	1	U	1	U	1	U
	p-Ethyltoluene	5	4	J	5	U	ANC		ANC		ANC	
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	5	U	1	U	0.50	U	0.50	U
	Naphthalene	10 GV	5	U	1	J	ANC		ANC		ANC	
	Tetrachloroethylene	5	**91**		2	J	1		4.1		1.7	
	1,2,4,5-Tetramethylbenzene	5	0.83	J	5	U	1	U	1	U	1	U
	Toluene	5	0.77	J	5	U	1	U	1	U	1	U
	1,2,4-Trichlorobenzene	5	5	U	1	J	1	U	1	U	1	U
	Trichloroethylene	5	**42**		5	U	1	U	3.7		1.0	
	Vinyl chloride (Chloroethene)	2	5	U	**6**		1	U	1.1		1	U
	m/p-Xylene	5	10	U	2	J	1	U	1	U	1	U
	o-Xylene	5	**8**		1	J	1	U	1	U	1	U
	TOTAL VOCs:	-	417		79		2.2		10.1		2.7	
	Total BTEX:	-	19		3		ND		ND		ND	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	**58**		2.1	U	2.0	U	2.1	U
	Butylbenzylphthalate	50 GV	2	U	*5*	U	5	U	5	U	2.1	U
	Naphthalene	0.4 (10 GV)	**9**		5	U	0.50	U	0.50	U	0.53	U

Data Qualifiers and Notes:

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D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
-October 2015 Sampling Event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-3									
Lab Sample Number			1030548		1076771.D		AC64272-001		AC70136-005		AC87723-005	
Sampling Date			1/9/2004		6/13/2005		2/16/2012		1/9/2013		10/21/2015	
Matrix			WATER		WATER		WATER		WATER		WATER	
Parameter												
VOCs (µg/L)	cis-1,2-Dichloroethene	5	**22**		5	U	1	U	1	U	1	U
	trans-1,2-Dichloroethene	5	5	U	5	U	1	U	1	U	1	U
	Chloroform	7	5	U	5	U	1	U	5.8		1	U
	p-Ethyltoluene	5	0.8	J	5	U	ANC		ANC		ANC	
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	5	U	1	U	0.50	U	0.50	U
	Naphthalene	10 GV	5	U	5	U	ANC		ANC		ANC	
	Tetrachloroethylene	5	**970**	**D**	**73**		**51**		**10**		**6.2**	
	1,2,4,5-Tetramethylbenzene	5	5	U	5	U	1	U	1	U	1	U
	Toluene	5	1	J	5	U	1	U	1	U	1	U
	1,2,4-Trichlorobenzene	5	5	U	5	U	1	U	1	U	1	U
	Trichloroethylene	5	**16**		5	U	1	U	1	U	1	U
	Vinyl chloride (Chloroethene)	2	5	U	5	U	1	U	1	U	1	U
	m/p-Xylene	5	0.9	J	5	U	1	U	1	U	1	U
	o-Xylene	5	4	J	5	U	1	U	1	U	1	U
	TOTAL VOCs:	-	1015		73		51		15.8		6.2	
	Total BTEX:	-	6		ND		ND		ND		ND	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	**1000**	*D*	5	U	5	U	5	U
	Butylbenzylphthalate	50 GV	2	U	*5*	U	5	U	5	U	2.0	
	Naphthalene	0.4 (10 GV)	2	U	5	U	0.50	U	0.50	U	0.50	U

Data Qualifiers and Notes:

U - Compound was not detected at or above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this particular analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
-October 2015 Sampling Event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-4				
Lab Sample Number			1030549	1076772.D	AC64255-001	AC70136-001	AC87723-001
Sampling Date			1/9/2004	6/13/2005	2/16/2012	1/9/2013	10/21/2015
Matrix			WATER	WATER	WATER	WATER	WATER
Parameter							
VOCs (µg/L)	cis-1,2-Dichloroethene	5	5 U	5 U	1 U	1 U	1 U
	trans-1,2-Dichloroethene	5	5 U	5 U	1 U	5 U	5 U
	Chloroform	7	5 U	5 U	4.9	6.3	1 U
	p-Ethyltoluene	5	5 U	5 U	ANC	ANC	ANC
	Methyl tert-butyl ether (MTBE)	10 GV	5 U	5 U	1 U	0.50 U	0.50 U
	Naphthalene	10 GV	5 U	5 U	ANC	ANC	ANC U
	Tetrachloroethylene	5	5 U	5 U	1 U	1 U	1 U
	1,2,4,5-Tetramethylbenzene	5	5 U	5 U	1 U	1 U	1 U
	Toluene	5	5 U	5 U	1 U	1 U	1 U
	1,2,4-Trichlorobenzene	5	5 U	5 U	1 U	1 U	1 U
	Trichloroethylene	5	5 U	5 U	1 U	1 U	1 U
	Vinyl chloride (Chloroethene)	2	5 U	5 U	1 U	1 U	1 U
	m/p-Xylene	5	5 U	5 U	1 U	1 U	1 U
	o-Xylene	5	5 U	5 U	1 U	1 U	1 U
	TOTAL VOCs:	-	ND	ND	4.9	6.3	ND
	Total BTEX:	-	ND	ND	ND	ND	ND
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2 U	5 U	5 U	5 U	5 U
	Butylbenzylphthalate	50 GV	2 U	5 U	5 U	5 U	5 U
	Naphthalene	0.4 (10 GV)	2 U	5 U	0.50 U	0.50 U	0.50 U

Data Qualifiers and Notes:

U - Compound was not detected at or above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- October 2015 Sampling Event

Table 3

Historical Comparison of On-Site Groundwater Sampling Results
Yonkers Parking Authority
310 Saw Mill River Road, Yonkers, NY

Sample ID		NYSDEC Part 703 Standard or NYSDEC TOGS 1.1.1 Guidelines	MW-5									
Lab Sample Number			1030550		1076775.D		AC64255-002		AC70136-002		AC87723-002	
Sampling Date			1/9/2004		6/13/2005		2/16/2012		1/9/2013		10/21/2015	
Matrix			WATER		WATER		WATER		WATER		WATER	
Parameter												
VOCs (µg/L)	cis-1,2-Dichloroethene	5	5	U	5	U	1	U	1	U	1	U
	trans-1,2-Dichloroethene	5	5	U	5	U	1	U	1	U	1	U
	Chloroform	7	5	U	5	U	1	U	1	U	3.3	
	p-Ethyltoluene	5	5	U	5	U	ANC		ANC		ANC	
	Methyl tert-butyl ether (MTBE)	10 GV	5	U	5	U	1	U	0.50	U	0.50	U
	Naphthalene	10 GV	5	U	5	U	ANC		ANC		ANC	
	Tetrachloroethylene	5	5	U	5	U	1	U	1	U	1	U
	1,2,4,5-Tetramethylbenzene	5	5	U	5	U	1	U	1	U	1	U
	Toluene	5	5	U	5	U	1	U	1	U	1	U
	1,2,4-Trichlorobenzene	5	5	U	5	U	1	U	1	U	1	U
	Trichloroethylene	5	5	U	5	U	1	U	1	U	1	U
	Vinyl chloride (Chloroethene)	2	5	U	5	U	1	U	1	U	1	U
	m/p-Xylene	5	5	U	5	U	1	U	1	U	1	U
	o-Xylene	5	5	U	5	U	1	U	1	U	1	U
	TOTAL VOCs:	-	ND		ND		ND		ND		3.3	
	Total BTEX:	-	ND		ND		ND		ND		ND	
SVOCs (µg/L)	bis(2-Ethylhexyl)phthalate	5	2	U	5	U	5	U	5	U	5	U
	Butylbenzylphthalate	50 GV	2	U	5	U	5	U	5	U	5	U
	Naphthalene	0.4 (10 GV)	2	U	1	J	0.50	U	0.50	U	0.50	U

Data Qualifiers and Notes:

U - Compound was not detected at or above the reporting limit.
J - Compound was estimated at a concentration below the reporting or quantitation limit. The value shown is an estimated concentration.
D - A dilution was performed due to the anaylte having a concentration outside of the initial calibration range.
35 - Result exceeds applicable NYSDEC Part 703 Class GA Groundwater Standard or TOGS 1.1.1 Guidance Value
* Standard applies to the sum of phenolic compounds.
GV - Guidance Value - From NYSDEC TOGS 1.1.1 Guidance Document.
DL 10:1 - Dilution factor used. Analytes affected by the dilution run have a "D" qualifier (see note on "D").
DUP - Blind duplicate sample.
ANC - Analysis not conducted for this analyte during this sampling event.
Note: - Only compounds that have been detected are shown on this table. Refer to previous reports for full analytical data packages as provided by the lab. Data packs from the most recent event are provided in this report's appendix.
- October 2015 Sampling Event

Table 4

Groundwater Data Summary- Field Water Quality Parameters
Yonkers Parking Authority - 310 Saw Mill River Road, Yonkers, NY
(Feb 2012, Jan 2013, & Oct 2015)

Sample ID	MW-1						MW-2					
Sample Date	2/16/12		1/10/13		10/22/15		2/16/12		1/10/13		10/22/15	
	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample
Field Chemistry Parameters												
Ferrous Iron (mg/l)	0.7	0.9	0.6	0.9	-	0.9	0.2	0.2	0.0	0.2	-	0.1
Carbon Dioxide (mg/l)	34	26	48	26	-	26	28	22	12	22	-	30
Dissolved Oxygen (mg/l)	3.8	0.8	3.4	5.6	0.0	0.5	2.0	2.0	4.4	4.4	0.0	0.0
Oxidation-Reduction Potential (mV)	-146	-147	-157	-108	-183	-115	-52	-42	135	168	21	21
Specific Conductivity (mS/cm)	2.10	2.11	1.65	1.70	1.58	1.68	2.05	2.95	1.82	1.79	1.83	1.83
pH (Units)	7.5	7.5	7.5	7.5	7.4	7.5	7.4	7.4	7.4	7.4	7.2	7.2
Turbidity (NTUs)	4	0	1	3	1	12	0	0	9	5	0	0

Sample ID	MW-3						MW-4					
Sample Date	2/16/12		1/9/13		10/21/15		2/15/12		1/9/13		10/21/15	
	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample
Field Chemistry Parameters												
Ferrous Iron (mg/l)	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.2
Carbon Dioxide (mg/l)	15	24	18	22	-	22	10	24	10	10	-	20
Dissolved Oxygen (mg/l)	7.4	7.6	7.5	8.8	1.2	1.6	8.0	8.1	14.5	11.5	2.0	2.8
Oxidation-Reduction Potential (mV)	160	157	220	220	119	137	184	181	213	216	136	156
Specific Conductivity (mS/cm)	2.37	2.37	2.20	1.96	1.64	1.63	2.24	2.23	2.37	2.36	1.47	1.47
pH (Units)	6.8	6.8	6.9	7.0	6.9	6.9	6.6	6.6	6.7	6.7	6.7	6.7
Turbidity (NTUs)	0	1	2	5	0	3	0	21	10	41	6	420

Sample ID	MW-5					
Sample Date	2/15/12		1/9/13		10/21/15	
	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample	Purge (Stabilized)	Sample
Field Chemistry Parameters						
Ferrous Iron (mg/l)	0.0	0.0	0.0	0.1	-	0.1
Carbon Dioxide (mg/l)	10	15	32	16	-	25
Dissolved Oxygen (mg/l)	6.4	6.9	9.4	16.1	2.7	3.1
Oxidation-Reduction Potential (mV)	191	198	220	232	244	238
Specific Conductivity (mS/cm)	0.99	1.01	0.85	0.86	1.70	1.70
pH (Units)	6.5	6.6	6.5	6.5	6.30	6.40
Turbidity (NTUs)	8	2	4	7	2	35

Note: - Horiba U52 Multi Water Quality Checker used to measure DO, ORP, Sp Cond., pH, & Turbidity
Note: - HACH field test kits used to measure CO_2 and Ferrous Fe
- October 2015 Sampling Event

Attachment B

Monitoring Well Sampling Logs

HDR Well Sampling Log

Well ID No.: MW-1

Well Casing Type: 2" PVC
Well Depth:** 14.08'
Screened Interval: 14.08'-4.08'
Well Elevation:**
Ground Elevation:
Well Condition: Good
Weather Conditions: 39°F, NW 10-15 mph, Clear

Start SWL: 6.30
Water Column Ht.: 7.78
Well Casing Volume (gallons): 1.2
SWL During Sampling: 8.34
Sample Time: 1140 - 12:10
Sample Method: Whale Pump
Sample Analyses: VOCs, SVOCs, Nitrate, Sulfate, Sulfide, Chloride, Alkalinity,Methane/Ethane/Ethene, TOC

Project: YPA-Yonkers
Date: 10/22/2015
Crew: MTP/MTK
Purge Method: Whale Pump
Meters Used: Horiba U-52, Solinst Interface probe
PID Head Space (ppm): N/A

Time	Est. Gal. Purged	Purge Rate (mLpm)	Temp. (C^0)	Cond.	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
10:42	0	240	21.62	0.725	36	6.25	7.5	0.4	0.3	126	6.80	Pumped started
10:52			21.53	1.35	-98	0	7.0	0.9	0.7	30.2		
11:02			21.72	1.42	-147	0	7.3	0.9	0.7	15.1		Moderate Petrol Odor throughout purging.
11:12			22.09	1.51	-170	0	7.4	1.0	0.8	3.3		light gray in color
11:27	4		22.95	1.58	-183	0.00	7.4	1.0	0.8	0.6	8.34	
11:40											8.34	Sampling
12:10			21.50	1.68	-115	0.53	7.5	7.5	0.9	11.9		post sample chems; Fe=0.9 mg/L, CO2 = 26 mg/L

Comments:

Notes: Volume is measured in Gallons
* - Measurement taken from top of well casing

HDR Well Sampling Log

Well ID No.: MW-2

Well Casing Type: 2" PVC
Well Depth:** 13.51'
Screened Interval: 13.51'-3.51'
Well Elevation:**
Ground Elevation:
Well Condition: Good
Weather Conditions: 39°F, NW 10-15 mph, Clear

Start SWL: 7.44
Water Column Ht.: 6.07
Well Casing Volume (gallons): 1
SWL During Sampling: 8.95
Sample Time: 0945 - 1010
Sample Method: Whale Pump
Sample Analyses: VOCs, SVOCs, Nitrate, Sulfate, Sulfide, Chloride, Alkalinity,Methane/Ethane/Ethene, TOC

Project: YPA-Yonkers
Date: 10/22/2015
Crew: MTP / MTK
Purge Method: Whale Pump
Meters Used: Horiba U-52, Solinst Interface probe
PID Head Space (ppm): N/A

Time	Est. Gal. Purged	Purge Rate (mLpm)	Temp. (C^o)	Cond.	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
8:25	0	360	19.88	1.85	246	0.44	6.29	1.18	0.9	101	8.83	Pumped started
8:35			21.09	1.83	148	0	7.14	1.17	0.9	12.2		
8:45			21.04	1.84	128	0.14	7.21	1.18	0.9	1.9		
8:55			21.17	1.86	51	0.06	7.23	1.19	0.9	0		
9:05			21.28	1.85	27	0	7.23	1.19	0.9	0		
9:15			21.28	1.84	22	0	7.23	1.18	0.9	0		
9:25	7		21.22	1.83	21	0	7.23	1.17	0.9	0	8.95	
9:45											8.95	Sampling
10:10			21.22	1.83	21	0	7.23	1.17	0.9	0		post sample chems; Fe=0.1 mg/L, CO2 = 30 mg/L

Comments Both SWL meters are malfunctioning

Notes: Volume is measured in Gallons
* - Measurement taken from top of well casing

HDR Well Sampling Log

Well ID No.: MW-3

Well Casing Type: 2" PVC
Well Depth:** 14.77
Screened Interval: 14.77'-4.77'
Well Elevation:**
Ground Elevation:
Well Condition: Good
Weather Conditions: 60°F, NE 0-5, Partly Cloudy

Start SWL: 8.88
Water Column Ht.: 5.89
Well Casing Volume (gallons): 1
SWL During Sampling: 9.18
Sample Time: 15:55 - 16:20
Sample Method: Whale Pump
Sample Analyses: VOCs, SVOCs, Nitrate, Sulfate, Sulfide, Chloride, Alkalinity,Methane/Ethane/Ethene, TOC

Project: YPA-Yonkers
Date: 10/21/2015
Crew: MTP / MTK
Purge Method: Whale Pump
Meters Used: Horiba U-52, Solinst Interface probe
PID Head Space (ppm): N/A

Time	Est. Gal. Purged	Purge Rate (mLpm)	Temp. (C^o)	Cond.	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
14:40	0	300	21.24	1.65	202	1.63	6.9	1.1	0.8	151	8.88	Pumped started
14:50			21.38	1.89	155	1.17	6.9	1.2	1	48.7		
15:00			21.63	1.9	139	0.84	6.9	1.2	1	26.8		
15:10			21.87	1.82	127	1.2	6.9	1.2	0.9	13.2		
15:20			21.73	1.77	119	1.1	6.9	1.1	0.9	3.8		
15:30			21.95	1.73	123	1.18	6.9	1.1	0.9	2.2		
15:40			21.95	1.68	122	1.2	6.9	1.1	0.8	0		
15:50	6		21.84	1.64	119	1.22	6.9	1.1	0.8	0	9.18	
15:55												Sampling
16:20			22.24	1.63	137	1.63	6.9	1.0	0.1	3	9.18	post sample chems; Fe=0 mg/L, CO2 = 22 mg/L

Comments:

Notes: Volume is measured in Gallons
* - Measurement taken from top of well casing

HDR Well Sampling Log

Well ID No.: MW-4

Well Casing Type: 2" PVC
Well Depth:** 14.04'
Screened Interval: 14.04' - 4.04'
Well Elevation:**
Ground Elevation:
Well Condition: Good
Weather Conditions: 55°F, NE 0-5, Partly Cloudy

Start SWL: 6.74
Water Column Ht.: 7.3
Well Casing Volume (gallons): 1.2
SWL During Sampling: 10.45
Sample Time: 1050 - 1110
Sample Method: Whale Pump
Sample Analyses: VOCs, SVOCs, Nitrate, Sulfate, Sulfide, Chloride, Alkalinity,Methane/Ethane/Ethene, TOC

Project: YPA-Yonkers
Date: 10/21/2015
Crew: MTP / MTK
Purge Method: Whale Pump
Meters Used: Horiba U-52, Solinst Interface probe
PID Head Space (ppm): N/A

Time	Est. Gal. Purged	Purge Rate (mLpm)	Temp. (C^o)	Cond.	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
7:56	0	240	18.14	1.58	197	6.47	6.47	1.01	0.8	0	8.45	
8:06			18.51	1.56	145	2.82	6.61	0.998	0.8	405		
8:16			18.47	1.54	138	1.88	6.64	0.983	0.8	234		
8:26			18.51	1.52	130	1.55	6.64	0.972	0.8	205		
8:36			18.63	1.51	124	2.06	6.64	0.965	0.8	131		
8:46			18.53	1.5	126	2.09	6.63	0.963	0.8	134		
9:05			18.49	1.49	125	1.71	6.65	0.954	0.7	109		
9:15			18.64	1.48	122	2.2	6.64	0.949	0.7	73.7		
9:21			18.68	1.5	130	2.14	6.65	0.957	0.7	317		
9:31			18.67	1.48	142	2.31	6.65	0.947	0.7	423		
9:41			18.74	1.48	138	2.33	6.65	0.945	0.7	208		
9:52			18.66	1.48	136	1.61	6.65	0.945	0.7	65.4		
10:02			18.71	1.47	131	2.09	6.66	0.941	0.7	29.1		
10:12			18.74	1.47	130	2	6.66	0.941	0.7	11.9		
10:18	-		18.71	1.47	131	1.78	6.66	0.942	0.7	9.4		
10:28			18.76	1.47	129	2.02	6.66	0.942	0.7	5.1		
10:36			18.85	1.47	129	2.12	6.66	0.942	0.7	6.5		
10:46	17		18.81	1.47	136	1.98	6.66	0.944	0.7	5.5		
10:50												
11:10			18.75	1.47	156	2.76	6.68	0.933	0.7	420	10.45	post sample chems; Fe=0.2 mg/L, CO2 = 20 mg/L

Comments:

Notes: Volume is measured in Gallons
* - Measurement taken from top of well casing

HDR Well Sampling Log

Well ID No.: MW-5

Well Casing Type: 2" PVC
Well Depth:** 11.52
Screened Interval: 11.52' - 1.52'
Well Elevation:**
Ground Elevation:
Well Condition: Good
Weather Conditions: 55°F, NE 0-5, Partly Cloudy

Start SWL: 5.67
Water Column Ht.: 5.85
Well Casing Volume (gallons): 1
SWL During Sampling: 5.74
Sample Time: 13:50 - 1410
Sample Method: Whale Pump
Sample Analyses: VOCs, SVOCs, Nitrate, Sulfate, Sulfide, Chloride, Alkalinity,Methane/Ethane/Ethene, TOC

Project: YPA-Yonkers
Date: 10/21/2015
Crew: MTP / MTK
Purge Method: Whale Pump
Meters Used: Horiba U-52, Solinst Interface probe
PID Head Space (ppm): N/A

Time	Est. Gal. Purged	Purge Rate (mLpm)	Temp. (C^o)	Cond.	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
11:51	0	360	18.95	1.98	179	4.14	6.86	1.27	1	109	5.72	
12:01			18.29	1.93	213	2.82	6.35	1.24	1	141		
12:11			18.44	1.88	221	2.28	6.34	1.2	1	61		
12:21			18.41	1.83	225	2.36	6.34	1.17	0.9	33.4		
12:28			18.41	1.81	228	2.28	6.34	1.16	0.9	12.9		
12:38			18.49	1.8	231	2.18	6.34	1.15	0.9	7.1		
12:48			18.46	1.8	233	2.22	6.34	1.15	0.9	48.7		
12:58			18.31	1.8	236	3.16	6.34	1.16	0.9	24.2		
13:08			18.27	1.71	238	3.12	6.35	1.09	0.9	157		
13:18			18.29	1.71	240	2.95	6.34	1.09	0.9	27.4		
13:19			18.29	1.71	241	3.09	6.34	1.1	0.9	15.4		
13:29			18.33	1.71	243	2.8	6.34	1.09	0.9	7.1		
13:45	15		18.39	1.7	244	2.74	6.34	1.09	0.9	1.5		
13:50												Begin sampling
14:10			18.4	1.7	238	3.06	6.4	1.09	0.9	34.5	5.74	post sample chems; Fe=0.1 mg/L, CO2 = 25 mg/L

Comments:

Notes: Volume is measured in Gallons
* - Measurement taken from top of well casing

Attachment C

Analytical Laboratory Data Reports & the Data Usability Summary Report