January 15, 2019 Reference No. 006883

Ms. Jaclyn Kondrk
Emergency Remedial Response Division
United States Environmental Protection Agency Region II
290 Broadway, 20th Floor
New York, New York
10007 1866

Dear Ms. Kondrk:

Re: Quarterly Report – Fourth Quarter 2018 (October through December)
Administrative Orders Hooker Chemical/Ruco Polymer Corporation Site
Index Nos. II CERCLA 80216, II CERCLA 94 0210, and II CERCLA 02 2001 2018

This submittal provides the Quarterly Progress Report covering October through December 2018 for the Hooker/Ruco Site in Hicksville, New York, on behalf of Glenn Springs Holdings, Inc. (GSH). This Report covers OU 1, OU 2, and OU 3. Please note that the next deliverable will be a Semiannual Progress Report and will be submitted by July 15, 2019 and will cover January through June 2019. A listing of the primary activities is provided in Table 1.

Quarterly Progress Report

The following activities were performed during the period October through December 2018:

- The Quarterly Progress Report for the time period July through September 2018 was submitted to the USEPA on October 15, 2018.

Operable Unit 1 (On-Site Soil)

All work has been successfully completed. OU 1 is closed.

Operable Unit 2 (Soils Impacted by On-Site Release of PCBs)

All work has been successfully completed. OU 1 is closed.

Operable Unit 3 (Off Site Groundwater)

A listing of the OU 3 O&M activities performed for this reporting period is provided in Table 2. Additional details for the primary activities are provided in the following sections.

It is noted that the selected remedy for the VCM subplume is also based on the recognition that the Northrop groundwater extraction and treatment system (i.e., pumping of Northrop Wells 1 and 3R and treatment via the Tower 96 system) is containing and remediating a commingled plume of PCE and TCE from the Northrop, NWIRP and Hooker/Ruco sites. The VCM subplume is co-located within the commingled PCE/TCE plume. Most of the PCE and TCE located within the commingled plume is associated with the Northrop and NWIRP sites. The Northrop system captures and treats all of the PCE, TCE and VCM, not being treated by the biosparge system, associated with the Hooker/Ruco Site.

Supplemental Treatment System

Agency concurrence to stop treatment of VCM with GSH's supplemental air treatment system was received on January 26, 2017. Operation, maintenance and monitoring of the supplemental system was thereafter taken over by Northrop. It is noted that the VCM concentrations in Well 3R ranged between 2.2 and 3.9 micrograms per liter (µg/L) from December 2016 to February 2018 with the most recent concentration from May 2018 being 2.0 µg/L. This further supports that treatment of VCM by the supplemental system is no longer needed.

Biosparge System

See Figures 1 and 2 for system layout and Figures 3 and 4 for system cross sections. Also shown on Figures 1 and 2 are the most recent VCM groundwater concentrations.

Notification of the 2nd semi-annual 2018 biosparge system performance monitoring event was submitted on October 5, 2018. Sampler insertion is scheduled to start on or about October 18, 2018.

Sampler insertion for the 2nd semi-annual 2018 biosparge system performance monitoring event started on October 18, 2018. All samplers were inserted in October and retrieved in November. Also, super sleeve samplers for MW-67S and MW-61D2 were ripped when retrieved. The super sleeves are used to collect samples for general chemistry (total organic carbon (TOC), nitrate, nitrite, ammonia, and phosphorus) analysis. These data are not necessary to evaluate the performance of the biosparge system. Therefore, super sleeves were not reinstalled for analysis of these parameters.

A QA/QC review of the October 2018 results is provided in Attachment A. The electronic deliverables were provided electronically to the USEPA on January 14, 2018.

During the reporting period, air was injected into all north fence wells and all middle fence injection wells except for IW-6D2, IW-7D1, IW-16D1, IW-17D2, and IW-18D1. It is believed that there are physical impairments in these wells. It is also believed that air injection into these wells is not essential because air is being injected into the air injection wells immediately adjacent to and above these injection points, the dissolved oxygen (DO) concentrations in the majority of nearby monitoring wells are greater than the target level of 2.0 milligrams per liter (mg/L) (as noted in Table 3), and VCM concentrations continue to decrease or remain low level.

Summary of Biosparge System

The DO, total volatile organic compounds (TVOC), and VCM concentration trends for the individual groundwater monitoring wells around the biosparge injection system are shown on Figures 5 through 8. It is noted that figures for well pairs in which the VCM concentrations have been less than the MCL of 2 µg/L for at least the last 2 years were not prepared for the Fourth Quarter 2018 report. The D1 & D2 wells achieving this goal were MW-61D2, MW-63, MW-72, MW-77, MW-81, MW-82, MW-83, MW-84, MW-87, MW-76S&I, MW-85S&I, MW-63S&I, MW-73D1&D2, MW-86D1&D2, and MW-90D1&D2, and MW-88D1&D2. For this Fourth Quarter report, MW-76D1&D2 have also achieved this goal. Thus, no figures for these well pairs are included in this report.

To date, the results show that the biosparge system is operating successfully as demonstrated by the following:

i) DO levels in the groundwater are greater than the target concentration of 2 mg/L in 29 of the 41 monitoring wells measured in November 2018 (see Table 3).

ii) Groundwater VCM concentrations are non detect, low level, or decreased between the April/May 2018 and November 2018 performance monitoring events in 44 of the 46 monitoring wells for the biosparge system as a result of the microbial biodegradation processes. Minor increases were detected in MW-75D2 (3.27 to 4.9 μg/L) and MW-85D1 (1.66 to 3.22 μg/L).

The wells with lowest DO concentrations are located in close proximity to either the north fence or the east portion of the middle fence of injection wells. It is anticipated that as the groundwater flow paths converge as they approach Northrop Well 3R, the groundwater with low DO concentrations will mix with groundwater with higher DO concentrations. This expectation is supported by the November 2018 DO concentrations in wells MW 66D2 and MW 67 which remain above the target level of 2 mg/L in the last quarter and are located between the middle fence and Well 3R (see Table 3). MW-68 has dropped below the target level of 2 mg/L; however, has seen a significant reduction in VCM concentrations (27.9 μg/L in November 2018 down from 66 μg/L in April/May 2018).

The VCM concentrations upgradient of the north fence decreased from 42 μg/L (October 2015) to 24 μg/L (October 2017) in well MW 92 and from 4 μg/L (October 2015) to 1.5 μg/L (October 2017) in well MW 92. These wells are scheduled to be sampled in October 2019.

The VCM concentrations along the west edge of the VCM subplume between the north fence and the middle fence remained non detect in wells MW 63 and MW 86 since the April/May 2016 sampling event.

The VCM concentrations along the east edge of the VCM subplume downgradient of the middle fence decreased from 4.8 μg/L for the April/May 2018 event to 3.22 μg/L for the November 2018 event. The VCM concentrations in well MW 85 have increased from 1.66 μg/L in MW 85D1 for the April/May 2018 event to 3.22 μg/L in November 2018.

The VCM concentrations in Northrop well MW 3-1, located in close proximity to Northrop Well 3R (fka GP 3) (south of the sub plume), increased from 14 to 36 μg/L between the last two sampling events in October 2016 and October 2018, respectively.

All of the above indicate that the extent of the VCM subplume, in general, is becoming smaller and the VCM concentrations therein are decreasing.

Table 3 of this report also presents analytical results for the other primary VOCs in the groundwater (i.e., PCE and TCE) being sampled by the biosparge system monitoring wells. The PCE, TCE and VCM concentrations for the time period since the start of operation of the Pilot System in October 2006 (for wells which monitor the Pilot System) and since the start of the remainder of biosparge system in September 2012 (for the wells which monitor the remainder of the system) are provided in the table.

As requested by the USEPA, the listed wells have been divided into three groups:

i) Those wells which are monitored in accordance with the sampling frequency specified in Table 7.1 of the OU 3 Interim Remedial Action Report (Base Wells) (as modified on March 8, 2017).

ii) Those wells which are sampled periodically on a voluntary basis to obtain a more regional view of chemical presence in the vicinity of the VCM plume (Voluntary Wells).

iii) Those wells monitored by Northrop which aid in interpreting the chemical presence in the vicinity of the VCM plume (Northrop Wells).

For the 43 base wells listed in Table 3, the PCE concentrations since start of the biosparge system operation have:

i) Decreased in 21 wells

ii) Remained relatively constant with random fluctuations in 17 wells

iii) Increased in 5 wells (MW-77D2, MW-81D2, MW-83D2, MW-86D2 andMW- 87D2)

Similarly, the TCE concentrations have:

i) Decreased in 22 wells

ii) Remained relatively constant with random fluctuations in 20 wells

iii) Increased in 1 well (MW-87D2)

The well in which both PCE and TCE concentrations increased was MW-87D2. Four of these wells (MW-81D2, MW-83D2, MW-86D2 and MW-87D2) are located in proximity to the western edge of the VCM plume. MW-77D2 is located in proximity to the eastern edge of the VCM plume. The reason for the increase is uncertain but is believed to be not related to the Hooker/Ruco Site. During installation of the north fence biosparge system injection and monitoring wells into the VCM impacted groundwater in 2011, groundwater with higher PCE and TCE concentrations were detected in the deeper groundwater below the elevation of the groundwater with VCM (see Figure 3). At that time, it was believed, and still is, that the PCE and TCE at depths below the VCM were due to sources other than the Hooker/Ruco Site. It is possible that the groundwater with higher concentrations is now impacting the groundwater chemistry in the referenced wells.

With regard to the wells which are sampled on a voluntary basis, it was noted that there was a TCE concentration increase in well nest MW-58 from the 70 to 110 µg/L range in May 2013 to the 2,400 to 7,600 µg/L range between November 2014 and November 2017. TCE concentrations have recently begun to decrease, ranging from 319 to 522 µg/L in November 2018. It is believed that these increases were due to the increased pumping rate of Northrop Well 3R drawing more of the highly TCE impacted groundwater from Northrop's OU 3 (see Figure 10).

Also of note is that the PCE and TCE concentrations in the well nests upgradient of the VCM plume (i.e., MW-92 and MW-93) have decreased significantly (e.g., PCE in MW-92D2 has decreased from 690 µg/L in April 2011 to 18 µg/L in October 2017 and from 110 µg/L in April 2011 to 13 µg/L in October 2017 for MW-93D2). These results combined with the decreasing VCM results in these wells are consistent with the expectation that the north upgradient edge of the VCM plume is migrating southward.

Well Conditions Update

The operational status of the injection and monitoring wells for the biosparge system is provided in Table 4. Since the issuance of the 2nd Quarter 2018 Progress Report, air injections into wells IW-2D1, IW-4D1, IW-4D2, IW-5D1, and IW-22D2 have resumed. In addition, air cannot be injected into wells IW-6D2 and IW-7D1. It is believed that a physical obstruction within each well is preventing this from occurring. Repairs to these wells will not be performed unless DO concentrations decrease in downgradient monitoring wells. The operational status of the injection wells was updated using observations obtained during operation of the biosparge system during this reporting period. The operational status of the monitoring wells was updated using observations obtained during operation of the biosparge system during this reporting period.

Planned 2019 Activities

The following activities are planned for 2019:

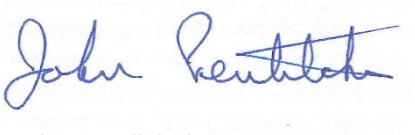
i. Continue operation and maintenance of the biosparge system

ii. Perform the 1st Semi-annual 2019 biosparge system performance monitoring event

Beginning in 2019, per an email from the USEPA dated November 27, 2018, the reporting frequency will be changed from quarterly to semi-annual.

Should you have any questions on the above, please do not hesitate to contact the undersigned at 519-340-4313 or email john.pentilchuk@GHD.com.

Sincerely,



John Pentilchuk

JS/kf/1

Encl.

cc: P. Mannino (USEPA)
S. Scharf (NYSDEC)
B. Murray (US Navy)
T. Troutman (Covestro)
T. Kelly (Nassau County)
R. Smith (GSH)
J. Kay (GHD)

HOOKER/
RUCO
SITE

SOUTH OYSTER BAY ROAD

NAVY
SITE

0 200 400ft

SLEEPY'S

PLANT 3

MW-64

10/17 | 24 MW-92 MW-93 10/17 | 1.5

11/18 | 0.51J MW-70

IW-4 IW-3 IW-2 IW-1 IW-5 IW-6 IW-7

MW-62 10/17 | 8

MW-77 11/18 | ND

MW-73 11/18 | ND

MW-90 11/18 | ND

11/18 | 4.9 MW-75

11/18 | ND MW-72

11/18 | 0.4 J MW-76

11/18 | ND MW-63

MULBERRY DRIVE

2 2 2

100 40 500 1000

POF RN

IW-19 IW-20 IW-21 IW-22

MW-82 11/18 | ND

IW-16 IW-17 IW-18

11/18 | ND MW-86

IW-15

HAZEL STREET

11/18 | ND MW-87

11/18 | ND MW-83

11/18 | ND MW-61

11/18 | 0.43J MW-81

MW-89 11/18 | 0.98J

MW-85 11/18 | 3.22

MW-88 11/18 | ND

MW-84 11/18 | ND

PLANT
25

MW-60 5/13 | ND

11/18 | ND MW-66

NORTHROP

GRUMMAN ROAD

11/18 | 1.21 MW-67

MW-68 11/18 | 27.9J

2

40

PLANT 5

MW-58 11/18 | ND

11/18 | ND MW-59

06/18 | 36 MW-3-1 (2)

WELL-3R (2) 05/18 | 2 (1)

GP-3

PLANT 2

SITE

GP-1 (2) 09/17 | ND

HICKSVILLE ROAD

LEGEND

- MW-57 — EXISTING MONITORING WELL LOCATION
- GP-3 — EXISTING EXTRACTION WELL LOCATION
- WELL-3R — REPLACEMENT EXTRACTION WELL LOCATION (DECEMBER 2013)
- IW-1 — EXISTING INJECTION WELL LOCATION
- 4/13 | 140 — VCM CONCENTRATION (µg/L); MONTH/YEAR
- 2 — VCM PLUME (µg/L)
- (1) — DATA NOT USED TO PLOT CONTOURS SINCE PUMPING WELL DRAWS GROUNDWATER FROM LARGER SURROUNDING AREA
- (2) — WELL SAMPLED AND DATA REPORTED BY NORTHROP

GHD

figure 1

MOST RECENT VCM GROUNDWATER CONCENTRATION

Hooker/Ruco Site, Hicksville, New York

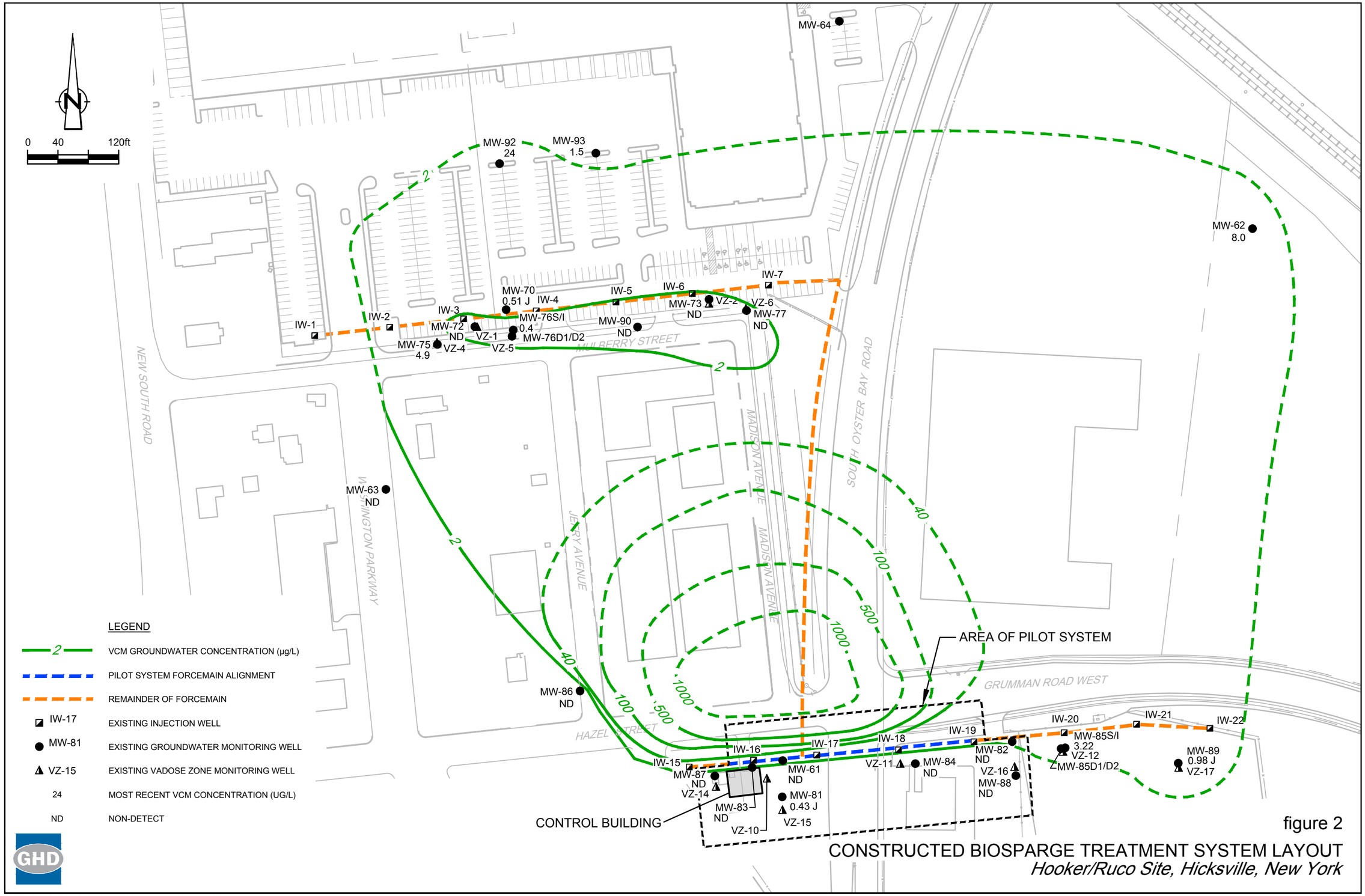


figure 2

CONSTRUCTED BIOSPARGE TREATMENT SYSTEM LAYOUT

Hooker/Ruco Site, Hicksville, New York

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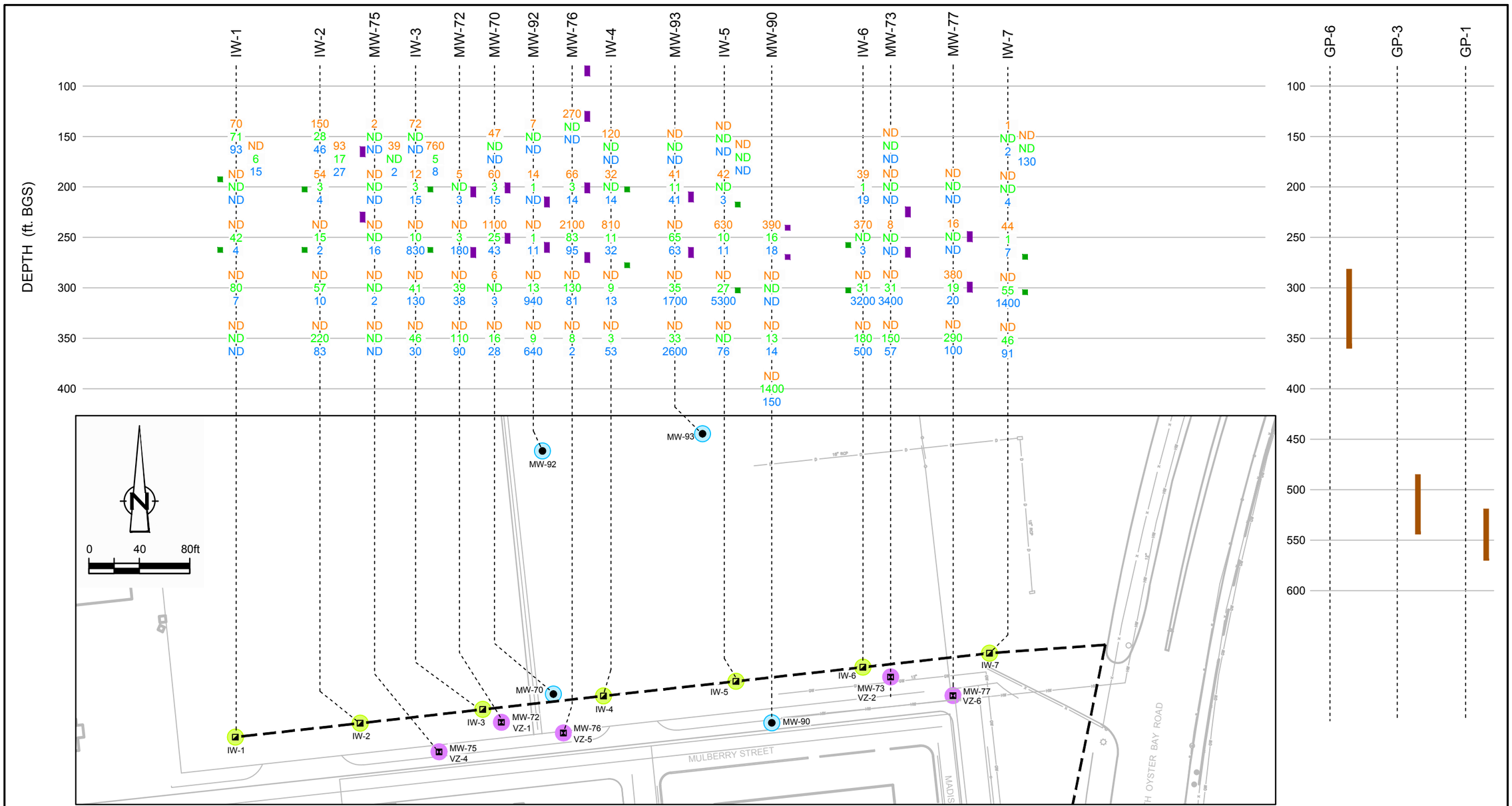


LEGEND

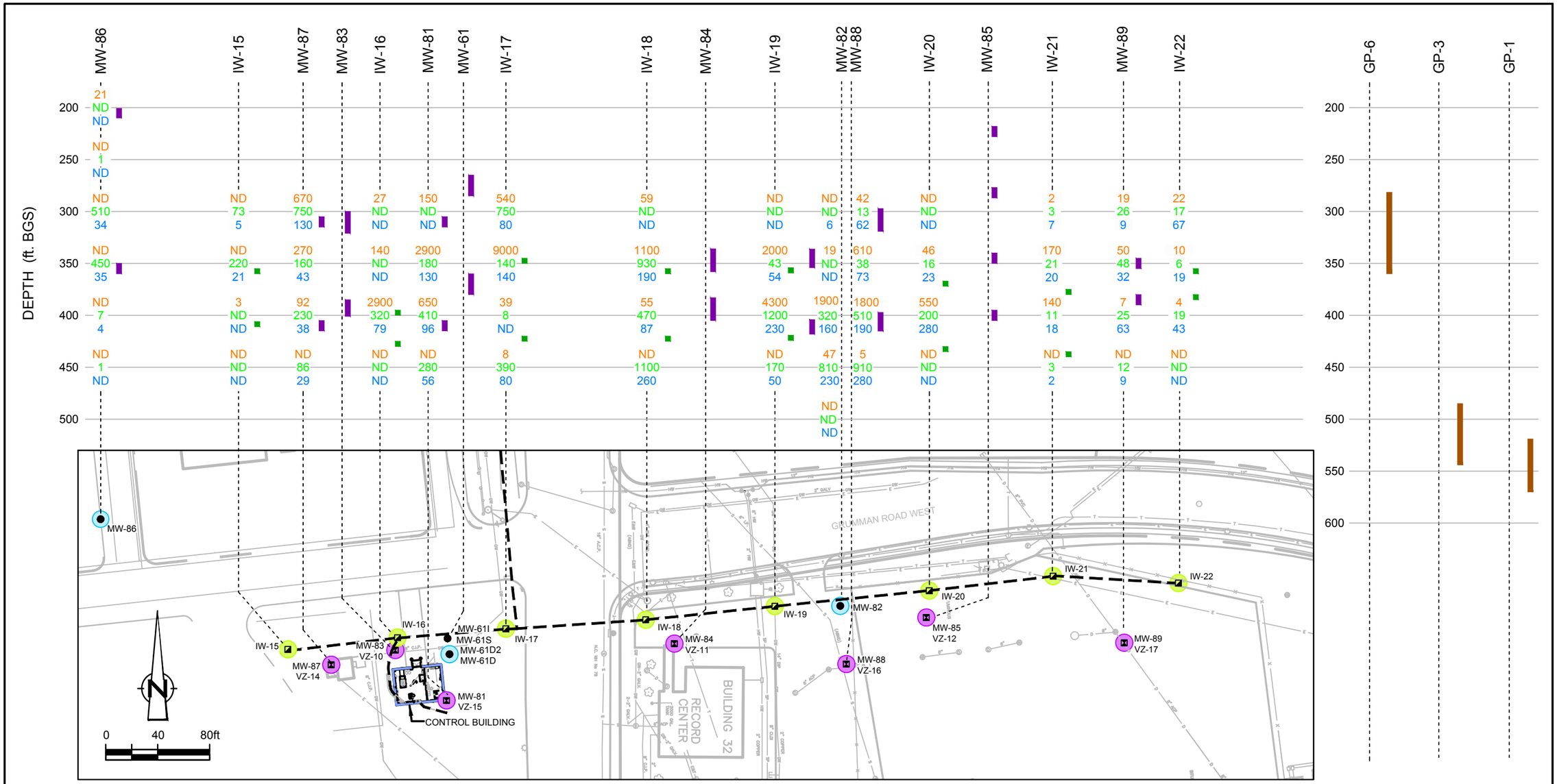
- FORCEMAIN ALIGNMENT
- MW-90 — GROUNDWATER MONITORING WELL LOCATION
- IW-4 — INJECTION WELL LOCATION
- MW-76 VZ-5 — GROUNDWATER AND VADOSE ZONE MONITORING WELL LOCATION
- AIR INJECTION WELL SCREENED INTERVAL
- GROUNDWATER MONITORING WELL SCREENED INTERVAL
- PUMPING WELL SCREENED INTERVAL
- 670 HYDROPUNCH VCM CONCENTRATION (ppb)
- 750 HYDROPUNCH TCE CONCENTRATION (ppb)
- 130 HYDROPUNCH PCE CONCENTRATION (ppb)

NOTE: FEBRUARY THROUGH MARCH, 2011 HYDROPUNCH RESULTS

figure 3

NORTH FENCE AIR INJECTION AND GROUNDWATER MONITORING WELL SCREENED INTERVALS

Hooker/Ruco Site, Hicksville, New York



LEGEND

- FORCEMAIN ALIGNMENT
- MW-61 — GROUNDWATER MONITORING WELL LOCATION
- IW-8 — INJECTION WELL LOCATION
- MW-80 VZ-9 — GROUNDWATER AND VADOSE ZONE MONITORING WELL LOCATION
- AIR INJECTION WELL SCREENED INTERVAL
- GROUNDWATER MONITORING WELL SCREENED INTERVAL
- PUMPING WELL SCREENED INTERVAL
- 670 — HYDROPUNCH VCM CONCENTRATION (ppb)
- 750 — HYDROPUNCH TCE CONCENTRATION (ppb)
- 130 — HYDROPUNCH PCE CONCENTRATION (ppb)

OCTOBER THROUGH DECEMBER 2010 HYDROPUNCH RESULTS.

NOTE: PILOT SYSTEM: OCTOBER 2005 THROUGH APRIL 2006 ANALYTICAL RESULTS.
REMAINING COMPONENTS: OCTOBER THROUGH DECEMBER 2010
HYDROPUNCH RESULTS

figure 4

MIDDLE FENCE AIR INJECTION AND GROUNDWATER MONITORING WELL SCREENED INTERVALS

Hooker/Ruco Site, Hicksville, New York

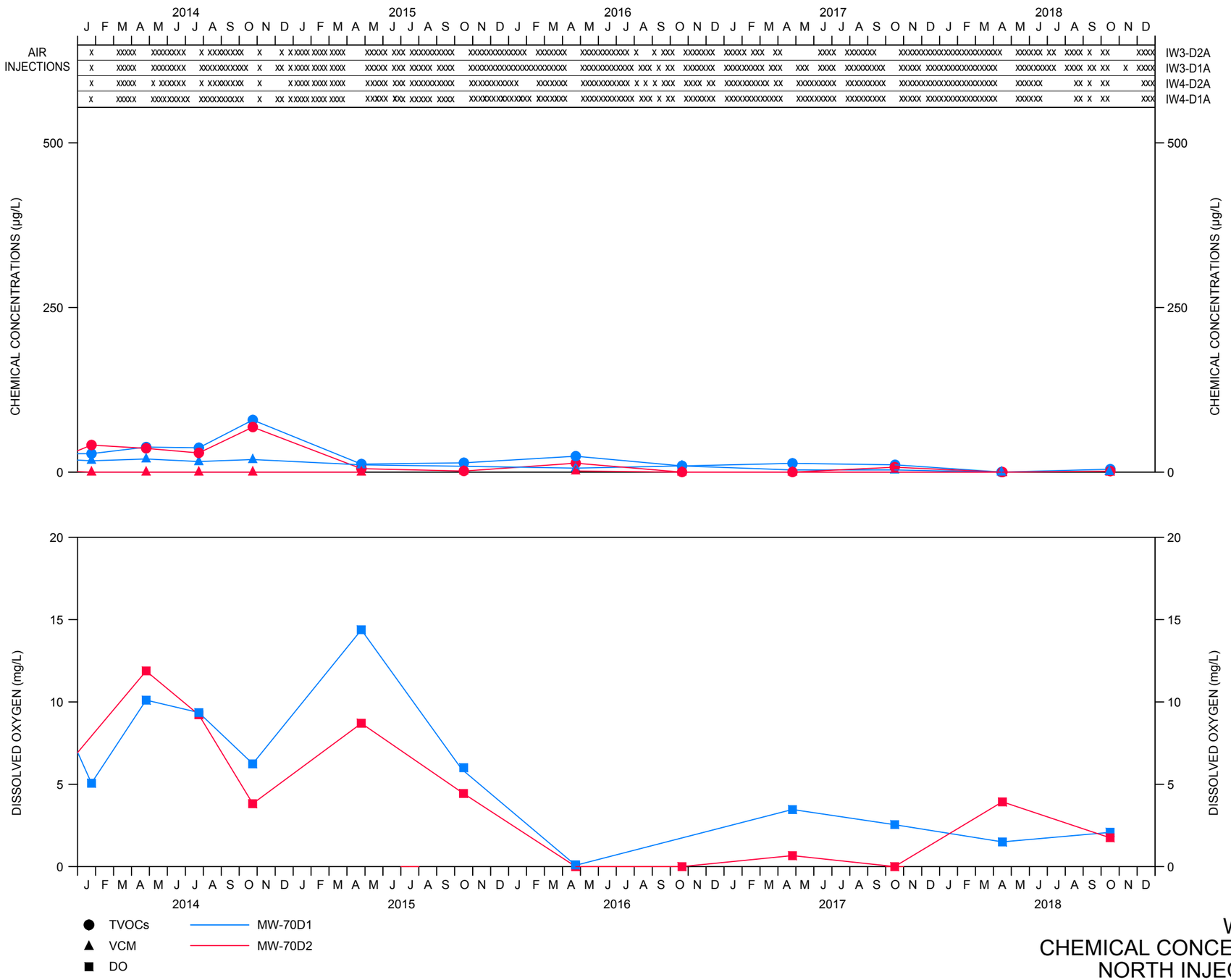


figure 5

WELL NEST MW-70
CHEMICAL CONCENTRATION PLOTS
NORTH INJECTION FENCELINE
Hooker/Ruco Site, Hicksville, New York

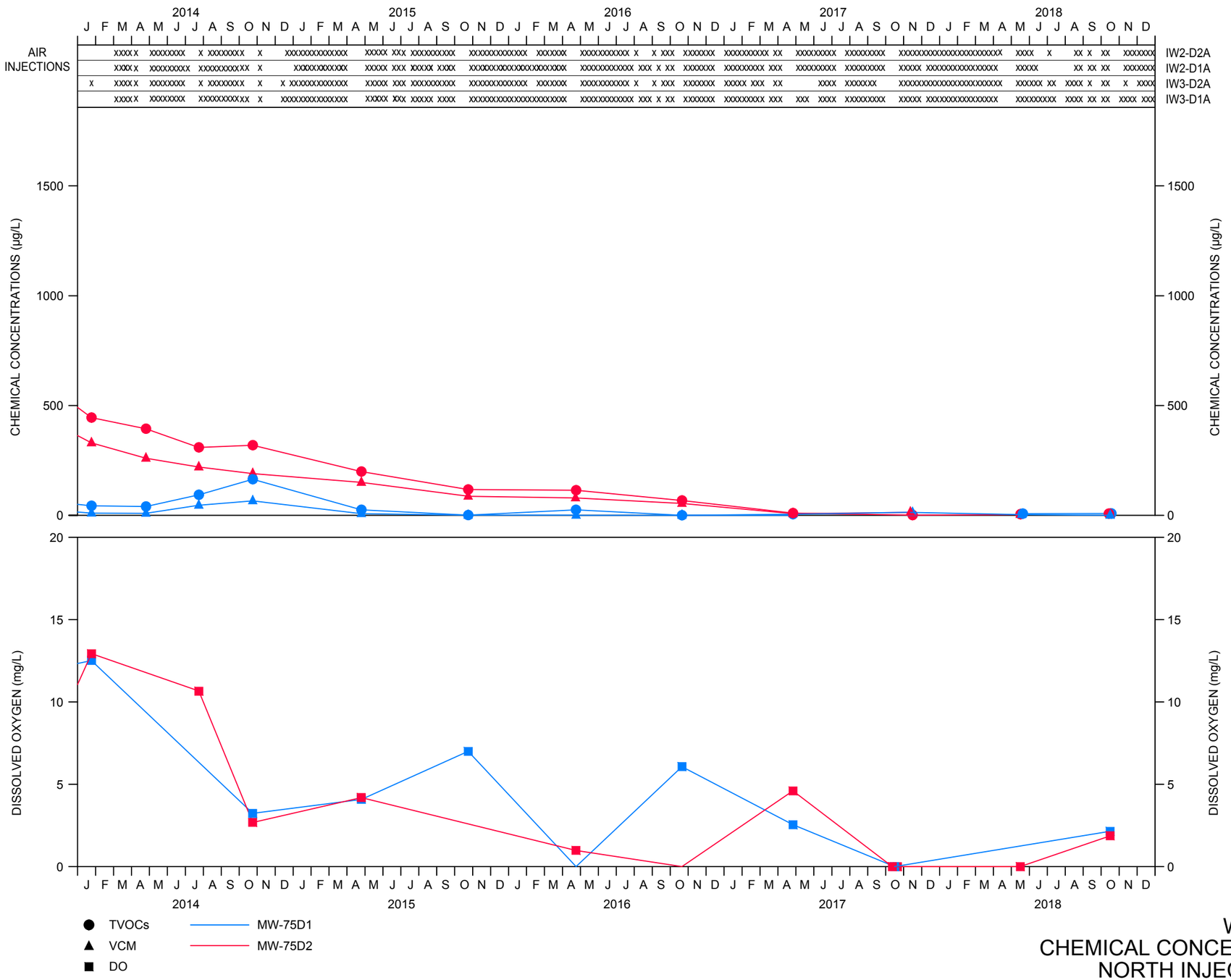
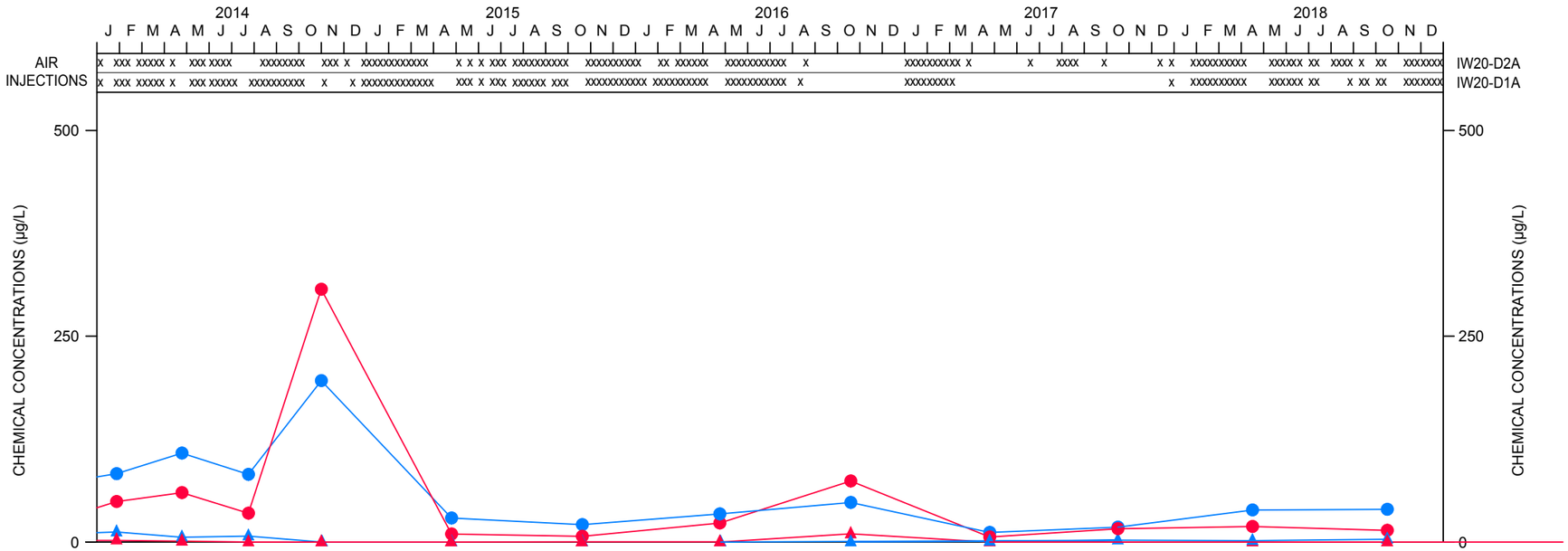


figure 6

WELL NEST MW-75
CHEMICAL CONCENTRATION PLOTS
NORTH INJECTION FENCELINE
Hooker/Ruco Site, Hicksville, New York



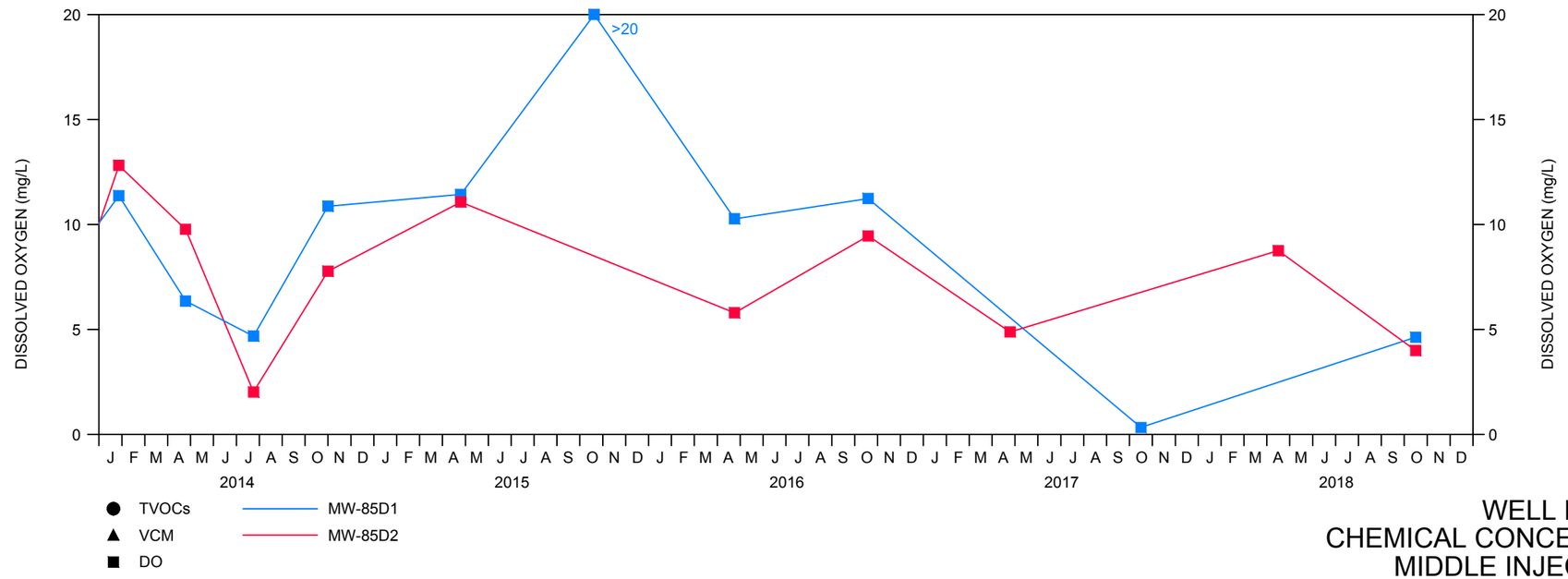


figure 7

WELL NEST MW-85D1/D2
CHEMICAL CONCENTRATION PLOTS
MIDDLE INJECTION FENCELINE
Hooker/Ruco Site, Hicksville, New York

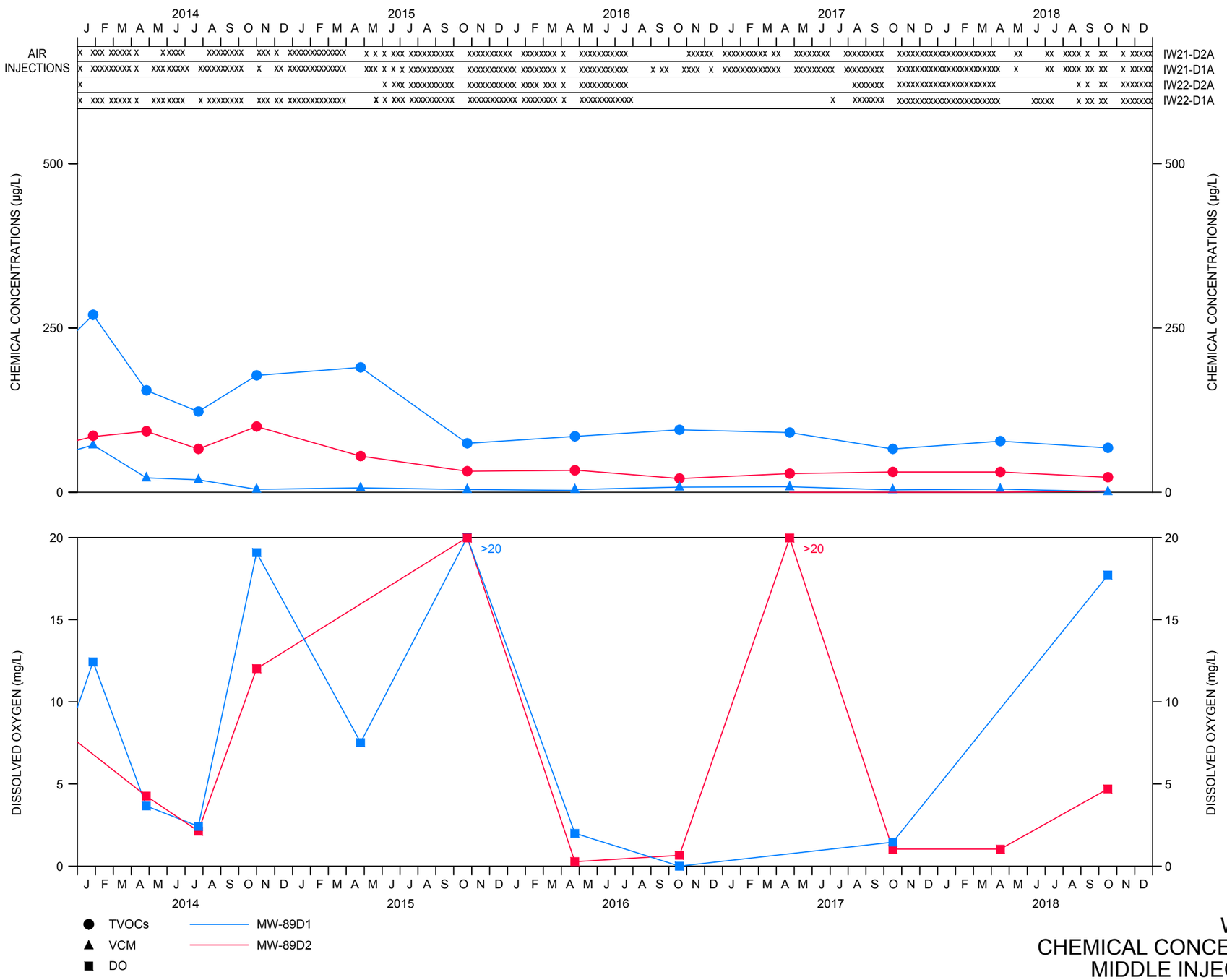


figure 8

WELL NEST MW-89
CHEMICAL CONCENTRATION PLOTS
MIDDLE INJECTION FENCELINE
Hooker/Ruco Site, Hicksville, New York

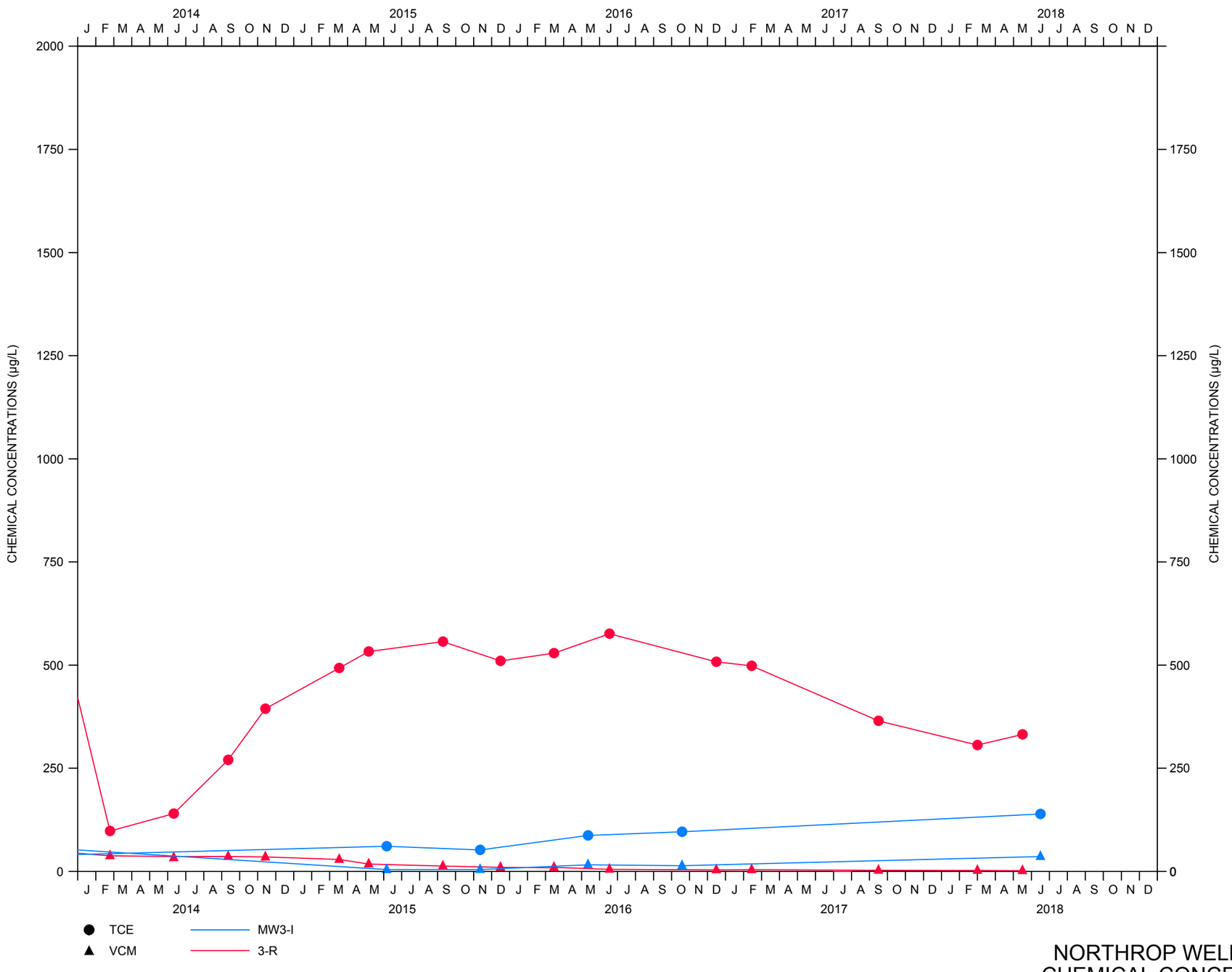


figure 9

NORTHROP WELLS MW3-1 AND 3-R
CHEMICAL CONCENTRATION PLOTS
Hooker/Ruco Site, Hicksville, New York

Table 1

Glenn Springs Holdings Inc.
Hooker/Ruco Site Operable Unit 3
Hicksville, New York
July through September 2018

Task and Activity	Percentage of Activity Completed	Start Date	Scheduled Completion Date	Completion Date
• Work Plan	100	July 1993		September 23, 1993
• Borehole/Well Installation (MW-50, MW-53, MW-54 and MW-55)	100	September 30, 1994		June 19, 1995
• Well Development, Sampling and Analysis	100	July 10, 1995		August 9, 1995
• Water Level Measurements	100	August 15, 1995		April, 1996
• Interim Report	100	May 23, 1995		June 15, 1995
• Interim Report - Addendum No. 1	100	July 28, 1995		August 2, 1995
• Grumman Production Wells Sample Collection and Analysis	100	August 1, 1995		October 4, 1995
• Well Installation (MW-51, MW-52, MW-56 and MW-57)	100	August 30, 1995		January 26, 1996
• Regional Groundwater Level Monitoring Event	100	October 3, 1995		October 3, 1995
• Well Development, Sampling and Analysis	100	January 22, 1996		July 5, 1996
• Grumman Groundwater Model	100	July 27, 1995		November 20, 1997
• Phase I Report	100	February 21, 1996		April 26, 1996
• Supporting Documentation Regarding the Effectiveness of In Situ Remediation	100	June 10, 1996		August 9, 1996
• Phase II Report	100	February 21, 1996		August 12, 1996
• Comments on DEC Draft Supplemental Feasibility Study	100	September 23, 1996		October 17, 1996
• Responses to Northrop Comments on the Phase I Report	100	April 17, 1997		June 6, 1997
• Comments on DEC Supplemental Feasibility Study	100	June 1, 1997		June 20, 1997
• Comments on Navy Regional Groundwater Feasibility Study	100	July 28, 1997		October 8, 1997
• Revised Pages for Navy Regional Groundwater Feasibility Study	100	July 28, 1997		November 3, 1997
• Comments on Groundwater Flow Model Report	100	November 20, 1997		December 5, 1997
• Comments on Draft Final Regional Groundwater Feasibility Study	100	March 27, 1998		May 1, 1998
• Comments on Northrop Letter Report	100	May 20, 1998		June 4, 1998
• Evaluation of MW-52 Area Groundwater Extraction System	100	July 1, 1998		July 29, 1998
• Remedial Investigation Report	100	December 1, 1998		January 21, 1999
• Feasibility Study Report	100	December 1, 1998		March 16, 1999
• Groundwater Treatability Study (GTS)	100	December 16, 1998		July 19, 1999
• Responses to EPA Comments on RI Report	100	May 25, 1999		June 11, 1999
• Responses to EPA Comments on FS Report	100	June 21, 1999		July 7, 1999
• Scope of Predesign Investigative Activities				
- Initial	100	June 1, 1999		June 11, 1999
- Revised	100	February 16, 2001		May 28, 2001
• Revised RI Report	100	May 25, 1999		November 16, 1999
• Revised FS Report	100	July 7, 1999		December 22, 1999
• Responses to EPA Comments on GTS	100	October 14, 1999		November 3, 1999
• Responses to EPA Comments on FS Report Responses	100	October 14, 1999		November 3, 1999

Table 1

Glenn Springs Holdings Inc.
Hooker/Ruco Site Operable Unit 3
Hicksville, New York
July through September 2018

Task and Activity	Percentage of Activity Completed	Start Date	Scheduled Completion Date	Completion Date
• Obtain access agreements	100	June 1999		December 2001
• Final RI Report	100	March 15, 2000		July 21, 2000
• Final FS Report	100	April 10, 2000		July 25, 2000
• PRAP	100			July 28, 2000
• ROD	100			September 29, 2000
• Unilateral Administrative Order	100			April 26, 2001
• Evaluate VCM presence in GP-3	100			August 15, 2001
• Design Supplemental System for VCM in GP-3	100	August 15, 2001		December 2001
• EPA Conditional Approval for Predesign Activities	100			September 28, 2001
• Issued Request for Bid for Well Installation	100			October 26, 2001
• Contractor Arrangements	100			January 15, 2002
• Arrangements for Biosparge Testing of Existing Wells	100			April 12, 2002
• Biosparge Testing of Existing Wells	100	April 15, 2002		August 13, 2002
• Phase 1 Well Installation	100	February 4, 2002		June 28, 2002
• Upgrade of GP-1/GP-3 Treatment System	100	April 8, 2002		July 9, 2003
• Sample Wells	100	June 17, 2002		July 12, 2002
• Evaluate Pre-Design Information /Develop Scope of Biosparge Remedy	100			November 22, 2002
• Install 2 Additional Wells (MW-67/68)	100	December 18, 2002		February 14, 2003
• Sample Wells MW-67 & MW-68				March 25/26, 2003
• Responses to EPA comments on Predesign Information Report	100	March 6, 2003		March 27, 2003
• EPA Meeting				April 17, 2003
• Closed Well T-1	100			May 12, 2003
• MW-67/68 Installation Report	100			May 23, 2003
• Responses to EPA comments on March 27, 2003 Responses	100	June 25, 2003		July 29, 2003
• Pre-Final (95%) RD Report	100	July 7, 2003		October 31, 2003
• Responses to EPA comments on 95% RD Report	100	April 12, 2004		May 27, 2004
• Submitted Due Diligence Request to Northrop	100			May 10, 2004
• Follow up Due Diligence Clarification to Northrop 6/11 Data Package	100			June 25, 2004
• Offer to Northrop for Property Purchase	100			October 1, 2004
• Sample 13 Wells and Submit Results	100	August 23, 2004		October 14, 2004
• Responses to EPA Comments on 95% RD Report	100	November 17, 2004		December 6, 2004
• Revised Property Purchase offer submitted to Northrop	100	December 22, 2004		December 22,2004
• Prepare 100% RD Report	100	January 12, 2005		May 27, 2005
• Property Purchased	100			June 2005
• 100% Design Approved	100			July 7, 2005

Table 1

Glenn Springs Holdings Inc.
Hooker/Ruco Site Operable Unit 3
Hicksville, New York
July through September 2018

Task and Activity	Percentage of Activity Completed	Start Date	Scheduled Completion Date	Completion Date
• Obtain Building Permits	100	July 11, 2005		November 10, 2005
• Arrange Contractors	100	January 2005		July 22, 2005
• Well Installation	100	September 13, 2005		April 28, 2006
• Biosparge System Installation	100	November 2005		May 2006
• Closure of On-Site and Off-Site Wells	100	November 2005		May 10, 2006
• OU-1 Soil Borings	100	November 2005		January 11, 2006
• Background Groundwater Sampling	100	March 27, 2006		June 14, 2006
• Pre-Start Sampling	100			October 24, 25, and 26, 2006
• Final Inspection	100			October 27, 2006
• Biosparge System Start-Up	100			October 27, 2006
• First Monthly Sampling	100			November 28 to 30, 2006
• Second Monthly Sampling	100			December 20 and 21, 2006
• Noise Survey	100			January 18, 2007
• 2007 First Quarterly Sampling	100			January 23 to 30, 2007
• Submission of Phase I Construction Documents	100			February 1, 2007
• 2007 Second Quarterly Sampling	100			April 18 to 27, 2007
• 2007 Third Quarterly Sampling	100			July 16 to 27, 2007
• 2007 Fourth Quarterly Sampling	100			October 8 to 18, 2007
• Evaluation/Recommendation for Design Modifications	100			January 15, 2008
• 2008 First Quarterly Sampling	100			January 22 to 28, 2008
• 2008 Second Quarterly Sampling	100			April 16 to 25, 2008
• 2008 Third Quarterly Sampling	100			July 15 to 18, 2008
• 2008 Fourth Quarterly Sampling	100			October 21 to 30, 2008
• Construction of North Fence Underground Components	100			December 23, 2008
• 2009 First Semi-Annual Sampling	100			April 7 to 14, 2009
• Response to USEPA Biosparge System Comments	100	August 27, 2009		September 23, 2009
• 2009 Second Semi-Annual Sampling	100			October 13 to 21, 2009
• Submittal of Biodegradation Supporting Information	100			November 30, 2009
• Submittal of Revised Schedule	100			February 3, 2010
• Submittal of PDB/HydraSleeve™ Evaluation	100			February 11, 2010
• Trailing Edge Proposal	100			March 15, 2010
• 2010 First Semi-Annual Sampling	100			May 3 to 25, 2012
• Distribution of RFP for Biosparge System Well Installation	100			June 25, 2010
• Contracted Well Driller	100			August 3, 2010
• 2010 Second Semi-Annual Sampling	100			November 15 to 29, 2010
• Install Biosparge System Wells	100	September 20, 2010		May 15, 2011

Table 1

Glenn Springs Holdings Inc.
Hooker/Ruco Site Operable Unit 3
Hicksville, New York
July through September 2018

Task and Activity	Percentage of Activity Completed	Start Date	Scheduled Completion Date	Completion Date
• 2011 First Semi-Annual Sampling & Site Wide Event	100			April 7 to May 19, 2011
• Distribution of RFP for Biosparge System Expansion	100			May 4, 2011
• Receipt of Bids	100			June 17, 2011
• Submittal of PDB/HydraSleeve™ Evaluation	100			August 31, 2011
• USEPA Concurrence For Use of PDB Samplers	100			September 22, 2011
• Update QAPP	100	##########		October 24, 2011
• 2011 Second Semi-Annual Sampling	100			Nov. 30 to Dec. 1, 2011
• Revise Updated QAPP	100	December 6, 2011		January 3, 2012
• Address EPA Comments on revised updated QAPP and resubmit	100	February 17, 2012		April 13, 2012
• Construction of Remainder of Biosparge System	100	March 5, 2012		August 15, 2012
• 2012 First Semi-Annual Sampling	100			May 23 and 24, 2012
• Submit Interim Remedial Action Report	100			September 26, 2012
• Submit Electrical As-Built Drawings	100			October 10, 2012
• 2012 Second Semi-annual Sampling	100			October 24 to November 25, 2012
• 2013 First Quarter Sampling	100			January 8 to February 13, 2013
• Well Rehabilitation Works	100			March 8 to 29, 2013
• 2013 Second Quarter Sampling	100			April 24 to May 23, 2013
• 2013 Third Quarter Sampling	100			July 9 to 25, 2013
• 2013 Fourth Quarter Sampling	100			October 24 to November 7, 2013
• 2014 First Quarter Sampling	100			January 7 to 27, 2014
• 2014 Second Quarter Sampling	100			April 23 to May 15, 2014
• 2014 Third Quarter Sampling	100			July 2 to August 6, 2014
• 2014 Fourth Quarter Sampling	100			October 6 to November 11, 2014
• Responses to EPA Comments	100	December 10, 2014		December 19, 2014
• 2015 First Semi-Annual Sampling	100			April 6 to May 8, 2015
• 2015 Second Semi-Annual Sampling	100			October 6 to November 16, 2015
• 2016 First Semi-Annual Sampling	100			April 11 to June 2, 2016
• USEPA 5-year Review	100			September 7, 2016
• 2016 Second Semi-Annual Sampling	100			October 3 to November 2, 2016
• 2017 First Semi-Annual Sampling	100			April 25 to May 11, 2017
• 2017 Second Semi-Annual Sampling	100			October 2 to November 1, 2017
• 2018 First Semi-Annual Sampling	100			April 18 to May 23, 2018
• 2018 Second Semi-Annual Sampling	100			October 18 to November 20, 201

Table 2

2018 Summary of O&M Activities
Supplemental and Biosparge Systems
Hicksville, New York

Date Observed	Description of Issue	Action Taken	Date of Action	Outcome of Action	Notes
12/7/17	Monthly Inspection	Monthly inspection performed	12/7/17	Monthly inspection completed successfully	Manual opening of IW-06D2 and IW-07D2 allows both wells to receive air. Both wells to be further monitored by CA RICH
12/13/17	Low flow alarms in IW-06D2 and IW-07D1	CA RICH on-site to troubleshoot	12/13/17	Actuators and flow meters in IW-06D2 and IW-07D1 appear to be functioning properly. However, air injections have not been successful	IW-06D1 and IW-07D2 are functioning properly. CA RICH to continue to monitor
1/12/2018	Major rain event	CA RICH on-site to pump out IW-17 and IW-18 vaults	1/12/2018	Water successfully pumped out of bottom of vault	
01/19/18	Monthly Inspection	Monthly inspection performed	01/19/18	Monthly inspection performed successfully	Attempts made to inject air into IW-06D2 and IW-07D1 with IR Compressor. Attempts were unsuccessful. CA RICH to continue to monitor. IW-15 actuators not responding to commands.
01/19/18	Atlas Copco Compressor due for maintenance	Atlas Copco on-site for PM Service	01/19/18	Service completed successfully	
01/19/18	IW-15 actuators not responding to commands	JVR on-site to replace actuator	01/26/18	IW-15D1 actuator replaced with IW-15 water actuator. IW-15D2 actuator repaired by JVR.	IW-15 functioning properly.
2/23/18	Monthly Inspection	Monthly inspection performed	2/23/18	Monthly inspection performed successfully	
2/26/18	Water meter due for upgrade. Alarm response in IW-06D1	SAKS Metering on-site to replace and upgrade water meter. IW-06D1 field investigated	2/26/18	Water meter successfully upgraded. Flow meter in IW-06D1 found to not be functioning correctly.	JVR scheduled to further investigate/replace flow meter on 3/1/18.
3/2/2018	Water in vaults	CA RICH pump out water from vault	3/2/2018	Water successfully pumped out of bottom of vault	
3/12/2018	Could not remotely log in	Went to site to turn system on	3/12/2018	System successfully stared	
3/16/2018	Able to remotely log in, but screen was greyed out. System did not appear to be working	Went to site to check on system. System screen no longer grey, activated system.	3/16/2018	System successfully stared	
3/19/2018	Remote Log-in problems/screen grey again	Repaired	3/19/2018	System successfully stared	
3/27/2018	Remote Log-in problems/cannot log in	Went to site building and turned out system	3/27/2018	System successfully started	
3/28/2018	Monthly Inspection	Monthly inspection performed	3/18/2018	Monthly inspection performed successfully	Vault IW-8 corner has been compromised. Aarco asked to provide estimate to repair.

Table 2

2018 Summary of O&M Activities
Supplemental and Biosparge Systems
Hicksville, New York

Date Observed	Description of Issue	Action Taken	Date of Action	Outcome of Action	Notes
4/4/2018	Semi-annual groundwater sampling	install PDBs	4/6/2018-4/24/2018		
4/13/2018	Vault IW-8 northern western hinge broken	Aarco onsite to repair	4/13/2018	Vault successfully repaired	
4/19/2018	Semi-annual groundwater sampling	Collect groundwater samples	4/19/2018-4/26/2018	Collect samples and laboratory courier picks up samples	
4/26/2018	Routine Maintenance on Ingersoll Rand Compressor	Routine Maintenance conducted	4/26/2018	Maintenance successful	
5/4/2018	Monthly inspection	Inspect vaults and check system readings	5/4/2018	Inspection successfully completed	
5/7/2018	High water level alarm in IW-16	Go to vault and pump out water	5/7/2018	Water successfully pumped out of bottom of vault	
5/9/2018	High water level alarm in IW-16	Go to vault and pump out water	5/9/2018	Water successfully pumped out of bottom of vault	
5/21/18	high water level alarm in IW-21	Go to vault to pump out water	5/21/2018	No water in vault. Cleared alarm, but alarm keeps activating for high level even though no water in vault	Multiple alarms exist the same time as the high water level alarm for IW-21.
5/22/2018	Groundwater monitoring	sample wells	5/22/2018	Wells successfully sampled	
5/22/2018	Monthly Inspection	Inspect vaults and check system readings	5/22/2018	Inspection successfully completed	
5/23/2018	Backflow preventer test	test by certified contractor	5/23/2018	Test conducted and passed	
5/23/2018	Finish sampling all wells	Sample well	5/23/2018	Well successfully sampled	
5/29/2018	High water level alarm in IW-21	go to vault to pump out water	5/29/2018	No water in vault. Cleared alarm, but alarm keeps activating for high level even though no water in vault	Multiple alarms exist the same time as the high water level alarm for IW-21.

Table 2

2018 Summary of O&M Activities
Supplemental and Biosparge Systems
Hicksville, New York

Date Observed	Description of Issue	Action Taken	Date of Action	Outcome of Action	Notes
6/21/2018	Vault faults	Check vaults	6/21/2018	IW-21 is operating correctly	
6/22/2018	Air not injecting into certain wells	Switch to auxiliary air	6/22/2018	Air injection done with auxiliary, then switch back to main	
6/27/2018	Monthly inspection	Inspect vaults and check system readings	6/27/2018	Inspection successfully completed	IW-5 vault door needs repairs
6/29/2018	Air injection issues at IW2, 4, 5 and 22	Check actuators at IW2, 4, 5, and 22	6/29/2017	Actuators are not responding	Actuators require maintenance or replacement
7/2/2018	Routine maintenance on Atlas Copco Compressor	Maintenance conducted	7/2/2018	broken part prevented completion of activities. New part ordered. Completed July 3	
7/3/2018	Complete routine maintenance on Atlas Copco Compressor	Install broken part	7/3/2018	Compressor repaired	
7/6/2018	Alarms activated on system and building	Go to building to check on alarms	7/6/2018	Alarms reset	
7/9/2018	Alarms on compressor, buildings, vaults	check building alarm, compressor alarm, and vault alarms	7/9/2018	Alarm cleared-unknown why it was activated. Compressor alarm needs to be checked - scheduling visit. Injection wells vault IW-5 actuator is malfunctioning-Scheduling electrician.	
7/11/2018	Troubleshoot actuators	Go into vaults and remotely turn on and off	7/11/2018	Determined which water actuators worked; schedule electrician to replace bad air actuators with good water actuators	
7/20/2018	Monthly inspections	Inspect vaults and system	7/20/2018	Monthly inspection successfully completed	
7/20/20185	Bad air actuators to be replaced with good water actuators	Replaced actuators	7/20/2018	Replaced 5 air actuators with 5 water actuators. Tested actuators and only one of the 5 is working.	Need to test actuators with loop calibrator.
7/23/2018	Annual alarm/security inspection	Meet Electonix at the site	7/23/2018	Alarm/security system operating properly	
7/26/2018	Actuators not responding properly	Troubleshoot	7/26/2018	schedule to troubleshoot with Loop Calibrator	

Table 2

2018 Summary of O&M Activities
Supplemental and Biosparge Systems
Hicksville, New York

Date Observed	Description of Issue	Action Taken	Date of Action	Outcome of Action	Notes
8/10/2018	System won't start, dryer not operating properly as alarm is activated	Check dryer	8/10/2018	Dryer was found to have a high temperature alarm and was off. Turn on the dryer and temperature dropped. Turned system on.	System was on upon departure and dryer temperature was 57F.
8/14/2018	Injection well vault IW-5 is cracked at the hinge	Repaired	8/14/2018	Vault repaired	One spring removed from each of the doors to relieve pressure off the hinge, which appears to be part of the reason for the failure.
8/15/2018	Actuators not operating properly	Electrician came out to site to troubleshoot with loop calibrator	8/15/2018	Actuators were fine but the fuses were fauly Replaced fuses and actuators appear to be working.	Still need to check IW-22 as we could not access as the gate was closed
8/15/2018	Monthly inspection	Inspect vaults and system	8/15/2018	Inspection successfully completed	The air dryer appears to have a problem as the unit is registering high temperature. Need to monitor. Temperatures have been in the high 80s low 90s with high humidity--this may have played a role in the alarm being activated.
8/16/2018	IW-22 actuators not operating properly	Test with loop calibrator.	8/16/2018		
8/31/2018	Actuator in IW-20 needs repair	Meet electrician to repair	8/31/2018	Actuators are operated properly	Issue was faulty fuse.
9/5/2018	Routine Maintenance on Atlas Copco Compressor & Trouble shoot air dryer as it is setting off alarms	K&G Power systems on-site for maintenance and troubleshooting	9/5/2018	Compressor maintenance successfully completed. Air dryer repaired---the in-line air filter was full and the water tank was full. Drained excess water and is now operating	The air dryer should be checked monthly during the monthly system/vault inspection and drained of water and filter cleaned.
9/11/2018	Air dryer malfunctioning	Go to site and check on dryer	9/11/2018	Drain filter trap of water and debris. Turn back on. Seems to be operating properly.	
9/19/2018	Monthly inspection	Check all vaults and components in building on the checklist	9/19/2018	No issues	
9/26/2018	High water alarm in vault IW-16	Check on vault and clear alarm	9/26/2018	Little water in vault, likely from overnight rain event.	
10/9/18	Fire Extinguishers expired in June 2018	Inspection completed	10/15/18	No issues	
10/23/18	Monthly inspection	Check all vaults and components in building on the checklist	10/23/18	No issues, system was off for sampling	
11/29/18	Monthly inspection	Check all vaults and components in building on the checklist	11/29/18	No issues, system was off for sampling	
11/30/18	Vaults 16 and 17 flooded	pumped out both vaults	11/30/18	cleared alarm, water pumped	

Table 2

2018 Summary of O&M Activities
Supplemental and Biosparge Systems
Hicksville, New York

Date Observed	Description of Issue	Action Taken	Date of Action	Outcome of Action	Notes
12/10/18	Monthly inspection	Check all vaults and components in building on the checklist	10/23/18	No issues, system was off for sampling	
12/14/18	IW-4s FCI meter, no communication	Met JVR on-site, meter replaced	12/14/18	All in working condition	

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
Base Wells							
MW-61I [(1)]	10/24/2006	NA	NA	NA	102	0.00	2.76
	10/25/2006	NA	NA	NA	112	0.41	3.04
	10/26/2006	5 UJ	5 U	2 J	133	0.00	2.49
	11/29/2006	5 U/5U	5 U/5 U	3 J/2 J	60	0.00	1.96
	12/21/2006	5 U/5 U	5 U/5 U	3 J/4 J	118	0.00	2.17
	1/24/2007	5 U	5 U	3 J	101	1.93	1.84
	4/19/2007	19	95	140	124	3.21	0.03
	7/20/2007	5 U	5 U	4	90	0.37	5.19
	10/11/2007	5 U	5 U	2 U	50	3.56	3.12
	1/24/2008	5 UJ	5 U	4.8	86	1.44	3.11
	4/23/2008	2 J	1 J	4	60	0.45	2.83
	7/16/2008	3.7 J	4.7 J	5.0 U	69	2.78	10.82
	10/28/2008	2 J	1 J	4	351	7.11	1.11
	4/8/2009	3.7 J	4.7 J	5.0 U	306	12.18	0.05
	10/15/2009	7.7	11	1.4 J	366	17.66	0.49
	5/10/2010	6.9	7.8 U	1.6 J	120	10.65	0.0
	1/20/2011	5.6/3.7 J	3.9 J/3.7 J	5.0 U/5.0 UJ	266	11.10	0.0
	4/19/2011	4.6 J/4.6 J	3.8 J/4.0 J	5.0 U/ 5.0	249	10.10	0.0
	11/30/2011	3.7 J	3.3 J	5.0 U	NM	12.81	NM
	5/23/2012	2.3 J	3.6 J	5.0 U	NM	NM	NM
	11/5/2012	4.4 J	4.8 J	5.0 U	111	11.23	3.99
MW-61D1 [(1)]	10/24/2006	NA	NA	NA	110	0.00	2.30
	10/25/2006	NA	NA	NA	107	0.65	3.74
	10/26/2006	5 UJ	5 U	3 J	109	0.00	2.99
	11/29/2006	5 U	5 U	5.7	54	0.00	1.92
	12/21/2006	5 U	5 U	3 J	90	0.00	2.59
	1/23/2007	5 U	5 U	3 J	54	1.21	1.84
	4/19/2007	27	130	200	79	6.66	0.26
	7/20/2007	5 U/5 U	5 U/2 J	4.0/4.0	83	0.44	3.30
	10/10/2007	5 U	5 U	1 J	26	3.39	4.20
	1/24/2008	5 U	5 U	3	78	1.33	3.21
	4/22/2008	5 U	5 U	2 U	60	0.41	2.91
	7/16/2008	5 UJ/5 UJ	5 U/5 U	2/2	87	2.35	2.13
	10/28/2008	2 J	1 J	2 U	335	3.75	0.21
	4/8/2009	3.9J /3.7 J	4.4 J/4.3 J	5.0 U/5.0 U	267	12.77	0.08
	10/15/2009	6.7	9.3	5.0 U	336	10.11	0.96
	5/10/2010	6.3	8.0 U	1.8 J	140	10.15	0.0
	1/20/2011	5.6	3.6 J	5.0 UJ	231	18.80	0.0
	4/19/2011	3.8 J	3.0 J	5.0 U	248	10.38	0.0
	11/30/2011	3.7 J	3.1 J	5.0 U	NM	13.21	NM
	5/23/2012	2.2 J	3.1 J	5.0 U	170	13.55	1.8
	11/5/2012	4.2 J	3.9 J	5.0 U	124	11.85	3.0

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-61D2 (1)	10/24/2006	NA	NA	NA	37	0.00	0.15
	10/25/2006	NA	NA	NA	27	1.42	5.46
	10/26/2006	150 J	450	5800	62	1.94	4.04
	11/29/2006	39	150	1500	110	11.12	1.91
	12/21/2006	130	490	3400	120	9.28	2.36
	1/23/2007	160	590	3100	131	>20	0.89
	4/23/2007	140	580 J	2000	361	>20	0.21
	7/23/2007	200	640	3500	71	13.45	1.34
	10/11/2007	62	210	610	300	11.71	0.21
	1/24/2008	26	140	46	326	>20	0.78
	4/22/2008	11	89	11	248	14.49	0.09
	7/15/2008	40 J	330	39	173	19.99	0.08
	10/27/2008	25	150	33	381	>20	0.18
	4/9/2009	110	360	450	319	17.47	1.95
	10/14/2009	99	300	19	155	16.29	2.80
	5/10/2010	120	360	240	224	19.51	0.0
	11/16/2010	78	360	380	55	8.75	-2
	4/7/2011	110/70	240/240	18 J/10 J	196	17.58	(2)
	5/23/2012	13 J	110	12	123	8.54	9
	5/2/2013	30	120	13	196	16.37	>5.0
	10/29/2013(5)	30	46	1.2 J	NM	NM	NM
	4/29/2014(5)	51	73	1.2 J	NM	NM	NM
	10/30/2014(5)	40 J	59 J	0.88 J	NM	NM	NM
	4/24/2015(5)	52	150	1.3 J	NM	NM	NM
	10/22/2015	11	18	2.0 U	87	12.28	5.0
	4/26/2016	39	51	2.0 U	69	5.76	0.35
	10/21/2016(5)	28	45	2.0UJ	NM	NM	0.27
	4/28/2017(5)	59	69	1.0U	NM	NM	NM
	10/19/2017(5)	62	55	1.0U	NM	NM	NM
	4/19/2018	85.4	57.1	1.0U	NM	NM	NM
	11/12/2018	85.2	61.6	1.0U	NM	NM	NM
MW-63D1 (2)	5/24/2010	6.4 J	9.2	35	166	0.00	0.0
	5/1/2013	17	3.4 J	13	232	11.93	1.6
	10/24/2013	3.2 J	5.6	45	208	17.25	0.9
	4/24/2014	9.9	7.3	29	276	11.59	0.0
	7/17/2014	6.9	6	19	158	3.50	3.2
	10/21/2014	5.5	3.8 J	3.2 J	121	6.91	1.5
	4/22/2015	3.4 J	5.0 U	2.0 U	332	5.52	4.3
	10/20/2015	2.3 J	3.7 J	2.0 U	58	33.76	0.8
	4/28/2016	6.1	2.4 J	2.0 U	264	5.22	0.3
	10/19/2016	11	5.0U	2.0UJ	54	14.10	1.8
	5/11/2017	2.1	1.0U	1.0U	192	8.21	0.1
	11/1/2017	4.5	1.7	1.0U	262	5.05	0.1
	5/8/2018	3.29	2.39	1.0U	135	6.23	0.8
	11/8/2018	5.08	2.70	1.0U	62	4.90	0.1

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-63D2 [2]	5/24/2010	6.4 J	9.1	46	169	0.00	0.00
	5/1/2013	21	4.0 J	13	229	9.77	1.65
	10/24/2013	3.1 J	5.2	46	-17	11.03	3.86
	4/24/2014	7.9	8.1	29	202	7.95	0.11
	7/17/2014	5.6	6.1	21	125	2.70	3.10
	10/21/2014	5.1	3.7 J	3.2 J	167	6.48	1.20
	4/22/2015	2.7 J	5.0 U	2.0 U	280	6.09	2.30
	10/20/2015	2.4 J	3.6 J	2.0 U	53	35.80	2.97
	4/28/2016	4.9 J	1.6 J	2.0 U	256	5.26	0.07
	10/19/2016	5.0J	5.0U	2.0UJ	164	8.23	0.72
	5/11/2017[5]	3.5	1.1	1.0U	NM	NM	NM
	11/1/2017	4.7	1.8	1.0U	233	6.19	0.00
	5/8/2018	2.81	1.71	1.0U	184	4.62	4.59
	11/8/2018	4.51	2.47	1.0U	205	5.06	0.00
MW-63S [2]	5/21/2010	2.4 J	4.3 J	16	-111	0.00	0.06
	5/23/2013	10	7.8	76	74	4.53	1.33
	11/7/2013	9.4	7.7	5.0 U	7	8.91	3.16
	5/15/2014[5]	7	6	18	NM	NM	0.00
	8/6/2014	5.0 UJ	5.5	7.2	145	5.64	0.10
	11/14/2014	3.5 J	3.8 J	1.5 J	203	7.88	25.0
	5/8/2015	5.5	5.0 U	4.7 J	4	11.79	0.3
	11/9/2015[5]	3.3 J	2.5 J	2.0 U	NM	NM	NM
	5/18/2016[5]	1.9 J	5.0 U	2.0 U	NM	NM	NM
	11/2/2016	5.0UJ	5.0U	2.0UJ	201	9.74	0.3
	4/27/2017	1.0U	1.0U	1.0U	249	11.91	0.5
	10/18/2017	3.9	2.7	1.0U	75	8.82	0.0
	5/23/2018	4.68	4.33	1.0U	197	4.45	1.3
MW-63I [2]	5/21/2010	5.4 J	8.3	47	-102	0.00	0.0
	5/23/2013	7.9	5.5	29	75	4.40	1.7
	11/7/2013	12	8.2	5.0 U	70	11.37	0.7
	5/15/2014	1.5 J	5.0 U	3.4 J	36	2.83	0.0
	8/6/2014	5.0 UJ	5.9	15	139	2.73	0.5
	11/14/2014	4.5 J	3.3 J	4.2 J	35	8.41	14.5
	5/8/2015	5.8	5.0 U	2.0 U	87	12.34	0.8
	11/9/2015	2.3 J	2.1 J	0.97 J	265	12.19	NM
	5/18/2016	2.7 J	5.0 U	2.0 U	231	13.55	0.4
	11/2/2016	5.0UJ	5.0U	2.0UJ	201	0.46	0.4
	4/27/2017	1.4	1.3	1.0U	247	8.67	NM
	10/18/2017	1.4	1.2	1.0U	210	5.44	0.0
	5/23/2018	1.76	0.78J	1.0U	203	5.96	0.3
	11/20/2018	7.09	5.21	1.0U	149	13.98	0.0

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-70D1 [2]	4/11/2011	13	2.0 J	46	-135	0.69	4.0
	10/25/2012	2.0 J	5.0 U	12	NM	NM	NM
	2/4/2013	8.8	2.1 J	43	8	4.80	3.0
	4/26/2013	6.4	2.0 J	26	170	9.35	3.5
	7/23/2013[5]	5.3	1.3 J	16	NM	NM	NM
	10/24/2013	5.8	1.1 J	21	38	12.56	2.8
	1/23/2014	4.2 J	1.9 J	17	-109	5.06	0.0
	4/23/2014	4.1 J	1.2 J	20	76	10.11	0.0
	7/21/2014	6.6	1.0 J	16	48	9.35	0.0
	10/23/2014	4.3 J	0.92 J	19	30	6.24	2.7
	4/24/2015	3.3 J	5.0 U	11	107	14.38	0.0
	10/22/2015	3.5 J	1.6 J	8.8	62	6.00	1.6
	4/27/2016	1.5 J	5.0 U	5.1	-17	0.08	0.4
	10/20/2016[5]	5.0UJ	5.0U	4.7J	NM	NM	0.0
	4/28/2017	1.3J	1.0U	3.7J	-100	3.49	0.5
	10/17/2017	1.1	0.7J	3.2	-15	2.55	0.0
	4/26/2018	1.0U	1.0U	1.0U	62	1.50	>5
	11/6/2018	1.0U	1.0U	0.51J	72	2.08	1.3
MW-70D2 [2]	4/11/2011	47	56	1000	-122	0.66	2.0
	10/25/2012	32	26	190	-4	8.78	3.2
	2/4/2013	62	23	29	27	11.14	0.0
	4/26/2013	51	12	4.2 J	-19	7.89	>5.0
	7/23/2013	49	14	5.0 U	16	1.88	1.2
	10/24/2013	45	13	1.6 J	-17	3.95	0.1
	1/23/2014[5]	20	8.1	5.0 U	NM	NM	NM
	4/23/2014	11	3.8 J	5.0 U	211	11.88	0.0
	7/21/2014	11	1.4 J	5.0 U	-9	9.22	0.0
	10/23/2014	1.8 J	5.0 U	5.0 U	39	3.82	4.5
	4/24/2015	1.6 J	5.0 U	2.0 U	-89	8.70	0.2
	10/22/2015	5.0 U	5.0 U	2.0 U	-21	4.44	NM
	4/27/2016	5.0 U	5.0 U	2.0 U	108	0.00	0.0
	10/20/2016	5.0UJ	5.0U	2.0UJ	59	0.00	0.3
	4/28/2017	1.0U	1.0U	1.0U	-73	0.76	0.0
	10/17/2017	1.0U	1.0U	1.0U	29	0.00	0.0
	4/26/2018	1.0U	1.0U	1.0U	154	3.93	4.9
	11/6/2018	1.0U	1.0U	1.0U	51	1.75	2.4
MW-72D1 [2]	4/12/2011	13	1.9 J	21	-159	0.57	3.5
	10/25/2012	3.2 J	5.0 U	5.0 U	139	9.82	1.0
	2/4/2013	3.5 J	1.0 J	3.0 J	54	4.65	1.0
	5/1/2013	1.3 J	1.0 J	0.99 J	103	10.48	3.7
	7/23/2013	1.9 J	1.3 J	5.0 U	-11	2.37	>5.0
	10/24/2013	5.0 U	5.0 U	5.0 U	-80	4.60	4.6
	1/24/2014	5.0 U	5.0 U	5.0 U	36	10.78	NM
	4/23/2014[5]	1.3 J	1.6 J	2.9 J	NM	NM	NM
	7/21/2014	5.0 U	5.0 U	5.0 U	-21	10.13	0.0
	10/23/2014	0.74 J	5.0 U	5.0 U	37	4.41	2.6

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-72D1 [2] (cont'd)	4/24/2015	5.0 U	5.0 U	2.0 U	97	13.26	0.5
	10/22/2015	5.0 U	5.0 U	2.0 U	6	6.38	5.0
	4/28/2016	5.0 U	5.0 U	2.0 U	122	3.94	0.1
	10/20/2016	5.0UJ	5.0U	2.0UJ	105	9.86	0.0
	4/27/2017	1.0U	1.0U	1.0U	24	6.03	0.4
	10/19/2017	1.0U	1.0U	1.0U	38	0.00	NM
	4/26/2018	1.0U	1.0U	1.0U	150	3.92	NM
	11/6/2018	1.0U	1.0U	1.0U	116	2.51	0.7
MW-72D2 [2]	4/13/2011	330	5.3	5.0 U	-210	0.37	2.0
	10/25/2012	380	37	5.0 U	76	7.52	0.8
	2/4/2013	850	51	5.0 U	48	7.77	0.4
	5/1/2013	540	16	5.0 U	-32	9.69	>5.0
	7/23/2013	410	35	5.0 U	-134	2.03	3.7
	10/24/2013	480	25	5.0 U	-144	3.20	3.2
	1/24/2014	400	32	5.0 U	67	12.96	NM
	4/23/2014[5]	450	43	5.0 U	NM	NM	NM
	7/21/2014	500	48	0.59 J	-2	9.43	0.3
	10/23/2014	560	54	5.0 U	52	3.03	2.8
	4/24/2015	240	37	2.0 U	42	9.51	0.5
	10/22/2015	190	29	2.0 U	9	4.73	1.9
	4/28/2016	200	23	2.0 U	284	0.72	0.1
	10/20/2016	170	19	2.0UJ	-27	0.00	0.0
	4/27/2017	78	12	1.0U	-82	1.47	0.0
	10/19/2017	85	11	5.0U	93	8.24	0.0
	4/26/2018	57	7.03	1.0U	173	0.33	>5
	11/6/2018	74.9	9.49	1.0U	33	1.97	2.01
MW-73D1 [2]	4/25/2011	5.0 U	5.0 U	5.0 U	-155	2.56	3.5
	10/26/2012	5.0 U	5.0 U	2.6 J	7	11.93	5.0
	2/13/2013	5.0 U	5.0 U	5.0 U	296	9.91	0.0
	5/1/2013	5.0 U	5.0 U	5.0 U	-44	10.87	>5.0
	7/24/2013	1.9 J	5.0 U	5.0 U	-128	0.86	3.0
	10/25/2013	1.9 J	5.0 U	5.0 U	-51	2.94	0.3
	1/24/2014	5.0 U	5.0 U	5.0 U	143	14.42	NM
	4/24/2014	5.0 U	5.0 U	5.0 U	140	3.56	0.8
	7/18/2014	0.85 J	5.0 U	5.0 U	21	1.22	0.0
	10/30/2014	5.0 U	5.0 U	5.0 U	203	24.68	0.0
	4/24/2015	1.5 J	5.0 U	0.75 J	59	15.86	NM
	10/26/2015	2.5 J	5.0 U	2.0 U	63	8.44	0.1
	4/27/2016	2.9 J	5.0 U	2.0 U	134	1.70	0.9
	10/21/2016	4.3J	5.0U	2.0UJ	49	4.29	0.1
	4/28/2017	2.1J	1.0U	1.0U	16	2.23	1.6
	10/19/2017	1.7	0.5J	1.0U	22	1.61	0.0
	4/26/2018[5]	1.38/1.31	1.0U/1.0U	1.0U/1.0U	NM	NM	NM
	11/6/2018	1.25	1.0U	1.0U	80	2.94	2.6

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-73D2 [2]	4/25/2011	38	20	1400	-53	1.86	3.5
	10/26/2012	52	19	130	12	8.07	5.0
	2/13/2013	60	23	22	332	12.53	0.0
	5/1/2013	26	12	16	-95	7.63	>5.0
	7/24/2013	60	17	3.0 J	-29	1.95	3.6
	10/25/2013	13	6.1	0.62 J	-32	1.74	1.3
	1/24/2014[5]	6.3	5.7	1.1 J	NM	NM	NM
	4/24/2014	5.3	2.0 J	5.0 U	130	8.71	0.0
	7/18/2014	2.8 J	5.0 U	5.0 U	1	1.37	0.0
	10/30/2014	35	11	5.0 U	55	7.73	>5.0
	4/24/2015	8.5	5.0 U	2.0 U	-58	9.53	1.4
	10/26/2015	9.2	4.0 J	2.0 U	45	12.23	0.5
	4/27/2016	13	5.2	2.0 U	92	5.38	0.0
	10/21/2016	29	11	2.0UJ	24	0.93	0.0
	4/28/2017	34J	7.8J	1.0U	-37	3.86	0.0
	10/19/2017	7.2	2.5	1.0U	35	3.55	0.0
	4/26/2018	10.9	3.22	1.0U	NM	NM	NM
	11/6/2018	4.46	1.67	1.0U	147	3.24	>5
MW-75D1 [2]	12/1/2011	51	23 J	960	NM	3.20	NM
	10/24/2012	32	18	1100	-35	9.41	1.6
	2/4/2013	39	16	1500	-48	6.09	0.0
	4/30/2013	25	7	510	1	11.07	4.1
	7/24/2013	17	6.3	120	-138	1.32	2.2
	10/24/2013	7	2.6 J	28	48	11.80	3.2
	1/24/2014	3.2 J	2.0 J	10	40	12.51	NM
	4/23/2014[5]	6.3	4.9 J	9	NM	NM	NM
	7/18/2014[5]	10	4.9 J	46	NM	NM	NM
	10/23/2014	9.4	2.8 J	66	47	3.23	>5.0
	4/22/2015	5.1	5.0 U	7.2	117	4.08	NM
	10/22/2015	5.0 U	5.0 U	2.0 U	191	6.86	5.0
	4/28/2016	4.2 J	2.4 J	2.0 U	194	0.00	0.1
	10/20/2016	5.0UJ	5.0U	2.0UJ	228	6.07	0.0
	4/27/2017	1.7	2.1	1.0U	-85	2.54	0.1
	10/18/2017[5]	NS	NS	NS	-61	0.00	0.0
	11/1/2017	3.7	3.3	1.0U	NS	NS	NS
	5/4/2018[5]	1.55/1.68	1.21/1.0U	1.0U/1.0U	NM	NM	NM
	11/6/2018	1.25	1.11	1.0U	35	2.14	0.7
MW-75D2 [2]	12/1/2011	44	88	680	NM	10.91	NM
	10/24/2012	34	63	600	-23	2.63	0.0
	2/4/2013	46	76	870	-55	16.33	0.0
	4/30/2013	47	58	530	26	12.20	3.9
	7/24/2013	56	87	560	-136	1.32	2.2
	10/24/2013	27	42	460	-92	5.56	0.0
	1/24/2014	26	45	330	0	12.93	NM
	4/23/2014[5]	31	47	260	NM	NM	NM
	7/18/2014	20	32	220	-37	10.65	0.0

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-75D2 [2]	10/23/2014	17 J	35 J	190 J	6	2.68	3.5
(cont'd)	4/22/2015	9.3	19	150	-82	4.19	1.4
	10/22/2014[5]	8.3	8.6	87	NM	NM	NM
	4/28/2016	1.5 J	5.0 U	78	-41	0.98	0.3
	10/20/2016	5.0UJ	5.0U	18J	-140	0.00	0.0
	4/27/2017	1.0U	1.6J	7.6J	-92	4.60	0.1
	10/18/2017	0.7J	0.7J	5	103	0.00	0.3
	5/4/2018	0.42J	0.46J	3.27	161	0.00	3.6
	11/6/2018	1.0U	0.86J	4.9	89	1.87	3.6
MW-76S [2]	4/6/2011	5.0 U	5.0 U	2.4 J	-148	0.78	7.0
	10/25/2012	5.0 U	5.0 U	9.2	45	9.18	1.6
	2/6/2013	5.0 U	5.0 U	19	NM	NM	NM
	4/24/2013[5]	5.0 U	5.0 U	5.9	-70	5.76	1.25
	7/23/2013	0.95 J	5.0 U	5.0 U	-157	1.71	2.90
	10/25/2013	5.0 U	5.0 U	2.3 J	-1	4.33	0.56
	1/24/2014	1.0 J	5.0 U	2.0 J	125	12.79	0.0
	4/23/2014	2.0 J	5.0 U	5.0 U	228	4.29	0.0
	7/18/2014[5]	1.3 J	5.0 U	7.5	NM	NM	NM
	10/21/2014[5]	1.1 J	5.0 U	1.5 J	NM	NM	NM
	4/22/2015	5.0 U	5.0 U	2.0 U	236	5.52	2.2
	10/22/2015	1.4 J	5.0 U	2.0 U	42	5.77	4.8
	4/27/2016	1.4 J	5.0 U	2.0 U	180	2.26	0.0
	10/20/2016	5.0UJ	5.0U	2.0UJ	62	5.70	0.0
MW-76I [2]	4/8/2011	5.0 U	5.0 U	1000	159	1.48	4.0
	10/25/2012	1.1 J	5.0 U	240	-23	8.51	4.25
	2/6/2013	5.0 U	5.0 U	81	4	16.35	2.2
	4/24/2013	5.0 U	5.0 U	50	-74	4.9	>5.0
	7/23/2013	5.0 U	5.0 U	13	0	2.14	2.9
	10/25/2013	5.0 U	5.0 U	5.1	4	3.56	0.5
	1/24/2014	0.70 J	5.0 U	3.2 J	-8	12.62	0.7
	4/23/2014	5.0 U	5.0 U	1.5 J	106	5.08	0.05
	7/18/2014[5]	0.74 J	5.0 U	0.96 J	NM	NM	NM
	10/21/2014	0.96 J	5.0 U	0.62 J	73	3.48	3.30
	4/22/2015	5.0 U	5.0 U	2.0 U	-216	4.43	NM
	10/22/2015	1.5 J	1.2 J	2.0 U	16	5.48	5.00
	4/27/2016	1.4 J	5.0 U	2.0 U	78	4.62	0.00
	10/20/2016	5.0UJ	5.0U	2.0UJ	17	0.27	0.00
	10/17/2017	1.6	1.5	1.0U	-28	0	0.62
	11/6/2018	1.36	0.75J	1.0U	NM	NM	NM
MW-76D1 [2]	4/11/2011	14	1.1 J	52	-123	0.98	2.0
	10/25/2012	6.2	5.0 U	52	-14	8.32	5.00
	2/6/2013	8.7	5.0 U	28	-16	10.47	3.00
	4/30/2013[5]	6.4	1.1 J	17	NM	NM	NM
	7/23/2013	4.6 J	1.0 J	13	-148	7.76	3.94

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-76D1 [2]	10/25/2013	5.6	1.1 J	15	97	11.27	0.08
(cont'd)	1/24/2014	4.2 J	1.4 J	9.9	-117	5.04	NM
	4/23/2014	4.1 J	5.0 U	9.5	153	5.70	0.05
	7/21/2014	5.0 U	5.0 U	3.8 J	143	6.96	1.00
	10/21/2014	6.6	1.1 J	7	73	2.87	2.60
	4/22/2015	3.1 J	5.0 U	5.4	17	4.26	1.20
	10/22/2015	4.1 J	1.3 J	3.9	-75	19.54	1.68
	4/27/2016	2.3 J	5.0 U	2.3	-77	1.00	0.00
	10/20/2016	2.1J	5.0U	2.0UJ	-171	0.00	0.00
	4/27/2017	1.2	1.0U	1.5	-57	1.61	0.00
	10/17/2017	1.9	0.6J	1.8	-34	0.00	0.00
	4/26/2018	0.55J	0.45J	1.0U	32	1.11	>5
	11/6/2018	1.53	0.51J	0.4J	75	1.64	1.87
MW-76D2 [2]	4/8/2011	74	42	1100	-59	1.37	4.8
	10/25/2012	44	25	650	-19	8.71	0.0
	2/6/2013	63	25	1500	-76	16.45	0.0
	4/30/2013	51	12	19	15	14.13	2.2
	7/23/2013	52	27	5.0 U	-73	2.65	>5.0
	10/25/2013	45	19	4.9 J	13	5.07	5.1
	1/24/2014[5]	40	18	7.6	NM	NM	NM
	4/23/2014	78	17	5.0 U	164	6.23	0.18
	7/21/2014	80	18	0.79 J	91	8.53	0.49
	10/21/2014	26	18	0.72 J	103	7.54	>5.0
	4/22/2015	60	25	2.0 U	-66	4.25	NM
	10/22/2015	3.6 J	1.0 J	2.0 U	-60	4.10	5.00
	4/27/2016	2.8 J	1.0 J	2.0 U	51	5.90	0.00
	10/20/2016	5.0UJ	5.0U	2.0UJ	-23	1.06	0.00
	4/27/2017	4.1J	1.0J	1.0U	-23	1.14	0.38
	10/17/2017[5]	5.6	2.6	1.0U	NM	NM	NM
	4/26/2018[5]	25.8	13	1.0U	NM	NM	NM
	11/6/2018	1.40	0.74J	1.0U	23	2.84	1.76
MW-77D1	4/14/2011	1.6 J	1.7 J	6.2	-194	0.24	3.5
	10/25/2012	2.4 J	5.0 U	16	5	9.93	0.0
	2/6/2013[5]	7.8	5.0 U	24	NM	NM	NM
	4/26/2013	4.1 J	1.0 J	17	-64	8.03	3.52
	7/24/2013[5]	2.6 J/2.7 J	0.54 J/0.56 J	3.5 J/3.7 J	NM	NM	NM
MW-77D2 [2]	4/14/2011	20	28	140	-111	0.72	4.0
	10/25/2012	5.2	12	80	-35	14.28	0.0
	2/6/2013[5]	17/17	11/11	99/100	NM	NM	NM
	4/26/2013	10	7.4	150	-141	5.39	>5.0
	7/24/2013	15	22	13	-79	2.06	1.46
	10/25/2013	40	18	5.0 U	27	11.71	1.17
	1/23/2014	66	28	1.4 J	-107	12.21	1.20
	4/24/2014	33	18	5.0 U	46	3.49	0.0
	7/18/2014	52	19	5.0 U	78	1.37	0.0

Table 3

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Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-77D2 [2]	10/21/2014	150	21	5.0 U	174	3.71	>5.0
(cont'd)	4/24/2015	120	23	2.0 U	170	13.50	0.0
	10/23/2015[5]	57	21	0.74 J	NM	NM	NM
	4/27/2016	71	20	2.0 U	189	5.50	0.3
	10/21/2016	170	37	2.0UJ	99	8.05	0.1
	4/27/2017	140J	41J	1.0U	101	5.37	0.0
	10/18/2017	164	32	5.0U	101	0.46	0.1
	4/26/2018	131	25.6	1.0U	223	8.12	NM
	11/8/2018	66.2	13.3	1.0U	42	3.33	3.3
MW-81D1 [1]	10/24/2006	NA	NA	NA	15	2.26	3.23
	10/25/2006	NA	NA	NA	-55	3.01	9.76
	10/26/2006	15 J	18	790	-25	0.00	10.12
	1/29/2007	8	9	690	-55	2.26	2.36
	4/19/2007	20/21	61/61	580/550	-128	0.00	2.06
	7/23/2007	54	190	490	-22	0.74	5.19
	10/9/2007	39	110	620	-77	3.08	4.98
	4/21/2008	14	54	2	-99	0.92	2.69
	10/28/2008	54/54	130/130	3/2	292	17.31	2.04
	4/7/2009	14	48	71	158	0.04	5.52
	10/15/2009	28	170	2.4 J	216	8.90	0.71
	5/6/2010	16	99	180	72	0.00	2.2
	11/17/2010	24	110	1.1 J	327	3.54	0.0
	4/7/2011	20	73	190	27	0.48	2.2
	11/30/2011	13	85	0.71 J	NM	12.58	NM
	5/23/2012	7.3 J	41	0.95 J	80	9.90	0.44
	11/5/2012	14	86	310	112	12.24	2.88
	5/2/2013[5]	44	190	5.0 U	NM	NM	NM
	10/28/2013	64	190	7.5	-137	8.41	0.68
	4/29/2014	97	220	1.8 J	146	8.94	0.00
	10/30/2014	96 J	190 J	6.3 J	87	19.39	0.12
	4/24/2015[5]	97	160	1.3 J	NM	NM	NM
	10/21/2015	82	120	2.0 U	43	7.42	1.35
	4/26/2016[5]	70	110	1.8 J	NM	NM	1.03
	10/21/2016	45	53	2.1J	138	12.43	1.74
	4/28/2017	70	91	1.8	138	10.66	0.10
	10/19/2017	54	92	5.0U	117	24.82	0.00
	4/19/2018	64.6	206	5.0U	194	13.14	4.76
	11/13/2018	90.7	107	0.43J	130	5.12	2.35
MW-81D2 [1]	10/24/2006	NA	NA	NA	78	16.87	2.37
	10/25/2006	NA	NA	NA	73	17.96	0.40
	10/26/2006	5 J	26	4 J	93	15.00	0.74
	1/24/2007	6.2	32	5	-39	2.90	0.98
	4/18/2007	1 J	14	4 J	-110	0.00	2.71
	7/19/2007	15	130	40	48	14.10	1.48
	10/10/2007	13	81	37	35	7.45	9.39
	4/18/2008	2 J	20	2 U	81	4.23	0.45

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-81D2 [1]	10/22/2008	6	32	2	107	>20	0.09
(cont'd)	4/7/2009	13	150	2.4 J	326	10.58	0.45
	10/14/2009	6.7	53	5.5	227	18.39	0.50
	5/10/2010	14	63	5.0 U	93	9.69	0.50
	11/16/2010	21/21	130/130	5.0 U/5.0 U	254	13.28	1
	4/7/2011	67	470	25 U	85	2.92	0.0
	11/30/2011	10	130	5.0 U	NM	11.01	NM
	5/23/2012	1.2 J	18	5.0 U	64	10.23	1.8
	11/5/2012	9.1	110	1.4 J	NM	NM	NM
	5/2/2013	1.9 J	11	5.0 U	46	17.28	3.9
	10/28/2013	1.4 J	12	5.0 U	NM	2.97	0.0
	4/29/2014	5.8	29	5.0 U	119	8.94	0.0
	10/30/2014	18	77	5.0 U	86	15.60	NM
	4/24/2015	150	170	2.0 U	-61	5.18	1.5
	10/21/2015	120	130	2.0 U	90	7.21	1.9
	4/26/2016	95	30	2.0 U	43	6.46	0.0
	10/21/2016[5]	43	13	2.0UJ	NM	NM	1.1
	4/28/2017	110J	30J	1.0U	37	2.76	0.2
	10/19/2017	76	13	5.0U	108	0.00	0.0
	4/19/2018	84.4	16.8	1.0U	241	1.41	2.2
	11/13/2018	4.09	0.65J	1.0U	52	1.95	3.3
MW-82D1 [1]	10/24/2006	NA	NA	NA	-119	1.93	6.14
	10/25/2006	NA	NA	NA	-154	0.00	9.36
	10/26/2006	8 J	4 J	1100	-142	2.77	6.32
	11/30/2006	8.8	7.9	1900	-158	0.00	1.86
	12/20/2006	8.2	15	2500	-149	0.00	1.98
	1/25/2007	50	130	5500	-145	1.21	1.94
	4/20/2007	5 U	5 U	860	-153	0.76	2.79
	7/25/2007	120	780 J	3600	95	15.15	2.58
	10/18/2007	19	24	430	125	0.73	5.25
	1/23/2008	14/14	48/49	1600/1600	-38	1.89	5.82
	4/25/2008	38	160	85	108	0.13	1.49
	7/18/2008	64	230	2.2	96	3.38	NM
	10/30/2008	110	230	790	309	<20	NM
	4/13/2009	47	160	1.7 J	328	5.35	0.21
	10/20/2009	21	84	5.0 U	231	8.08	0.26
	5/12/2010	16	64	5.0 U	53	7.01	0.0
	11/17/2010	110	63	3.2 J	307	8.00	NM
	5/19/2011	33/32	48/49	72/76	277	6.70	0.0
	12/1/2011	12	23	9.8	NM	14.35	NM
	5/23/2012	13 J	28	1.0 J	138	7.91	5.0
	10/26/2012	17	23	34	95	7.18	0.67
	5/1/2013[5]	14	18	41	NM	NM	NM
	10/25/2013[5]	14	18	12	NM	NM	NM
	4/25/2014	16	20	1.7 J	177	5.83	0.00
	10/30/2014	32 J	27 J	0.84 J	56	6.75	1.40

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-82D1 (1)	4/24/2015	28	24	0.95 J	7	16.00	0.00
(cont'd)	10/21/2015	26	21	2.0 U	-31	11.27	1.59
	4/26/2016	37	21	2.0 U	98	9.29	1.08
	10/19/2016	24	22	2.0UJ	-7	12.23	0.14
	4/25/2017	31	18	1.0U	79	15.24	0.00
	10/17/2017	21	15	1.0U	100	14.37	0.00
	4/20/2018	NA	NA	NA	124	11.72	2.81
	11/8/2018	1.16	1.12	1.0U	37	1.04	1.04
MW-82D2 (1)	10/24/2006	NA	NA	NA	-166	0.38	10.44
	10/25/2006	NA	NA	NA	-95	1.98	11.64
	10/26/2006	61 J	48	1300	-110	3.37	8.60
	11/30/2006	88	78	1300	-179	0.00	2.31
	12/20/2006	52	50	600	-178	0.00	0.34
	1/25/2007	150	110	180	-147	1.70	2.01
	4/20/2007	130	91	47	-183	0.61	1.91
	7/25/2007	320 J	170 J	80	-192	0.50	6.56
	10/18/2007	34	3 J	2100	-359	2.93	1.22
	1/23/2008	150	84	160	-147	1.51	4.74
	4/24/2008	25	18	5	-352	0	2.43
	7/18/2008	21	14	10	-472	0.00	16.32
	10/30/2008	110	230	790	-3	0.84	3.01
	4/13/2009	130	91	3.5 J	282	>20	0.05
	10/20/2009	86	56	96	-260	0.07	1.13
	5/12/2010	100	92	7.1	-137	0.00	1.0
	11/18/2010	71	74	8.3	276	0.83	1.2
	4/27/2011	90	58	5.0 U	-19	3.38	1
	12/1/2011	42	46	6.7	NM	11.74	NM
	5/23/2012	9.1 J	22	5.0 U	123	7.97	5
	10/26/2012	11	17	3.1 J	56	>20	3.2
	5/1/2013	7.5	5.0 J	5.0 U	238	8.33	>5.0
	10/25/2013	4.2 J	3.9 J	5.0 U	-127	11.22	0
	4/25/2014	3.0 J	3.9 J	5.0 U	73	3.38	0.13
	10/30/2014	6.2	4.7 J	5.0 U	76	0.88	0
	4/24/2015	7.3	5.0 U	2.0 U	132	15.04	0
	10/21/2015	6.0	5.3	2.0 U	-61	13.98	2.9
	4/26/2016	3.2 J	3.4 J	2.0 U	62	0.34	0.0
	10/19/2016	5.0UJ	5.0U	2.0UJ	-13	4.34	0.3
	4/25/2017	1.0U	1.0U	1.0U	89	24.76	0.2
	10/17/2017	1.0U	1.0U	1.0U	-24	2.38	0.1
	4/20/2018	0.36J	0.41J	1.0U	119	11.77	<5
	11/8/2018	13.1	11.8	1.0U	113	6.52	0.2
MW-83D1 (1)	10/24/2006	NA	NA	NA	70	0.00	1.94
	10/25/2006	NA	NA	NA	-146	0.00	0.23
	10/26/2006	31	290	140	-64	2.06	0.06
	1/30/2007	44	320	130	6	1.74	0.01
	4/18/2007	5 U	29	7.7	-70	0.00	0.0

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-83D1 [1]	7/17/2007	130	360	310	-14	0.41	0.04
(cont'd)	10/12/2007	68	200	220	64	3.00	0.13
	1/22/2008	140	420	51	174	8.34	0.12
	4/17/2008	40	160	2	151	2.32	0.03
	7/15/2008	130 J	340	34	216	1.91	NM
	10/24/2008	110/110	200/200	2/2	291	8.31	0.04
	4/8/2009	80	190	4.3 J	274	1.44	0.09
	10/14/2009	110	260	3.8 J	361	13.17	0.41
	5/5/2010	96	240	260	284	3.50	NM
	11/15/2010	39	180	13	271	9.14	0.0
	4/7/2011	52 J	180 J	30 J	135	4.18	0.0
	11/30/2011	13	150	8.4	NM	>20	NM
	5/23/2012	9.8 J	120	1.2 J	132	12.32	0.0
	10/24/2012	25	180	5.0 U	276	7.22	0.0
	5/1/2013	30	290	1.4 J	212	19.10	2.9
	10/29/2013	45	200	9	NM	13.65	0.5
	4/29/2014[5]	40	210	2.1 J	NM	NM	NM
	10/30/2014	50 J	200 J	2.6 J	112	11.80	1.2
	4/24/2015	37	41	2.0 U	181	17.82	0.2
	10/22/2015	48	140	1.5 J	59	7.04	1.2
	4/26/2016	55	120	1.1 J	109	7.63	0.1
	10/21/2016	59	100	2.0UJ	128	10.05	0.1
	4/28/2017	63J	110J	1.2J	68	10.60	0.7
	10/20/2017	89	173	2.0UJ	116	15.19	0.0
	4/19/2018	38.8	133	5.0U	180	10.42	4.3
	11/12/2018	51.5	67.3	1.0U	87	6.44	>5
MW-83D2 [1]	10/24/2006	NA	NA	NA	241	>19.99	9.88
	10/25/2006	NA	NA	NA	179	>20	0.0
	10/26/2006	17	110	74	171	>20	0.06
	1/29/2007	13	75	22	249	13.20	0.0
	4/18/2007	3 J	23	1 J	97	0.00	0.0
	7/17/2007	7.9	43	1 J	289	>19.99	0.08
	10/15/2007	2 J	10	2 U	279	11.44	0.23
	1/22/2008	3	12	2 U	328	>20	0.14
	4/17/2008	5/4 J	22/21	2 U/2 U	295	>20	0.04
	7/15/2008	8.3 J	46	2 U	270	8.50	0.04
	10/21/2008	2 J	14	2 U	297	0.92	0.00
	4/8/2009	5.2	30	5.0 U	370	20.00	0.01
	10/13/2009	6	34	5.0 U	380	19.81	0.01
	5/6/2010	18	110	5.0 U	190	11.32	NM
	11/16/2010	6.2	42	5.0 U	370	16.45	0.0
	4/7/2011	17	96	5.0 U	249	17.54	0.0
	11/30/2011	12/12	98/150	5.0 U/8.1	NM	16.99	NM
	5/23/2012	1.8 J	21	5.0 U	79	12.67	0.0
	10/24/2012	7	71	5.0 U	225	9.81	0.0
	5/1/2013	28	74	5.0 U	162	12.34	1.0

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-83D2 [1]	10/29/2013	40	170	5.0 U	-63	8.73	0.3
(cont'd)	4/29/2014	19	100	5.0 U	172	8.38	0.0
	10/30/2014[5]	43 J	150 J	5.0 U	NM	NM	NM
	4/24/2015	27	94	2.0 U	240	19.73	0.6
	10/22/2015[5]	53	120	2.0 U	NM	NM	NM
	4/26/2016	66	140	2.0 U	129	1.30	0.0
	10/21/2016[5]	93	170	2.0UJ	NM	NM	0.4
	4/28/2017	120J	190J	1.0U	97	4.25	0.5
	10/20/2017	104	156	2.0UJ	143	1.93	0.2
	4/19/2018	66	95.4	5.0U	223	6.97	3.7
	11/12/2018	88.2	118	1.0U	46	5.61	2.3
MW-84D1 [1]	10/24/2006	NA	NA	NA	50	7.89	1.44
	10/25/2006	NA	NA	NA	86	8.03	1.37
	10/26/2006	47	350	430	78	6.51	1.19
	1/30/2007	66	640	150	160	7.53	1.24
	4/24/2007	32	560	11	282	>20	0.05
	7/24/2007	47	180	12	301	>20	0.05
	10/17/2007	15/15	48/56	2.1/2.4	304	8.81	0.62
	1/28/2008	19	32	2 U	303	>20	0.0
	4/24/2008	3 J	4 J	2 U	210	0.6	0.03
	7/17/2008	7.1	12	2 U	95	14.51	0.13
	10/29/2008	7	7	2 U	319	12.18	0.0
	4/9/2009	23	24	5.0 U	214	13.34	0.0
	10/19/2009	5.0 U	2.3 J	5.0 U	271	10.98	0.19
	5/12/2010	1.4 J	5.0 U	5.0 U	127	9.85	NM
	11/18/2010	3.9 J	3.5 J	5.0 U	207	7.94	NM
	4/27/2011	27/33	8.5/10	5.0 U/5.0 U	210	7.54	NM
	12/1/2011	94	35	0.52 J	NM	13.98	NM
	5/24/2012	4.3 J	4.4 J	5.0 U	185	10.30	0.00
	10/26/2012	80	54	5.0 U	72	7.29	1.08
	5/1/2013	81	29	5.0 U	250	12.62	0.72
	10/25/2013	83	35	5.0 U	23	12.48	1.50
	4/25/2014	41	30	5.0 U	134	6.86	0.26
	10/23/2014	51	25	5.0 U	110	7.66	2.00
	4/24/2015	54	21	2.0 U	169	14.19	0.00
	10/21/2015	50	23	2.0 U	-9	6.83	2.76
	4/26/2016	23	18	2.0 U	168	3.91	0.88
	10/20/2016	33	19	2.0UJ	-10	6.52	0.00
	4/25/2017	15	12	1.0U	89	17.68	0.00
	10/17/2017	21	11	1.0U	120	2.87	0.54
	4/19/2018	3.35	1.43	1.0U	162	7.29	2.57
	11/13/2018	3.6	0.72J	1.0U	195	4.39	1.80
MW-84D2 [1]	10/24/2006	NA	NA	NA	-90	4.69	1.53
	10/25/2006	NA	NA	NA	-47	2.84	0.27
	10/26/2006	19 J	92	140	-77	2.67	0.64
	1/29/2007	15	94	150	7	3.91	0.18

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-84D2 [1]	4/24/2007	69	510	33	138	16.31	0.30
(cont'd)	7/24/2007	59	440	20	139	>20	0.21
	10/17/2007	16	170	7.1	34	4.68	0.23
	1/28/2008	27	250 J	5	97	9.91	0.79
	4/23/2008	11	100	2 U	6	3.96	0.09
	7/17/2008	20	130	2 U	13	14.05	0.27
	10/29/2008	21	110	2 U	160	8.33	0.25
	4/9/2009	15 J	74 J	5.0 U	70	10.15	0.08
	10/16/2009	14	110	5.0 U	135	14.65	1.45
	5/25/2010	23 J	190	1.6 J	-20	11.75	0.0
	11/18/2010	8.6	79	5.0 U	-21	0.79	0.0
	4/15/2011	1.0 J	9.4	5.0 U	-49	0.37	0.0
	12/1/2011	7.7	110	5.0 U	NM	11.00	NM
	5/24/2012	5.7	75	5.0 U	114	4.83	0.5
	10/26/2012	5.4	65	5.0 U	-28	3.14	5.0
	5/1/2013[5]	50	170	5.0 U	NM	NM	NM
	10/25/2013	21	120	5.0 U	-45	12.51	NA
	4/25/2014	28	150	5.0 U	21	1.72	0.26
	10/23/2014	19	100	5.0 U	54	3.49	1.30
	4/24/2015	22	92	2.0 U	89	8.35	0.00
	10/21/2015	20	78	2.0 U	-87	8.85	5.00
	4/26/2016[5]	15	58	2.0 U	NM	NM	NM
	10/20/2016[5]	15	59	2.0UJ	NM	NM	0.00
	4/25/2017	15	49	1.0U	69	0.48	0.00
	10/17/2017	7.2	27	1.0U	29	0.00	0.00
	4/19/2018	6.48	19	1.0U	59	3.40	5.00
	11/13/2018	1.94	1.11	1.0U	169	7.68	2.81
MW-85S [2]	4/20/2011	3.6 J	5.0 U	5.0 U	46	4.38	0.5
	10/26/2012	2.0 J	0.60 J	0.89 J	NM	NM	NM
	2/4/2013	2.5 J	5.0 U	5.0 U	NM	NM	NM
	4/30/2013	1.0 J	5.0 U	5.0 U	180	7.88	>5.0
	7/24/2013	5.0 U	5.0 U	5.0 U	12	1.39	0.4
	10/28/2013[5]	5.0 U	5.0 U	5.0 U	NM	NM	NM
	1/27/2014	0.97 J	5.0 U	5.0 U	112	11.37	NM
	4/24/2014	0.99 J	5.0 U	5.0 U	161	5.97	0.0
	7/17/2014	1.1 J	5.0 U	5.0 U	26	4.98	NM
	10/31/2014	2.3 J	5.0 U	5.0 U	20	9.22	1.4
	4/23/2015[5]	5.0 U	5.0 U	2.0 U	NM	NM	NM
	10/20/2015	0.75 J	5.0 U	2.0 U	-44	29.15	0.4
	5/18/2016[5]	5.0 U	5.0 U	2.0 U	NM	NM	NM
	10/18/2016	5.0UJ	5.0U	2.0UJ	-45	2.63	0.0

Table 3

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-85I [2]	4/20/2011	5.2	5.0 U	5.0 U	93	2.90	2.4
	10/26/2012	2.6 J	0.54 J	5.0 U	NM	NM	NM
	2/4/2013	1.9 J	5.0 U	5.0 U	NM	NM	NM
	4/30/2013	1.7 J	0.68 J	5.0 U	-57	5.63	>5.0
	7/24/2013	1.3 J	0.53 J	5.0 U	-139	0.42	0.1
	10/28/2013	2.7 J	5.0 U	5.0 U	-137	10.87	1.3
	1/27/2014	2.2 J	0.78 J	5.0 U	-61	10.43	NM
	4/24/2014	1.2 J	5.0 U	5.0 U	87	10.21	0.19
	7/17/2014	1.2 J	0.67 J	5.0 U	92	5.36	2.30
	10/31/2014	1.2 J	0.68 J	5.0 U	24	9.22	>5.0
	4/23/2015	2.4 J	5.0 U	2.0 U	59	6.55	0.34
	10/20/2015	2.2 J	5.0 U	2.0 U	-3	17.60	NM
	4/25/2016	3.4 J	2.5 J	2.0 U	237	15.03	NM
	10/18/2016	5.5	5.0U	2.0UJ	-124	0.33	0.00
	10/16/2017	4.4	3.6	1.0U	NM	0.00	0.00
	11/12/2018	3.70	2.58	1.0U	57	6.43	4.46
MW-85D1 [2]	4/20/2011	34/31	10/9.9	70/70	-33	3.75	(3)
	10/26/2012	5.0 U	5.0 U	9.9	18	>20	5.0
	2/4/2013	5.8	9.2	17	1	7.26	2.0
	4/30/2013	15	14	1.4 J	28	9.02	>5.0
	7/24/2013	9.5	17	4.4 J	-130	2.06	>5.0
	10/28/2013[5]	22	26	7.9	NM	NM	NM
	1/27/2014	25	21	12	-83	11.37	NM
	4/24/2014	30	23	5.7	50	6.35	0.0
	7/17/2014	20	26	7.2	39	4.68	2.0
	10/31/2014	13	16	5.0 U	-10	11.29	>5.0
	4/23/2015	4.6 J	14	2.0 U	120	11.43	0.0
	10/20/2015	3.3 J	9.7	2.0 U	33	21.24	0.0
	4/25/2016	4.1 J	10	2.0 U	186	10.27	0.0
	10/18/2016	6.9	12	2.0UJ	19	11.24	0.0
	4/25/2017[5]	4.4	4.9	1.0	NM	NM	NM
	10/16/2017	1.4	1.6	2.1	110	0.33	1.4
	4/20/2018	5.79	9.99	1.66	NM	NM	NM
	11/12/2018	2.84	12.7	3.22	30	4.63	3.4
MW-85D2 [2]	4/20/2011	170	160	1100	-190	1.59	4.0
	10/26/2012	66	37	280	29	14.34	5.0
	2/4/2013	21/23	24/25	40/40	NM	NM	NM
	4/30/2013	9.2	21	25	155	7.90	>5.0
	7/24/2013	27	44	15	6	1.89	1.6
	10/28/2013	5.7	8.3	2.6 J	-98	3.03	0.7
	1/27/2014	11	21	2.3 J	-98	12.81	NM
	4/24/2014	5.9	13	0.93 J	36	9.77	0.09
	7/17/2014	6.8	14	5.0 U	13	2.82	2.60
	10/31/2014	4.7 J	12	5.0 U	-46	7.77	1.60
	4/23/2015	1.8 J	5.0 U	2.0 U	141	11.07	NM
	10/20/2015[5]	1.0 J	4.3 J	2.0 U	NM	NM	NM
	4/25/2016	2.3 J	5.4	2.0 U	174	5.79	0.24

Select Laboratory and Field Parameter Results
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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-85D2 [2]	10/18/2016	11	21	4.9J	27	9.45	NM
(cont'd)	4/25/2017	2.4	4.6	1.0U	109	4.88	0.00
	10/16/2017[5]	4.2	5.6	1.0U	NM	NM	NM
	4/20/2018	4.17	8.04	1.0U	90	8.75	NM
	11/12/2018	2.31	4.9	1.0U	152	3.99	4.44
MW-86D1 [2]	4/18/2011	2.7 J	5.0 U	14	-107	0.74	2.0
	10/24/2012	2.4 J	0.66 J	36	67	>20	0.68
	2/6/2013	6.3	5.0 U	44	87	14.5	1.0
	4/29/2013	6	1.5 J	62	135	5.99	2.5
	7/24/2013	3.1 J	1.3 J	24	-103	2.61	0.0
	10/29/2013[5]	5	1.8 J	78	NM	NM	NM
	1/23/2014	6.7	1.6 J	150	27	14.90	NM
	4/29/2014	8.2	1.3 J	160	25	3.56	0.1
	7/17/2014	9.5	0.89 J	180	-102	4.35	3.0
	10/31/2014	13	1.3 J	110	39	6.42	0.0
	4/24/2015	6.4	5.0 U	33	-37	7.48	0.1
	10/26/2015	3.0 J	5.0 U	2.0 U	-59	10.56	0.6
	4/28/2016	2.3 J	5.0 U	2.0 U	56	0.46	0.2
	10/21/2016	5.0UJ	5.0U	2.0UJ	87	1.30	0.1
	4/28/2017	1.1J	1.0U	1.0U	46	6.08	0.1
	10/20/2017	1.2	1.0J	1.0U	175	11.97	0.0
	4/24/2018	1.61	1.55	1.0U	126	0.00	>5
	11/8/2018	2.18	4.70	1.0U	38	1.52	4.5
MW-86D2 [2]	4/18/2011	19	280	5.0 U	-107	1.24	3.0
	10/24/2012	8.2	170	5.0 U	-115	2.49	0.39
	2/6/2013	17	370	0.54 J	-45	13.05	2.0
	4/29/2013	17	320	0.51 J	-64	5.44	3.4
	7/24/2013	13	270	5.0 U	-165	0.93	1.8
	10/29/2013	10	200	5.0 U	-43	4.30	0.0
	1/23/2014	14	240	5.0 U	-101	12.18	0.0
	4/29/2014	17	230	5.0 U	168	5.83	0.0
	7/17/2014[5]	15	170	0.79 J	NM	NM	NM
	10/31/2014	12	180	5.0 U	39	6.63	0.7
	4/24/2015	9.9	130	2.0 U	-89	10.90	0.0
	10/26/2015	7.4	83	2.0 U	-59	8.69	0.1
	4/28/2016	9.8	58	2.0 U	24	2.12	0.5
	10/21/2016	12	62	2.0UJ	-77	0.00	0.0
	4/28/2017	28J	71J	1.0U	-125	1.35	0.5
	10/20/2017	29	150	2.0U	-10	0.00	0.0
	4/24/2018	11	153	5.0U	NM	NM	NM
	11/8/2018	10.7	141	1.0U	152	1.31	3.2
MW-87D1 [1]	10/24/2006	NA	NA	NA	234	0.70	0.17
	10/25/2006	NA	NA	NA	221	0.00	0.35
	10/26/2006	96 J	320	230	226	2.63	0.05
	1/24/2007	74	410	220	248	0.78	0.10
	4/17/2007	56	470	160	169	0.00	0.14

Table 3

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-87D1 [1]	7/17/2007	83	400	190	223	0.44	0.09
(cont'd)	10/8/2007	37	190	190	203	4.39	0.40
	4/16/2008	52	240	4	322	8.35	0.05
	10/21/2008	99	360	10	463	>20	0.00
	4/7/2009	10	22	5.0 U	289	8.62	0.00
	10/13/2009	100	410	16	379	16.18	0.17
	5/3/2010	170/170	360/330	41/44	282	5.74	0.0
	11/29/2010	5.0 U/3.8 J	4.8 J/17	5.0 UJ/5.0 UJ	192	2.75	0.0
	4/19/2011	150	420	250	300	3.72	0.0
	11/30/2011	95	300	3.2 J	NM	13.98	NM
	5/24/2012	73 J	270	75	149	11.51	1.4
	11/5/2012	53	290	2.1 J	105	>20	1.6
	5/2/2013[5]	43	160	1.4 J	NM	NM	NM
	10/28/2013	26	36	5.0 U	-67	13.76	0.1
	4/29/2014	88	58	2.2 J	201	8.53	0.0
	7/21/2014	140	22	5.0 U	177	13.90	1.4
	10/31/2014	150	19	5.0 U	123	12.91	1.3
	4/24/2015	130	23	2.0 U	-75	19.54	1.7
	10/22/2015	130	18	2.0 U	179	8.49	3.8
	4/26/2016	99	11	2.0 U	71	9.20	0.2
	10/21/2016	66	10	2.0UJ	168	9.77	0.5
	4/26/2017	69	12	1.0U	163	12.35	0.4
	10/19/2017	49	4.3	1.0U	215	31.89	0.0
	4/19/2018	49	9.14	1.0U	238	17.12	2.9
	11/5/2018	57.4	27	1.0U	195	15.79	0.0
MW-87D2 [1]	10/24/2006	NA	NA	NA	212	4.00	0.08
	10/25/2006	NA	NA	NA	137	6.68	0.09
	10/26/2006	13	77	5 U	226	4.53	0.02
	1/24/2007	25	96	5 U	131	3.64	0.25
	4/17/2007	14	56	5 U	106	3.89	0.09
	7/16/2007	16	54	2 U	145	3.31	0.07
	10/9/2007	14	32	2 U	287	7.45	0.12
	4/16/2008	12	23	2 U	288	5.39	0.01
	10/21/2008	17	31	2 U	440	9.66	0.00
	4/7/2009	76	370	5.0 U	346	9.90	0.06
	10/13/2009	15	43	5.0 U	341	5.30	0.26
	5/5/2010	18	55	5.0 U	222	4.15	NM
	11/15/2010	35	470	2.7 J	397	12.41	0.0
	4/18/2011	22	75	5.0 U	234	3.46	0.0
	11/30/2011	18	110	5.0 U	NM	11.08	NM
	5/24/2012	16 J/15 J	180/180	5.0 U/5.0 U	NM	NM	2.1
	11/5/2012	25	170	5.0 U	86	>20	1.0
	5/2/2013	35	170	5.0 U	312	15.02	2.2
	10/28/2013	150	150	5.0 U	9	4.86	0.4
	4/29/2014	200	110	5.0 U	160	5.63	0.0
	7/21/2014	420	98	5.0 U	206	7.98	0.0

Table 3

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-87D2 [1]	10/31/2014	380	120	5.0 U	149	10.72	3.1
(cont'd)	4/24/2015	300	100	2.0 U	172	14.19	2.8
	10/22/2015	470	150	2.0 U	184	7.70	0.5
	4/26/2016	420	170	5.0 U	231	3.15	0.5
	10/21/2016[5]	NA	NA	NA	168	3.61	NM
	4/26/2017	940	120	1.0U	154	4.60	0.1
	10/19/2017	909	165	20U	199	2.83	0.0
	4/19/2018[5]	834	64.4	20U	NM	NM	NM
	11/5/2018	731	85.7	1.0U	277	2.89	0.1
MW-88D1 [1]	10/24/2006	NA	NA	NA	-43	0.00	11.04
	10/25/2006	NA	NA	NA	-13	0.00	10.20
	10/26/2006	39 J	9	58	33	3.36	6.56
	1/30/2007	36	7	74	-45	1.16	2.01
	4/19/2007	32	13	330	172	11.88	1.84
	7/26/2007	37	28 J	1500	232	9.48	0.74
	10/16/2007	66	270	1100	3	0.02	5.47
	4/25/2008	20	27	310	225	5.95	0.52
	10/30/2008	40	29	320	339	>20	0.00
	4/13/2009	27	17	410	205	16.71	0.31
	10/21/2009	18/14	24/24	510/330	253	>20	0.47
	5/11/2010	28	32	320	177	19.00	0.50
	11/17/2010	14	20	440	366	13.04	0.0
	4/15/2011	19	19	160	184	14.39	0.0
	12/1/2011	15	20	11	NM	17.16	NM
	5/24/2012	5.4 J	14	11	65	8.82	0.0
	10/26/2012	12	17	8.2	83	10.88	1.15
	5/1/2013	5.4	6.8	0.92 J	202	13.77	1.22
	10/28/2013[5]	12	12	3.2 J	NM	NM	NM
	4/25/2014	8.7	14	1.1 J	197	8.44	0.06
	10/30/2014	12 J	26 J	3.1 J	82	12.59	0.31
	4/24/2015	19	26	2.1	150	14.59	NM
	10/21/2015	16	23	2.0 U	31	9.74	5.00
	4/26/2016	14	17	1.2 J	136	9.45	0.36
	10/19/2016	21	14	2.0UJ	29	12.12	0.00
	4/25/2017	14	4.9	1.0U	63	6.65	0.45
	10/17/2017	11	5.4	1.4	143	17.94	0.00
	4/20/2018	10.1	3.8	0.51J	163	16.54	1.43
	11/8/2018	7.5	2.67	1.0U	83	6.67	0.14
MW-88D2 [1]	10/24/2006	NA	NA	NA	-282	1.44	18.96
	10/25/2006	NA	NA	NA	-253	1.97	11.40
	10/26/2006	140 J	180	3200	-212	0.00	NM
	1/25/2007	180/190	180/190	3400/2900	-315	0.82	0.16
	4/19/2007	390	330	1200	-219	0.37	2.17
	7/26/2007	97/94	57 J/56 J	2000/1800	-333	0.44	1.21
	10/16/2007	41	25	31	-291	3.04	9.39
	4/25/2008	280 J	130	230	40	8.02	2.65

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-88D2 [1]	10/31/2008	250	83 J	230	45	8.94	2.70
(cont'd)	4/14/2009	200	86	59	41	9.94	0.98
	10/20/2009	47	43	130	-3	4.67	4.49
	5/11/2010	130	85	81	-5	5.70	0.50
	1/20/2011	56	22	160 J	232	5.58	0.00
	4/19/2011	27	10	170	-585	3.35	0
	12/1/2011	24	12	110	NM	9.81	NM
	5/24/2012	1.7 J	1.7 J	91	22	5.73	0
	10/26/2012	1.7 J	0.82 J	5.0 U	NM	NM	NM
	5/1/2013	14	17 J	38 J	154	11.30	1.56
	10/28/2013	5.0 U	5.0 U	5.0 U	52	12.83	0.46
	4/25/2014	5.0 U	5.0 U	0.85 J	62	2.83	0.00
	10/30/2014	19 J	16 J	5.0 U	91	14.22	0.86
	4/24/2015	15	11	2.0 U	26	8.59	NM
	10/21/2015	15	9.7	2.0 U	-44	9.18	5.00
	4/26/2016	9.2	8.3	2.0 U	67	1.56	0.0
	10/19/2016[5]	NA	NA	NA	-16	0.95	NM
	4/25/2017	13	11	1.0U	123	8.05	0.3
	10/17/2017	17	16	1.0U	-51	0.00	0.1
	5/4/2018	41.5	34.1	0.44	NM	NM	NM
	11/8/2018	13.2	24.1	1.0U	2	2.14	2.2
MW-89D1 [2]	4/21/2011	37	47	63	-142	1.57	6.0
	10/24/2012	2.9 J	5.0 U	6.7	17	9.68	0.0
	2/6/2013	20	10	25	-70	8.99	0.0
	4/29/2013	12	8.3	60	-125	5.49	3.8
	7/24/2013	6.9	3.1 J	31	-198	0.43	1.8
	10/28/2013	6.2	2.8 J	51	-52	2.56	0.5
	1/27/2014	15	14	72	239	12.43	NM
	4/24/2014	7.2	3.5 J	22	-88	3.67	0.0
	7/17/2014	17	7.3	19	-45	2.42	3.6
	10/31/2014	37	23	4.6 J	51	19.08	>5.0
	4/23/2015	37	26	6.9	101	7.52	NM
	10/20/2015	12	8.2	4.3	21	22.43	1.5
	4/25/2016	8.9	12	4.2	-10	2.00	0.1
	10/18/2016	18	20	7.9J	-21	0.00	0.2
	4/25/2017[5]	16	19	9	NM	NM	NM
	10/16/2017	17	14	3.8	69	1.46	0.1
	4/20/2018[5]	16.8	18.4	4.8	NM	NM	>5
	1/12/2018	25	13.7	0.98J	70	1.98	4.7
MW-89D2 [2]	4/21/2011	27	16	24	-154	2.43	1.0
	10/24/2012	1.7 J	2.4 J	21	-95	10.73	0.0
	2/6/2013	5	4.6 J	20	-122	10.05	0.0
	4/29/2013	1.2 J	1.9 J	26	-244	4.49	3.0
	7/24/2013	1.1 J	2.1 J	12	-250	0.75	2.7
	10/28/2013	1.6 J	2.4 J	13	-63	9.45	0.8
	1/27/2014[5]	2.7 J	4.0 J	12	NM	NM	NM

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-89D2 [2]	4/24/2014	1.8 J	2.7 J	6.1	-27	4.26	0.0
(cont'd)	7/17/2014	3.9 J	5.6	3.7 J	-40	2.13	2.0
	10/31/2014	5.8	9.4	6.5	6	12.01	1.8
	4/23/2015[5]	10	13	2.3	NM	NM	NM
	10/20/2015	5.7	9.4	2.0 U	-72	19.70	2.2
	4/25/2016	6.7	6.0	2.0 U	-30	0.27	0.4
	10/18/2016	13	8.3	2.0UJ	-119	0.66	0.0
	4/25/2017	8.4	6.6	1.0U	134	20.49	0.0
	10/16/2017	10	6.5	1.0U	82	1.03	0.0
	4/20/2018	6.89	5.31	0.53J	105	1.24	>5
	11/12/2018	5.79	5.26	1.0U	37	4.70	3.7
MW-90D1 [2]	4/25/2007	110	44	6300	-100	0.93	2.30
	4/13/2011	29	12	4100	-103	0.34	NM
	10/25/2012[5]	2.0 J	5.0 U	810	NM	NM	NM
	2/6/2013[5]	27	6.7	2500	NM	NM	NM
	4/30/2013[5]	3.9 J	2.3 J	780	NM	NM	NM
	7/23/2013[5]	32	16	290	NM	NM	NM
	10/25/2013[5]	22	13	84	NM	NM	NM
	1/23/2014[5]	17	18	1600	NM	NM	NM
	4/23/2014[5]	42	24	600	NM	NM	NM
	7/18/2014[5]	33	11	27	NM	NM	NM
	10/21/2014[5]	16	9.9	37	NM	NM	NM
	4/24/2015[5]	25	9.6	3.0	NM	NM	NM
	10/23/2015[5]	23	9.5	1.9 J	NM	NM	NM
	4/27/2016[5]	5.0 U	8.4	2.0 U	NM	NM	NM
	10/21/2016[5]	21	9.6	2.0UJ	NM	NM	NM
	5/11/2017[5]	30	8.2	1.0U	NM	NM	NM
	10/19/2017[5]	17	5.8	0.6J	NM	NM	NM
	4/26/2018[5]	14.8	5.78	1.0U	NM	NM	NM
	11/6/2018	10.6	4.59	1.0U	NM	NM	NM
MW-90D2 [2]	4/25/2007	46	220 J	49	-47	1.38	1.76
	5/17/2010	26	68	2.1 J	-112	0.00	2.5
	4/14/2011	33	51	1.2 J	12	4.03	1.0
	2/6/2013[5]	120	37	3.1 J	NM	NM	NM
	4/30/2013[5]	57	25	1.8 J	NM	NM	NM
	7/23/2013[5]	43	29	5.0 U	NM	NM	NM
	10/25/2013[5]	44	23	5.0 U	NM	NM	NM
	1/23/2014[5]	39	25	2.9 J	NM	NM	NM
	4/23/2014[5]	37	26	1.5 J	NM	NM	NM
	7/18/2014[5]	22	22	5.0 U	NM	NM	NM
	10/21/2014[5]	6.1	3.5 J	5.0 U	NM	NM	NM
	4/24/2015[5]	26	21	2.0 U	NM	NM	NM
	10/23/2015[5]	74	23	2.0 U	NM	NM	NM

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Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-90D2 [2]	4/27/2016[5]	27	11	2.0 U	NM	NM	NM
(cont'd)	10/21/2016[5]	6	6.9	2.0UJ	NM	NM	NM
	4/27/2017[5]	11	8.2	1.0U	NM	NM	NM
	10/19/2017[5]	12	6.6	1.0U	NM	NM	NM
	4/26/2018[5]	13	5.1	1.0U	NM	NM	NM
	11/6/2018	19	11.3	1.0U	NM	NM	NM
Voluntary Wells							
MW-52S	3/13/2007	25	19	2400	5	1.64	1.66
MW-52I	3/14/2007	14	5	6	259	5.85	0.04
MW-52D	3/14/2007	410	39	5 U	226	3.07	0.11
MW-58D	10/26/2006	20	120	5 U	21	2.42	4.30
	5/18/2010	18	47	5.0 U	30	0.00	1.8
	11/21/2011	8.6	56	5.0 U	74	0.30	NR
	5/23/2013	15 J	110	5.0 U	167	5.94	2
	11/14/2014[5]	500 U	6500	500 U	NM	NM	NM
	6/2/2016	28	6300	2.0 U	-44	9.46	0.0
	11/2/2016	38J	5000	2.0U	-12	0.00	0.1
	4/26/2017[5]	51	5200	1.0U	NM	NM	NM
	10/17/2017[5]	59	3670	50U	NM	NM	NM
	4/24/2018[5]	56	2370	50U	NM	NM	NM
	11/20/2018	17.9	319	1.0U	91	1.31	>5
MW-58D1	10/26/2006	20	150	5 U	-101	2.58	8.80
	5/19/2010	18	44	5.0 U	-50	0.00	2.2
	11/21/2011	2.5 J	20	5.0 U	-48	0.52	NR
	5/23/2013[5]	12 J	73	5.0 U	NM	NM	NM
	11/14/2014[5]	250 U	4300	250 U	NM	NM	NM
	6/2/2016	34	5800	2.0 U	-25	10.58	0.1
	11/2/2016	32J	4400	2.0U	46	0.00	1.6
	4/26/2017	51	4600	1.0U	-96	NM	0.0
	10/17/2017[5]	60	3300	50U	NM	NM	NM
	4/24/2018	59	2300	50U	NM	NM	NM
	11/20/2018	23.9	522	1.0U	151	3.26	2.6
MW-58D2	10/25/2006	19 J	120	5 U	-198	0.00	5.16
	4/29/2013	13	74	5.0 U	-81	7.70	3.87
	10/24/2014	20	4900	5.0 U	-10	20.87	0.00
	5/18/2016	38	7600	2.0 U	47	9.57	0.22
	10/19/2016	37	3200	2.0UJ	-46	0.00	0.72
	5/11/2017[5]	44	2400	1.0U	NM	NM	0.00
	11/1/2017	83	4100	1.0U	64	1.69	0.52
	5/22/2018[5]	55	1910	50U	NM	NM	4.62
	11/5/2018	115	436	5.0U	253	4.40	0.10

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-59D1	10/25/2006	10 J	32	5 U	-20	0.58	3.24
	11/29/2011	3.5 J	12	5.0 U	-43	0.30	NR
	11/5/2018	0.33J	1.57	1.0U	42	3.18	0.08
MW-59D2	10/25/2006	11 J	40	5 U	-99	0.47	2.00
	11/29/2011	2.5 J	8.1	5.0 U	-128	0.10	NR
	5/18/2016(5)	5.0 U	5.5	2.0 U	NM	NM	NM
	10/19/2016	5.0U	5.7	2.0UJ	-137	1.01	0.14
	4/26/2017	1.0U	4.7	1.0U	-114	2.52	0.00
	10/19/2017	0.6J	4.4	1.0U	-64	1.59	0.14
	4/24/2018(5)	1.0U/1.0U	3.97/3.92	1.0U/1.0U	NM	NM	NM
MW-59D	10/26/2006	10	58	5 U	-108	0.00	2.65
	11/29/2011	5.3	13	5.0 U	49	0.35	NR
MW-60S	5/23/2013	45	150	5.0 U	-233	4.74	>5.0
MW-60I	5/23/2013	43	200	5.0 U	-93	3.77	>5.0
MW-60D	5/23/2013	64	99	5.0 U	-204	4.60	2.43
MW-60D1	4/30/2013	1.6 J	26	5.0 U	-108	5.84	>5.0
MW-61S	10/19/2009	7.4	10	5.0 U	372	>20	0.02
	5/10/2010	5.4	8.1 U	3.5 J	100	10.95	0.0
MW-62I	5/16/2007	5.1	1 J	3 J	59	0.00	0.69
	5/25/2010	5.1 J	5.0 U	4.2 J	14.8	0.00	4.2
	11/16/2015(5)	14	3.4 J	8.9	NM	NM	2.5
	10/18/2017	13	2.9	7.9	145	0.00	0.0
MW-62D	5/16/2007	5 U	5 U	5 U	-125	0.00	0.38
	5/25/2010	2.4 J	8.2	8	-200	0.00	6.2
	11/16/2015	2.5 J	2.0 J	2.3	116	10.94	0.0
	10/18/2017	1.5	2.2	3.7	-25	0.00	0.0
MW-64S (2)	4/26/2007	3 J	2 J	8.7	-114	0.00	2.4
	5/24/2010	1.5 J	5.0 U	2.1 J	-98	0.00	4.0
MW-64I (2)	4/26/2007	5	3 J	16	-121	0.00	1.9
	5/24/2010	5.0 UJ	5.0 U	12	-110	0.00	4.0
MW-64D (2)	4/26/2007	5.1	4 J	14	-115	0.00	2.0
	5/24/2010	5.0 UJ	5.0 U	11	-107	0.00	2.3
MW-66D2 (2)	4/25/2013	100	110	5.0 U	-44	6.58	0.2
	10/29/2013	43	58	5.0 U	-111	3.88	0.3
	4/25/2014	47	61	5.0 U	53	4.55	0.7
	10/27/2014	22	25	5.0 U	166	3.42	2.8
	4/23/2015	10	15	2.0 U	161	13.98	NM
	10/21/2015(5)	5.8	10	2.0 U	NM	NM	NM

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-66D2 [2] cont'd	4/25/2016	2.9 J	8.0	2.0 U	-4	13.29	0.2
	10/18/2016	1.4J	2.2J	2.0UJ	35	0.02	NM
	4/26/2017	1.0U	1.0U	1.0U	190	11.67	0.8
	10/16/2017	0.6J	0.9J	1.0U	137	7.45	0.2
	4/24/2018	3.8	6.9	1.0U	223	19.44	3.2
	11/5/2018	10.9	12.0	1.0U	84	6.40	NM
MW-67S [2]	5/20/2010	26/27	37/39	87/95	-170	0.00	7.0
	11/22/2011	1.5 J	8.7	47	-35	0.14	NR
	4/25/2013	2.8 J	19	140	45	5.14	1.9
	10/29/2013	4.6 J	16	100	-161	2.49	1.0
	4/25/2014	4.9 J	9.6	38	77	2.76	0.0
	10/24/2014[5]	18	19	6.2	NM	NM	NM
	4/23/2015	6	5.4	2.0 U	155	12.71	0.4
	10/21/2015	1.7 J	2.5 J	2.0 U	177	11.68	NM
	4/25/2016	58	44	2.0 U	104	20.69	0.7
	10/19/2016	41	66	2.0UJ	26	0.29	0.2
	4/26/2017	67	61	1.0U	100	4.02	NM
	10/16/2017	60	66	0.7J	87	2.77	0.0
	4/24/2018	43.8	53.4	1.0U	243	9.39	1.6
	11/5/2018	51.3	51.4	1.21	NM	NM	NM
MW-67D [2]	5/20/2010	74/73	280/280 J	5.0 U/5.0 U	-187	1.30	0.2
	11/22/2011	6.2	58	5.0 U	129	2.97	NR
	4/25/2013	8.6	32	5.0 U	45	11.98	1.9
	10/29/2013	11	36	5.0 U	-204	3.78	0.0
	4/25/2014	4.8 J	25	5.0 U	2	5.35	0.0
	10/24/2014[5]	1.4 J	4.3 J	5.0 U	NM	NM	NM
	4/23/2015	2.9 J	5.0 U	2.0 U	-274	9.51	NM
	10/21/2015[5]	5.0 U	2.1 J	2.0 U	NM	NM	NM
	4/25/2016	5.0 J	1.2 J	2.0 U	53	4.62	0.3
	10/19/2016	5.0U	5.0U	2.0UJ	50	2.37	0.1
	4/26/2017	1.0U	2.1	1.0U	2	3.25	0.5
	10/16/2017	0.7J	0.8J	1.0U	NM	0.00	0.0
	4/24/2018	1.0U	1.0U	1.0U	NM	NM	NM
	11/5/2018	1.0U	0.4J	1.0U	8	2.62	NM
MW-68S [2]	11/28/2011	83	110	690	-107	0.05	NR
	4/25/2013	11	27	940	-190	6.84	1.9
	10/29/2013	6.8	11	580	-128	3.58	1.0
	4/25/2014	99	81	270	-50	2.49	0.0
	10/24/2014	67	93	400	68	21.08	0.0
	4/23/2015	77	110	2.0 U	-15	15.09	NM
MW-68S [2] (cont'd)	10/21/2015	65	110	260	47	9.22	NM
	4/25/2016	62	100	220	1	24.40	0.0
	10/19/2016	87	120	230J	-201	0.47	0.1
	4/26/2017[5]	50	83	190	NM	NM	NM
	10/16/2017	87	93	143	-163	0.00	0.2
	4/24/2018	60.4	84.4	66	163	3.39	0.5
	1/5/2018	67.4	83.3	27.9J	-36	1.79	1.5

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
MW-68D [2]	5/19/2010	320	970	34	-29	0.00	2.4
	11/28/2011	47	290	1.2 J	-38	0.97	NR
	4/25/2013	36	160	1.3 J	-174	5.88	0.7
	10/29/2013	19	78	5.0 U	-91	4.12	0.2
	4/25/2014	7.3	47	5.0 U	-71	5.27	0.0
	10/24/2014	2.2 J	14	5.0 U	36	12.79	0.0
	4/23/2015[5]	1.8 J	6.8	1.0 J	NM	NM	NM
	10/21/2015[5]	1.7 J	5.9	2.0 U	NM	NM	NM
	4/25/2016	5.0 U	4.3 J	2.0 U	37	9.21	0.0
	10/19/2016	5.0U	4.6J	2.0UJ	-39	0.50	0.0
	4/26/2017	1.0U	4.7	1.0U	18	4.64	NM
	10/16/2017	2.5	5.4	1.0U	82	0.00	0.6
	4/24/2018	2.54	8.1	1.0U	NM	NM	>5.0
	11/5/2018	3.75	9.34	1.0U	0	1.59	0.0
MW-92D1	4/12/2011	5.7	1.3 J	100	-190	1.13	4.0
	4/24/2013	3.7 J	6.2	79	12	6.57	3.0
	10/27/2014	3.4 J	4.6 J	51	-18	2.62	4.1
	10/23/2015	3.9 J	6.2	42	32	6.61	1.0
	10/18/2017	2.4	6.8	24	-105	0.00	0.0
MW-92D2	4/25/2011	690	12	5.0 U	-156	2.00	1.5
	4/24/2013	280	17	5.0 U	-104	5.52	>5.0
	10/27/2014	92	8.2	5.0 U	-120	2.20	75.0
	10/23/2015	30	5.4	2.0 U	-77	8.07	0.1
	10/18/2017	18	2.4	1.0U	-91	0.00	0.4
MW-93D1	4/26/2011	21	3.7 J	190	-191	2.18	2.5
	4/24/2013	14	4.5 J	20	-140	5.16	2.2
	10/27/2014	16	2.3 J	7.0	33	3.10	2.3
	10/23/2015	8	1.2 J	3.8	11	9.79	0.2
	10/18/2017	1.4	0.5J	1.0U	-94	0.00	0.4
MW-93D2	4/26/2011	110	15	5.0 U	-219	2.96	2.0
	4/23/2013	24	21	5.0 U	-105	4.58	4.5
	10/27/2014	1.0 J	5.0 U	5.0 U	-12	2.98	3.4
	10/23/2015	5.0 U	5.0 U	2.0 U	-105	9.40	0.0
	10/18/2017	13	1.2	1.5	-77	3.48	0.4
Northrop Wells							
GP-1 (Well 1)	9/25/2006	NR	NA	ND	NR	NR	NR
	10/23/2006	NR	NA	ND	NR	NR	NR
	11/13/2006	NR	NA	ND	NR	NR	NR
	12/18/2006	NR	634	ND	NR	NR	NR
	1/15/2007	NR	547	ND	NR	NR	NR
	2/12/2007	NR	373	ND	NR	NR	NR
	3/12/2007	NR	439	ND	NR	NR	NR
	4/16/2007	NR	473	ND	NR	NR	NR
GP-1 (Well 1)	5/14/2007	NR	587	ND	NR	NR	NR

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
(cont'd)	6/18/2007	NR	414	ND	NR	NR	NR
	7/23/2007	NR	410	ND	NR	NR	NR
	8/13/2007	NR	333	ND	NR	NR	NR
	9/11/2007	NR	452	ND	NR	NR	NR
	10/15/2007	NR	285	ND	NR	NR	NR
	11/12/2007	NR	428	ND	NR	NR	NR
	12/18/2007	NR	371	ND	NR	NR	NR
	1/14/2008	NR	273	ND	NR	NR	NR
	2/18/2008	NR	373	ND	NR	NR	NR
	3/17/2008	NR	212	ND	NR	NR	NR
	4/14/2008	NR	233	ND	NR	NR	NR
	5/19/2008	NR	195	ND	NR	NR	NR
	6/16/2008	NR	113	ND	NR	NR	NR
	7/15/2008	NR	353	ND	NR	NR	NR
	8/18/2008	NR	54	ND	NR	NR	NR
	9/22/2008	NR	78	ND	NR	NR	NR
	10/13/2008	NR	78	ND	NR	NR	NR
	11/18/2008	NR	145	ND	NR	NR	NR
	12/16/2008	NR	82	ND	NR	NR	NR
	1/05/2009	NR	106	ND	NR	NR	NR
	2/16/2009	NR	186	ND	NR	NR	NR
	3/16/2009	NR	202	ND	NR	NR	NR
	4/13/2009	NR	203	ND	NR	NR	NR
	5/18/2009	NR	217	ND	NR	NR	NR
	6/15/2009	NR	93	ND	NR	NR	NR
	7/21/2009	NR	156	ND	NR	NR	NR
	8/18/2009	NR	126	ND	NR	NR	NR
	9/16/2009	NR	112	ND	NR	NR	NR
	10/20/2009	NR	132	ND	NR	NR	NR
	11/16/2009	NR	173	ND	NR	NR	NR
	12/4/2009	NR	151	ND	NR	NR	NR
	1/18/2010	NR	106	ND	NR	NR	NR
	2/15/2010	NR	108	ND	NR	NR	NR
	3/15/2010	NR	149	ND	NR	NR	NR
	4/20/2010	NR	368	ND	NR	NR	NR
	7/28/2010	NR	NA	ND	NR	NR	NR
	8/20/2010	NR	101	ND	NR	NR	NR
	5/08/2012	48	410	ND	NR	NR	NR
	12/11/2012	51	410	ND	NR	NR	NR
	2/18/2013	49	360	ND	NR	NR	NR
	6/06/2013	48	380	ND	NR	NR	NR
	8/21/2013	48/44	400/390	ND/ND	NR	NR	NR
	2/24/2014	39	400	ND	NR	NR	NR
	6/10/2014	40	490	ND	NR	NR	NR
	9/11/2014	35	730	ND	NR	NR	NR
	11/13/2014	39	695	ND	NR	NR	NR
	3/16/2015	41	713	ND	NR	NR	NR
	5/05/2015	31	748	ND	NR	NR	NR
	9/09/2015	35	852	ND	NR	NR	NR
	12/12/2015	31	768	ND	NR	NR	NR

Table 3

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
GP-1 (Well 1)	3/14/2016	30	792	ND	NR	NR	NR
(cont'd)	5/12/2016	24	615	ND	NR	NR	NR
	8/17/2016	28	838	ND	NR	NR	NR
	12/15/2016	22	703	ND	NR	NR	NR
	2/22/2017	28	702	ND	NR	NR	NR
	9/12/2017	22	603	ND	NR	NR	NR
GP-3 (Well 3R)	09/25/2006	NR	NR	100	NR	NR	NR
	10/23/2006	NR	NR	122	NR	NR	NR
	11/13/2006	NR	NR	143	NR	NR	NR
	12/18/2006	NR	3968	148	NR	NR	NR
	1/15/2007	NR	3038	121	NR	NR	NR
	2/12/2007	NR	2545	81	NR	NR	NR
	3/12/2007	NR	2200	74	NR	NR	NR
	4/16/2007	NR	2476	49	NR	NR	NR
	5/14/2007	NR	3107	144	NR	NR	NR
	6/18/2007	NR	2268	92	NR	NR	NR
	7/23/2007	NR	2900	128	NR	NR	NR
	8/13/2007	NR	1964	113	NR	NR	NR
	9/11/2007	NR	2013	114	NR	NR	NR
	10/15/2007	NR	2080	117	NR	NR	NR
	11/12/2007	NR	2123	113	NR	NR	NR
	12/18/2007	NR	2264	130	NR	NR	NR
	1/14/2008	NR	1655	109	NR	NR	NR
	2/18/2008	NR	1472	143	NR	NR	NR
	3/17/2008	NR	1700	146	NR	NR	NR
	4/14/2008	NR	1717	130	NR	NR	NR
	5/19/2008	NR	985	81	NR	NR	NR
	6/16/2008	NR	1196	86	NR	NR	NR
	7/15/2008	NR	1106	89	NR	NR	NR
	8/18/2008	NR	907	51	NR	NR	NR
	9/22/2008	NR	1083	101	NR	NR	NR
	10/13/2008	NR	1130	98	NR	NR	NR
	11/18/2008	NR	846	112	NR	NR	NR
	12/16/2008	NR	1227	83	NR	NR	NR
	1/12/2009	NR	862	93	NR	NR	NR
	2/16/2009	NR	1159	104	NR	NR	NR
	3/16/2009	NR	1082	112	NR	NR	NR
	4/13/2009	NR	1410	153	NR	NR	NR
	0/18/2009	NR	1012	151	NR	NR	NR
	6/15/2009	NR	856	94	NR	NR	NR
	7/21/2009	NR	1180	148	NR	NR	NR
	8/18/2009	NR	1226	151	NR	NR	NR
	9/16/2009	NR	1462	163	NR	NR	NR
	10/20/2009	NR	1591	178	NR	NR	NR
	11/16/2009	NR	1262	182	NR	NR	NR
	12/14/2009	NR	1262	179	NR	NR	NR
	1/18/2010	NR	1263	188	NR	NR	NR
	2/15/2010	NR	1191	177	NR	NR	NR
	3/15/2010	NR	852	134	NR	NR	NR

Select Laboratory and Field Parameter Results
Hooker Ruco Site
Hicksville, New York

Well	Date Sampled	PCE (µg/L)	TCE (µg/L)	VCM (µg/L)	ORP (mV)	DO (mg/L)	Fe^{+2} (mg/L)
GP-3 (Well 3R)	4/20/2010	NR	890	173	NR	NR	NR
(cont'd)	6/21/2010	NR	450	135	NR	NR	NR
	7/19/2010	NR	308	137	NR	NR	NR
	8/12/2010	NR	132	155	NR	NR	NR
	5/08/2012	58	1700	140	NR	NR	NR
	12/11/2012	51	1500	84	NR	NR	NR
	2/18/2013	53	1400	72	NR	NR	NR
	6/06/2013	54	1400	60	NR	NR	NR
	8/21/2013	57	1200	58	NR	NR	NR
	2/24/2014 (6)	38	98	38	NR	NR	NR
	6/10/2014 (6)	40	140	36	NR	NR	NR
	9/11/2014 (6)	43	270	36	NR	NR	NR
	11/13/2014 (6)	44	394	35	NR	NR	NR
	3/16/2015 (6)	44	493	29	NR	NR	NR
	5/05/2015 (6)	34	533	18	NR	NR	NR
	9/09/2015 (6)	37	557	13	NR	NR	NR
	12/15/2015 (6)	34	510	10	NR	NR	NR
	3/14/2016 (6)	31	529	8.6	NR	NR	NR
	5/12/2016 (6)	29	487	7.6	NR	NR	NR
	8/17/2016 (6)	33	579	5.0	NR	NR	NR
	12/15/2016 (6)	27	508	3.5	NR	NR	NR
	2/14/2017 (6)	31	498	3.9	NR	NR	NR
	9/12/2017 (6)	31	365	2.7	NR	NR	NR
	2/28/2018 (6)	26	306	2.2	NR	NR	NR
	5/10/2018 (6)	28	332	2.0	NR	NR	NR
MW-3-1	1/30/2012 (7)	150	240	170	NR	NR	NR
	3/28/2012	56	220	1300	NR	NR	NR
	6/19/2013	7.8	37	78	NR	NR	NR
	6/5/2015	12	68	4.8	NR	NR	NR
	11/11/2015	11	58	5.2	NR	NR	NR
	5/11/2016	16	87	16	NR	NR	NR
	10/18/2016	14	96	14	NR	NR	NR
	6/11/2018	19	139	36	NR	NR	NR

Notes:

(1) Pilot System Monitoring Well
(2) Remainder of System Monitoring Well
(3) Black colored water prevented reading on colorimetric meter
(4) Orange colored water prevented reading on colorimeter meter
(5) Insufficient sample volume to obtain measurement/reading
(6) Sample from replacement well 3R
(7) Sample collected from vertical profile boring at depth 439 ft bgs
NA - Not analyzed
NM - Not measured (insufficient sample volume for all samples subsequent to 11/30/2011)
NR - Not reported by Northrop
NS - Not Sampled
U - Not detected at associated value
J - Estimated concentration

Table 4

Well Status September 30, 2018
Operable Unit-3 Biosparge System
Hooker/Ruco Site, Hicksville, New York

Well Designation	Date Completed	Well Functional	Comments/Proposed Action
IW-1D1A	04/28/11	Y	
IW-1D1L	04/28/11	N	
IW-1D2A	04/28/11	Y	
IW-2D1A	04/8/11	Y	
IW-2D1L	04/8/11	N	
IW-2D2A	04/8/11	Y	
IW-3D1A	03/25/11	Y	
IW-3D1L	03/25/11	N	
IW-3D2A	03/25/11	Y	
IW-4D1A	01/27/11	Y	
IW-4D1L	01/27/11	N	
IW-4D2A	01/27/11	Y	
IW-5D1A	04/12/11	Y	
IW-5D1L	04/12/11	N	
IW-5D2A	04/12/11	Y	
IW-6D1A	01/17/11	Y	
IW-6D1L	01/17/11	N	
IW-6D2A	01/17/11	N	DO in downgradient MW-73 >2.0 mg/L. No action planned.
IW-7D1A	03/29/11	N	DO in downgradient MW-77 >2.0 mg/L. No action planned.
IW-7D1L	03/29/11	N	
IW-7D2A	03/29/11	Y	
IW-15D1A	10/05/10	Y	
IW-15DlL	10/05/10	N	
IW-15D2A	10/05/10	Y	
IW-16D1A	11/01/05	N	DO in downgradient MW-83 >2.0 mg/L. No action planned.
IW-16D1L	11/01/05	N	
IW-16D2A	11/01/05	Y	
IW-17D1A	12/01/05	Y	
IW-17D1L	12/01/05	N	
IW-17D2A	12/01/05	N	DO in downgradient MW-81 >2.0 mg/L. No action planned.

Well Status September 30, 2018
Operable Unit-3 Biosparge System
Hooker/Ruco Site, Hicksville, New York

Well Designation	Date Completed	Well Functional	Comments/Proposed Action
IW-18D1A	01/09/06	N	DO in downgradient MW-84 >2.0 mg/L. No action planned.
IW-18D1L	01/09/06	N	
IW-18D2A	01/09/06	Y	
IW-19D1A	01/13/06	Y	DO in downgradient MW-82/88 >2.0 mg/L.
IW-19D1L	01/13/06	N	
IW-19D2A	01/13/06	Y	DO in downgradient MW-82/88 >2.0 mg/L.
IW-20D1A	10/13/10	Y	DO in downgradient MW-82/88 >2.0 mg/L.
IW-20D1L	10/13/10	N	
IW-20D2A	10/13/10	Y	DO in downgradient MW-82/88 >2.0 mg/L.
IW-21D1A	10/23/10	Y	
IW-21D1L	10/23/10	N	
IW-21D2A	10/23/10	Y	
IW-22D1A	11/03/10	Y	
IW-22D1L	11/03/10	N	
IW-22D2A	11/03/10	Y	
MW-50D1	02/23/95	N	Abandoned by Bayer during site closure.
MW-50D2	02/13/95	N	Abandoned by Bayer during site closure.
MW-51D1	10/24/95	N	Well no longer needed to monitor remediation of VCM subplume.
MW-51D2	10/02/95	N	Well no longer needed to monitor remediation of VCM subplume.
MW-52S	01/17/96	N	Abandoned March 2007
MW-52I	12/14/95	N	Abandoned March 2007
MW-52D	12/12/95	N	Abandoned March 2007
MW-53I	06/08/95	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-53D1	06/19/95	N	Well no longer needed to monitor remediation of VCM subplume. Well paved over.
MW-53D2	06/05/95	Y	Well no longer needed to monitor remediation of VCM subplume. Obstruction in well prevents sampler insertion.
MW-56S	01/26/96	N	Abandoned October 2000
MW-56I	01/25/96	N	Abandoned October 2000
MW-57S	01/23/96	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-57I	01/25/96	Y	Well no longer needed to monitor remediation of VCM subplume.

Table 4

Well Status September 30, 2018
Operable Unit-3 Biosparge System
Hooker/Ruco Site, Hicksville, New York

Well Designation	Date Completed	Well Functional	Comments/Proposed Action
MW-58D	03/26/02	Y	
MW-58D1	03/26/02	Y	
MW-58D2	03/26/02	Y	
MW-59D	04/06/02	N	VCM subplume can be monitored using Northrop well MW-3-1.
MW-59D1	04/06/02	N	VCM subplume can be monitored using Northrop well MW-3-1.
MW-59D2	04/06/02	Y	Previously lodged sampler retrieved from well in April 2016 allowing well to be sampled.
MW-60D1	03/05/02	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-60S	03/08/02	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-60I	03/08/02	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-60D	03/08/02	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-61S	02/22/02	Y	Well no longer needed to monitor remediation of VCM subplume.
MW-61I	02/22/02	N	Obstruction at 130 ftbgs prevents insertion of sampler. Monitoring of MW-61D2 sufficient to monitor VCM subplume.
MW-61D1	02/22/02	N	Obstruction at 130 ftbgs prevents insertion of sampler. Monitoring of MW-61D2 sufficient to monitor VCM subplume.
MW-61D2	03/12/02	Y	
MW-62I	05/14/02	Y	
MW-62D	04/20/02	Y	
MW-63S	02/18/02	Y	
MW-63I	02/18/02	Y	
MW-63D1	02/18/02	Y	
MW-63D2	02/18/02	Y	
MW-64S	02/09/02	N	Well no longer needed to monitor remediation of VCM subplume. Sampler stuck in well.
MW-64I	02/09/02	N	Well no longer needed to monitor remediation of VCM subplume. Sampler stuck in well.
MW-64D	02/09/02	N	Well no longer needed to monitor remediation of VCM subplume. Sampler stuck in well.
MW-66D2	06/08/02	Y	
MW-66I	06/19/02	N	Remediation of VCM subplume is adequately monitored by MW-66D2. Well no longer needed.
MW-66D1	06/19/02	N	Remediation of VCM subplume is adequately monitored by MW-66D2. Well no longer needed.
MW-67S	01/11/03	Y	
MW-67D	01/11/03	Y	

Well Status September 30, 2018
Operable Unit-3 Biosparge System
Hooker/Ruco Site, Hicksville, New York

Well Designation	Date Completed	Well Functional	Comments/Proposed Action
MW-68S	02/09/03	Y	
MW-68D	02/09/03	Y	
MW-70D1	02/02/11	Y	
MW-70D2	02/02/11	Y	
MW-72D1	03/16/11	Y	
MW-72D2	03/16/11	Y	
MW-73D1	02/11/11	Y	
MW-73D2	02/11/11	Y	
MW-75D1	05/02/11	Y	
MW-75D2	05/02/11	Y	
MW-76S	03/03/11	Y	No future sampling of this well is recommended.
MW-76I	03/03/11	Y	No future sampling of this well is recommended.
MW-76D1	02/15/11	Y	Test weight fell and became stuck in bottom of well in October 2015; samplers were able to be inserted and retrieved properly.
MW-76D2	02/15/11	Y	
MW-77D1	02/26/11	N	Samplers stuck in well. Monitoring of MW-77D2 sufficient to monitor VCM Subplume. Abandonment of MW-77D1 could adversely impact functionality of MW-77D2. No action proposed.
MW-77D2	02/26/11	Y	
MW-81D1	11/01/05	Y	
MW-81D2	11/01/05	Y	
MW-82D1	02/15/06	Y	Manhole cover requires repair
MW-82D2	02/15/06	Y	Manhole cover requires repair
MW-83D1	11/06/05	Y	
MW-83D2	11/06/05	Y	
MW-84D1	04/12/06	Y	Well casing degraded, may require future repair
MW-84D2	04/12/06	Y	Well casing degraded, may require future repair
MW-85S	12/04/10	Y	No future sampling of this well is recommended.
MW-85I	12/04/10	Y	No future sampling of this well is recommended.
MW-85D1	12/02/10	Y	
MW-85D2	12/02/10	Y	

Table 4

Well Status September 30, 2018
Operable Unit-3 Biosparge System
Hooker/Ruco Site, Hicksville, New York

Well Designation	Date Completed	Well Functional	Comments/Proposed Action
MW-86D1	11/11/10	Y	
MW-86D2	11/11/10	Y	
MW-87D1	10/04/05	Y	
MW-87D2	10/04/05	Y	
MW-88D1	03/21/06	Y	
MW-88D2	03/21/06	Y	
MW-89D1	12/19/10	Y	
MW-89D2	12/19/10	Y	
MW-90D1	03/28/06	Y	
MW-90D2	03/28/06	Y	
MW-92D1	03/11/11	Y	
MW-92D2	03/11/11	Y	
MW-93D1	03/03/11	Y	
MW-93D2	03/03/11	Y	
VZ-1S	03/15/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-1D	03/15/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-2S	02/12/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-2D	02/12/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-4S	04/30/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-4D	04/30/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-5S	03/11/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-5D	03/11/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-6S	02/26/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-6D	02/26/11	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-10S	01/19/06	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-10D	01/19/06	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-11S	02/28/06	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-11D	02/28/06	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-12S	12/05/10	Y	Well no longer scheduled to monitor remediation of VCM subplume.

Table 4

Well Status September 30, 2018
Operable Unit-3 Biosparge System
Hooker/Ruco Site, Hicksville, New York

Well Designation	Date Completed	Well Functional	Comments/Proposed Action
VZ-12D	12/05/10	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-14S	10/07/05	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-14D	10/07/05	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-15S	11/04/05	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-15D	11/04/05	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-16S	01/23/06	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-16D	01/23/06	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-17S	12/20/10	Y	Well no longer scheduled to monitor remediation of VCM subplume.
VZ-17D	12/20/10	Y	Well no longer scheduled to monitor remediation of VCM subplume.

Note:

NA Not Applicable

Attachment A

Memorandum

January 9, 2019

To:	John Pentilchuk	Ref. No.:	006883
From:	Kathy Willy/adh/21	Tel:	716-205-1942

Subject: **Analytical Results and Full Validation**
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

1. Introduction

This document details a validation of analytical results for groundwater samples collected in support of the Semiannual Groundwater Monitoring at the Hicksville site during November 2018. Samples were submitted to Eurofins Spectrum Analytical located in Agawam, Massachusetts. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike (MS) samples, and field quality assurance/quality control (QA/QC) samples. The assessment of analytical and in-house data included checks for data consistency (by observing comparability of duplicate analyses), adherence to accuracy and precision criteria, and transmittal errors.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540-R-10-011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

These items will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Gas Chromatography/Mass Spectrometry (GC/MS) – Tuning and Mass Calibration (Instrument Performance Check)

Prior to volatile organic compound (VOC) analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, the method requires the analysis of specific tuning compound bromofluorobenzene (BFB). The resulting spectra must meet the criteria cited in the method before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Tuning compounds were analyzed at the required frequency throughout VOC analysis periods. All tuning criteria were met, indicating that proper optimization of the instrumentation was achieved.

4. Initial Calibration - Organic Analyses

To quantify VOCs of interest in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) All relative response factors (RRFs) must be greater than or equal to 0.05 (0.01 for poor responders).

ii) The percent relative standard deviation (RSD) values must not exceed 20.0 percent (40.0 percent for poor responders) or a minimum correlation coefficient (R) of 0.995 and minimum coefficient of determination (R^2) of 0.99 if linear and quadratic equation calibration curves, respectively, are used.

The initial calibration data for VOCs were reviewed. All compounds met the above criteria for sensitivity and linearity.

5. Initial Calibration – Inorganic Analyses

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For instrumental general chemistry analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve, and resulting correlation coefficients (R) must be 0.995 or greater.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

Analytical Method	Parameter	Control Limits
Instrumental Wet Chemistry	Total Organic Carbon (TOC), ammonia, nitrate, nitrite, phosphorous	85 - 115%

Upon review of the data, it was determined that the calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that the instrumentation used for general chemistry analyses were properly calibrated prior to sample analysis.

6. Continuing Calibration - Organic Analyses

To ensure that instrument calibration for VOC analyses is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i) All RRF values must be greater than or equal to 0.05 (0.01 for poor responders).

ii) Percent difference (%D) values must not exceed 25 percent (40 percent for poor responders).

Calibration standards were analyzed at the required frequency, and most results met the above criteria for instrument sensitivity and stability. Some VOCs showed some variability. A summary of qualified results is presented in Table 4.

7. Continuing Calibration - Inorganic Analyses

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

8. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures. Additionally, initial and continuing calibration blanks (ICBs/CCBs) are routinely analyzed after each ICV/CCV for the inorganic parameters.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

8.1 Organic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

8.2 Inorganic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

9. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the laboratory criteria.

10. Internal Standards (IS) Analyses

IS data were evaluated for all VOC sample analyses.

To ensure that changes in the GC/MS sensitivity and response do not affect sample analysis results, IS compounds are added to each sample prior to analysis. All results are then calculated as a ratio of the IS responses.

The sample IS results were evaluated against the following criteria:

i) The retention time of the IS must not vary more than ±30 seconds from the associated calibration standard.

ii) IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard.

All VOC IS recoveries and retention times met the above criteria.

11. Laboratory Control Sample Analyses

LCS and laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

11.1 Organic Analyses

The LCS/LCSD contained all compounds of interest. Most LCS recoveries and RPDs were within the laboratory control limits demonstrating acceptable analytical accuracy and precision. Some high VOC recoveries were reported. Associated positive sample results were qualified as estimated to reflect the implied high bias. A summary of qualified results is presented in Table 5.

11.2 Inorganic Analyses

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits demonstrating acceptable analytical accuracy with the exception of a low TOC recovery. The associated sample results have been qualified as estimated to reflect the implied low bias. A summary of qualified results is presented in Table 5.

12. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the distillation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed at the proper frequency.

12.1 Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. Most percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision with the following exceptions:

i) Some high VOC recoveries were reported. All associated sample results were non-detect and would not have been impacted by the implied high bias.

ii) Some low recoveries were reported. The associated sample results were qualified as estimated to reflect the implied low bias.

A summary of qualified results is presented in Table 6.

12.2 Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits demonstrating acceptable analytical accuracy and precision.

13. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in the methods. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

14. Field QA/QC Samples

The field QA/QC consisted of seven trip blank samples and three field blank samples.

14.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, seven trip blanks were submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

14.2 Field Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, three field blank samples were submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest with the exception of a low concentration of tetrachloroethene and TOC. Associated sample results with concentrations similar to that found in the blanks were qualified as non-detect. A summary of qualified results is presented in Table 7.

15. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the practical quantitation limit (PQL) but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

16. Target Compound Identification

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to the identification criteria established by the methods. The samples identified in Table 1 were reviewed. The organic compounds reported adhered to the specified identification criteria.

17. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

					Analysis/Parameters					
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Ammonia**	**Nitrate, Nitrite**	**Phosphorous**	**TOC**	**VOCs**	**Comments**
GW11518VW001	MW-87D1	Water	11/05/2018	9:30	X	X	X	X	X	
GW11518VW002	MW-87D2	Water	11/05/2018	9:38	X	X	X	X	X	
GW11518VW003	MW-58D2	Water	11/05/2018	10:45	X	X	X	X	X	
GW11518VW004	MW-59D1	Water	11/05/2018	11:22	X	X	X	X	X	
GW11518VW005	MW-68D	Water	11/05/2018	11:45	X	X	X	X	X	
GW11518VW006	MW-68S	Water	11/05/2018	12:07	X	X	X	X	X	
GW11518VW007	-	Water	11/05/2018	13:30	X	X	X	X	X	Field Blank
GW11518VW008	MW-67D	Water	11/05/2018	14:06	X	X	X	X	X	
GW11518VW009	MW-67S	Water	11/05/2018	14:23					X	
GW11518VW010	MW-66D2	Water	11/05/2018	14:45	X	X	X	X	X	
TB	-	Water	11/05/2018	-					X	Trip Blank
GW11618VW011	MW-75D1	Water	11/06/2018	8:40	X	X	X	X	X	
GW11618VW012	MW-75D2	Water	11/06/2018	8:53	X	X	X	X	X	
GW11618VW013	MW-70D1	Water	11/06/2018	9:19	X	X	X	X	X	
GW11618VW014	MW-70D2	Water	11/06/2018	9:35	X	X	X	X	X	
GW11618VW015	MW-72D1	Water	11/06/2018	10:00	X	X	X	X	X	
GW11618VW016	MW-72D2	Water	11/06/2018	10:17	X	X	X	X	X	
GW11618VW017	MW-76D2	Water	11/06/2018	10:43	X	X	X	X	X	
GW11618VW018	MW-76D1	Water	11/06/2018	10:56	X	X	X	X	X	
GW11618VW019	MW-76I	Water	11/06/2018	11:11	X	X	X	X	X	
GW11618VW020	MW-73D1	Water	11/06/2018	13:00	X	X	X	X	X	
GW11618VW021	MW-73D2	Water	11/06/2018	13:15	X	X	X	X	X	
GW11618VW022	MW-90D2	Water	11/06/2018	13:55					X	
GW11618VW023	MW-90D1	Water	11/06/2018	14:05					X	
TB	-	Water	11/06/2018	-					X	Trip Blank
GW11718VW024	-	Water	11/07/2018	7:30	X	X	X	X	X	Field Blank
GW11718VW025	MW-88D2	Water	11/07/2018	9:05	X	X	X	X	X	
GW11718VW026	MW-88D1	Water	11/07/2018	09:20	X	X	X	X	X	
GW11718VW027	MW-82D2	Water	11/07/2018	9:36	X	X	X	X	X	
GW11718VW028	MW-82D1	Water	11/07/2018	9:58	X	X	X	X	X	
GW11718VW029	MW-63D1	Water	11/07/2018	10:37	X	X	X	X	X	
GW11718VW030	MW-63D2	Water	11/07/2018	10:47	X	X	X	X	X	
GW11718VW031	MW-86D2	Water	11/07/2018	12:37	X	X	X	X	X	
GW11718VW032	MW-86D1	Water	11/07/2018	12:54	X	X	X	X	X	
GW11718VW033	MW-77D2	Water	11/07/2018	13:16	X	X	X	X	X	
TB	-	Water	11/07/2018	-					X	Trip Blank
GW111218VW034	MW-85D2	Water	11/12/2018	09:00	X	X	X	X	X	
GW111218VW035	MW-85D1	Water	11/12/2018	09:15	X	X	X	X	X	
GW111218VW036	MW-85I	Water	11/12/2018	9:30	X	X	X	X	X	
GW111218VW037	MW-89D2	Water	11/12/2018	9:55	X	X	X	X	X	
GW111218VW038	MW-89D1	Water	11/12/2018	10:15	X	X	X	X	X	
GW111218VW039	-	Water	11/12/2018	12:40	X	X	X	X	X	Field Blank
GW111218VW040	MW-61D2	Water	11/12/2018	13:15					X	
GW111218VW041	MW-83D2	Water	11/12/2018	13:30	X	X	X	X	X	
GW111218VW042	MW-83D1	Water	11/12/2018	13:55	X	X	X	X	X	
TB	-	Water	11/12/2018	-					X	Trip Blank
GW111318VW043	MW-81D2	Water	11/13/2018	10:00	X	X	X	X	X	
GW111318VW044	MW-81D1	Water	11/13/2018	10:15	X	X	X	X	X	

Table 1

Sample Collection and Analysis Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

					Analysis/Parameters					
Sample Identification	**Location**	**Matrix**	**Collection Date (mm/dd/yyyy)**	**Collection Time (hr:min)**	**Ammonia**	**Nitrate, Nitrite**	**Phosphorous**	**TOC**	**VOCs**	**Comments**
GW111318VW045	MW-84D2	Water	11/13/2018	10:50	X	X	X	X	X	
GW111318VW046	MW-84D1	Water	11/13/2018	11:10	X	X	X	X	X	
TB	-	Water	11/13/2018	-					X	Trip Blank
GW1120180049	MW-63I	Water	11/20/2018	16:30	X	X	X	X	X	
GW112018VW047	MW-58D	Water	11/20/2018	10:15	X	X	X	X	X	
GW112018VW048	MW-58D1	Water	11/20/2018	10:30	X	X	X	X	X	
TB	-	Water	11/20/2018	-					X	Trip Blank
TB	-	Water	11/20/2018	-					X	Trip Blank

Notes:

TOC - Total Organic Carbon
VOCs - Volatile Organic Compounds
- - Not applicable

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-58D	MW-58D1	MW-58D2	MW-59D1	MW-61D2	MW-63D1	MW-63D2
Sample Name:		GW112018VW047	GW112018VW048	GW11518VW003	GW11518VW004	GW111218VW040	GW11718VW029	GW11718VW030
Sample Date:		11/20/2018	11/20/2018	11/05/2018	11/05/2018	11/12/2018	11/07/2018	11/07/2018
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	1.67	1.38	2.70 J	1.00 U	0.41 J	1.00 U	1.00 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	2.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	2.29	3.28	2.65 J	1.00 U	1.00	1.00 U	1.00 U
1,1-Dichloroethene	µg/L	15.6	20.1	16.1	1.00 U	0.75 J	1.00 U	1.00 U
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	2.00 U	1.40 J	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
2-Hexanone	µg/L	2.00 U	2.00 U	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	2.00 U	2.00 U	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	4.47 J	5.97 J	50.0 U	10.0 U	10.0 U	4.55 J	5.17 J
Benzene	µg/L	1.32	0.54 J	5.00 U	0.42 J	1.00 U	1.00 U	1.00 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	2.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	1.00 U	1.00 U	5.00 UJ	1.00 U	1.00 U	1.00 U	1.00 U
Bromomethane (Methyl bromide)	µg/L	2.00 UJ	2.00 UJ	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon disulfide	µg/L	2.00 U	2.00 U	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 U	1.00 U	5.00 UJ	1.00 U	1.00 U	1.00 UJ	1.00 UJ
Chlorobenzene	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	2.00 U	2.00 U	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
Chloroform (Trichloromethane)	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	4.03	6.21	6.15	1.00 U	4.91	0.72 J	0.54 J
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	2.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	2.50 UJ	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	0.54 J	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride	µg/L	2.00 U	2.00 U	10.0 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	17.9	23.9	115	0.33 J	85.2	5.08	4.51
Toluene	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	2.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	319	522	436	1.57	61.6	2.70	2.47
Vinyl chloride	µg/L	1.00 U	1.00 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes (total)	µg/L	3.00 U	3.00 U	15.0 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-58D	MW-58D1	MW-58D2	MW-59D1	MW-61D2	MW-63D1	MW-63D2
Sample Name:		GW112018VW047	GW112018VW048	GW11518VW003	GW11518VW004	GW111218VW040	GW11718VW029	GW11718VW030
Sample Date:		11/20/2018	11/20/2018	11/05/2018	11/05/2018	11/12/2018	11/07/2018	11/07/2018
Parameters	**Unit**							
General Chemistry								
Ammonia-N	mg/L	1.06	1.14	0.54	4.15	-	0.05 U	0.05 U
Nitrate (as N)	mg/L	0.500 U	0.520	0.25	0.02 U	-	2.04	2.06
Nitrite (as N)	mg/L	0.500 U	0.500 U	0.053	0.113	-	0.500 U	0.500 U
Phosphorus	mg/L	0.017	0.010 U	0.043	0.043	-	0.043	0.027
Total organic carbon (TOC)	mg/L	1.43 J	20.0 UJ	1.1	1.2	-	1.00 U	1.00 U
Field Parameters								
Temperature, field	Deg C	14.3	12.56	15.02	13.46	-	20.41	18.07
Dissolved oxygen (DO), field	mg/L	1.31	3.26	4.4	3.18	-	4.9	5.06
Ferrous iron	mg/L	5.0	2.57	0.1	0.076	-	0.07	0
Oxidation reduction potential (ORP), field	millivolts	91	63	253	42	-	62	205
Conductivity, field	mS/cm	0.085	0.014	0.074	0.253	-	0.165	0.164
Turbidity, field	NTU	99.7	151	205	28.5	-	3.4	3
pH, field	s.u.	8	8.25	3.96	10.81	-	5.8	5.48

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-63I	MW-66D2	MW-67D	MW-67S	MW-68D	MW-68S	MW-70D1
Sample Name:		GW1120180049	GW11518VW010	GW11518VW008	GW11518VW009	GW11518VW005	GW11518VW006	GW11618VW013
Sample Date:		11/20/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/06/2018
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	1.00 U	0.30 J	1.00 U	1.00 U	1.00 UJ	0.48 J	1.00 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	1.00 U	1.93	0.47 J	3.28	2.27	2.01	1.00 U
1,1-Dichloroethene	µg/L	1.00 U	0.31 J	1.00 U	0.74 J	0.82 J	1.93	1.00 U
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
2-Hexanone	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	10.0 U	10.0 U	5.25 J	10.0 U	4.43 J	4.41 J	3.78 J
Benzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromomethane (Methyl bromide)	µg/L	2.00 UJ	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon disulfide	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 UJ	1.00 U	1.00 U
Chlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	1.22 J	2.00 U
Chloroform (Trichloromethane)	µg/L	1.00 U	0.31 J	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	0.82 J	1.00 U	1.00 U	4.19	0.42 J	2.80	1.00 U
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 UJ	0.50 U	0.50 U
Ethylbenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.02 J	1.00 U	1.00 U
Methylene chloride	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	7.09	10.9	1.00 U	51.3	3.75	67.4	1.00 U
Toluene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	5.21	12.0	0.40 J	51.4	9.34	83.3	1.00 U
Vinyl chloride	µg/L	1.00 U	1.00 U	1.00 U	1.21	1.00 U	27.9 J	0.51 J
Xylenes (total)	µg/L	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-63I	MW-66D2	MW-67D	MW-67S	MW-68D	MW-68S	MW-70D1
Sample Name:		GW1120180049	GW11518VW010	GW11518VW008	GW11518VW009	GW11518VW005	GW11518VW006	GW11618VW013
Sample Date:		11/20/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/06/2018
Parameters	**Unit**							
General Chemistry								
Ammonia-N	mg/L	0.09 J	1.36	0.37	-	0.89	0.73	1.00 U
Nitrate (as N)	mg/L	2.38	2.55	1.41	-	6.66	0.46	0.02 U
Nitrite (as N)	mg/L	0.500 U	0.052	0.068	-	0.390	0.206	0.010 U
Phosphorus	mg/L	0.010 U	0.010 U	0.028	-	0.010 U	0.010 U	0.010 U
Total organic carbon (TOC)	mg/L	1.29 J	1.8	1.0 U	-	1.0 U	1.0 U	1.5
Field Parameters								
Temperature, field	Deg C	10.15	13.14	13.73	-	13.42	13.37	14.27
Dissolved oxygen (DO), field	mg/L	13.98	6.4	2.62	-	1.59	1.79	2.08
Ferrous iron	mg/L	0	-	-	-	0.016	1.5	1.34
Oxidation reduction potential (ORP), field	millivolts	149	84	8	-	0	-36	72
Conductivity, field	mS/cm	0.088	0.16	0.097	-	0.187	0.125	0.051
Turbidity, field	NTU	320	911	16.3	-	167	139	48.5
pH, field	s.u.	7.11	7.21	7.15	-	7	6.92	9.48

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-70D2	MW-72D1	MW-72D2	MW-73D1	MW-73D2	MW-75D1	MW-75D2
Sample Name:		GW11618VW014	GW11618VW015	GW11618VW016	GW11618VW020	GW11618VW021	GW11618VW011	GW11618VW012
Sample Date:		11/06/2018	11/06/2018	11/06/2018	11/06/2018	11/06/2018	11/06/2018	11/06/2018
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 UJ
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
2-Hexanone	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	10.0 U	13.2	4.49 J	5.60 J	5.18 J	4.79 J	10.0 U
Benzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromomethane (Methyl bromide)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon disulfide	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 UJ
Chlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	0.85 J	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Chloroform (Trichloromethane)	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	0.52 J	1.00 U	33.6	1.00 U	0.71 J	0.75 J	0.85 J
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 UJ
Ethylbenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.71 J
Methylene chloride	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	1.00 U	1.00 U	74.9	1.25	4.46	1.25	1.00 U
Toluene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	1.19	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	1.00 U	1.00 U	9.49	1.00 U	1.67	1.11	0.86 J
Vinyl chloride	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	4.90
Xylenes (total)	µg/L	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-70D2	MW-72D1	MW-72D2	MW-73D1	MW-73D2	MW-75D1	MW-75D2
Sample Name:		GW11618VW014	GW11618VW015	GW11618VW016	GW11618VW020	GW11618VW021	GW11618VW011	GW11618VW012
Sample Date:		11/06/2018	11/06/2018	11/06/2018	11/06/2018	11/06/2018	11/06/2018	11/06/2018
Parameters	**Unit**							
General Chemistry								
Ammonia-N	mg/L	1.00 U	1.00 U	0.25 U	1.00 U	1.00 U	0.50 U	0.10 J
Nitrate (as N)	mg/L	0.02 U	0.02 U	0.27	0.02 U	0.06	0.02 U	0.02 U
Nitrite (as N)	mg/L	0.010 U	0.010 U	0.010 U	0.032	0.011	0.010 U	0.010 U
Phosphorus	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.014	0.010 U	0.010 U
Total organic carbon (TOC)	mg/L	3.0	1.0 U	1.0 U	3.7	1.6	4.1	1.1
Field Parameters								
Temperature, field	Deg C	14.13	13.47	14.29	15.04	15.17	15.29	14.81
Dissolved oxygen (DO), field	mg/L	1.75	2.51	1.97	2.94	3.24	2.14	1.87
Ferrous iron	mg/L	2.4	0.66	2.01	2.58	5	0.74	3.59
Oxidation reduction potential (ORP), field	millivolts	51	116	33	80	147	35	89
Conductivity, field	mS/cm	0.157	0.084	0.137	0.028	0.125	0.265	0.182
Turbidity, field	NTU	74.3	63.4	72	173	432	91.5	0
pH, field	s.u.	7.1	9.54	8.43	8.48	10.18	6.88	6.72

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-76D1	MW-76D2	MW-76I	MW-77D2	MW-81D1	MW-81D2	MW-82D1
Sample Name:		GW11618VW018	GW11618VW017	GW11618VW019	GW11718VW033	GW111318VW044	GW111318VW043	GW11718VW028
Sample Date:		11/06/2018	11/06/2018	11/06/2018	11/07/2018	11/13/2018	11/13/2018	11/07/2018
Parameters	**Unit**							
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 UJ	1.00 UJ	1.00 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.12	0.48 J	0.55 J	1.27
1,1-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	0.36 J	0.73 J	1.00 U	1.00 U
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	2.00 U	2.00 U	2.00 U	1.12 J	2.00 U	1.63 J	1.68 J
2-Hexanone	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	4.87 J	4.10 J	10.0 U	6.65 J	10.2	6.78 J	8.91 J
Benzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	1.00 U	1.00 U	1.00 UJ	1.00 U	1.00 U	1.00 U	1.00 U
Bromomethane (Methyl bromide)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon disulfide	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 U	1.00 U	1.00 UJ	1.00 UJ	1.00 U	1.00 U	1.00 UJ
Chlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	2.00 U	1.64 J	2.00 U	2.00 U	1.01 J	2.00 U	2.00 U
Chloroform (Trichloromethane)	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	0.50 J	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	0.42 J	0.68 J	1.00 U	5.94	29.0	2.00	0.50 J
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	1.53	1.40	1.36	66.2	90.7	4.09	1.16
Toluene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.51 J	0.74 J	0.75 J	13.3	107	0.65 J	1.12
Vinyl chloride	µg/L	0.40 J	1.00 U	1.00 U	1.00 U	0.43 J	1.00 U	1.00 U
Xylenes (total)	µg/L	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-76D1	MW-76D2	MW-76I	MW-77D2	MW-81D1	MW-81D2	MW-82D1
Sample Name:		GW11618VW018	GW11618VW017	GW11618VW019	GW11718VW033	GW111318VW044	GW111318VW043	GW11718VW028
Sample Date:		11/06/2018	11/06/2018	11/06/2018	11/07/2018	11/13/2018	11/13/2018	11/07/2018
Parameters	**Unit**							
General Chemistry								
Ammonia-N	mg/L	0.25 U	0.50 U	0.25 U	0.97	0.05 U	0.82	2.68
Nitrate (as N)	mg/L	0.06	0.02 U	0.02 U	1.00 U	1.00 U	1.00 U	1.00 U
Nitrite (as N)	mg/L	0.007 J	0.010 U	0.010 U	1.00 U	1.00 U	1.00 U	1.00 U
Phosphorus	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.033	0.121	0.014
Total organic carbon (TOC)	mg/L	1.0 U	1.0 U	1.4	10.0 U	0.810 J	2.46 J	5.00 U
Field Parameters								
Temperature, field	Deg C	14.45	14.11	-	17.94	16.63	16.68	17.92
Dissolved oxygen (DO), field	mg/L	1.64	2.84	-	3.33	5.12	1.95	1.04
Ferrous iron	mg/L	1.87	1.76	-	3.28	2.35	3.34	1.04
Oxidation reduction potential (ORP), field	millivolts	75	23	-	42	130	52	37
Conductivity, field	mS/cm	0.133	0.134	-	0.111	0.163	0.214	0.114
Turbidity, field	NTU	104	287	-	171	61.2	16.8	7.9
pH, field	s.u.	7.42	9.75	-	9.51	5.39	7.4	9.92

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-82D2	MW-83D1	MW-83D2	MW-84D1	MW-84D2	MW-85D1
Sample Name:		GW11718VW027	GW111218VW042	GW111218VW041	GW111318VW046	GW111318VW045	GW111218VW035
Sample Date:		11/07/2018	11/12/2018	11/12/2018	11/13/2018	11/13/2018	11/12/2018
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	1.00 U	1.00 U	0.26 J	1.00 UJ	1.00 UJ	1.00 UJ
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	6.34	0.35 J	0.96 J	1.00 U	0.38 J	5.07
1,1-Dichloroethene	µg/L	0.39 J	0.45 J	1.04	1.00 U	1.00 U	0.39 J
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	1.91 J	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
2-Hexanone	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	0.64 J	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	10.0 U	10.0 U	10.0 U	5.52 J	5.68 J	5.02 J
Benzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	0.37 J
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 UJ
Bromomethane (Methyl bromide)	µg/L	2.00 U	2.00 U	2.00 U	2.00 UJ	2.00 UJ	2.00 U
Carbon disulfide	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 UJ	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	2.00 U	0.45 J	2.00 U	2.00 U	2.00 U	6.48
Chloroform (Trichloromethane)	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	1.53	13.8	12.3	1.00 U	1.00 U	3.50
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	13.1	51.5	88.2	3.60	1.94	2.84
Toluene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	11.8	67.3	118	0.72 J	1.11	12.7
Vinyl chloride	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	3.22
Xylenes (total)	µg/L	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-82D2	MW-83D1	MW-83D2	MW-84D1	MW-84D2	MW-85D1
Sample Name:		GW11718VW027	GW111218VW042	GW111218VW041	GW111318VW046	GW111318VW045	GW111218VW035
Sample Date:		11/07/2018	11/12/2018	11/12/2018	11/13/2018	11/13/2018	11/12/2018
Parameters	**Unit**						
General Chemistry							
Ammonia-N	mg/L	0.05	0.12	0.10	0.07	0.10 U	0.10 U
Nitrate (as N)	mg/L	0.710	1.53	4.82	1.00 U	1.00 U	2.00 U
Nitrite (as N)	mg/L	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	2.00 U
Phosphorus	mg/L	0.087	0.156	0.099	0.233	0.360	0.051
Total organic carbon (TOC)	mg/L	1.00 U	10.0 U	0.653 J	1.77	0.967 J	2.52 J
Field Parameters							
Temperature, field	Deg C	17.51	15.2	15.15	14.56	14.19	19.24
Dissolved oxygen (DO), field	mg/L	6.52	6.44	5.61	4.39	7.68	4.63
Ferrous iron	mg/L	0.16	5	2.26	1.8	2.81	3.39
Oxidation reduction potential (ORP), field	millivolts	113	87	46	195	169	30
Conductivity, field	mS/cm	0.135	0.162	0.151	0.029	0.013	0.191
Turbidity, field	NTU	45	231	7.4	102	72.8	210
pH, field	s.u.	5.99	5.72	6.09	5.38	5.6	10.34

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-85D2	MW-85I	MW-86D1	MW-86D2	MW-87D1	MW-87D2
Sample Name:		GW111218VW034	GW111218VW036	GW11718VW032	GW11718VW031	GW11518VW001	GW11518VW002
Sample Date:		11/12/2018	11/12/2018	11/07/2018	11/07/2018	11/05/2018	11/05/2018
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	1.00 UJ	1.00 UJ	1.00 U	1.00 U	1.00 UJ	0.62 J
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	2.23	0.79 J	1.00 U	0.61 J	1.00 U	0.63 J
1,1-Dichloroethene	µg/L	1.00 U	0.35 J	1.00 U	0.94 J	1.00 U	1.90
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	2.00 U	1.34 J	2.00 U	2.00 U	2.00 U	2.00 U
2-Hexanone	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	4.28 J	5.46 J	6.46 J	7.32 J	10.0 U	10.0 U
Benzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 UJ
Bromoform	µg/L	1.00 UJ	1.00 UJ	1.00 U	1.00 U	1.00 U	1.00 UJ
Bromomethane (Methyl bromide)	µg/L	2.00 UJ	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon disulfide	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 U	1.00 U	1.00 UJ	1.00 UJ	1.00 UJ	1.00 UJ
Chlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	2.00 U	2.00 U	1.50 J	2.00 U	2.00 U	2.00 U
Chloroform (Trichloromethane)	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	0.45 J	1.00 U	2.35	12.0	4.09	23.1
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 UJ	0.35 J
Ethylbenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.82 J	1.00 U
Methylene chloride	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	2.31	3.70	2.18	10.7	57.4	731
Toluene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	4.90	2.58	4.70	141	27.0	85.7
Vinyl chloride	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes (total)	µg/L	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-85D2	MW-85I	MW-86D1	MW-86D2	MW-87D1	MW-87D2
Sample Name:		GW111218VW034	GW111218VW036	GW11718VW032	GW11718VW031	GW11518VW001	GW11518VW002
Sample Date:		11/12/2018	11/12/2018	11/07/2018	11/07/2018	11/05/2018	11/05/2018
Parameters	**Unit**						
General Chemistry							
Ammonia-N	mg/L	0.58	0.10 U	0.29	0.52	0.02 J	0.10 U
Nitrate (as N)	mg/L	2.00 U	2.00 U	1.00 U	1.00 U	1.25	3.49
Nitrite (as N)	mg/L	2.00 U	2.00 U	1.00 U	1.00 U	0.010 U	0.006 J
Phosphorus	mg/L	0.010 U	0.010 U	0.010 U	0.010 U	0.053	0.144
Total organic carbon (TOC)	mg/L	44.2	10.0 U	10.0 U	20.0 U	1.0 U	1.0 U
Field Parameters							
Temperature, field	Deg C	15.1	13.09	16.78	17.65	16.79	15.89
Dissolved oxygen (DO), field	mg/L	3.99	6.43	1.52	1.31	15.79	2.89
Ferrous iron	mg/L	4.44	4.46	4.47	3.2	0.017	0.09
Oxidation reduction potential (ORP), field	millivolts	152	57	38	152	195	277
Conductivity, field	mS/cm	0.206	0.214	0.116	0.133	0.133	0.164
Turbidity, field	NTU	740	670	99.7	62	42.4	80.2
pH, field	s.u.	7.69	8.2	9.74	9.54	6.83	5.15

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-88D1	MW-88D2	MW-89D1	MW-89D2	MW-90D1	MW-90D2
Sample Name:		GW11718VW026	GW11718VW025	GW111218VW038	GW111218VW037	GW11618VW023	GW11618VW022
Sample Date:		11/07/2018	11/07/2018	11/12/2018	11/12/2018	11/06/2018	11/06/2018
Parameters	**Unit**						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	1.00 U	1.00 U	0.41 J	1.00 UJ	1.00 U	1.00 UJ
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	µg/L	0.29 J	2.38	3.98	3.24	1.00 U	0.38 J
1,1-Dichloroethene	µg/L	1.00 U	0.55 J	20.1	0.31 J	1.00 U	1.00 U
1,2-Dichloroethane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.11	4.75
2-Hexanone	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Acetone	µg/L	5.75 J	5.79 J	10.0 U	5.43 J	10.0 U	10.0 U
Benzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	1.00 UJ	1.00 UJ	1.00 U	1.00 UJ	1.00 UJ	1.00 U
Bromomethane (Methyl bromide)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 UJ
Carbon disulfide	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Carbon tetrachloride	µg/L	1.00 UJ	1.00 UJ	1.00 U	1.00 U	1.00 UJ	1.00 UJ
Chlorobenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Chloroform (Trichloromethane)	µg/L	1.00 U	1.00 U	1.60	1.00 U	1.00 U	1.00 U
Chloromethane (Methyl chloride)	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
cis-1,2-Dichloroethene	µg/L	0.49 J	1.65	1.94	2.86	2.05	1.33
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Styrene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	µg/L	7.50	13.2	25.0	5.79	10.6	19.0
Toluene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	µg/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	2.67	24.1	13.7	5.26	4.59	11.3
Vinyl chloride	µg/L	1.00 U	1.00 U	0.98 J	1.00 U	1.00 U	1.00 U
Xylenes (total)	µg/L	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U

Table 2

Analytical Results Summary
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Location ID:		MW-88D1	MW-88D2	MW-89D1	MW-89D2	MW-90D1	MW-90D2
Sample Name:		GW11718VW026	GW11718VW025	GW111218VW038	GW111218VW037	GW11618VW023	GW11618VW022
Sample Date:		11/07/2018	11/07/2018	11/12/2018	11/12/2018	11/06/2018	11/06/2018
Parameters	**Unit**						
General Chemistry							
Ammonia-N	mg/L	0.06	1.52	0.10 U	0.10 U	-	-
Nitrate (as N)	mg/L	0.500 U	1.46	1.00 U	1.00 U	-	-
Nitrite (as N)	mg/L	0.500 U	1.00 U	1.00 U	1.00 U	-	-
Phosphorus	mg/L	0.020	0.033	0.010 U	0.051	-	-
Total organic carbon (TOC)	mg/L	5.00 U	5.00 U	0.796 J	3.25	-	-
Field Parameters							
Temperature, field	Deg C	16.76	14.49	17.71	16.48	-	-
Dissolved oxygen (DO), field	mg/L	6.67	2.14	1.98	4.7	-	-
Ferrous iron	mg/L	0.14	2.15	4.72	3.7	-	-
Oxidation reduction potential (ORP), field	millivolts	83	2	70	37	-	-
Conductivity, field	mS/cm	0.143	0.293	0.082	0.27	-	-
Turbidity, field	NTU	3.4	136	192	74.6	-	-
pH, field	s.u.	5.37	6.3	8.7	10.59	-	-

Notes:
J - Estimated concentration
U - Not detected at the associated reporting limit
UJ - Not detected; associated reporting limit is estimated
- - Not applicable

Table 3

Analytical Methods and Holding Time Criteria
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
TCL VOC	SW-846 8260 [1]	Water	-	14
Ammonia	E350.1 [3]	Water	-	28
Phosphorous	SM 4500P [2]	Water	-	28
Nitrate, Nitrite	E353.2 [3]	Water	-	48 hours
Total Organic Carbon (TOC)	SM 5310B [2]	Water	-	28

Notes:

TCL - Target Compound List
VOC - Volatile Organic Compound
- - Not applicable

[1] - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
[2] - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
[3] - "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983 with subsequent revisions
USEPA - United States Environmental Protection Agency

Table 4

Qualified Sample Results Due to Outlying Continuing Calibration Results
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Analyte	Calibration Date (mm/dd/yyyy)	%D	Associated Sample ID	Qualified Result	Units
VOCs	1,1,1-Trichloroethane	11/09/2018	34.6	GW11518VW001	1.00 UJ	µg/L
				GW11518VW005	1.00 UJ	µg/L
				GW11618VW012	1.00 UJ	µg/L
VOCs	Carbon tetrachloride	11/09/2018	46.2	GW11518VW001	1.00 UJ	µg/L
				GW11518VW005	1.00 UJ	µg/L
				GW11618VW012	1.00 UJ	µg/L
VOCs	Dibromochloromethane	11/09/2018	28.0	GW11518VW001	0.50 UJ	µg/L
				GW11518VW005	0.50 UJ	µg/L
				GW11618VW012	0.50 UJ	µg/L
VOCs	1,1,1-Trichloroethane	11/12/2018	27.3	GW11518VW002	0.62 J	µg/L
				GW11518VW003	2.70 J	µg/L
VOCs	Bromodichloromethane	11/12/2018	29.4	GW11518VW002	0.50 UJ	µg/L
				GW11518VW003	2.50 UJ	µg/L
VOCs	Bromoform	11/12/2018	42.4	GW11518VW002	1.00 UJ	µg/L
				GW11518VW003	5.00 UJ	µg/L
VOCs	Carbon tetrachloride	11/12/2018	42.6	GW11518VW002	1.00 UJ	µg/L
				GW11518VW003	5.00 UJ	µg/L
VOCs	Dibromochloromethane	11/12/2018	33.9	GW11518VW003	2.50 UJ	µg/L
				GW11518VW002	0.35 J	µg/L
VOCs	Bromoform	11/13/2018	50.8	GW11618VW019	1.00 UJ	µg/L
				GW11618VW023	1.00 UJ	µg/L
				GW11718VW025	1.00 UJ	µg/L
				GW11718VW026	1.00 UJ	µg/L

Table 4

Qualified Sample Results Due to Outlying Continuing Calibration Results
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Analyte	Calibration Date (mm/dd/yyyy)	%D	Associated Sample ID	Qualified Result	Units
VOCs	Carbon tetrachloride	11/13/2018	35.0	GW11618VW019	1.00 UJ	µg/L
				GW11618VW023	1.00 UJ	µg/L
				GW11718VW025	1.00 UJ	µg/L
				GW11718VW026	1.00 UJ	µg/L
VOCs	1,1,1-Trichloroethane	11/15/2018	26.9	GW11618VW022	1.00 UJ	µg/L
VOCs	Bromomethane (Methyl bromide)	11/15/2018	33.8	GW11618VW022	2.00 UJ	µg/L
VOCs	Carbon tetrachloride	11/15/2018	36.0	GW11618VW022	1.00 UJ	µg/L
VOCs	Carbon tetrachloride	11/13/2018	33.2	GW11718VW027	1.00 UJ	µg/L
				GW11718VW028	1.00 UJ	µg/L
				GW11718VW029	1.00 UJ	µg/L
				GW11718VW030	1.00 UJ	µg/L
				GW11718VW031	1.00 UJ	µg/L
				GW11718VW032	1.00 UJ	µg/L
				GW11718VW033	1.00 UJ	µg/L
VOCs	1,1,1-Trichloroethane	11/16/2018	27.8	GW111218VW034	1.00 UJ	µg/L
				GW111218VW035	1.00 UJ	µg/L
				GW111218VW036	1.00 UJ	µg/L
				GW111218VW037	1.00 UJ	µg/L
VOCs	Bromoform	11/16/2018	44.0	GW111218VW034	1.00 UJ	µg/L
				GW111218VW035	1.00 UJ	µg/L
				GW111218VW036	1.00 UJ	µg/L
				GW111218VW037	1.00 UJ	µg/L
VOCs	1,1,1-Trichloroethane	11/20/2018	27.1	GW111318VW045	1.00 UJ	µg/L
				GW111318VW046	1.00 UJ	µg/L

Table 4

Qualified Sample Results Due to Outlying Continuing Calibration Results
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Analyte	Calibration Date (mm/dd/yyyy)	%D	Associated Sample ID	Qualified Result	Units
VOCs	Bromomethane (Methyl bromide)	11/20/2018	41.9	GW111318VW045	2.00 UJ	µg/L
				GW111318VW046	2.00 UJ	µg/L
VOCs	1,1,1-Trichloroethane	11/19/2018	29.9	GW111318VW043	1.00 UJ	µg/L
				GW111318VW044	1.00 UJ	µg/L
VOCs	Bromomethane (Methyl bromide)	12/01/2018	46.2	GW112018VW047	2.00 UJ	µg/L
				GW112018VW048	2.00 UJ	µg/L
VOCs	Bromomethane (Methyl bromide)	12/03/2018	49.4	GW1120180049	2.00 UJ	µg/L

Notes:

%D - Percent difference
J - Estimated concentration
UJ - Not detected; associated reporting limit is estimated
VOCs - Volatile Organic Compounds

Table 5

Qualified Sample Results Due to Outlying LCS/LCSD Results
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS % Recovery	LCSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Associated Sample ID	Qualified Result	Units
VOCs	1,1,1-Trichloroethane	11/12/2018	142	127	11	70 - 130	20	GW11518VW002	0.62 J	µg/L
								GW11518VW003	2.70 J	µg/L
VOCs	Dibromochloromethane	11/12/2018	142	134	6	70 - 130	20	GW11518VW002	0.35 J	µg/L
VOCs	Vinyl chloride	11/13/2018	131	113	15	70 - 130	20	GW11518VW006	27.9 J	µg/L
								GW11618VW013	0.51 J	µg/L
								GW11618VW018	0.40 J	µg/L
General Chemistry	TOC	11/30/2018	77	-	-	85 - 115	-	GW112018VW047	1.43 J	mg/L
								GW112018VW048	20 UJ	mg/L
								GW1120180049	1.29 J	mg/L

Notes:

LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
RPD - Relative Percent Difference
J - Estimated concentration
UJ - Not detected; associated reporting limit is estimated
VOCs - Volatile Organic Compounds
- - Not applicable

Table 6

Qualified Sample Results Due to Outlying MS/MSD Results
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Sample ID	Analyte	MS % Recovery	MSD % Recovery	RPD (percent)	Control Limits % Recovery	Control Limits RPD	Qualified Result	Units
VOCs	GW111218VW034	Bromomethane (Methyl bromide)	67	68	1	70 - 130	20	2.00 UJ	µg/L

Notes:

MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
UJ - Not detected; associated reporting limit is estimated
VOCs - Volatile Organic Compounds

Table 7

Qualified Sample Data Due to Analyte Concentrations in the Field Blanks
Semiannual Groundwater Monitoring
Glenn Springs Holdings, Inc.
Hicksville, New York
November 2018

Parameter	Rinse Blank ID	Blank Date (dd/mm/yyyy)	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
VOCs	GW11718VW024	11/07/2018	Tetrachloroethene	0.41 J	GW11618VW012	0.97 J	1.00 U	µg/L
					GW11618VW014	0.33 J	1.00 U	µg/L
General Chemistry	GW11718VW024	11/07/2018	TOC	0.439 J	GW11718VW025	1.34 J	5.00 U	mg/L
					GW11718VW027	0.755 J	1.00 U	mg/L
					GW11718VW029	0.821 J	1.00 U	mg/L
					GW11718VW030	0.676 J	1.00 U	mg/L

Notes:

U - Not detected at the associated reporting limit
J - Estimated concentration
VOCs - Volatile Organic Compounds