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March 13, 2020

New Jersey Department of Environmental Protection
Bureau of Case Management
Mail Code 401-05F281107
P.O. Box 420
Trenton, NJ 08625-0420

Attn: Donna Gaffigan, Case Manager

Re: *Investigative Area- 6 Interim Remedial Measure Progress Report*
Hoffmann-La Roche Inc. Site
340 Kingsland Street
Nutley, New Jersey
SRP PI #s 009949
TRC Project No. 105009/198233

Dear Ms. Gaffigan:

On behalf of Hoffmann-La Roche Inc. (Roche), TRC Environmental Corporation (TRC) has prepared the enclosed *Investigative Area (IA)-6 Interim Remedial Measure (IRM) Progress Report*. The IA-6 IRM was implemented in 2017 and 2018 in accordance with the New Jersey Pollutant Discharge Elimination System (NJPDES) - Discharge to Groundwater (DGW) Authorizations, Modified Permit-By-Rule (PBR) dated October 25, 2017 for the ISCO injection program, New Jersey Department of Environmental Protection (NJDEP) air permits dated September 14, 2015 and March 8, 2017 and DGW PBR dated May 17, 2018 for the EISB injection program.

This addendum to the IA-6 IRM Progress Report presents the results of the Enhanced *In Situ* Bioremediation (EISB) 3-month and 6-month post-injection (April/May 2019 and July 2019) groundwater sampling rounds in accordance with the NJPDES DGW PBR authorization.

If you have any questions or need additional information, please contact Rebecca Hollender at 908-988-1710 or rhollender@trcsolutions.com.

Sincerely,

Rebecca Hollender, LSRP (No. 585022)
Principal Consultant
TRC Environmental Corporation

Cc: Chandra Patel, Roche
Dawn Pompeo, TRC

Nutley Site Remediation

Project No. 198233

Investigative Area 6 (IA-6)

IRM Progress Report Addendum: April/May & July 2019 Groundwater Sampling

NJDEP PI ID #009949

Revision: 0

Prepared For:

Hoffmann-La Roche Inc.
800 Bloomfield Avenue, Suite 127
Nutley, NJ 07110-1199
PI ID #009949

Prepared By:

TRC Environmental Corporation
41 Spring Street, Suite 102
New Providence, NJ 07974

March 13, 2020

HOFFMANN-LA ROCHE INC.

Investigative Area 6 (IA-6)
IRM Progress Report Addendum:
April/May and July 2019 Groundwater Sampling
Revision: 0
Date: 02/21/2020

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HOFFMANN-LA ROCHE INC.

Investigative Area 6 (IA-6)
IRM Progress Report Addendum:
April/May and July 2019 Groundwater Sampling
Revision: 0
Date: 01/07/20

1. INTRODUCTION

This Investigative Area 6 (IA-6) Interim Remedial Measure (IRM) Progress Report Addendum presents the results of Enhanced *In Situ* Bioremediation (EISB) 3-month and 6-month post-injection (April/May 2019 and July 2019) groundwater sampling rounds implemented in accordance with the New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Groundwater (DGW) Permit-by-Rule (PBR) authorization.[1] Details of the 2018 EISB injection program (methods, quantities, *etc*.) and monitoring activities completed through June 2018 were included in the IA-6 IRM Progress Report submitted to the New Jersey Department of Environmental Protection (NJDEP) on April 11, 2019 (TRC, 2019a). The purpose of this IRM Progress Report Addendum is to provide groundwater monitoring results for sampling events conducted as part of the IA-6 IRM since June 2018.The submittal of this IA-6 IRM Progress Report Addendum satisfies all reporting requirements set forth in the PBR. This submittal also includes an overall evaluation of the IRM effectiveness.

The site location map is provided as Figure 1; Figure 2 shows the IA-6 area and well locations, and the foundation plans for the newly constructed parking garage.

Prior groundwater elevation and quality data were compiled and evaluated for delineation using a groundwater elevation-based zone system, as discussed in the Groundwater Remedial Investigation Report (GWRIR) and Groundwater Progress Reports (GWPRs). Roche subsequently refined the vertical hydrostratigraphic zonation of the groundwater flow system into hydrogeologic units (HGUs), which refined the understanding of corresponding contaminant plumes and transport patterns at the Site. However, the elevation-based zones described above are used in this report to maintain consistency with previous IRM progress reports.

[1] The PBR specified that performance monitoring samples would be collected at pre-injection (baseline), 1 month, 3 months, and 6 months after injection. The pre-injection and 1-month samples were collected in May and June 2018, respectively. The 3-month and 6-month events were scheduled for August 2018 and November 2018, respectively. Before the 3-month event could be implemented, the current Site owner began construction of a multi-story parking garage, which required the decommissioning of the injection and monitoring wells. Replacement wells were installed in July 2018 and the 3-month and 6-month performance monitoring events were conducted in April/May and July 2019, respectively.

2. ABANDONMENT AND REPLACEMENT OF WELLS

To accommodate construction of a new multi-level parking garage, seven injection wells, one extraction well and five monitoring wells were decommissioned by a New Jersey-licensed driller in July 2018 prior to completion of two required PBR compliance groundwater sampling events (3-month and 6-month post-injection). To comply with the PBR requirements, 13 replacement wells were installed and developed in April 2019 after the ground floor slab of the garage was poured. Figure 2 shows the locations of the newly installed and former wells, as well as the foundation details for the parking garage. The as-built construction details and well logs for the replacement wells are included in Appendix A; the decommissioning reports, well permits, and Form As and Form Bs were submitted in the 6th Site-Wide Groundwater Progress Report (TRC, 2020).

3. GROUNDWATER SAMPLING

The redevelopment of the IA-6 area with the multi-level parking garage caused delays in completing two groundwater sampling rounds per the original PBR schedule. As soon as the replacement wells were installed and accessible, TRC completed these sampling rounds as described below.

To comply with the IA-6 PBR, the 3-month and 6-month post-injection groundwater sampling events were performed on April 30 and May 1, 2019, and on July 31, 2019, respectively. The groundwater monitoring and sampling network for each event consisted of the 13 replacement wells. Ten of the new replacement wells were vertically profiled the first time they were sampled to identify the zone of highest contaminant concentration within the saturated screened interval. The vertical groundwater profiling results were used to define the sampling depth targeting the highest contaminant concentration for subsequent sampling events. Table I shows the monitoring wells with the sampling depths and analyses targeted during the vertical profiling event.

The details of the groundwater sampling program for the 3-month and 6-month post-injection events are presented in Table II. In accordance with the approved DGW PBR groundwater monitoring plan, groundwater samples were collected via low-flow sampling methods as detailed in Table II.

4. GROUNDWATER RESULTS

The April/May 2019 and July 2019 (3-month and 6-month post-injection) groundwater analytical results and selected remediation and geochemical parameter results are presented in this section as well as in the following summary list of figures, tables, and appendices:

- **Figures 3A and 3B** present both baseline (July 2017) and most recent (July 2019) PCE isopleths for the Shallow and Intermediate Treatment Zones, respectively;

- **Figures 4A and 4B** present both baseline (July 2017) and most recent (July 2019) TCE isopleths for Shallow and Intermediate Treatment Zones, respectively;
- **Figures 5Aand 5B** present both baseline (July 2017) and most recent (July 2019) c-DCE isopleths for Shallow and Intermediate Treatment Zones, respectively;
- **Figures 6A and 6B** present both baseline (July 2017) and most recent (July 2019) VC isopleths for Shallow and Intermediate Treatment Zones, respectively;
- **Figures 7A and 7B** present both baseline (July 2017) and most recent (July 2019) chlorobenzene (CB) isopleths for Shallow and Intermediate Treatment Zones, respectively;
- **Tables III, IV, V and VI** present the summary of VOCs, Metals & General Chemistry, Volatile Fatty Acids (VFAs), and Dissolved Gases groundwater analytical results, respectively;
- **Table VII** presents the summary of biological parameters in groundwater;
- **Table VIII** presents the field groundwater quality parameters (GWQPs);
- **Appendix B** provides the low-flow groundwater sampling calculations and measurements;
- **Appendix C** provides the groundwater concentration (PCE+ and CB) trend graphs; and
- **Appendix D** provides laboratory data reports and Electronic Data Deliverables/Electronic Data Submission (EDD/EDS).

4.1 Chlorobenzene (CB)

As described in the IA-6 IRM Progress Report (TRC, 2019a), prior to the EISB injection program, Roche designed and implemented an Advanced Remediation Technologies In-Well Air Stripping and In Situ Chemical Oxidation (ART-IWAS/ISCO) IRM from May 2016 to June 2018 to remediate high chlorobenzene (CB) concentrations. The ART-IWAS/ISCO remedial system successfully lowered CB concentrations below the Groundwater Quality Standard (GWQS) of 50 µg/L throughout the former plume extent. Since then, CB concentrations in some wells rebounded to levels above the GWQS in two wells. During the most recent sampling event (July 2019), IW-197A (which replaced IW-109A), and IW-198A (which replaced IW-110A) were the only wells that showed CB concentrations above the GWQS of 50 µg/L in the Shallow Zone. CB concentrations ranged from non-detect (ND) to 380 µg/L in the Intermediate Zone in July 2019.

Roche believes the most likely explanation for the detection of CB above the GWQS, after the previous ART-IWAS/ISCO system had reduced concentrations below the GWQS, is that the installation of the new replacement wells disturbed the previously-existing equilibrium and partitioned VOC mass into the dissolved phase that was previously sorbed to, or diffused into, the bedrock matrix. As will be discussed

below, based on previous experience at the Site, Roche believes these concentration increases are transient, and CB concentrations will decline over time.

4.2 Tetrachloroethene (PCE)

The July 2019 sample results indicate that concentrations of PCE and its degradation products (trichloroethene [TCE], *cis*-1,2-dichloroethene [*cis*-1,2 DCE] and vinyl chloride [VC]), which are collectively referred to as PCE+, were all below the GWQSs at eight of the 13 wells within the treatment zone: IW-195A, IW-196A, IW-200A, MW-505A, MW-506B, MW-507C, MW-508A, and MW-508B. One or more of the target PCE+ constituent concentrations were above GWQS at the remaining five wells within the IRM treatment zone: IW-197A, IW-198A, IW-199B, MW-504B and EW-6B. Most of these exceedances were just slightly above the GWQS.

The effectiveness of EISB for the remediation of PCE in groundwater throughout the targeted treatment area was demonstrated through multiple lines of evidence:

- The parent compound, PCE, has been biologically degraded and is no longer present at concentrations above the NJDEP GWQS. The primary PCE degradation product detected in groundwater was VC, which is the final degradation product before complete reductive dechlorination.
- Individual target constituent trends show clear evidence of biological reductive dechlorination, with initial conversion of PCE to daughter products (TCE, *cis*-1,2-DCE and VC), followed by complete degradation of these daughter compounds to ethene and ethane.
- Anaerobic and reducing geochemical conditions, which are necessary to support ongoing biological reductive dechlorination, are present within the Shallow and Intermediate Treatment Zones.

4.3 Other VOCs

The July 2019 post-injection analytical results indicate that benzene concentrations were above the GWQS of 1 µg/L at seven wells: EW-6B, IW-197A, IW-198A, IW-199B, MW-504B, MW-506B and MW-508B. In the Shallow Treatment Zone, benzene concentrations ranged from ND to 47 µg/L. Benzene concentrations ranged from ND to 27 µg/L in the Intermediate Treatment Zone.

1,4-Dioxane (dioxane) was detected in wells MW-504B (previously MW-346B), MW-506B (previously MW-350B), and MW-507C (previously MW-350C) at concentrations above the GWQS of 0.4 µg/L during the 3-month and 6-month post-injection groundwater sampling events. The IA-6 IRMs were not designed to remove the low levels of dioxane found in IA-6 groundwater. Dioxane concentrations are

addressed as part of the MNA program for a different IRM area (the IA-1/4 Dioxane Plume). Therefore, dioxane is not discussed further in this IRM Progress Report Addendum.

4.4 Remediation and Geochemical Parameters

As shown in Table IV, TOC concentrations have been showing decreasing trends since June 2018 (1-month post-injection). The July 2019 sampling results indicate that TOC concentrations were low, ranging from 7.2 milligrams per liter (mg/L) to 46 mg/L, throughout the treatment area wells. This suggests that most of the organic carbon injected during the EISB injection program conducted in May 2018 was consumed by microbial activity or the remaining organic carbon is not present in the dissolved phase.

The highest concentrations of dissolved iron (6,900 µg/L) and dissolved manganese (1,720 µg/L) were observed in IW-195A (previously ART-75) and in EW-6B (previously ART-77), respectively, in July 2019. These dissolved iron and dissolved manganese concentrations are indicative of a reducing environment. The July 2019 (6-month post-injection) results show that sulfate concentrations remained elevated, ranging from 26.4 mg/L to 154 mg/L. Sulfate can also serve as an electron acceptor for benzene, toluene, ethylbenzene and xylene (BTEX) biodegradation in-situ as sulfate provides a substantially higher electron-accepting capacity relative to oxygen.

4.5 Field Groundwater Quality Parameters

Field groundwater quality parameters were collected during each low-flow groundwater monitoring event. The field parameters temperature, specific conductance, and turbidity were used during purging to ensure that representative groundwater samples were collected. These parameters are not significantly affected by the IRM activities, and as such, they are not discussed further in regard to remedial performance. The remainder of the field parameters (pH, DO, and ORP) can provide direct evidence of changes to geochemical conditions within the aquifer that affect the degradation pathways of the target constituents. As shown in Table VIII, the following favorable trends were observed during the 6-month post-injection groundwater sampling event:

- The pH measurements at monitoring wells within the target treatment area ranged from 6.85 to 7.68 s.u., which falls within the amenable range (5 to 9 standard units ([s.u.]) for PCE reductive dechlorination (USEPA, 1998).
- Baseline ORP levels were positive at most treatment area wells, indicative of oxidizing conditions. ORP levels ranged between -211 mV and -12 mV during the post-injection monitoring events, an indication that the injections made the groundwater system reducing, which is amenable to reductive dechlorination of PCE (USEPA, 1998).

- The DO levels ranged from 0 to 1.95 mg/L at target treatment area wells, which demonstrates a range of anaerobic to mildly aerobic conditions.

5. CONCLUSIONS

Based on the previous and most-recent groundwater monitoring results, the EISB treatment demonstrated significant, steady, and sustained decreases in PCE concentrations within the treatment areas in the Shallow and Intermediate Treatment Zones. The monitoring data indicate that the installation of new replacement wells resulted in an increase in CB and benzene concentrations. Roche believes these increases are transient. 1,4-dioxane groundwater impacts above the GWQS are being addressed via MNA, and progress will be monitored through the Site-Wide MNA monitoring program as proposed in the December 2019 Site-Wide Groundwater Remedial Action Work Plan (TRC, 2019b). No further groundwater sampling associated with this PBR is anticipated. No further IRM activities are proposed for IA-6.

6. REFERENCES

USEPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water. EPA Office of Research and Development. EPA/600/R-98/128. September 1998

TRC and B. Kueper & Associates, 2018. Site-Wide Groundwater Conceptual Site Model Report for the Hoffmann-La Roche Inc. Site. January 2018

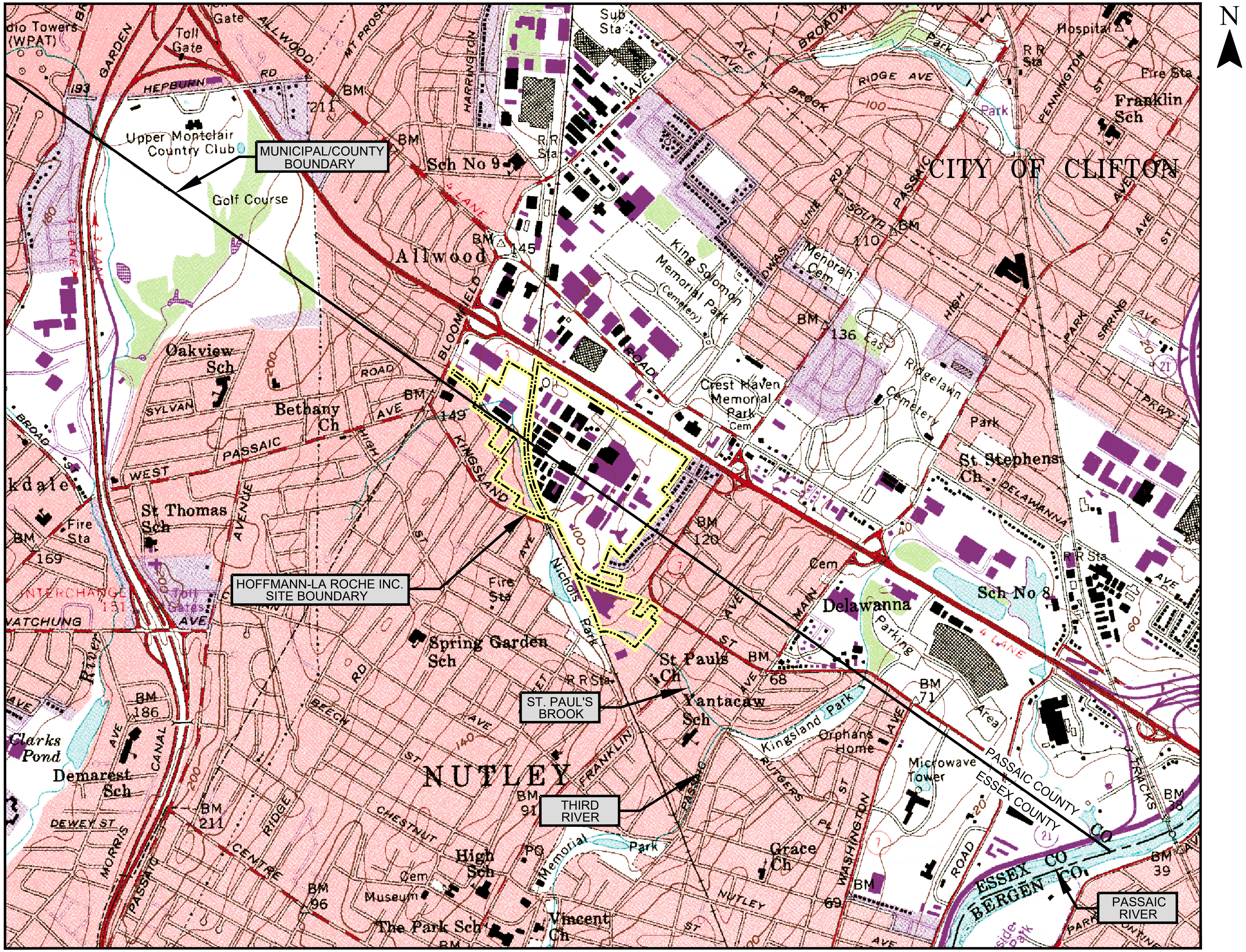
TRC, 2019a. Investigative Area – 6 Interim Remedial Measure Progress Report, Hoffmann-La Roche Inc. Site, April 2019.

TRC, 2019b. December 2019 Groundwater Remedial Action Workplan Report for the Hoffmann-La Roche Inc. Site, Nutley, New Jersey. NJDEP PI No. 009949, 614465, 625447. December 16, 2019.

TRC, 2020. Hoffman-LaRoche, Inc. Nutley Facility, Site-wide Groundwater Progress Report, January 2020.

FIGURES

FIGURE 1
SITE LOCATION MAP

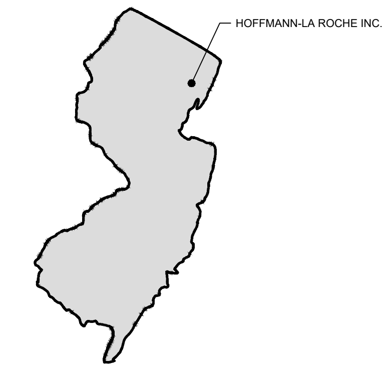


BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES
ORANGE, N.J. 1955, PHOTOREVISED 1981

SCALE

0 750 1500

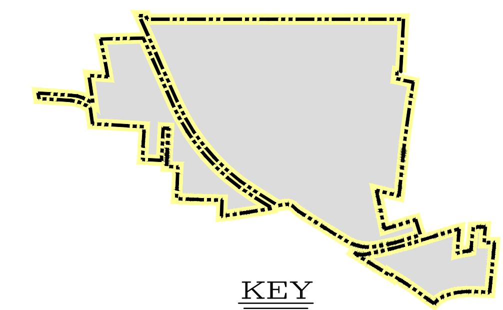
1 INCH = 1500 FEET



KEY MAP

CENTER OF FACILITY

(0,0 PLANT GRID SYSTEM)
LAT.: 40° 50' 03.7"
LONG.: 74° 09' 21.9"



KEY

HOFFMANN–LA ROCHE INC. SITE BOUNDARY LIMITS

GEODETIC DATA

(FOR THE PLANT CENTROID)

N.A.D. 1927 ADJUSTMENT	N.A.D. 1983 ADJUSTMENT
LATITUDE/LONGITUDE	LATITUDE/LONGITUDE
LAT.: 40° 50' 03.7"	LAT.: 40° 50' 04.08"
LONG.: 74° 09' 21.9"	LONG.: 74° 09' 20.45"
N.J. STATE PLANE COORDINATES	N.J. STATE PLANE COORDINATES
NORTH: 729,307.93	NORTH: 729,078.36
EAST: 2,141,288.07	EAST: 587,396.30

PROJECT:

ROCHE NUTLEY REMEDIATION SITE

TITLE:

SITE LOCATION MAP

DRAWN BY:	M. GIAMBATTISTA	PROJ NO.:	198233
CHECKED BY:	S. CROSBY	FIGURE 1	
APPROVED BY:	J. BRUMMER-JECKO		
DATE:	FEBRUARY 2020		

TRC

41 Spring Street
Suite 102
New Providence, NJ 07974
Phone: 908.988.1700

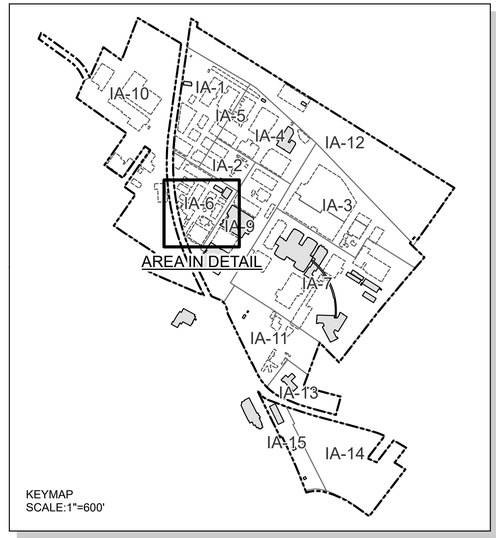
FILE NO.: FIGURE 1 - SITE LOCATION MAP REV4.dwg

DRAWING NAME: M:\Cad Files\Vision Projects\105009\ FIGURE 1 - SITE LOCATION MAP REV4.dwg --- PLOT DATE: February 25, 2020 - 9:29AM --- LAYOUT: IRM FIGURE 1

Version: 2017-10-21

FIGURE 2

REPLACEMENT WELL LOCATIONS AND FOUNDATION DETAILS FOR THE PARKING GARAGE



N

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- UTILITY TUNNEL
- REPLACEMENT WELL LOCATION
- ABANDONED WELL LOCATION
- FOUNDATION WALL
- EXTERIOR FOOTER
- INTERIOR FOOTER
- FOUNDATION GRID

NOTES:

1. REFER TO APPENDIX A FOR THE CONSTRUCTION DETAILS OF THE REPLACEMENT WELLS.

30 15 0 30 Feet

PROJECT: ROCHE NUTLEY REMEDIATION

TITLE: REPLACEMENT WELL LOCATIONS AND FOUNDATION DETAILS FOR THE PARKING GARAGE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	Y. KUNUKCU		
APPROVED BY:	K. ROBBINS		FIGURE 2
DATE:	DECEMBER 2019		

TRC ENVIRONMENTAL CORP.
41 Spring Street, Suite 102
New Providence, New Jersey 07974
908-988-1700

FILE NO.: IA-6_Replacement Well Locations and Foundations Details.mxd

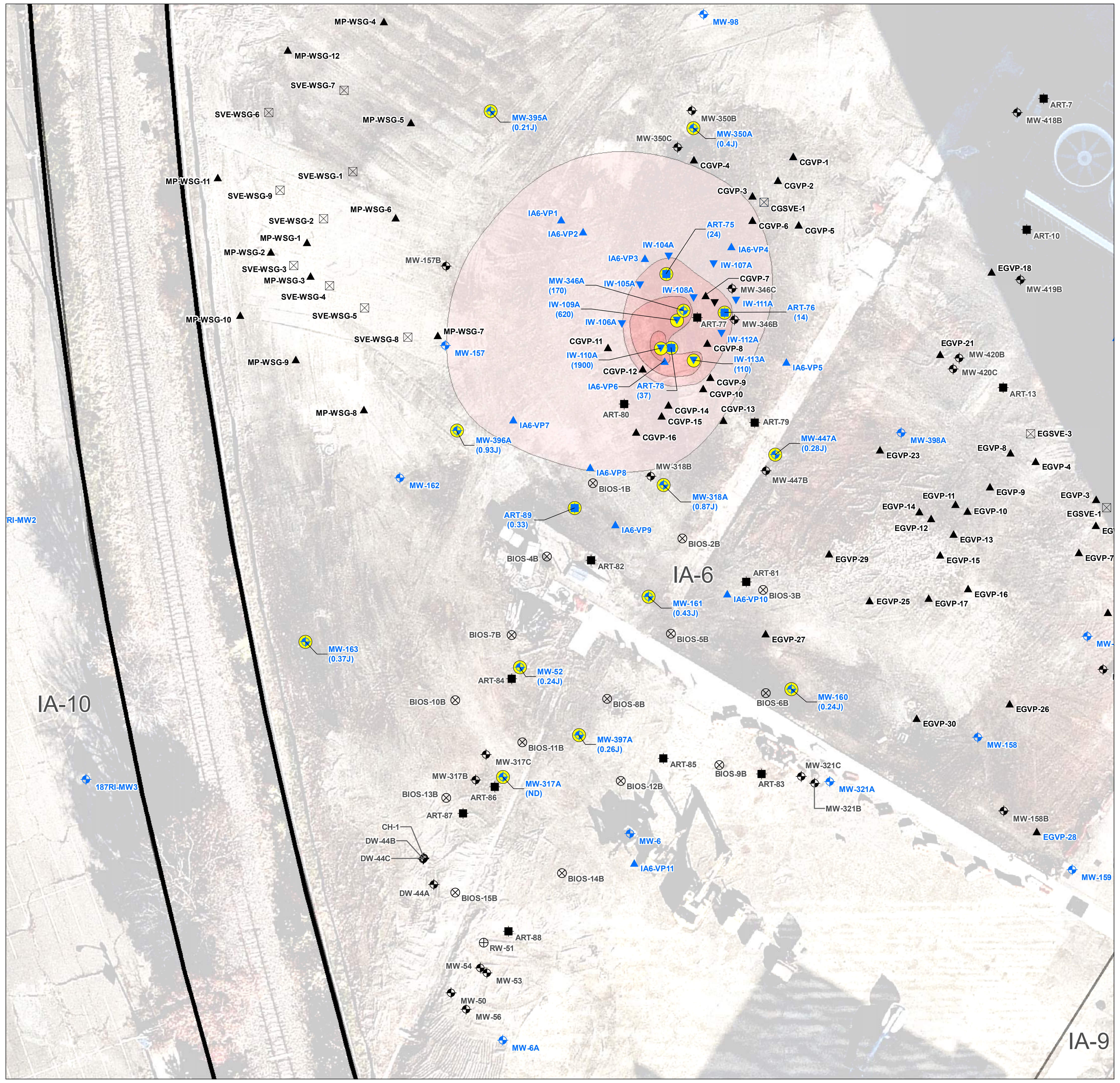
Plot Date: 2/25/2020, 09:15:22 AM by LBOCHKIS – LAYOUT: ANSI D (27"x34")
Path: M:\ArcGIS Files\198233\mxd\ AOC\2019\IA-6_Replacement Well Locations and Foundations Details.mxd

Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Foot US)
Map Rotation: 0

TRC_GIS

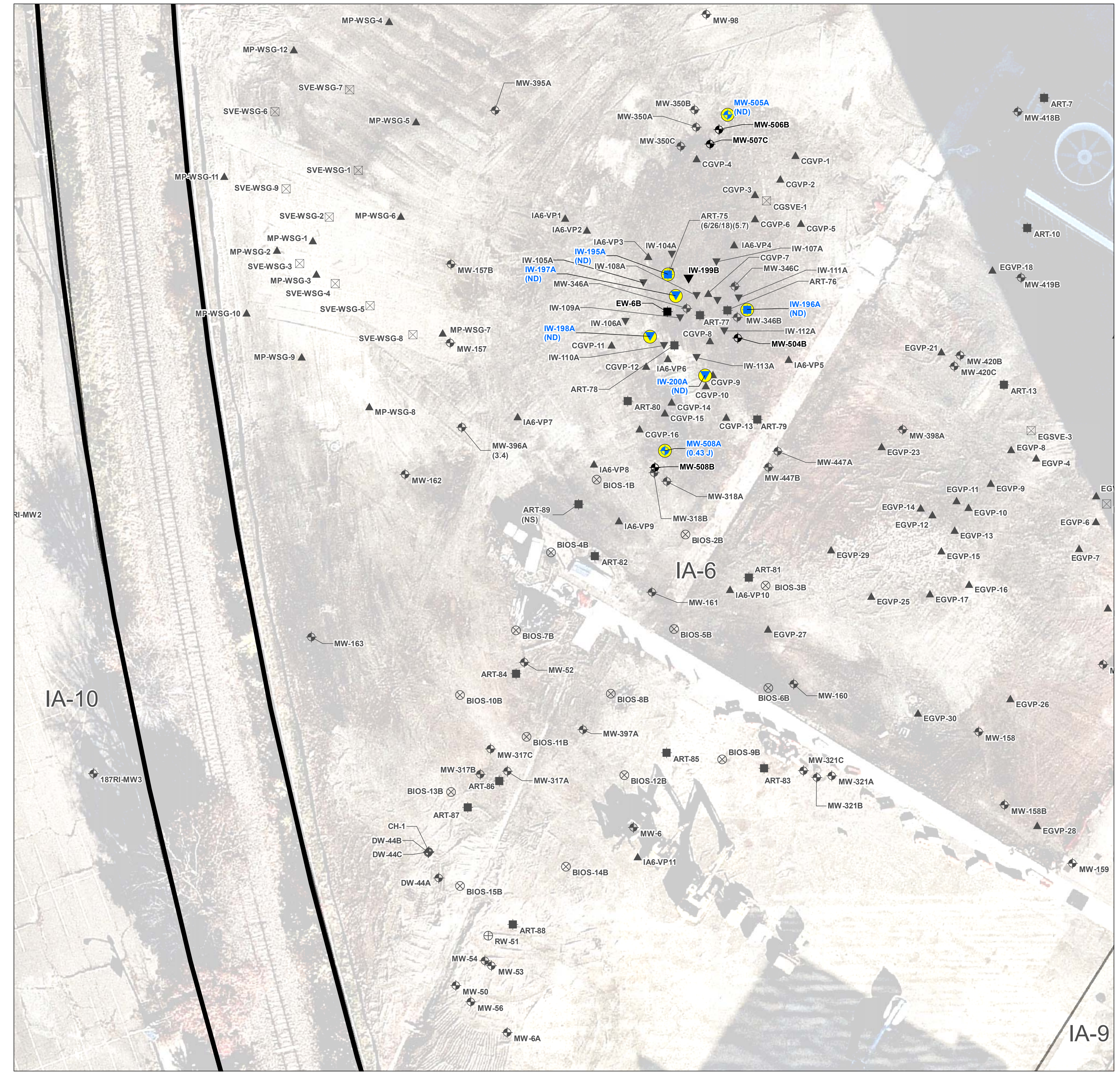
FIGURE 3
PCE ISOCONCENTRATION CONTOURS

BASELINE - JULY 2017



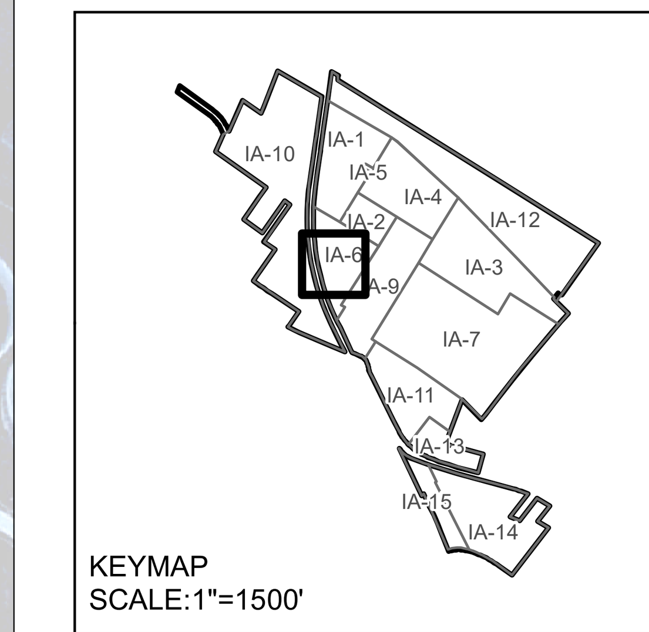
0 30 60 Feet

MOST RECENT*



0 30 60 Feet

N



KEYMAP
SCALE:1"=1500'

ART-75/ IW-195A	Depth	PCE
04/07/16	22.48	**71.8**
01/10/17	16.5	**33**
03/22/17	16.5	NE (0.83 J)
04/13/17	16.5	NE (0.41 J)
7/26/2017 - Baseline	16.5	**24**
10/05/17	16.5	**3.7**
01/11/18	16.5	**99**
03/16/18	16.5	**120**
04/05/18	16.5	**79**
05/18/2018	16.5	**110**
05/31/18	16.5	**46**
06/26/18	16.5	**5.7**
05/01/19	7.7	**3.3**
05/01/19	12.7	**4.5**
05/01/19	17.7	**7.7**
05/01/19	22.7	**6.8**
05/01/19	27.7	**5.5**
07/20/19	22.7	ND (<0.25)

ART-76/ IW-196A	Depth	PCE
04/06/16	22.88	ND (<0.4)
7/26/2017 - Baseline	23	**14**
05/18/2018	16.5	**22**
05/31/18	16.5	**6.7**
06/26/18	16.5	**3.4**
04/30/19	7.0	NE (0.37 J)
04/30/19	17.0	ND (<0.25)
04/30/19	22.0	ND (<0.25)
04/30/19	27.0	ND (<0.25)
07/20/19	17.0	ND (<0.25)

ART-78	Depth	PCE
04/07/16	22.81	**7.1**
01/10/17	16.5	**48.0**
03/22/17	16.5	**6.9**
04/12/17	16.5	**9.5**
7/26/2017 - Baseline	16.5	**37.0**
10/05/17	16.5	NE (0.57 J)
01/11/18	16.5	**490.0**
02/20/18	16.5	**210.0**
03/16/18	16.5	**71.0**
04/05/18	16.5	**26.0**
05/18/2018	16.5	**91.0**
05/31/18	16.5	**14.0**
06/26/18	16.5	**1.6**

ART-89	Depth	PCE
04/06/16	22.37	ND (<0.4)
7/27/2017 - Baseline	22.37	NE (0.33 J)

IW-109A/ IW-197A	Depth	PCE
7/28/2017 - Baseline	27.5	**620**
02/20/18	27.5	**590**
05/18/18	27.5	**440**
05/31/18	27.5	**22**
04/30/19	25.0	**5.3**
07/20/19	25.0	ND (<0.50)

IW-110A/ IW-198A	Depth	PCE
7/28/2017 - Baseline	27.5	**1900**
02/20/18	27.5	**250**
05/18/18	27.5	**380**
05/31/18	27.5	**31**
06/26/18	27.5	**4.8**
04/30/19	25.5	ND (<0.25)
07/20/19	25.5	ND (<0.25)

IW-113A/ IW-200A	Depth	PCE
7/28/2017 - Baseline	27.5	**110**
05/21/18	27.5	**82**
06/26/18	27.5	**4**
05/01/19	25.0	ND (<0.25)
07/20/19	25.0	ND (<0.25)

MW-160	Depth	PCE
04/05/16	14.8	ND (<0.4)
06/13/16	14.8	ND (<0.23)
10/24/16	14.5	ND (<0.12)
01/10/17	14.5	ND (<0.12)
04/12/17	14.5	ND (<0.12)
7/26/2017 - Baseline	14.5	NE (0.24 J)
10/05/17	14.5	ND (<0.12)
01/11/18	14.5	NE (0.4 J)
04/06/18	14.5	ND (<0.12)

MW-161	Depth	PCE
04/05/16	12	NE (0.67 J)
06/14/16	12	NE (0.8 J)
10/24/16	12	NE (0.47 J)
1/10/2017	12	NE (0.72 J)
04/12/17	12	NE (0.23 J)
7/26/2017 - Baseline	12	NE (0.43 J)
10/05/17	12	**1**
01/11/18	12	NE (0.51 J)
04/05/18	12	**6.5**

MW-163	Depth	PCE
04/06/16	14.58	**1.3**
06/15/16	14.60	ND (<0.23)
10/25/16	14.60	ND (<0.12)
04/12/17	14.60	ND (<0.12)
7/26/2017 - Baseline	14.60	NE (0.37 J)
10/05/17	14.60	ND (<0.12)
01/11/18	14.60	NE (0.29 J)
04/06/18	14.60	ND (<0.12)

MW-317A	Depth	PCE
04/05/16	12.85	ND (<0.4)
06/14/16	12.85	ND (<0.23)
10/25/16	12.85	ND (<0.12)
01/10/17	12.85	ND (<0.12)
04/12/17	12.85	ND (<0.12)
7/26/2017 - Baseline	12.85	ND (<0.12)
10/05/17	12.85	ND (<0.12)
01/11/18	12.85	ND (<0.12)
04/06/18	12.85	ND (<0.12)

MW-318A/ MW-508A	Depth	PCE
04/05/16	11.74	**1.5**
06/15/16	11.74	NE (0.38 J)
10/24/2016	11.74	**2**
01/09/17	11.74	NE (0.75 J)
04/12/17	11.74	NE (0.91 J)
7/26/2017 - Baseline	11.74	NE (0.87 J)
10/05/17	11.74	**1.6**
11/7/2017	10.00	ND (<0.12)
01/11/18	11.74	**9.4**
01/23/18	10.00	**3.1**
02/20/18	10.00	**7.0**
03/16/18	11.74	**26.0**
04/05/18	11.74	**12.0**
05/21/2018	10.00	**4.7**
08/02/18	10.00	**1.4**
08/30/18	10.00	**1.6**
09/17/18	10.00	**2.4**
05/01/19	9.70	NE (0.37 J)
05/01/19	13.0	NE (0.40 J)
07/20/19	9.70	NE (0.43)

MW-346A	Depth	PCE
04/05/16	13.1	ND (<2.0)
06/13/16	13.1	**50.5**
10/25/16	13.1	**97**
01/10/17	13.1	**110**
03/22/17	13.1	**19.6**
04/12/17	13.1	**6.7**
7/26/2017 - Baseline	13.1	**170**
10/05/17	13.1	**58**
11/7/2017	11.0	**51**
01/11/18	13.1	**280**
01/23/18	11.0	**380**
02/20/18	13.1	**140**
03/16/18	13.1	**130**
04/05/18	13.1	**420**
05/21/2018	10.5	**55**
06/26/18	10.5	**5.6**

MW-350A/MW-505A	Depth	PCE
04/05/16	11.4	NE (0.5 J)
10/24/16	11.4	NE (0.21 J)
01/09/17	11.4	NE (0.31 J)
04/12/17	11.4	ND (<0.12)
7/26/2017 - Baseline	11.4	NE (0.4 J)
10/05/17	11.4	ND (<0.12)
01/11/18	11.4	ND (<2.3)
04/05/18	11.4	NE (0.87 J)
05/21/2018	10.5	NE (0.34 J)
04/30/2019	5.5	ND (<0.25)
04/30/2019	10.5	ND (<0.25)
07/20/2019	10.5	ND (<0.25)

MW-395A	Depth	PCE
04/06/16	12.5	ND (<0.4)
06/14/16	12.5	NE (0.6 J)
10/24/2016	12.5	NE (0.9 J)
04/13/17	12.5	NE (0.29 J)
7/26/2017 - Baseline	12.5	NE (0.21 J)
10/05/17	12.5	NE (0.31 J)
01/11/18	12.5	NE (0.2 J)
04/06/18	12.5	ND (<0.12)

MW-396A	Depth	PCE
04/05/16	11	ND (<0.40)
6/15/2016	11	**2**
10/24/16	11	NE (0.62 J)
04/13/17	11	**1.1**
7/26/2017 - Baseline	11	NE (0.93 J)
10/05/17	11	NE (0.24 J)
01/11/18	11	**12**
04/05/18	11	**3.4**

MW-397A	Depth	PCE
04/05/16	16	ND (<0.4)
06/15/16	16	ND (<0.23)
10/25/16	16	ND (<0.34)
01/09/17	16	ND (<0.12)
04/12/17	16	ND (<0.12)
7/26/2017 - Baseline	16	NE (0.26 J)
10/05/17	16	NE (0.15 J)
01/11/18	16	NE (0.19 J)
04/06/18	16	ND (<0.12)

MW-447A	Depth	PCE
04/06/16	12.3	ND (<0.4)
6/15/2016	12.3	NE (0.42 J)
10/24/16	12.3	ND (<0.12)
01/10/17	12.3	NE (0.42 J)
04/12/17	12.3	NE (0.34 J)
7/26/2017 - Baseline	12.3	NE (0.28 J)
10/05/17	12.3	NE (0.16 J)
11/7/2017	10.0	ND (<0.12)
01/11/18	12.3	ND (0.83 J)
1/23/2018[D]	10.0	**3.6**
2/20/2018	10.0	**2.7**
03/16/18	12.3	**2.2**
04/05/18	12.3	**1.8**

MW-52	Depth	PCE
4/6/2016	25	ND (<0.4)
06/14/16	25	ND (<0.23)
10/25/16	25	ND (<0.12)
01/10/17	25	ND (<0.12)
04/12/17	25	NE (0.13 J)
7/26/2017 - Baseline	25	NE (0.24 J)
10/05/17	25	ND (<0.12)
11/7/2017	25	ND (<0.12)
01/11/18	25	NE (0.41 J)
01/23/18	25	NE (0.26 J)
02/20/18	25	ND (<0.12)
04/05/18	25	ND (<0.12)

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- SHALLOW TREATMENT ZONE

PCE ISOCONCENTRATION CONTOURS (ug/L)

- >1 AND ≤ 10
- >10 AND ≤ 100
- >100 AND ≤ 1000
- > 1000

ABBREVIATION	GWQS (µg/L)	COMPOUND
PCE	1	Tetrachloroethene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. SHALLOW TREATMENT ZONE - ~100 - 80 FEET ABOVE MEAN SEA LEVEL
5. DEPTH – FEET BELOW GROUND SURFACE
6. NE - NO EXCEEDANCE
7. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
8. ND - NOT DETECTED
9. *MOST RECENT DATA IS JULY 2019
10. **NOT INCLUDED IN PLUME DATA
11. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
12. NS - NOT SAMPLED
13. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

PROJECT: ROCHE NUTLEY SITE REMEDIATION

TITLE: PCE ISOCONCENTRATION CONTOURS - SHALLOW TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA	FIGURE 3A	
APPROVED BY:	Y. KUNUKCU		
DATE:	DECEMBER 2019		

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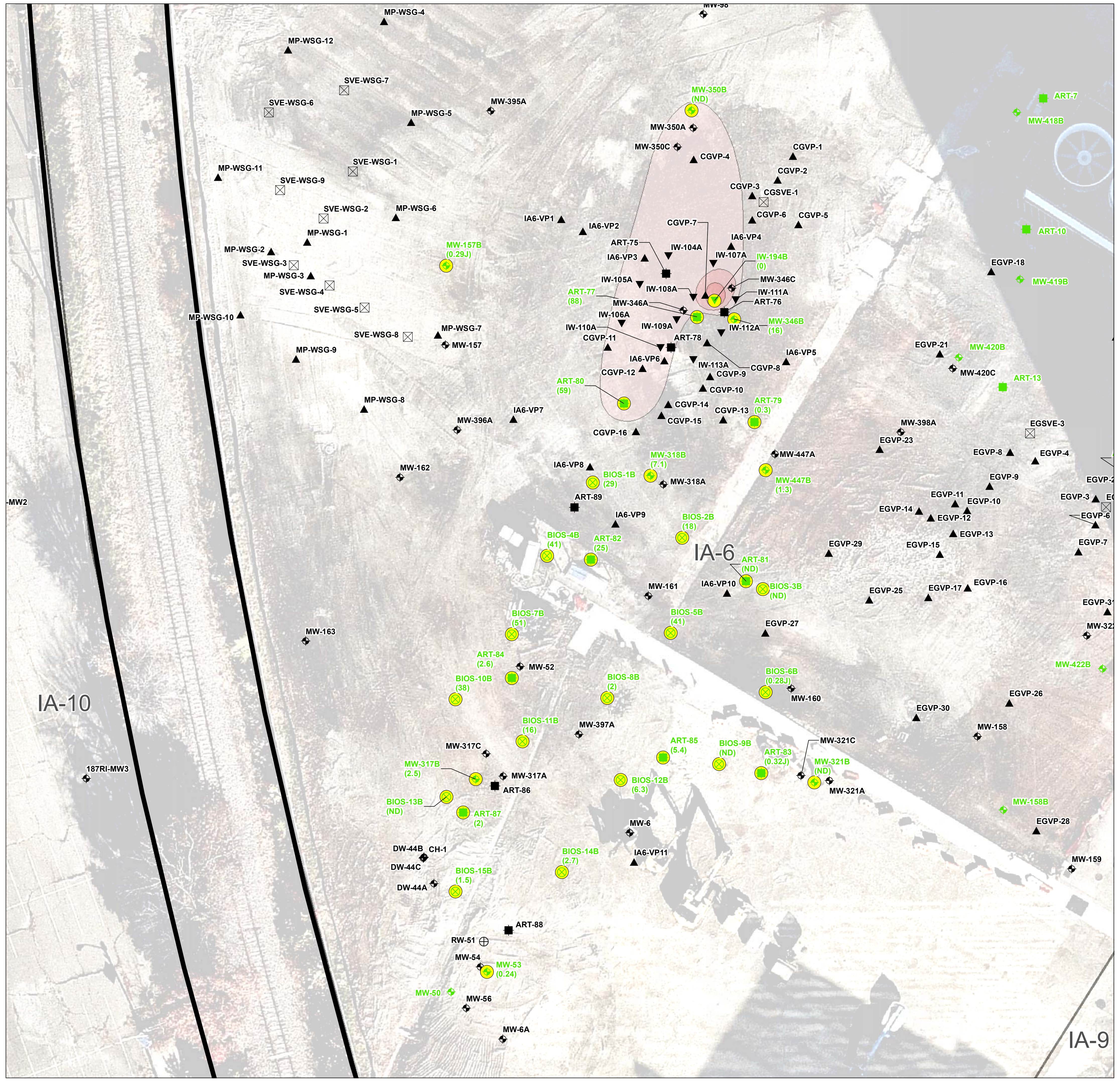
FILE NO.: IA-6_PCE_Shalllow.mxd

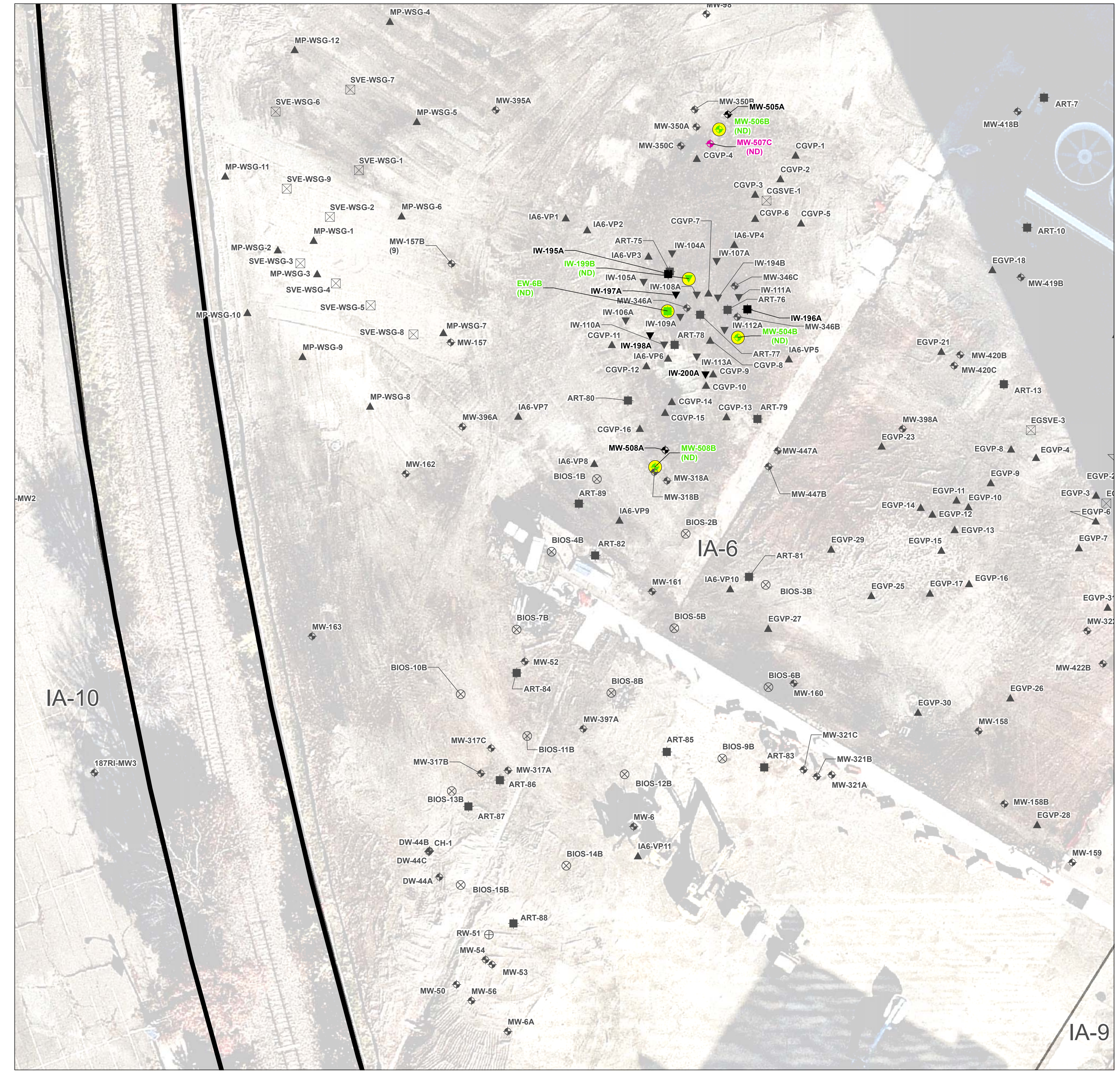
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Foot US)
Map Rotation: 0

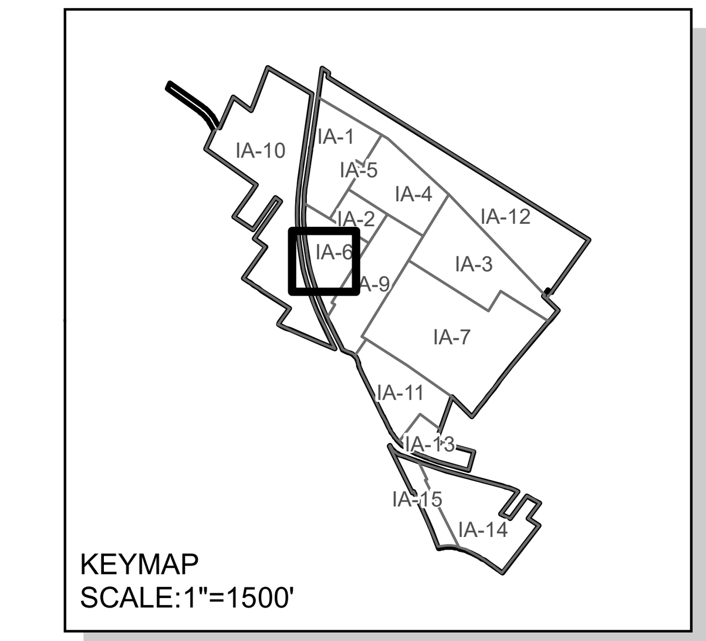
Plot Date: 2/25/2020, 08:39:48 AM by LBOCHKIS -- LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\105009\IA-6\Revised_IRM Figures\Map Documents\Revised 2_2020\IA-6_PCE_Shalllow.mxd

BASELINE - JULY 2017



MOST RECENT*





MW-53	Depth	PCE
04/05/16	35	ND (<0.40)
06/13/16	35	ND (<0.23)
10/25/16	35	ND (<0.12)
01/10/17	35	ND (<0.12)
04/12/17	35	NE (0.13 J)
7/26/2017 - Baseline	35	NE (0.24)
10/05/17	35	ND (<0.12)
01/11/18	35	NE (0.41 J)
04/06/18	35	ND (<0.12)

MW-157B	Depth	PCE
04/05/16	40	NE (0.74 J)
06/14/16	40	ND (<0.23)
10/24/16	40	NE (0.83 J)
01/10/17	40	NA
04/13/17	40	ND (<0.12)
7/26/2017[D] - Baseline	40	NE (0.29 J)
10/05/17	40	NE (0.23 J)
01/11/18	40	**2.5**
03/16/18	40	**2.5**
4/6/2018[D]	40	**9**

MW-317B	Depth	PCE
04/05/16	40	ND (<0.40)
06/14/16	40	ND (<0.23)
10/25/16	40	ND (<0.12)
01/10/17	40	ND (<0.12)
04/12/17	40	**1.4**
7/26/2017 - Baseline	40	**2.5**
10/05/17	40	NE (0.32 J)
11/7/2017	40	ND (<0.12)
01/11/18	40	ND (<0.12)
01/23/18	40	NE (0.14 J)
02/20/18	40	ND (<0.12)
04/05/18	40	ND (<0.12)

MW-318B/MW-508B	Depth	PCE
04/05/16	50	ND (<0.40)
06/15/16	50	ND (<0.23)
10/24/16	50	**1.4**
01/09/17	50	**1.5**
04/12/17	50	**1.1**
7/26/2017 - Baseline	50	**7.1**
10/05/17	50	**1.3**
11/7/2017	50	NE (0.65 J)
01/11/18	50	**7.3**
01/23/18	50	**6.3**
02/20/18	50	**4.7**
03/16/18	50	**1.2**
04/05/18	50	**7.5**
05/21/2018	50	**52**
08/02/18	50	ND (<0.25)
08/30/18	50	ND (<0.25)
09/17/18	50	ND (<0.25)
05/01/19	40.5	ND (<0.25)
05/01/19	45.5	ND (<0.25)
05/01/19	50.5	ND (<0.25)
05/01/19	55.5	ND (<0.25)
07/20/19	55.5	ND (<0.25)

MW-321B	Depth	PCE
04/05/16	50	ND (<0.40)
06/14/16	50	ND (<0.23)
10/24/16	50	ND (<0.12)
01/10/17	50	ND (<0.12)
04/12/17	50	ND (<0.12)
7/26/2017 - Baseline	50	ND (<0.12)
10/5/2017[D]	50	ND (<0.12)
01/11/18	50	ND (<0.12)
04/06/18	50	ND (<0.12)

MW-346B/MW-504B	Depth	PCE
04/05/16	40	ND (<0.4)
06/13/16	40	**1.8**
10/25/16	40	**7**
01/10/17	40	**15**
03/22/17	40	**1.6**
04/12/17	40	**1**
7/26/2017 - Baseline	40	**16**
10/05/17	40	**4.2**
11/7/2017	40	**1.2**
01/11/18	40	**78**
01/23/18	40	**84**
02/20/18	40	**57**
03/16/18	40	**17**
04/05/18	40	**16**
05/21/2018	40	**49**
05/31/18	40	**7.7**
06/26/18	40	**2.2**
05/01/19	33.5	ND (<0.25)
05/01/19	38.5	ND (<0.25)
07/20/19	38.5	ND (<0.25)

MW-350B/MW-506B	Depth	PCE
04/05/16	40	**1.4**
06/01/16	NA	NA
10/24/16	40	ND (<0.12)
01/10/17	40	NE (0.59 J)
04/12/17	40	ND (<0.12)
7/26/2017 - Baseline	40	ND (<0.12)
10/05/17	40	ND (<0.12)
01/11/18	40	ND (<0.12)
04/05/18	40	ND (<0.12)
05/21/2018	40	ND (<0.12)
04/30/19	36	ND (<0.25)
04/30/19	41	ND (<0.25)
07/20/19	41	ND (<0.25)

MW-447B	Depth	PCE
04/06/16	40	ND (<0.4)
06/15/16	40	ND (<0.23)
10/24/16	40	NE (0.12 J)
01/10/17	40	NA
04/13/17	40	NE (0.29 J)
7/26/2017 - Baseline	40	**1.3**
10/05/17	40	NE (0.30 J)
11/7/2017	40	ND (<0.12)
01/11/18	40	**1.5**
01/23/18	40	**5.3**
02/20/18	40	**1.5**
03/16/18	40	NE (0.97 J)
04/05/18	40	NE (0.57 J)

ART-77/EW-6B	Depth	PCE
04/07/16	39.4	NE (0.78 J)
06/01/16	NA	NA
01/10/17	36.5	**130**
03/22/17	36.5	**2.8**
04/12/17	36.5	NE (0.20 J)
7/26/2017 - Baseline	36.5	**88**
10/05/17	36.5	**17**
01/11/18	36.5	**2.5**
02/20/18	36.5	**320**
03/16/18	36.5	**220**
04/05/18	36.5	**560**
05/18/18	36.5	**220**
05/31/18	36.5	**25**
6/26/2018[D]	36.5	**1.7**
05/01/19	29.5	ND (<0.25)
05/01/19	34.5	ND (<0.25)
05/01/19	39.5	ND (<0.25)
07/20/19	34.5	ND (<0.25)
07/20/19	39.5	ND (<0.25)

ART-79	Depth	PCE
4/7/2016	22.74	ND (<0.4)
4/7/2016	52.08	ND (<0.4)
06/01/16	NA	NA
7/26/2017	22.75	NE (0.36)
7/26/2017 - Baseline	49	NE (0.3)
02/20/18	49	**3.4**

ART-80	Depth	PCE
04/07/16	22.76	**1.4**
04/07/16	52.06	**1.2**
06/01/16	NA	NA
7/26/2017[D]	22.75	**7.7**
7/26/2017 - Baseline	49	**59**
11/7/2017	31.5	NE (0.58 J)
02/20/18	16.5	**69**

ART-81	Depth	PCE
4/6/2016	22.54	ND (<0.4)
4/6/2016	51.68	ND (<0.4)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.12)
7/27/2017 - Baseline	49	ND (<0.12)

ART-82	Depth	PCE
04/06/16	46.44	ND (<0.4)
06/01/16	NA	NA
7/27/2017 - Baseline	44	**25**

ART-83	Depth	PCE
04/07/16	22.54	ND (<0.40)
04/07/16	51.53	ND (<0.40)
06/01/16	ND (<0.4)	ND (<0.40)
07/27/17	22.54	ND (<0.12)
7/26/2017 - Baseline	49	NE (0.32 J)

ART-84	Depth	PCE
04/06/16	46.8	ND (<0.40)
06/01/16	NA	NA
7/26/2017 - Baseline	44	**2.6**

ART-85	Depth	PCE
04/07/16	46.71	ND (<0.40)
06/01/16	NA	NA
01/10/17	44	NA
04/12/17	44	**1.3**
7/26/2017 - Baseline	44	**5.4**
10/5/20117	44	NE (0.57 J)
01/11/18	44	ND (<0.12)
03/16/18	44	ND (<0.12)
04/05/18	44	NE (0.18 J)

ART-87	Depth	PCE
04/07/16	49.41	ND (<0.40)
06/01/16	NA	NA
7/26/2017 - Baseline	46.5	**2**

BIOS-1B	Depth	PCE
04/15/16	66	ND (<0.4)
06/01/16	NA	NA
7/26/2017 - Baseline	65	**29**
05/21/18	65	**77**
08/02/18	65	NE (0.58 J)
08/30/18	65	ND (<0.25)
9/17/2018[D]	65	ND (<0.25)

BIOS-2B	Depth	PCE
04/15/16	66.7	ND (<0.4)
06/01/16	NA	NA
7/26/2017 - Baseline	65	**18**

BIOS-3B	Depth	PCE
04/15/16	66.5	ND (<0.40)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.12)

BIOS-4B	Depth	PCE
04/15/16	66.9	ND (<0.40)
06/01/16	NA	NA
7/26/2017 - Baseline	65	**41**

BIOS-5B	Depth	PCE
4/15/2016	66	ND (<0.40)
06/01/16	NA	NA
7/26/2017 - Baseline	65	**41**

BIOS-6B	Depth	PCE
4/15/2016	67.3	ND (<0.40)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (0.28 J)

BIOS-7B	Depth	PCE
04/15/16	66.4	ND (<2.2)
06/01/16	NA	NA
10/26/16	66.4	ND (<0.22)
7/28/2017 - Baseline	65	**51**
10/06/17	65	**4.3**

BIOS-8B	Depth	PCE
04/15/16	66.2	NE (0.82 J)
06/01/16	NA	NA
7/28/2017 - Baseline	65	**2**

BIOS-9B	Depth	PCE
4/15/2016	66.8	ND (<0.40)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.12)

BIOS-10B	Depth	PCE
04/15/16	65.9	ND (<4)
06/01/16	NA	NA
7/27/2017 - Baseline	65	**38**
10/06/17	65	**4.9**

BIOS-11B	Depth	PCE
04/15/16	65.9	ND (<0.40)
06/01/16	NA	NA
10/26/16	65.9	ND (<0.12)
7/27/2017 - Baseline	65	**16**

BIOS-12B	Depth	PCE
04/15/16	67	ND (<2)
06/01/16	NA	NA
7/27/2017 - Baseline	60	**6.3**

BIOS-13B	Depth	PCE
04/15/16	61.8	ND (<40)
06/01/16	NA	NA
10/26/16	61.8	ND (<0.12)
7/27/2017 - Baseline	60	ND (<0.12)

BIOS-14B	Depth	PCE
04/15/16	61	ND (<0.4)
06/01/16	NA	NA
7/27/2017 - Baseline	60	**2.7**

BIOS-15B	Depth	PCE
04/15/16	61.7	ND (<0.12)
06/01/16	NA	NA
10/26/16	61.7	ND (<8)
7/27/2017 - Baseline	60	**1.5**

IW-194B/IW-199B	Depth	PCE
05/21/18	37.5	**120**
05/31/18	37.5	**16**
06/26/18	37.5	**13**
08/02/18	40	**5.7**
08/30/18	40	**5.5**
09/17/18	40	**6.4**
05/01/19	29	ND (<0.25)
05/01/19	34	ND (<0.25)
05/01/19	39	ND (<0.25)
07/20/19	39	ND (<0.25)

MW-350C/MW-507C	Depth	PCE
4/5/2016	70	NE (0.98 J)
06/01/16	NA	NA
10/24/16	70	ND (<0.12)
01/10/17	70	ND (<0.12)
04/12/17	70	ND (<0.12)
7/26/2017 - Baseline	70	ND (<0.12)
10/05/17	70	ND (<0.12)
01/11/18	70	NE (0.55 J)
04/05/18	70	ND (<0.12)
05/21/2018	70	ND (<0.12)
04/30/2019	61	ND (<0.25)
04/30/2019	66	ND (<0.25)
04/30/2019	71	ND (<0.25)
04/30/2019	76	ND (<0.25)
07/20/2019	76	ND (<0.25)

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- INTERMEDIATE TREATMENT ZONE
- DEEP TREATMENT ZONE **

PCE ISOCONCENTRATION CONTOURS (ug/L)

- >1 AND ≤ 10
- >10 AND ≤ 100

ABBREVIATION	GWQS (µg/L)	COMPOUND
PCE	1	Tetrachloroethene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. INTERMEDIATE TREATMENT ZONE - ~80 - 50 FEET ABOVE MEAN SEA LEVEL
5. DEEP TREATMENT ZONE - ~50 - 0 FEET ABOVE MEAN SEA LEVEL
6. DEPTH – FEET BELOW GROUND SURFACE
7. NE - NO EXCEEDANCE
8. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
9. ND - NOT DETECTED
10. *MOST RECENT DATA IS JULY 2019
11. **NOT INCLUDED IN PLUME DATA
12. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
13. NS - NOT SAMPLED
14. D - DUPLICATE SAMPLE
15. NA - NOT ANALYZED
16. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

PROJECT: **ROCHE NUTLEY SITE REMEDIATION**

TITLE: **PCE ISOCONCENTRATION CONTOURS - INTERMEDIATE TREATMENT ZONE**

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA		
APPROVED BY:	Y. KUNUKCU	**FIGURE 3B**	
DATE:	DECEMBER 2019		

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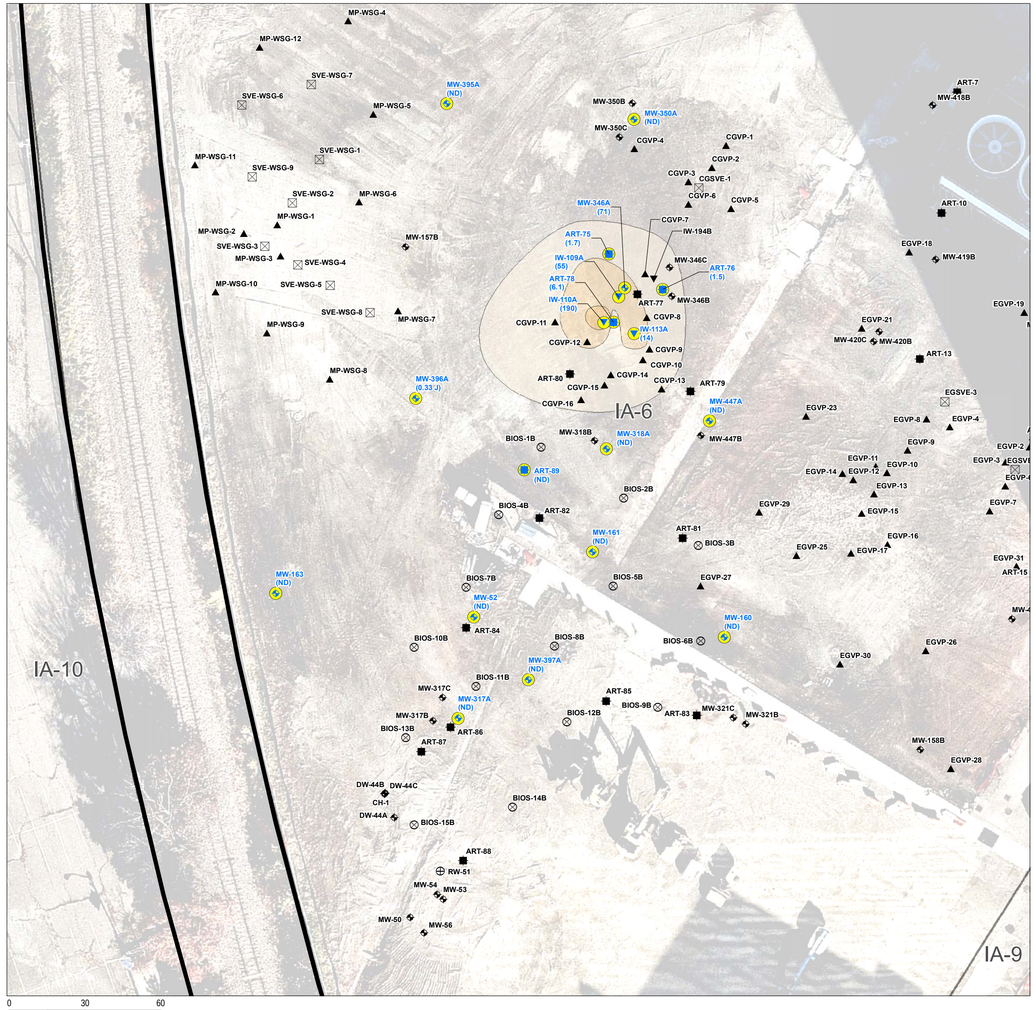
FILE NO.: IA-6_PCE_Intermediate.mxd

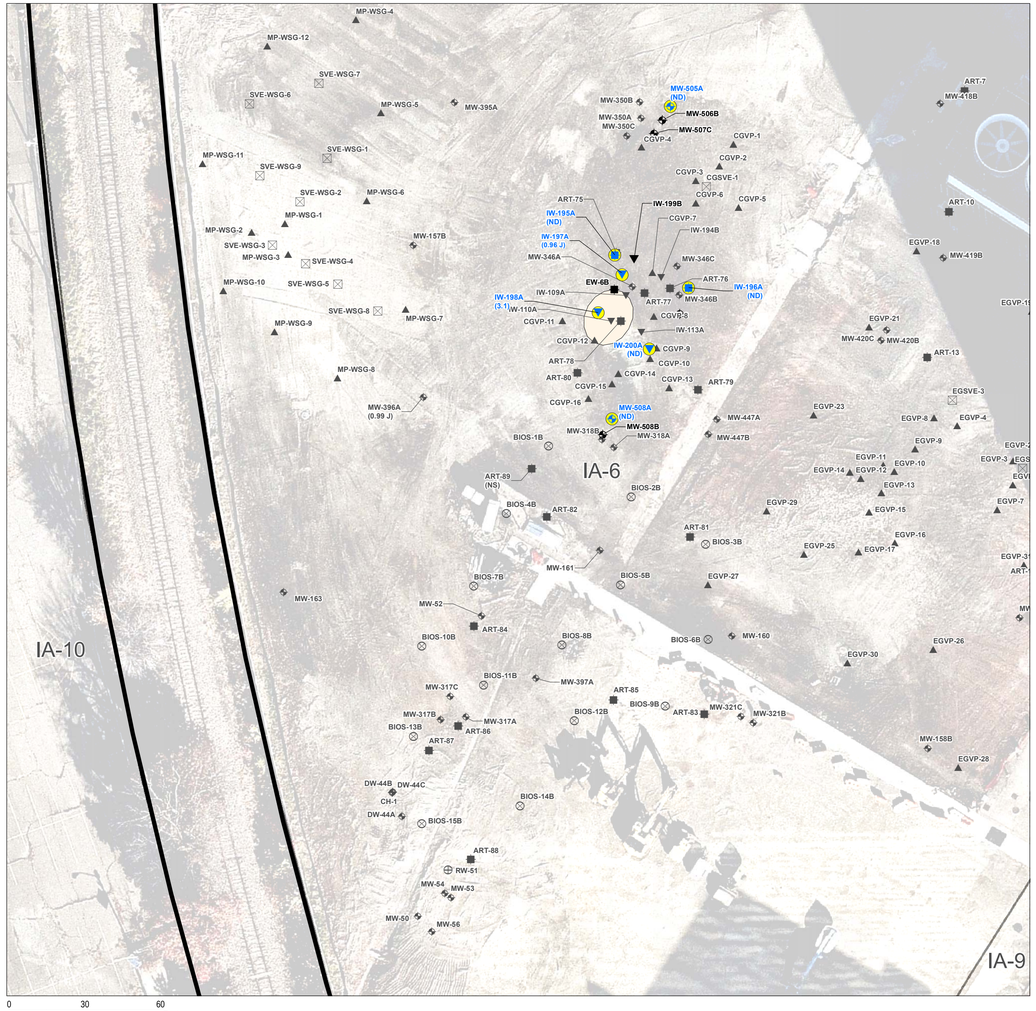
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Foot US)
Map Rotation: 0
Plot Date: 2/25/2020, 08:34:35 AM by LBOCHKIS -- LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\105009\IA-6\Revised_IRM Figures\Map Documents\Revised 2_2020\IA-6_PCE_Intermediate.mxd

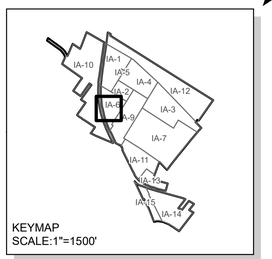
FIGURE 4
TCE ISOCONCENTRATION CONTOURS

BASELINE - JULY 2017



MOST RECENT*





N

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- SHALLOW TREATMENT ZONE

TCE ISOCONCENTRATION CONTOURS (ug/L)

- >1 AND ≤ 10
- >10 AND ≤ 100
- >100 AND ≤ 1000

ABBREVIATION	GWQS (µg/L)	COMPOUND
TCE	1	Trichloroethene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. SHALLOW TREATMENT ZONE - ~100 - 80 FEET ABOVE MEAN SEA LEVEL
5. DEPTH – FEET BELOW GROUND SURFACE
6. NE - NO EXCEEDANCE
7. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
8. ND - NOT DETECTED
9. *MOST RECENT DATA IS JULY 2019
10. **NOT INCLUDED IN PLUME DATA
11. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
12. NS - NOT SAMPLED
13. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

ART-75/ IW-195A	Depth	TCE
04/07/16	22.48	**31.9**
01/10/17	16.5	**1.5**
03/22/17	16.5	ND (<0.26)
04/13/17	16.5	ND (<0.22)
7/26/2017 - Baseline	16.5	**1.7**
10/05/17	16.5	NE (0.40 J)
01/11/18	16.5	**3.2**
03/16/18	16.5	**3.4**
04/05/18	16.5	**3**
05/18/2018	16.5	**4**
05/31/18	16.5	**3.8 J**
06/26/18	16.5	**1.5**
05/01/19	7.7	**8.1**
05/01/19	12.7	**9.9**
05/01/19	17.7	**8.6**
05/01/19	22.7	**9.5**
05/01/19	27.7	**9.6**
07/20/19	22.7	ND (<0.31)

ART-76/ IW-196A	Depth	TCE
04/06/16	22.88	NE (0.27 J)
7/26/2017 - Baseline	23	**1.5**
05/18/2018	16.5	**2.7**
05/31/18	16.5	**4 J**
04/30/19	7.0	ND (<0.31)
04/30/19	17.0	ND (<0.31)
04/30/19	22.0	ND (<0.31)
04/30/19	27.0	ND (<0.31)
07/20/19	17.0	ND (<0.31)

ART-78	Depth	TCE
04/07/16	22.81	**7.7**
01/10/17	16.5	**3.5**
03/22/17	16.5	**1.0**
04/12/17	16.5	**1.0**
7/26/2017 - Baseline	16.5	**6.1**
10/05/17	16.5	ND (<0.22)
01/11/18	16.5	**11.0**
02/20/18	16.5	**6.8**
03/16/18	16.5	**3.1**
04/05/18	16.5	**2.1**
05/18/2018	16.5	**4.7**
05/31/18	16.5	**6.6**
06/26/18	16.5	**3.1**

ART-89	Depth	TCE
04/06/16	22.37	ND (<0.22)
7/27/2017 - Baseline	22.37	ND (<0.22)

IW-109A/ IW-197A	Depth	TCE
7/28/2017 - Baseline	27.5	**55**
02/20/18	27.5	**26**
05/18/18	27.5	**60**
05/31/18	27.5	**120**
04/30/19	25.0	**3.1**
07/20/19	25.0	NE (0.96 J)

IW-110A/ IW-198A	Depth	TCE
7/28/2017 - Baseline	27.5	**190**
02/20/18	27.5	**8.4**
05/18/18	27.5	**26**
05/31/18	27.5	**53**
06/26/18	27.5	**46**
04/30/19	25.5	**11**
07/20/19	25.5	**3.1**

IW-113A/ IW-200A	Depth	TCE
7/28/2017 - Baseline	27.5	**14**
05/21/18	27.5	**6.8**
06/26/18	27.5	**5.6**
05/01/19	25	ND (<0.31)
07/20/19	25	ND (<0.31)

MW-160	Depth	TCE
04/05/16	14.8	ND (<0.22)
06/13/16	14.8	ND (<0.26)
10/24/16	14.5	ND (<0.22)
01/10/17	14.5	ND (<0.22)
04/12/17	14.5	ND (<0.22)
7/26/2017 - Baseline	14.5	ND (<0.22)
10/05/17	14.5	ND (<0.22)
01/11/18	14.5	ND (<0.22)
04/06/18	14.5	ND (<0.22)

MW-161	Depth	TCE
04/05/16	12	ND (<0.22)
06/14/16	12	ND (<0.26)
10/24/16	12	ND (<0.22)
1/10/2017	12	ND (<0.22)
04/12/17	12	ND (<0.22)
7/26/2017 - Baseline	12	ND (<0.22)
10/05/17	12	ND (<0.22)
01/11/18	12	ND (<0.22)
04/05/18	12	**1.1**

MW-163	Depth	TCE
04/06/16	14.58	ND (<0.22)
06/15/16	14.60	ND (<0.26)
10/25/16	14.60	ND (<0.22)
04/12/17	14.60	ND (<0.22)
7/26/2017 - Baseline	14.60	ND (<0.22)
10/05/17	14.60	ND (<0.22)
01/11/18	14.60	ND (<0.22)
04/06/18	14.60	ND (<0.22)

MW-317A	Depth	TCE
04/05/16	12.85	ND (<0.22)
06/14/16	12.85	ND (<0.26)
10/25/16	12.85	ND (<0.22)
01/10/17	12.85	ND (<0.22)
04/12/17	12.85	ND (<0.22)
7/26/2017 - Baseline	12.85	ND (<0.22)
10/05/17	12.85	ND (<0.22)
01/11/18	12.85	ND (<0.22)
04/06/18	12.85	ND (<0.22)

MW-318A/ MW-508A	Depth	TCE
04/05/16	11.74	ND (<0.22)
06/15/16	11.74	ND (<0.26)
10/24/2016	11.74	NE (0.23 J)
01/09/17	11.74	ND (<0.22)
04/12/17	11.74	ND (<0.22)
7/26/2017 - Baseline	11.74	ND (<0.22)
10/05/17	11.74	NE (0.45 J)
11/7/2017	10.00	ND (<0.22)
01/11/18	11.74	NE (0.9 J)
01/23/18	10.00	NE (0.25 J)
02/20/18	10.00	NE (0.31 J)
03/16/18	11.74	**2.1**
04/05/18	11.74	**2**
05/21/2018	10.00	NE (0.72 J)
08/02/18	10.00	**2.1**
08/30/18	10.00	**1.6**
09/17/18	10.00	**1.3**
05/01/19	9.70	NE (0.42 J)
05/01/19	13.00	NE (0.47 J)
05/01/19	9.70	ND (<0.31)

MW-346A	Depth	TCE
04/05/16	13.1	**4 J**
06/13/16	13.1	**21.4**
10/25/16	13.1	**22**
01/10/17	13.1	**6.6**
03/22/17	13.1	**2.3**
04/12/17	13.1	NE (0.74 J)
7/26/2017 - Baseline	13.1	**71**
10/05/17	13.1	**16**
11/7/2017	11.0	**1.9**
01/11/18	13.1	**12**
01/23/18	11.0	**15**
02/20/18	13.1	**8.1**
03/16/18	13.1	**4.6**
04/05/18	13.1	**16**
05/21/2018	10.5	**4.8**
06/26/18	10.5	**5.1**

MW-350A/MW-505A	Depth	TCE
04/05/16	11.4	ND (<0.22)
10/24/16	11.4	ND (<0.22)
01/09/17	11.4	ND (<0.22)
04/12/17	11.4	ND (<0.22)
7/26/2017 - Baseline	11.4	ND (<0.22)
10/05/17	11.4	ND (<0.22)
01/11/18	11.4	ND (<0.22)
04/05/18	11.4	ND (<0.22)
05/21/2018	10.5	ND (<0.22)
04/30/2018	5.5	ND (<0.31)
04/30/2018	10.5	ND (<0.31)
07/20/2019	10.5	ND (<0.31)

MW-395A	Depth	TCE
04/06/16	12.5	ND (<0.22)
06/14/16	12.5	ND (<0.26)
10/24/2016	12.5	ND (<0.22)
04/13/17	12.5	ND (<0.22)
7/26/2017 - Baseline	12.5	ND (<0.22)
10/05/17	12.5	ND (<0.22)
01/11/18	12.5	ND (<0.22)
04/06/18	12.5	ND (<0.22)

MW-396A	Depth	TCE
04/05/16	11	ND (<0.22)
6/15/2016	11	NE (0.49 J)
10/24/16	11	NE (0.36 J)
04/13/17	11	NE (0.29 J)
7/26/2017 - Baseline	11	NE (0.33 J)
10/05/17	11	ND (<0.22)
01/11/18	11	NE (0.75 J)
04/05/18	11	NE (0.99 J)

MW-397A	Depth	TCE
04/05/16	16	ND (<0.22)
06/15/16	16	ND (<0.26)
10/25/16	16	ND (<0.22)
01/09/17	16	ND (<0.22)
04/12/17	16	ND (<0.22)
7/26/2017 - Baseline	16	ND (<0.22)
10/05/17	16	ND (<0.22)
01/11/18	16	ND (<0.22)
04/06/18	16	ND (<0.22)

MW-447A	Depth	TCE
04/06/16	12.3	ND (<0.22)
6/15/2016	12.3	ND (<0.26)
10/24/16	12.3	ND (<0.22)
01/10/17	12.3	ND (<0.22)
04/12/17	12.3	ND (<0.22)
7/26/2017 - Baseline	12.3	ND (<0.22)
10/05/17	12.3	ND (<0.22)
11/7/2017	10.0	ND (<0.22)
01/12/18	12.3	ND (<0.22)
1/23/2018	12.3	ND (<0.22)
2/20/2018	12.3	ND (<0.22)
03/16/18	12.3	ND (<0.22)
04/05/18	12.3	ND (<0.22)

MW-52	Depth	TCE
4/6/2016	25	ND (<0.22)
06/14/16	25	ND (<0.26)
10/25/16	25	ND (<0.22)
01/10/17	25	ND (<0.22)
04/12/17	25	ND (<0.22)
7/26/2017 - Baseline	25	ND (<0.22)
10/05/17	25	ND (<0.22)
11/7/2017	25	ND (<0.22)
01/12/18	25	ND (<0.22)
01/23/18	25	ND (<0.22)
02/20/18	25	ND (<0.22)
04/05/18	25	ND (<0.22)

PROJECT:
ROCHE NUTLEY SITE REMEDIATION

TITLE:
TCE ISOCONCENTRATION CONTOURS - SHALLOW TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA
CHECKED BY:	A. HERRERA
APPROVED BY:	Y. KUNUKCU
DATE:	DECEMBER 2019
PROJ. NO.:	198233

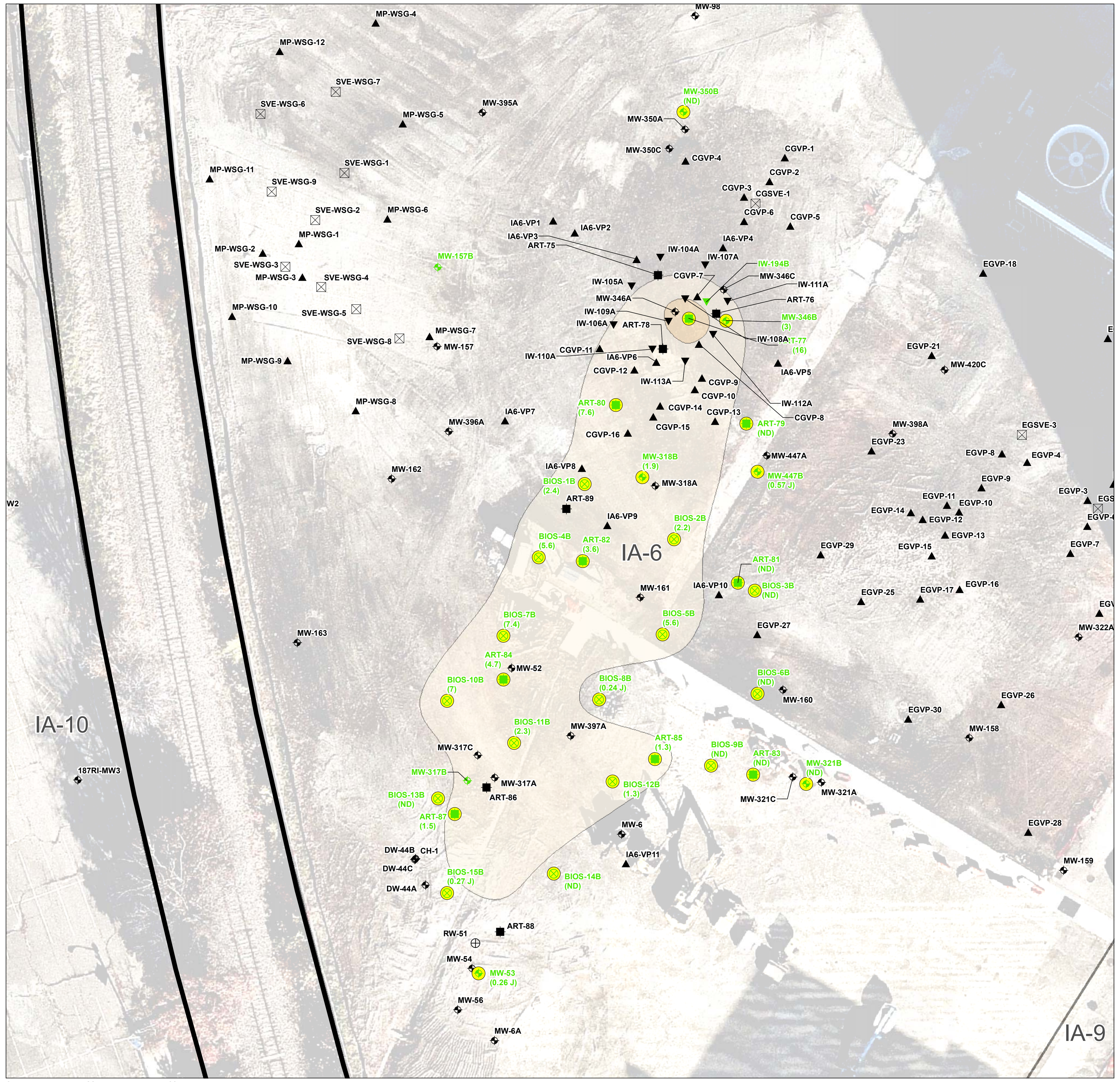
FIGURE 4A

TRC
41 Spring Street
New Providence, NJ 07974
Phone: 908.988.1700
www.trcsolutions.com

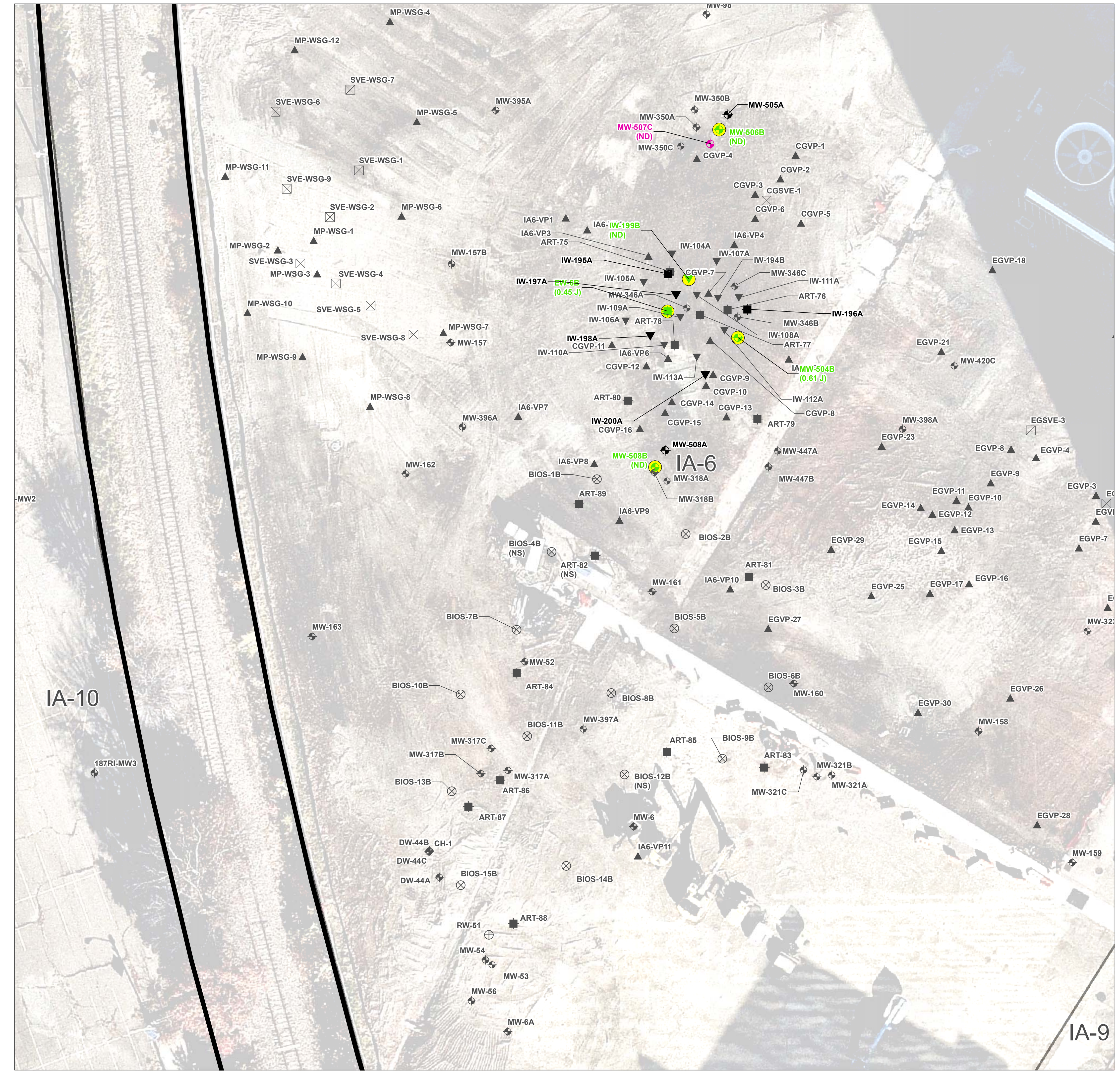
FILE NO.: IA-6_TCE_Shallow.mxd

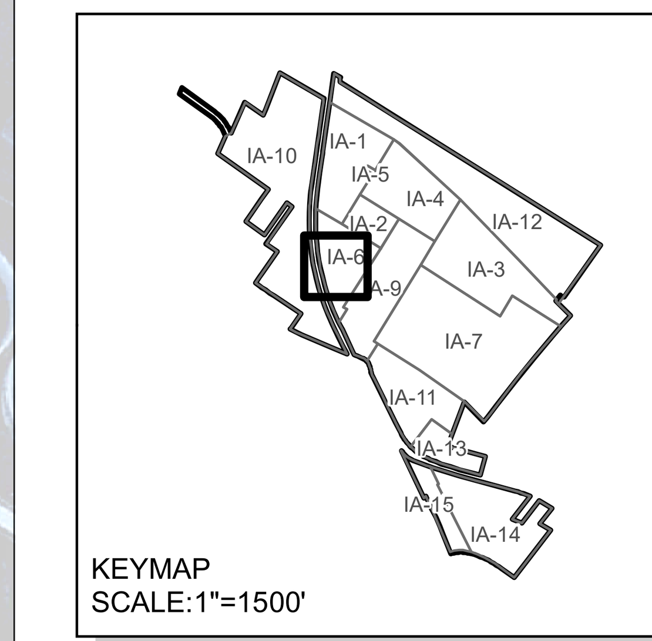
Plot Date: 2/25/2020, 08:40:50 AM by LBOCHKIS - LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\198233\Figures\Map Documents\Revised 2_2020\IA-6_TCE_Shallow.mxd
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Ford US)
Map Rotation: 0

BASELINE - JULY 2017



MOST RECENT*





LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- INTERMEDIATE TREATMENT ZONE
- DEEP TREATMENT ZONE **

TCE ISOCONCENTRATION CONTOURS (ug/L)

- >1 AND ≤ 10
- >10 AND ≤ 100

ABBREVIATION	GWQS (µg/L)	COMPOUND
TCE	1	Trichloroethene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. INTERMEDIATE TREATMENT ZONE - ~80 - 50 FEET ABOVE MEAN SEA LEVEL
5. DEEP TREATMENT ZONE - ~50 - 0 FEET ABOVE MEAN SEA LEVEL
6. DEPTH – FEET BELOW GROUND SURFACE
7. NE - NO EXCEEDANCE
8. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
9. ND - NOT DETECTED
10. *MOST RECENT DATA IS JULY 2019
11. **NOT INCLUDED IN PLUME DATA
12. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
13. NS - NOT SAMPLED
14. D - DUPLICATE SAMPLE
15. NA - NOT ANALYZED
16. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

MW-53	Depth	TCE
04/05/16	35	NE (0.48 J)
06/13/16	35	ND (<0.26)
10/25/16	35	NE (0.44)
01/10/17	35	ND (<0.22)
04/12/17	35	NE (0.3 J)
7/26/2017 - Baseline	35	NE (0.26 J)
10/05/17	35	ND (<0.22)
01/12/18	35	ND (<0.22)
04/06/18	35	ND (<0.22)

MW-157B	Depth	TCE
04/05/16	40	NA
06/14/16	40	NA
10/24/16	40	NA
01/10/17	40	NA
04/13/17	40	NA
7/26/2017^D - Baseline	40	NA
10/05/17	40	NA
01/11/18	40	NA
03/16/18	40	NA
4/6/2018^D	40	**1.6**

MW-317B	Depth	TCE
04/05/16	40	NA
06/14/16	40	NA
10/25/16	40	NA
01/10/17	40	NA
04/12/17	40	NA
7/26/2017 - Baseline	40	NA
10/05/17	40	NA
11/7/2017	40	NA
01/11/18	40	NA
01/23/18	40	**1.6**
02/20/18	40	ND (<0.22)
04/05/18	40	ND (<0.22)

MW-318B/MW-508B	Depth	TCE
04/05/16	50	NE (0.57 J)
06/15/16	50	ND (<0.26)
10/24/16	50	NE (0.27 J)
01/09/17	50	NE (0.23 J)
04/12/17	50	ND (<0.22)
7/26/2017 - Baseline	50	**1.9**
10/05/17	50	NE (0.50 J)
11/7/2017	50	NE (0.26 J)
01/11/18	50	ND (<0.22)
01/23/18	50	NE (0.36 J)
02/20/18	50	NE (0.44 J)
03/16/18	50	NE (0.37 J)
04/05/18	50	**1.6**
05/21/2018	50	**3.8**
08/02/18	50	ND (<0.31)
08/30/18	50	ND (<0.31)
09/17/18	50	ND (<0.31)
05/01/19	40.5	ND (<0.31)
05/01/19	45.5	ND (<0.31)
05/01/19	50.5	ND (<0.31)
05/01/19	55.5	ND (<0.31)
07/20/19	55.5	ND (<0.31)

MW-321B	Depth	TCE
04/05/16	50	ND (<0.22)
06/14/16	50	ND (<0.26)
10/24/16	50	ND (<0.22)
01/10/17	50	ND (<0.22)
04/12/17	50	ND (<0.22)
7/26/2017 - Baseline	50	ND (<0.22)
10/5/2017	50	ND (<0.22)
01/11/18	50	ND (<0.22)
04/06/18	50	ND (<0.22)

MW-346B/MW-504B	Depth	TCE
04/05/16	40	ND (<0.22)
06/13/16	40	NE (0.92 J)
10/25/16	40	NE (0.88 J)
01/10/17	40	**1.1**
03/22/17	40	NE (0.28 J)
04/12/17	40	NE (0.28 J)
7/26/2017 - Baseline	40	**3**
10/05/17	40	NE (0.70 J)
11/7/2017	40	ND (<0.22)
01/11/18	40	**2.4**
01/23/18	40	**3.6**
02/20/18	40	**3**
03/16/18	40	**1.4**
04/05/18	40	**2**
05/21/2018	40	**3.4**
05/31/18	40	NE (0.36 J)
06/26/18	40	**6.0**
05/01/19	33.5	NE (0.66 J)
05/01/19	38.5	NE (0.64 J)
07/20/19	38.5	NE (0.61 J)

MW-350B/MW-506B	Depth	TCE
04/05/16	40	ND (<0.22)
07/12/16	40	ND (<0.26)
10/24/16	40	ND (<0.22)
01/10/17	40	ND (<0.22)
04/12/17	40	ND (<0.22)
7/26/2017 - Baseline	40	ND (<0.22)
10/05/17	40	ND (<0.22)
01/11/18	40	ND (<0.22)
04/05/18	40	ND (<0.22)
05/21/2018	40	ND (<0.22)
04/30/2019	36	ND (<0.31)
04/30/2019	41	ND (<0.31)
07/30/2019	41	ND (<0.31)

MW-447B	Depth	TCE
04/06/16	40	ND (<0.22)
06/15/16	40	ND (<0.26)
10/24/16	40	ND (<0.22)
01/10/17	40	ND (<0.22)
04/13/17	40	ND (<0.22)
7/26/2017 - Baseline	40	NE (0.57 J)
10/05/17	40	ND (<0.22)
11/7/2017	40	ND (<0.22)
01/12/18	40	ND (<0.22)
01/23/18	40	NE (0.51 J)
02/20/18	40	NE (0.28 J)
03/16/18	40	NE (0.58 J)
04/05/18	40	NE (0.51 J)

ART-77/EW-6B	Depth	TCE
04/07/16	39.4	**3.9**
06/01/16	NA	NA
01/10/17	36.5	**8.7**
03/22/17	36.5	ND (<0.26)
04/12/17	36.5	ND (<0.22)
7/26/2017 - Baseline	36.5	**16**
10/05/17	36.5	**2.4**
01/11/18	36.5	ND (<0.22)
02/20/18	36.5	**8.8**
03/16/18	36.5	**9.8**
04/05/18	36.5	**21**
05/18/18	36.5	**15**
05/31/18	36.5	**6.7**
6/26/2018^D	36.5	**5.6**
05/01/19	29.5	**1.7**
05/01/19	34.5	**1.7**
05/01/19	39.5	NE (0.80 J)
07/20/19	34.5	NE (0.45 J)
07/20/19	39.5	ND (<0.31)

ART-79	Depth	TCE
4/7/2016	22.74	ND (<0.22)
4/7/2016	52.08	ND (<0.22)
06/01/16	NA	NA
7/26/2017	22.75	ND (<0.22)
7/26/2017 - Baseline	49	ND (<0.22)
02/20/18	49	NE (0.41 J)

ART-80	Depth	TCE
04/07/16	22.76	NE (0.36 J)
04/07/16	52.06	**1.9**
06/01/16	NA	NA
7/26/2017^D	22.75	NE (0.89 J)
7/26/2017 - Baseline	49	**7.6**
11/7/2017	31.5	ND (<0.22)
02/20/18	16.5	**3.9**

ART-81	Depth	TCE
4/6/2016	22.54	ND (<0.22)
4/6/2016	51.68	ND (<0.22)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.22)
7/27/2017 - Baseline	49	ND (<0.22)

ART-82	Depth	TCE
04/06/16	46.44	ND (<0.22)
06/01/16	NA	NA
7/27/2017 - Baseline	44	**3.6**

ART-83	Depth	TCE
04/07/16	22.54	ND (<0.22)
04/07/16	51.53	ND (<0.22)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.22)
7/26/2017 - Baseline	49	ND (<0.22)

ART-84	Depth	TCE
04/06/16	46.8	ND (<0.22)
06/01/16	NA	NA
7/26/2017 - Baseline	44	**4.7**

ART-85	Depth	TCE
04/07/16	46.71	ND (<0.22)
06/01/16	NA	NA
01/10/17	44	NA
04/12/17	44	NE (0.3 J)
7/26/2017 - Baseline	44	**1.3**
10/5/20117	44	ND (<0.22)
01/11/18	44	ND (<0.22)
03/16/18	44	ND (<0.22)
04/05/18	44	ND (<0.22)

ART-87	Depth	TCE
04/07/16	49.41	ND (<0.22)
06/01/16	NA	NA
7/26/2017 - Baseline	46.5	**1.5**

BIOS-1B	Depth	TCE
04/15/16	66	**2.1**
06/01/16	NA	NA
7/26/2017 - Baseline	65	**2.4**
05/21/18	65	**5**
08/02/18	65	**5**
08/30/18	65	**1.9**
9/17/2018^D	65	NE (0.91 J)

BIOS-2B	Depth	TCE
04/15/16	66.7	ND (<0.22)
06/01/16	NA	NA
7/26/2017 - Baseline	65	**2.2**

BIOS-3B	Depth	TCE
04/15/16	66.5	ND (<0.22)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.22)

BIOS-4B	Depth	TCE
04/15/16	66.9	**1.3**
06/01/16	NA	NA
7/26/2017 - Baseline	65	**5.6**

BIOS-5B	Depth	TCE
4/15/2016	66	ND (<0.22)
06/01/16	NA	NA
7/26/2017 - Baseline	65	**5.6**

BIOS-6B	Depth	TCE
4/15/2016	67.3	ND (<0.22)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.22)

BIOS-7B	Depth	TCE
04/15/16	66.4	ND (<4)
06/01/16	NA	NA
10/26/16	66.4	ND (<0.12)
7/28/2017 - Baseline	65	**7.4**
10/06/17	65	**1.3**

BIOS-8B	Depth	TCE
04/15/16	66.2	ND (<0.22)
06/01/16	NA	NA
7/28/2017 - Baseline	65	NE (0.24 J)

BIOS-9B	Depth	TCE
4/15/2016	66.8	ND (<0.22)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.22)

BIOS-10B	Depth	TCE
04/15/16	65.9	ND (<2.2)
06/01/16	NA	NA
7/27/2017 - Baseline	65	**7**
10/06/17	65	**2.9**

BIOS-11B	Depth	TCE
04/15/16	65.9	ND (<4)
06/01/16	NA	NA
10/26/16	65.9	ND (<0.12)
7/27/2017 - Baseline	65	**2.3**

BIOS-12B	Depth	TCE
04/15/16	67	ND (<1.1)
06/01/16	NA	NA
7/27/2017 - Baseline	60	**1.3**

BIOS-13B	Depth	TCE
04/15/16	61.8	ND (<0.22)
06/01/16	NA	NA
10/26/16	61.8	ND (<0.22)
7/27/2017 - Baseline	60	ND (<0.22)

BIOS-14B	Depth	TCE
04/15/16	61	**1.9**
06/01/16	NA	NA
7/27/2017 - Baseline	60	ND (<0.22)

BIOS-15B	Depth	TCE
04/15/16	61.7	ND (<4.5)
06/01/16	NA	NA
10/26/16	61.7	ND (<0.22)
7/27/2017 - Baseline	60	NE (0.27 J)

IW-194B/IW-199B	Depth	TCE
05/21/18	37.5	**14**
05/31/18	37.5	**4.9**
06/26/18	37.5	**5.4**
08/02/18	40	**4**
08/30/18	40	**3.8**
09/17/18	40	**5.4**
05/01/19	29	**1.2**
05/01/19	34	NE (0.91 J)
05/01/19	39	ND (<0.31)
07/20/19	39	ND (<0.31)

MW-350C/MW-507C	Depth	TCE
4/5/2016	70	NE (0.35 J)
06/01/16	NA	NA
10/24/16	70	NE (0.5 J)
01/10/17	70	NE (0.35 J)
04/12/17	70	NE (0.27 J)
7/26/2017 - Baseline	70	NE (0.28 J)
10/05/17	70	NE (0.27 J)
01/11/18	70	ND (<0.22)
04/05/18	70	ND (<0.22)
05/21/2018	70	ND (<0.22)
04/30/19	61	ND (<0.31)
04/30/19	66	ND (<0.31)
04/30/19	71	ND (<0.31)
04/30/19	76	ND (<0.31)
07/20/19	76	ND (<0.31)

PROJECT:
ROCHE NUTLEY SITE REMEDIATION

TITLE:
TCE ISOCONCENTRATION CONTOURS - INTERMEDIATE TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA		
APPROVED BY:	Y. KUNUKCU		**FIGURE 4B**
DATE:	DECEMBER 2019		

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FILE NO.: IA-6_TCE_Intermediate.mxd

Plot Date: 2/25/2020, 08:33:54 AM by LBOCHKIS -- LAYOUT: ANSI D (22"x34")
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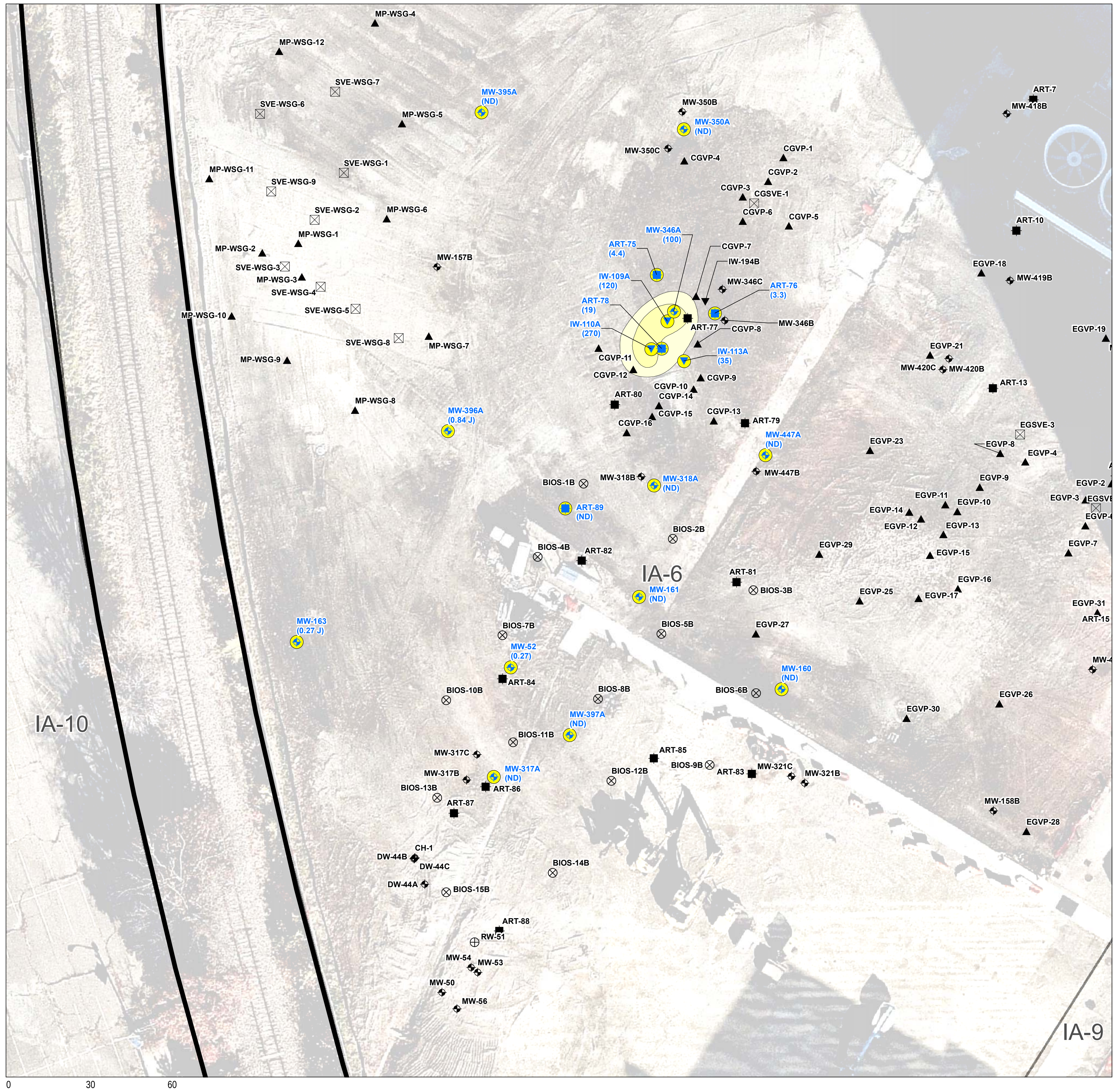
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Foot US)
Map Rotation: 0

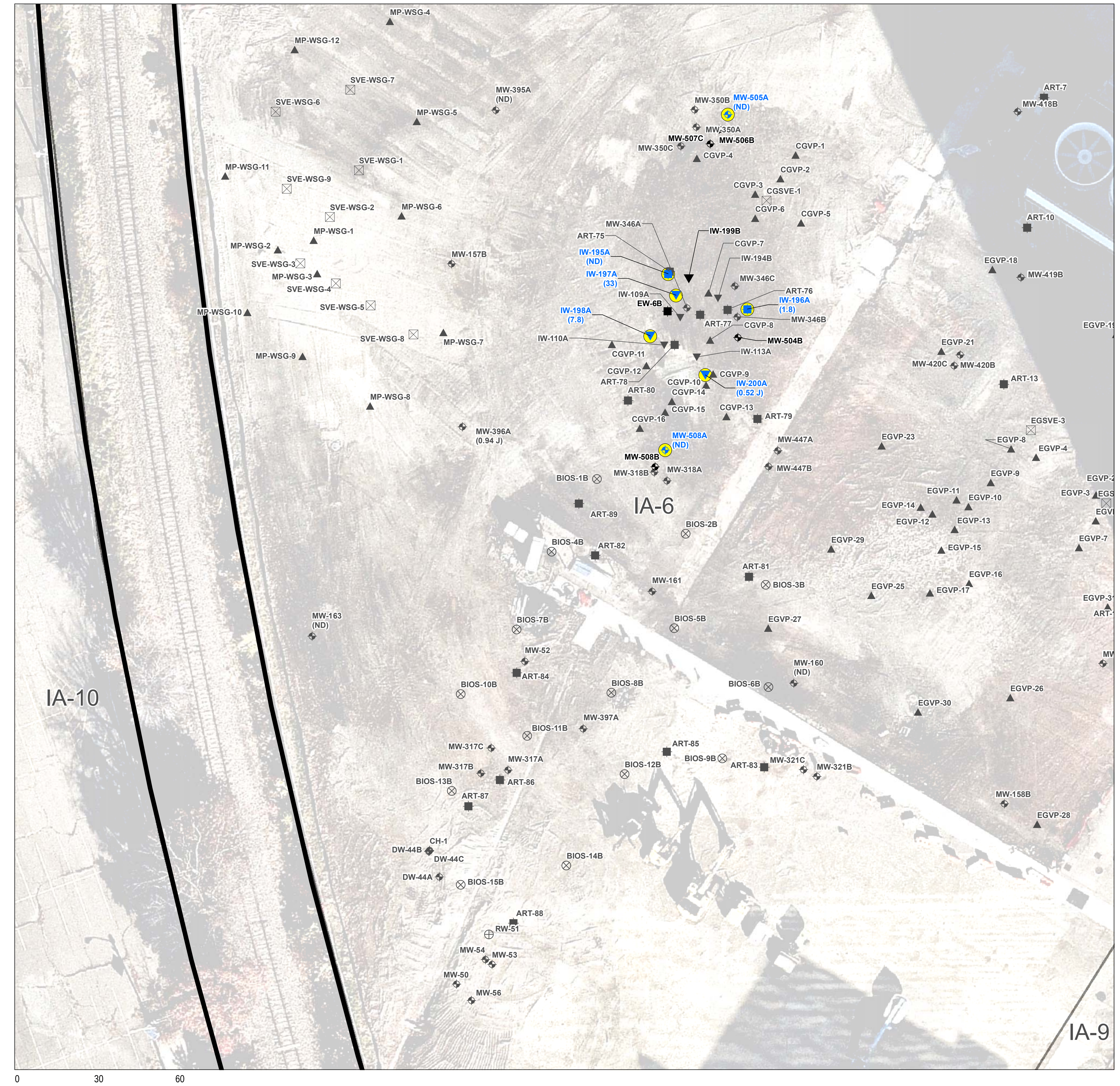
FIGURE 5

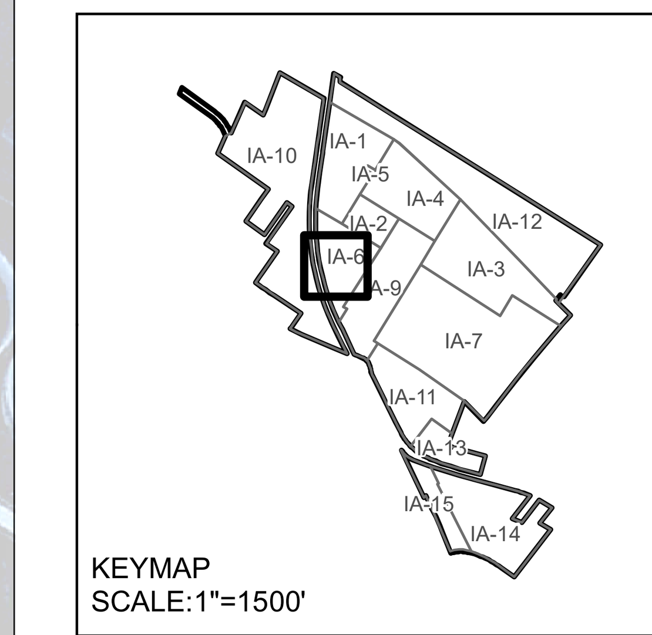
cis-1,2-DCE ISOCONCENTRATION CONTOURS

BASELINE - JULY 2017



MOST RECENT*





N

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- SHALLOW TREATMENT ZONE

cis-1,2-DCE ISOCONCENTRATION CONTOURS (ug/L)

- >70 AND ≤ 100
- >100 AND ≤ 1000

ABBREVIATION	GWQS (µg/L)	COMPOUND
cis-1,2-DCE	70	cis-1,2-Dichloroethene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. SHALLOW TREATMENT ZONE - ~100 - 80 FEET ABOVE MEAN SEA LEVEL
5. DEPTH – FEET BELOW GROUND SURFACE
6. NE - NO EXCEEDANCE
7. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
8. ND - NOT DETECTED
9. *MOST RECENT DATA IS JULY 2019
10. **NOT INCLUDED IN PLUME DATA
11. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
12. NS - NOT SAMPLED
13. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

ART-75/ IW-195A	Depth	*cis*-1,2-DCE
04/07/16	22.48	**99.1**
01/10/17	16.5	NE (2.3)
03/22/17	16.5	ND (<0.31)
04/13/17	16.5	ND (<0.26)
7/26/2017 - Baseline	16.5	NE (4.4)
10/05/17	16.5	NE (0.51 J)
01/11/18	16.5	NE (1.6)
03/16/18	16.5	NE (3.8)
04/05/18	16.5	NE (2.0)
05/18/2018	16.5	NE (4.7)
05/31/18	16.5	NE (2.4 J)
06/26/18	16.5	NE (0.90 J)
05/01/19	7.7	NE (6.1)
05/01/19	12.7	NE (7.2)
05/01/19	17.7	NE (9.2)
05/01/19	22.7	NE (11)
05/01/19	27.7	NE (9.4)
05/01/19	22.7	NE (1.8)

ART-76/ IW-196A	Depth	*cis*-1,2-DCE
04/06/16	22.88	NE (2.3)
7/26/2017 - Baseline	23	NE (3.3)
05/18/2018	16.5	NE (0.79 J)
05/31/18	16.5	ND (<1.3)
06/26/18	16.5	NE (2.2)
04/30/19	7.0	ND (<0.22)
04/30/19	17.0	ND (<0.22)
04/30/19	22.0	ND (<0.22)
04/30/19	27.0	ND (<0.22)
07/20/19	17.0	ND (<0.22)

ART-78	Depth	*cis*-1,2-DCE
04/07/16	22.81	**84.5**
01/10/17	16.5	NE (2.8)
03/22/17	16.5	NE (1.3)
04/12/17	16.5	NE (2.5)
7/26/2017 - Baseline	16.5	NE (19)
10/05/17	16.5	NE (0.47 J)
01/11/18	16.5	NE (9.8)
02/20/18	16.5	NE (5.3)
03/16/18	16.5	NE (3.1)
04/05/18	16.5	NE (1.4)
05/18/2018	16.5	NE (2.9)
05/31/18	16.5	NE (4.6 J)
06/26/18	16.5	NE (37)

ART-89	Depth	*cis*-1,2-DCE
04/06/16	22.37	ND (<0.27)
7/27/2017 - Baseline	22.37	ND (<0.26)

IW-109A/ IW-197A	Depth	*cis*-1,2-DCE
7/28/2017 - Baseline	27.5	**120**
02/20/18	27.5	NE (19)
05/18/18	27.5	NE (22)
05/31/18	27.5	NE (32)
04/30/19	25.0	**460**
07/20/19	25.0	NE (33)

IW-110A/ IW-198A	Depth	*cis*-1,2-DCE
7/28/2017 - Baseline	27.5	**270**
02/20/18	27.5	NE (6.3)
05/18/18	27.5	NE (8.2)
05/31/18	27.5	NE (26)
06/26/18	27.5	NE (6.3)
04/30/19	25.5	NE (23)
07/20/19	25.5	NE (7.8)

IW-113A/ IW-200A	Depth	*cis*-1,2-DCE
7/28/2017 - Baseline	27.5	NE (35)
05/21/18	27.5	NE (2.7)
06/26/18	27.5	NE (1)
05/01/19	25.0	NE (0.54 J)
07/20/19	25.0	NE (0.52 J)

MW-160	Depth	*cis*-1,2-DCE
04/05/16	14.8	ND (<0.27)
06/13/16	14.8	ND (<0.31)
10/24/16	14.5	ND (<0.26)
01/10/17	14.5	ND (<0.26)
04/12/17	14.5	ND (<0.26)
7/26/2017 - Baseline	14.5	ND (<0.26)
10/05/17	14.5	ND (<0.26)
01/11/18	14.5	ND (<0.26)
04/06/18	14.5	ND (<0.26)

MW-161	Depth	*cis*-1,2-DCE
04/05/16	12	ND (<0.27)
06/14/16	12	ND (<0.31)
10/24/16	12	ND (<0.26)
1/10/2017	12	ND (<0.26)
04/12/17	12	ND (<0.26)
7/26/2017 - Baseline	12	ND (<0.26)
10/05/17	12	NE (0.47 J)
01/11/18	12	ND (<0.26)
04/05/18	12	NE (0.73 J)

MW-163	Depth	*cis*-1,2-DCE
04/06/16	14.58	NE (0.3 J)
06/15/16	14.60	NE (0.32 J)
10/25/16	14.60	NE (0.29 J)
1/10/2017	14.60	ND (<0.26)
04/12/17	14.60	ND (<0.26)
7/26/2017 - Baseline	14.60	NE (0.27 J)
10/05/17	14.60	NE (0.48 J)
01/11/18	14.60	NE (0.61 J)
04/06/18	14.60	ND (<0.26)

MW-317A	Depth	*cis*-1,2-DCE
04/05/16	12.85	ND (<0.27)
06/14/16	12.85	ND (<0.31)
10/25/16	12.85	ND (<0.26)
01/10/17	12.85	ND (<0.26)
04/12/17	12.85	ND (<0.26)
7/26/2017 - Baseline	12.85	ND (<0.26)
10/05/17	12.85	ND (<0.26)
01/11/18	12.85	ND (<0.26)
04/06/18	12.85	ND (<0.26)

MW-318A/ MW-508A	Depth	*cis*-1,2-DCE
04/05/16	11.74	ND (<0.27)
06/15/16	11.74	ND (<0.31)
10/24/2016	11.74	ND (<0.26)
01/09/17	11.74	ND (<0.26)
04/12/17	11.74	NE (0.53 J)
7/26/2017 - Baseline	11.74	ND (<0.26)
10/05/17	11.74	NE (0.84 J)
11/7/2017	10.00	ND (<0.26)
01/11/18	11.74	NE (0.36 J)
01/23/18	11.74	ND (<0.26)
02/20/18	11.74	ND (<0.26)
03/16/18	11.74	NE (2.2)
04/05/18	11.74	NE (1.4)
05/21/18	10.00	NE (0.38 J)
08/02/18	10.00	ND (<0.26)
08/30/18	10.00	NE (1.1)
09/17/18	10.00	ND (<0.26)
05/01/19	9.70	NE (0.27 J)
05/01/19	13.00	ND (<0.22)
07/20/19	9.70	ND (<0.22)

MW-346A	Depth	*cis*-1,2-DCE
04/05/16	13.1	**94.5**
06/13/16	13.1	NE (3.7)
10/25/16	13.1	NE (15)
01/10/17	13.1	NE (5.6)
03/22/17	13.1	NE (2.7)
04/12/17	13.1	NE (1.7)
7/26/2017 - Baseline	13.1	**100**
10/05/17	13.1	NE (27)
11/7/2017	11.0	NE (1.2)
01/11/18	13.1	NE (7.9)
01/23/18	11.0	NE (12)
02/20/18	13.1	NE (3)
03/16/18	13.1	NE (2.3)
04/05/18	13.1	NE (9.9)
05/21/18	10.5	NE (1.4)
06/26/18	10.5	NE (65)

MW-350A/MW-505A	Depth	*cis*-1,2-DCE
04/05/16	11.4	ND (<0.27)
10/24/16	11.4	ND (<0.26)
01/09/17	11.4	ND (<0.26)
04/12/17	11.4	ND (<0.26)
7/26/2017 - Baseline	11.4	ND (<0.26)
10/05/17	11.4	ND (<0.26)
01/11/18	11.4	ND (<0.26)
04/05/18	11.4	ND (<0.26)
05/21/2018	10.5	ND (<0.26)
04/30/19	5.5	ND (<0.22)
04/30/19	10.5	ND (<0.22)
07/20/19	10.5	ND (<0.22)

MW-395A	Depth	*cis*-1,2-DCE
04/06/16	12.5	ND (<0.27)
06/14/16	12.5	ND (<0.31)
10/24/2016	12.5	ND (<0.26)
04/13/17	12.5	NE (0.37 J)
7/26/2017 - Baseline	12.5	ND (<0.26)
10/05/17	12.5	ND (<0.26)
01/11/18	12.5	ND (<0.26)
04/06/18	12.5	ND (<0.26)

MW-396A	Depth	*cis*-1,2-DCE
04/05/16	11	ND (<0.27)
6/15/2016	11	NE (0.82 J)
10/24/16	11	NE (0.99 J)
01/10/17	11	NE (0.88 J)
04/13/17	11	NE (0.75 J)
7/26/2017 - Baseline	11	NE (0.84 J)
10/05/17	11	NE (0.85 J)
01/11/18	11	NE (0.69 J)
04/05/18	11	NE (0.94 J)

MW-397A	Depth	*cis*-1,2-DCE
04/05/16	16	ND (<0.27)
06/15/16	16	ND (<0.31)
10/25/16	16	ND (<0.26)
01/09/17	16	ND (<0.26)
04/12/17	16	ND (<0.26)
7/26/2017 - Baseline	16	ND (<0.26)
10/05/17	16	ND (<0.26)
01/11/18	16	ND (<0.26)
04/06/18	16	ND (<0.26)

MW-447A	Depth	*cis*-1,2-DCE
04/06/16	12.3	ND (<0.27)
6/15/2016	12.3	ND (<0.31)
10/24/16	12.3	ND (<0.26)
01/10/17	12.3	ND (<0.26)
04/12/17	12.3	ND (<0.26)
7/26/2017 - Baseline	12.3	ND (<0.26)
10/05/17	12.3	ND (<0.26)
11/7/2017	10.0	ND (<0.26)
01/11/18	12.3	ND (<0.26)
1/23/2018[D]	12.3	ND (<0.26)
2/20/2018	12.3	ND (<0.26)
03/16/18	12.3	ND (<0.26)
04/05/18	12.3	ND (<0.26)

MW-52	Depth	*cis*-1,2-DCE
4/6/2016	25	NE (0.34 J)
06/14/16	25	ND (<0.31)
10/25/16	25	ND (<0.26)
01/10/17	25	ND (<0.26)
04/12/17	25	NE (0.32 J)
7/26/2017 - Baseline	25	NE (0.27)
10/05/17	25	NE (0.36 J)
11/7/2017	25	ND (<0.26)
01/11/18	25	ND (<0.26)
01/23/18	25	ND (<0.26)
02/20/18	25	ND (<0.26)
04/05/18	25	ND (<0.26)

PROJECT:
ROCHE NUTLEY SITE REMEDIATION

TITLE:
CIS-1,2-DCE ISOCONCENTRATION CONTOURS - SHALLOW TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA		
APPROVED BY:	Y. KUNUKCU	**FIGURE 5A**	
DATE:	DECEMBER 2019		

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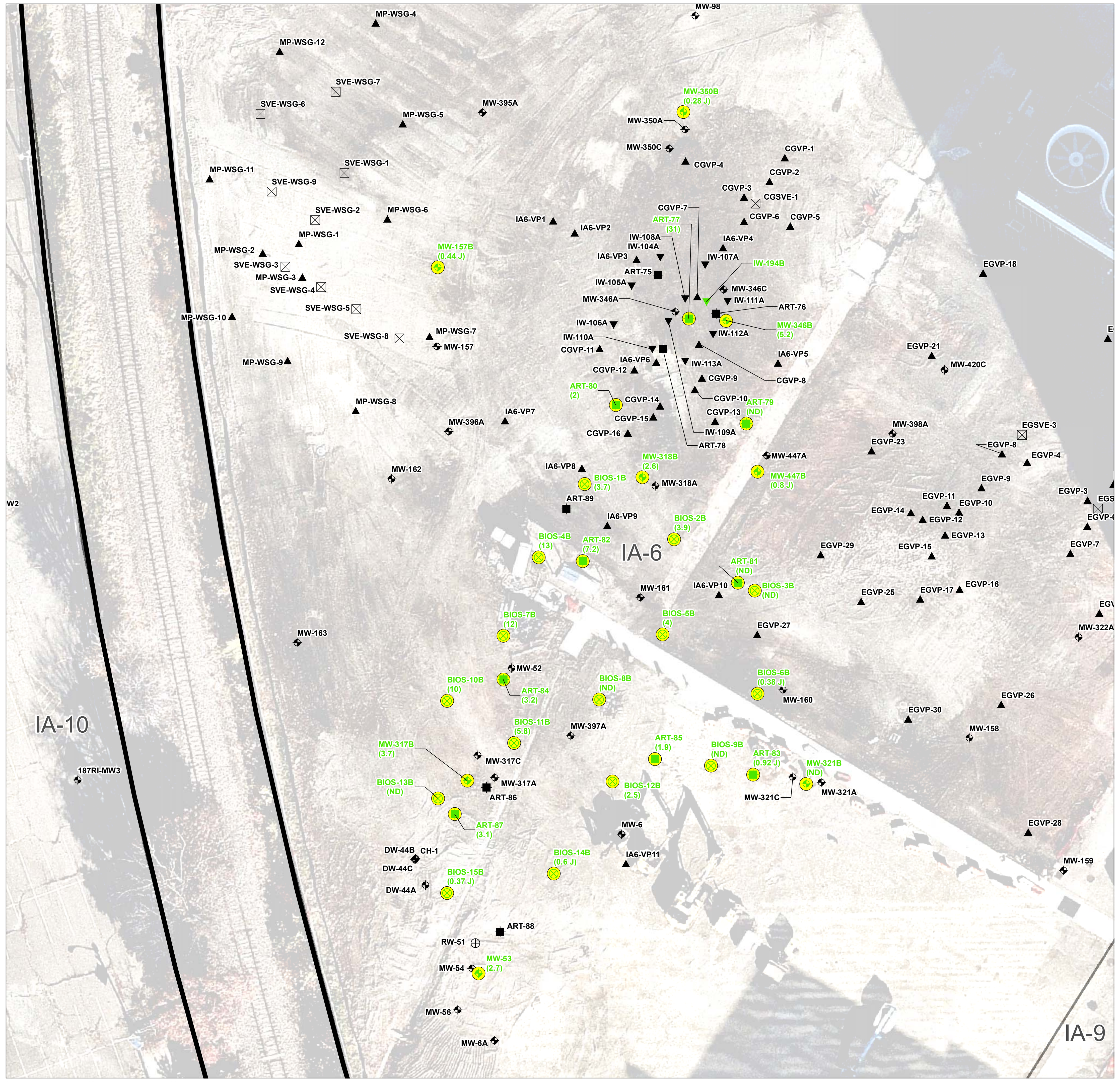
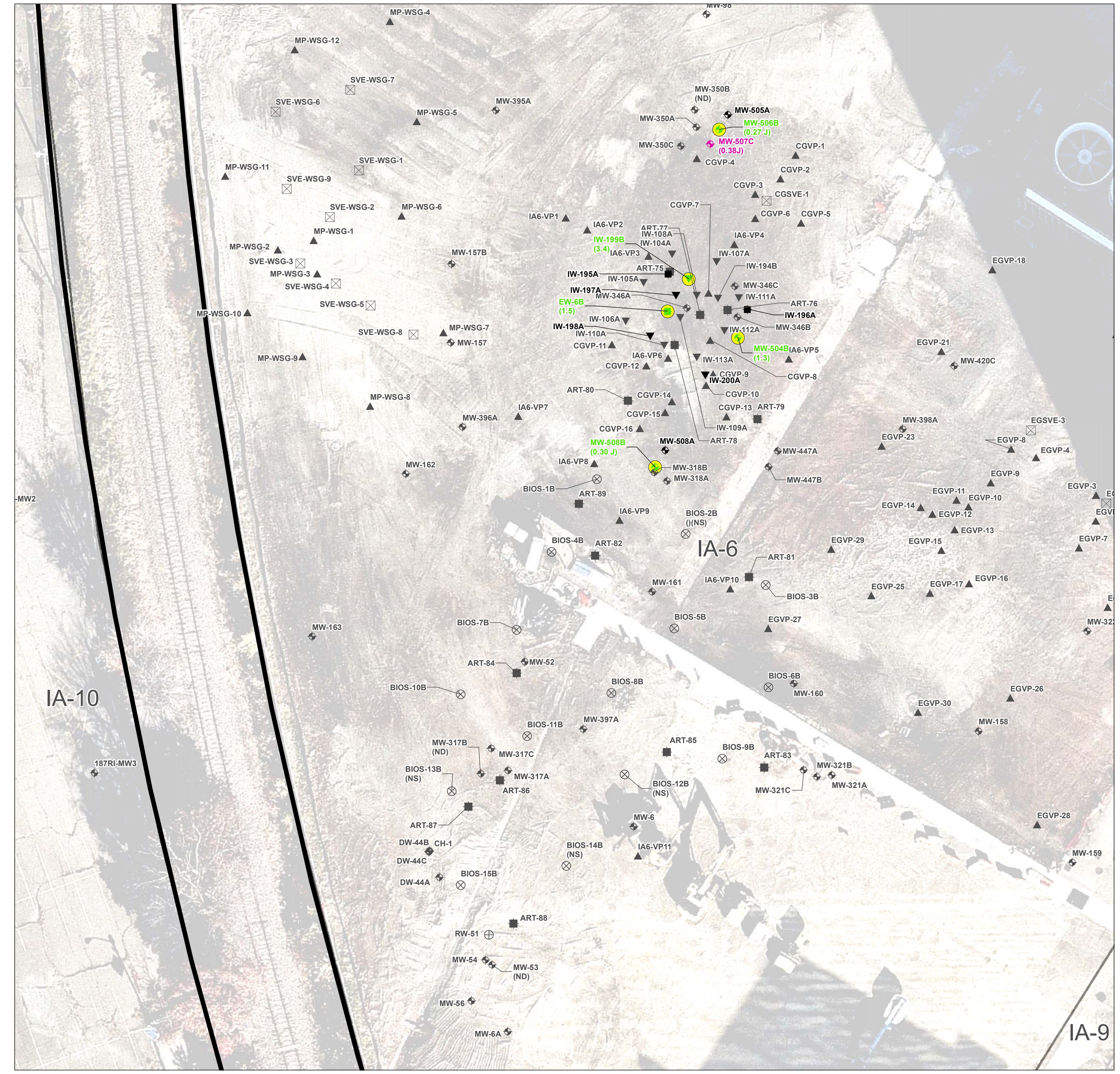
FILE NO.: IA-6_cis_Shallow.mxd

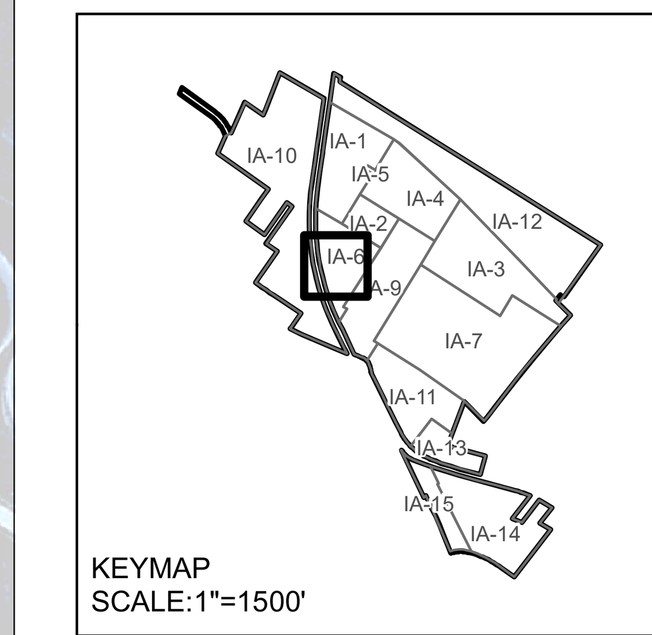
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Foot US)
Map Rotation: 0
Plot Date: 2/25/2020, 08:38:54 AM by LBOCHKIS -- LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\105009\IA-6\Revised_IRM Figures\Map Documents\Revised 2_2020\IA-6_cis_Shallow.mxd

BASELINE - JULY 2017



MOST RECENT*





LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- INTERMEDIATE TREATMENT ZONE
- DEEP TREATMENT ZONE **

ABBREVIATION	GWQS (μg/L)	COMPOUND
cis-1,2-DCE	70	cis-1,2-Dichloroethene

NOTES:
1. μg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. INTERMEDIATE TREATMENT ZONE - ~80 - 50 FEET ABOVE MEAN SEA LEVEL
5. DEEP TREATMENT ZONE - ~50 - 0 FEET ABOVE MEAN SEA LEVEL
6. DEPTH – FEET BELOW GROUND SURFACE
7. NE - NO EXCEEDANCE
8. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
9. ND - NOT DETECTED
10. *MOST RECENT DATA IS JULY 2019
11. **NOT INCLUDED IN PLUME DATA
12. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
13. NS - NOT SAMPLED
14. D - DUPLICATE SAMPLE
15. NA - NOT ANALYZED
16. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

MW-53	Depth	*cis*-1,2-DCE
04/05/16	35	NE (3.2)
06/13/16	35	NE (0.53 J)
10/25/16	35	NE (1.7)
01/10/17	35	ND (<0.26)
04/12/17	35	NE (1.4)
7/26/2017 - Baseline	35	NE (2.7)
10/05/17	35	NE (1.6)
01/11/18	35	NE (0.66 J)
04/06/18	35	ND (<0.26)

MW-157B	Depth	*cis*-1,2-DCE
04/05/16	40	NE (0.35 J)
06/14/16	40	NE (2.5)
10/24/16	40	NE (3.6)
01/10/17	40	NE (1.4)
04/13/17	40	ND (<0.26)
7/26/2017[D] - Baseline	40	NE (0.44 J)
10/5/2017[D]	40	NE (0.89 J)
01/11/18	40	NE (0.4 J)
03/16/18	40	NE (0.26)
4/6/2018[D]	40	NE (0.95 J)

MW-317B	Depth	*cis*-1,2-DCE
04/05/16	40	NE (0.52 J)
06/14/16	40	ND (<0.31)
10/25/16	40	ND (<0.26)
01/10/17	40	ND (<0.26)
04/12/17	40	NE (1.3)
7/26/2017 - Baseline	40	NE (3.7)
10/05/17	40	NE (0.97 J)
11/7/2017	40	ND (<0.26)
01/11/18	40	ND (<0.26)
01/23/18	40	ND (<0.26)
02/20/18	40	ND (<0.26)
04/05/18	40	ND (<0.26)

MW-318B/MW-508B	Depth	*cis*-1,2-DCE
04/05/16	50	NE (4.2)
06/15/16	50	ND (<0.31)
10/24/16	50	ND (<0.22)
01/09/17	50	NE (0.34 J)
04/12/17	50	NE (0.47 J)
7/26/2017 - Baseline	50	NE (2.6)
10/05/17	50	NE (0.71 J)
11/7/2017	50	ND (<0.26)
01/11/18	50	NE (0.6 J)
01/23/18	50	NE (0.67 J)
02/20/18	50	NE (1.3)
03/16/18	50	ND (<0.26)
04/05/18	50	NE (0.72 J)
05/21/18	50	NE (2.1)
08/02/18	50	ND (<0.26)
08/30/18	50	NE (1.6)
09/17/18	50	ND (<0.26)
05/01/19	40.5	NE (0.34 J)
05/01/19	45.5	NE (0.35 J)
05/01/19	50.5	NE (0.37 J)
05/01/19	55.5	NE (0.44 J)
07/20/19	55.5	NE (0.30 J)

MW-321B	Depth	*cis*-1,2-DCE
04/05/16	50	NE (0.35 J)
06/14/16	50	ND (<0.31)
10/24/16	50	ND (<0.26)
01/10/17	50	ND (<0.26)
04/12/17	50	NE (0.29 J)
7/26/2017 - Baseline	50	ND (<0.26)
10/5/2017[D]	50	ND (<0.26)
01/11/18	50	ND (<0.26)
04/06/18	50	ND (<0.26)

MW-346B/MW-504B	Depth	*cis*-1,2-DCE
04/05/16	40	NE (1.3)
06/13/16	40	NE (1.6)
10/25/16	40	NE (0.81 J)
01/10/17	40	NE (1.5)
03/22/17	40	NE (0.4 J)
04/12/17	40	NE (0.51 J)
7/26/2017 - Baseline	40	NE (5.2)
10/05/17	40	NE (0.89 J)
11/7/2017	40	ND (<0.26)
01/11/18	40	NE (2.3)
01/23/18	40	NE (3.5)
02/20/18	40	ND (<0.26)
03/16/18	40	ND (<0.26)
04/05/18	40	NE (0.84 J)
05/21/18	40	NE (2.4)
05/31/18	40	ND (<0.26)
06/26/18	40	NE (3.4)
05/01/19	33.5	NE (1.3)
05/01/19	38.5	NE (1.6)
07/20/19	38.5	NE (1.3)

MW-350B/MW-506B	Depth	*cis*-1,2-DCE
04/05/16	40	NE (0.63 J)
06/01/16	NA	NA
10/24/16	40	NE (0.56 J)
01/10/17	40	NE (0.44 J)
04/12/17	40	NE (0.38 J)
7/26/2017 - Baseline	40	NE (0.28 J)
10/05/17	40	NE (0.26 J)
01/11/18	40	ND (<0.26)
04/05/18	40	ND (<0.26)
05/21/2018	40	ND (<0.26)
04/30/19	36	ND (< 0.22)
04/30/19	41	ND (< 0.22)
07/20/19	41	NE (0.27 J)

MW-447B	Depth	*cis*-1,2-DCE
04/06/16	40	ND (<0.27)
06/15/16	40	ND (<0.31)
10/24/16	40	ND (<0.26)
01/10/17	40	ND (<0.26)
04/13/17	40	NE (0.37 J)
7/26/2017 - Baseline	40	NE (0.8 J)
10/05/17	40	NE (0.37 J)
11/7/2017	40	ND (<0.26)
01/11/18	40	ND (<0.26)
01/23/18	40	NE (0.46 J)
02/20/18	40	NE (0.38 J)
03/16/18	40	ND (<0.26)
04/05/18	40	NE (0.32 J)

ART-77/EW-6B	Depth	*cis*-1,2-DCE
04/07/16	39.4	NE (36.4)
06/01/16	NA	NA
01/10/17	36.5	NE (15)
03/22/17	36.5	NE (0.47 J)
04/12/17	36.5	NE (0.48 J)
7/26/2017 - Baseline	36.5	NE (31)
10/05/17	36.5	NE (3.5)
01/11/18	36.5	ND (<0.26)
02/20/18	36.5	NE (11)
03/16/18	36.5	NE (15)
04/05/18	36.5	NE (22)
05/18/18	36.5	NE (14)
05/31/18	36.5	NE (3.8)
6/26/2018[D]	36.5	NE (4)
05/01/19	29.5	NE (5.5)
05/01/19	34.5	NE (5.4)
05/01/19	39.5	NE (2.7)
07/20/19	34.5	NE (1.5)
07/20/19	39.5	NE (1.4)

ART-79	Depth	*cis*-1,2-DCE
4/7/2016	22.74	NE (0.38 J)
4/7/2016	52.08	ND (<0.27)
06/01/16	NA	NA
7/26/2017	22.75	ND (<0.26)
7/26/2017 - Baseline	49	ND (<0.26)
02/20/18	49	NE (0.38 J)

ART-80	Depth	*cis*-1,2-DCE
04/07/16	22.76	NE (10.7)
04/07/16	52.06	NE (18.2)
06/01/16	NA	NA
7/26/2017[D]	22.75	NE (2)
7/26/2017 - Baseline	49	NE (18)
11/7/2017	31.5	NA
02/20/18	16.5	NE (6.7)

ART-81	Depth	*cis*-1,2-DCE
4/6/2016	22.54	ND (<0.27)
4/6/2016	51.68	ND (<0.27)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.26)
7/27/2017 - Baseline	49	ND (<0.26)

ART-82	Depth	*cis*-1,2-DCE
04/06/16	46.44	NE (0.77 J)
06/01/16	NA	NA
7/27/2017 - Baseline	44	NE (7.2)

ART-83	Depth	*cis*-1,2-DCE
04/07/16	22.54	NE (0.3 J)
04/07/16	51.53	NE (0.32 J)
06/01/16	NA	NA
07/27/17	22.54	NE (0.67 J)
7/26/2017 - Baseline	49	NE (0.92 J)

ART-84	Depth	*cis*-1,2-DCE
4/6/2016[D]	46.8	NE (0.72 J)
06/01/16	NA	NA
7/26/2017 - Baseline	44	NE (3.2)

ART-85	Depth	*cis*-1,2-DCE
04/07/16	46.71	NE (0.34 J)
06/01/16	NA	NA
01/10/17	44	ND (<0.26)
04/12/17	44	NE (0.56 J)
7/26/2017 - Baseline	44	NE (1.9)
10/05/17	44	NE (0.35 J)
01/11/18	44	ND (<0.26)
03/16/18	44	ND (<0.26)
04/05/18	44	ND (<0.26)

ART-87	Depth	*cis*-1,2-DCE
04/07/16	49.41	NE (1.1)
06/01/16	NA	NA
7/26/2017 - Baseline	46.5	NE (3.1)

BIOS-1B	Depth	*cis*-1,2-DCE
04/15/16	66	NE (8.6)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (3.7)
05/21/18	65	NE (2.9)
08/02/18	65	NE (5.9)
08/30/18	65	NE (8.7)
09/17/18	65	NE (9.1)

BIOS-2B	Depth	*cis*-1,2-DCE
04/15/16	66.7	ND (<0.27)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (3.9)

BIOS-3B	Depth	*cis*-1,2-DCE
04/15/16	66.5	ND (<0.27)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.26)

BIOS-4B	Depth	*cis*-1,2-DCE
04/15/16	66.9	NE (0.88 J)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (13)

BIOS-5B	Depth	*cis*-1,2-DCE
4/15/2016	66	NE (0.28 J)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (4)

BIOS-6B	Depth	*cis*-1,2-DCE
4/15/2016	67.3	NE (0.39)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (0.38 J)

BIOS-7B	Depth	*cis*-1,2-DCE
04/15/16	66.4	ND (<2.7)
06/01/16	NA	NA
10/26/16	66.4	ND (<0.26)
7/28/2017 - Baseline	65	NE (12)
10/06/17	65	NE (2.6)

BIOS-8B	Depth	*cis*-1,2-DCE
04/15/16	66.2	NE (0.32 J)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.26)

BIOS-9B	Depth	*cis*-1,2-DCE
4/15/2016	66.8	ND (<0.27)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.26)

BIOS-10B	Depth	*cis*-1,2-DCE
04/15/16	65.9	ND (<2.7)
06/01/16	NA	NA
7/27/2017 - Baseline	65	NE (10)
10/06/17	65	ND (<3.9)

BIOS-11B	Depth	*cis*-1,2-DCE
04/15/16	65.9	ND (<2.7)
06/01/16	NA	NA
10/26/16	65.9	ND (<0.26)
7/27/2017 - Baseline	65	NE (5.8)

BIOS-12B	Depth	*cis*-1,2-DCE
04/15/16	67	ND (<1.4)
06/01/16	NA	NA
7/27/2017 - Baseline	60	NE (2.5)

BIOS-13B	Depth	*cis*-1,2-DCE
04/15/16	61.8	ND (<27)
06/01/16	NA	NA
10/26/16	61.8	ND (<0.26)
7/27/2017 - Baseline	60	ND (<0.26)

BIOS-14B	Depth	*cis*-1,2-DCE
04/15/16	61	NE (3.5)
06/01/16	NA	NA
7/27/2017[D] - Baseline	60	NE (0.6 J)

BIOS-15B	Depth	*cis*-1,2-DCE
04/15/16	61.7	ND (<5.5)
06/01/16	NA	NA
10/26/16	61.7	ND (<0.26)
7/27/2017 - Baseline	60	NE (0.37 J)

IW-194B/IW-199B	Depth	*cis*-1,2-DCE
05/21/18	37.5	NE (4.6)
05/31/18	37.5	ND (<0.26)
06/26/18	37.5	NE (3 J)
08/02/18	40	NE (3.1)
08/30/18	40	NE (3 J)
09/17/18	40	NE (4.6)
05/01/19	29	NE (1.3)
05/01/19	34	NE (0.87 J)
05/01/19	39	NE (0.86 J)
07/20/19	39	NE (3.4)

MW-350C/MW-507C	Depth	*cis*-1,2-DCE
4/5/2016	70	NE (1)
06/01/16	NA	NA
10/24/16	70	NE (0.92 J)
01/10/17	70	NE (0.7 J)
04/12/17	70	NE (0.6 J)
7/26/2017 - Baseline	70	NE (0.45 J)
10/05/17	70	NE (0.6 J)
01/11/18	70	NE (0.52 J)
04/05/18	70	NE (0.57 J)
05/21/2018	70	NE (0.27 J)
04/30/19	61	NE (0.37 J)
04/30/19	66	NE (0.39 J)
04/30/19	71	NE (0.35 J)
04/30/19	76	NE (0.41 J)
07/20/19	76	NE (0.38 J)

PROJECT: **ROCHE NUTLEY SITE REMEDIATION**

TITLE: **CIS-1,2-DCE ISOCONCENTRATION CONTOURS - INTERMEDIATE TREATMENT ZONE**

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA	**FIGURE 5B**	
APPROVED BY:	Y. KUNUKCU		
DATE:	DECEMBER 2019		

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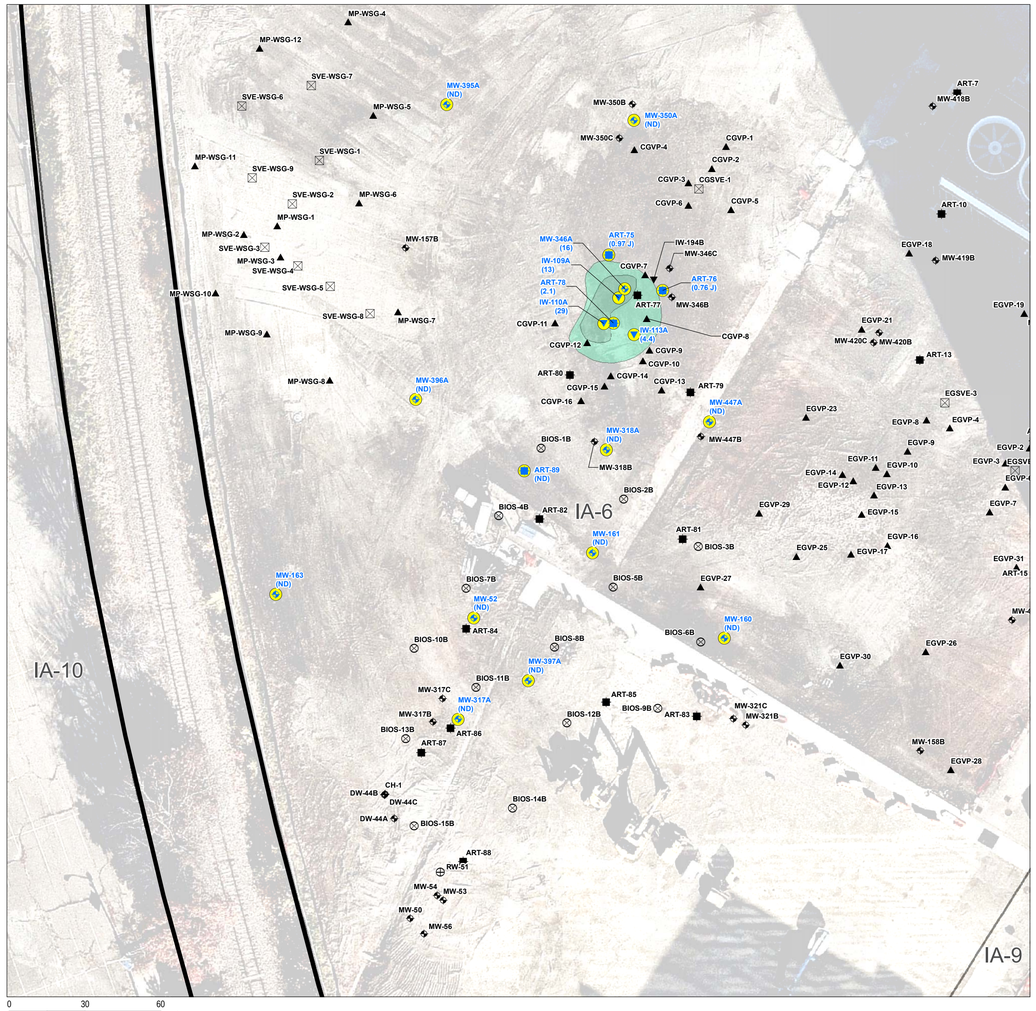
FILE NO.: IA-6_cis_Intermediate.mxd

Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Foot US)
Map Rotation: 0
Plot Date: 2/25/2020, 08:35:33 AM by LBOCHKIS -- LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\105009\IA-6\Revised_IRM Figures\Map Documents\Revised 2_2020\IA-6_cis_Intermediate.mxd

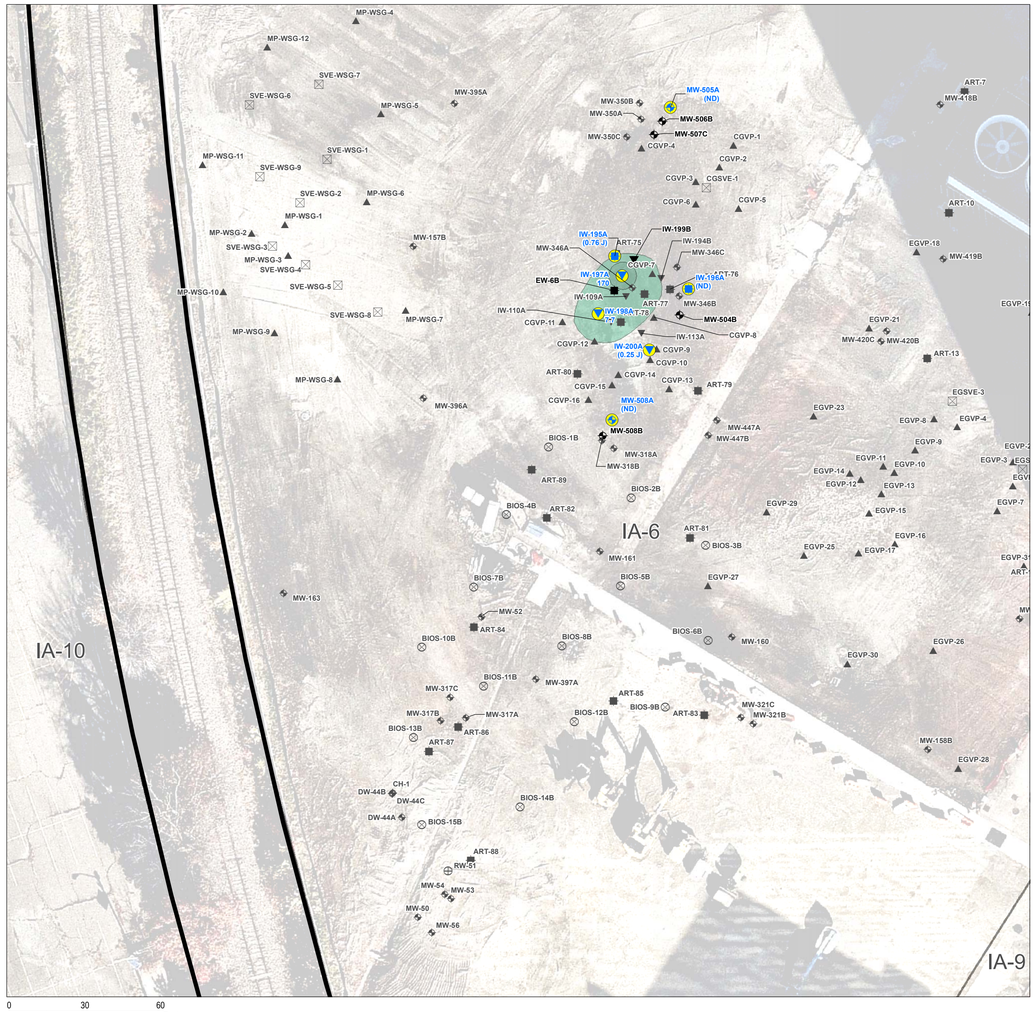
FIGURE 6
VC ISONCENTRATION CONTOURS

BASELINE - JULY 2017

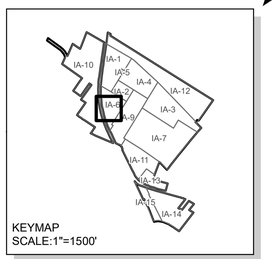


0 30 60 Feet

MOST RECENT*



0 30 60 Feet



KEYMAP
SCALE:1"=1500'

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- SHALLOW TREATMENT ZONE

PCE ISOCONCENTRATION CONTOURS (ug/L)

- >1 AND ≤ 10
- >10 AND ≤ 100
- >100 AND ≤ 1000

ABBREVIATION	GWQS (µg/L)	COMPOUND
VC	1	Vinyl Chloride

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. SHALLOW TREATMENT ZONE - ~100 - 80 FEET ABOVE MEAN SEA LEVEL
5. DEPTH – FEET BELOW GROUND SURFACE
6. NE - NO EXCEEDANCE
7. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
8. ND - NOT DETECTED
9. *MOST RECENT DATA IS JULY 2019
10. **NOT INCLUDED IN PLUME DATA
11. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
12. NS - NOT SAMPLED
13. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

ART-75/ IW-195A	Depth	VC
04/07/16	22.48	**13.5**
01/10/17	16.5	NE (0.26 J)
03/22/17	16.5	ND (<0.33)
04/13/17	16.5	ND (<0.060)
7/26/2017 - Baseline	16.5	NE (0.97 J)
10/05/17	16.5	NE (0.19 J)
01/11/18	16.5	NE (0.21 J)
03/16/18	16.5	NE (0.26 J)
04/05/18	16.5	ND (<0.060)
05/18/2018	16.5	NE (0.52 J)
05/31/18	16.5	ND (<0.30)
06/26/18	16.5	ND (<0 .17)
05/01/19	7.7	ND (<0 .17)
05/01/19	12.7	**2.0**
05/01/19	17.7	**2.1**
05/01/19	22.7	**2.5**
05/01/19	27.7	**2.3**
07/20/19	22.7	NE (0.76 J)

ART-76/ IW-196A	Depth	VC
04/06/16	22.88	**1.7**
7/26/2017 - Baseline	23	NE (0.76 J)
05/18/2018	16.5	NE (0.10 J)
05/31/18	16.5	ND (<0.30)
06/26/18	16.5	ND (<0.17)
04/30/19	7.0	ND (<0.17)
04/30/19	17.0	ND (<0.17)
04/30/19	22.0	ND (<0.17)
04/30/19	27.0	ND (<0.17)
07/20/19	17.0	ND (<0.17)

ART-78	Depth	VC
04/07/16	22.81	**24.3**
01/10/17	16.5	NE (0.32 J)
03/22/17	16.5	ND (<0.33)
04/12/17	16.5	NE (0.11 J)
7/26/2017 - Baseline	16.5	**2.1**
10/05/17	16.5	ND (<0.06)
01/11/18	16.5	NE (0.79 J)
02/20/18	16.5	NE (0.71 J)
03/16/18	16.5	NE (0.16 J)
04/05/18	16.5	NE (0.084 J)
05/18/2018	16.5	NE (0.64 J)
05/31/18	16.5	ND (<0.3)
06/26/18	16.5	ND (<0.17)

ART-89	Depth	VC
04/06/16	22.37	ND (<0.15)
7/27/2017 - Baseline	22.37	ND (<0.06)

IW-109A/ IW-197A	Depth	VC
7/28/2017 - Baseline	27.5	**13**
02/20/18	27.5	**1.3 J**
05/18/18	27.5	**2.5**
05/31/18	27.5	ND (<0.3)
04/30/19	25.0	**49**
07/20/19	25.0	**170**

IW-110A/ IW-198A	Depth	VC
7/28/2017 - Baseline	27.5	**29**
02/20/18	27.5	NE (0.68 J)
05/18/18	27.5	**1.4**
05/31/18	27.5	**3.1**
06/26/18	27.5	ND (<0.17)
04/30/19	25.5	**18**
07/20/19	25.5	**7.7**

IW-113A/ IW-200A	Depth	VC
7/28/2017 - Baseline	27.5	**4.4**
05/21/18	27.5	NE (0.6 J)
06/26/18	27.5	ND (<0.17)
05/01/19	25.0	NE (0.35 J)
05/01/19	25.0	NE (0.25 J)

MW-160	Depth	VC
04/05/16	14.8	ND (<0.15)
06/13/16	14.8	ND (<0.33)
10/24/16	14.5	ND (<0.06)
01/10/17	14.5	ND (<0.06)
04/12/17	14.5	ND (<0.06)
7/26/2017 - Baseline	14.5	ND (<0.06)
10/05/17	14.5	ND (<0.06)
01/11/18	14.5	ND (<0.06)
04/06/18	14.5	ND (<0.06)

MW-161	Depth	VC
04/05/16	12	ND (<0.15)
06/14/16	12	ND (<0.33)
10/24/16	12	ND (<0.06)
1/10/2017	12	ND (<0.06)
04/12/17	12	ND (<0.06)
7/26/2017 - Baseline	12	ND (<0.06)
10/05/17	12	ND (<0.06)
01/11/18	12	ND (<0.06)
04/05/18	12	ND (<0.06)

MW-163	Depth	VC
04/06/16	14.58	ND (<0.15)
06/15/16	14.60	ND (<0.33)
10/25/16	14.60	ND (<0.06)
01/10/19	14.60	ND (<0.06)
04/12/17	14.60	ND (<0.06)
7/26/2017 - Baseline	14.60	ND (<0.06)
10/05/17	14.60	ND (<0.06)
01/11/18	14.60	ND (<0.06)
04/06/18	14.60	ND (<0.06)

MW-317A	Depth	VC
04/05/16	12.85	ND (<0.15)
06/14/16	12.85	ND (<0.33)
10/25/16	12.85	ND (<0.06)
01/10/17	12.85	ND (<0.06)
04/12/17	12.85	ND (<0.06)
7/26/2017 - Baseline	12.85	ND (<0.06)
10/05/17	12.85	ND (<0.06)
01/11/18	12.85	ND (<0.06)
04/06/18	12.85	ND (<0.06)

MW-318A/ MW-508A	Depth	VC
04/05/16	11.74	ND (<0.15)
06/15/16	11.74	ND (<0.33)
10/24/2016	11.74	ND (<0.06)
01/09/17	11.74	ND (<0.06)
04/12/17	11.74	ND (<0.06)
7/26/2017 - Baseline	11.74	ND (<0.06)
10/05/17	11.74	ND (<0.06)
11/7/2017	10.00	ND (<0.06)
01/11/18	11.74	ND (<0.06)
01/23/18	10.00	ND (<0.06)
02/20/18	10.00	ND (<0.06)
03/16/18	11.74	NE (0.19 J)
04/05/18	11.74	ND (<0.06)
05/21/2018	10.00	ND (<0.06)
08/02/18	10.00	ND (<0.06)
08/30/18	10.00	ND (<0.17)
09/17/18	10.00	ND (<0.17)
05/01/19	9.70	ND (<0.17)
05/01/19	13.00	ND (<0.17)
07/20/19	9.70	ND (<0.17)

MW-346A	Depth	VC
04/05/16	13.1	**30.2**
06/13/16	13.1	ND (<0.33)
10/25/16	13.1	**2.1**
01/10/17	13.1	**2.3**
03/22/17	13.1	**1.2**
04/12/17	13.1	NE (0.15 J)
7/26/2017 - Baseline	13.1	**16**
10/05/17	13.1	**7.9**
11/7/2017	11.0	ND (<0.06)
01/11/18	13.1	**1.2**
01/23/18	11.0	**1.9**
02/20/18	13.1	NE (0.48 J)
03/16/18	13.1	NE (0.18 J)
04/05/18	13.1	**1.4 J**
05/21/2018	10.5	NE (0.35 J)
06/26/18	10.5	**5.7**

MW-350A/MW-505A	Depth	VC
04/05/16	11.4	ND (<0.15)
10/24/16	11.4	ND (<0.33)
01/09/17	11.4	ND (<0.06)
04/12/17	11.4	ND (<0.06)
7/26/2017 - Baseline	11.4	ND (<0.06)
10/05/17	11.4	ND (<0.06)
01/11/18	11.4	ND (<0.06)
04/05/18	11.4	ND (<0.06)
05/21/2018	10.5	ND (<0.06)
04/30/19	5.5	ND (<0.17)
04/30/19	10.5	ND (<0.17)
07/20/19	10.5	ND (<0.17)

MW-395A	Depth	VC
04/06/16	12.5	ND (<0.15)
06/14/16	12.5	ND (<0.33)
10/24/2016	12.5	ND (<0.06)
04/13/17	12.5	ND (<0.06)
7/26/2017 - Baseline	12.5	ND (<0.06)
10/05/17	12.5	ND (<0.06)
01/11/18	12.5	ND (<0.06)
04/06/18	12.5	ND (<0.06)

MW-396A	Depth	VC
04/05/16	11	ND (<0.15)
6/15/2016	11	ND (<0.33)
10/24/16	11	ND (<0.06)
01/10/17	11	ND (<0.06)
04/13/17	11	ND (<0.06)
7/26/2017 - Baseline	11	ND (<0.06)
10/05/17	11	ND (<0.06)
01/11/18	11	ND (<0.06)
04/05/18	11	ND (<0.06)

MW-397A	Depth	VC
04/05/16	16	ND (<0.15)
06/15/16	16	ND (<0.33)
10/25/16	16	ND (<0.06)
01/09/17	16	ND (<0.06)
04/12/17	16	ND (<0.06)
7/26/2017 - Baseline	16	ND (<0.06)
10/05/17	16	ND (<0.06)
01/11/18	16	ND (<0.06)
04/06/18	16	ND (<0.06)

MW-447A	Depth	VC
04/06/16	12.3	ND (<0.15)
6/15/2016	12.3	ND (<0.33)
10/24/16	12.3	ND (<0.06)
01/10/17	12.3	ND (<0.06)
04/12/17	12.3	ND (<0.06)
7/26/2017 - Baseline	12.3	ND (<0.06)
10/05/17	12.3	ND (<0.06)
11/7/2017	10.0	ND (<0.06)
01/12/18	12.3	ND (<0.06)
1/23/2018	10.0	ND (<0.06)
2/20/2018	10.0	ND (<0.06)
03/16/18	12.3	ND (<0.06)
04/05/18	12.3	ND (<0.06)

MW-52	Depth	VC
4/6/2016	25	ND (<0.15)
06/14/16	25	ND (<0.33)
10/25/16	25	ND (<0.06)
01/10/17	25	ND (<0.06)
04/12/17	25	NE (0.067 J)
7/26/2017 - Baseline	25	ND (<0.06)
10/05/17	25	ND (<0.06)
11/7/2017	25	ND (<0.06)
01/11/18	25	ND (<0.06)
01/23/18	25	ND (<0.06)
02/20/18	25	ND (<0.06)
04/05/18	25	ND (<0.06)

PROJECT:
ROCHE NUTLEY SITE REMEDIATION

TITLE:
VC ISOCONCENTRATION CONTOURS - SHALLOW TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA
CHECKED BY:	A. HERRERA
APPROVED BY:	Y. KUNUKCU
DATE:	DECEMBER 2019
PROJ. NO.:	198233

FIGURE 6A

TRC
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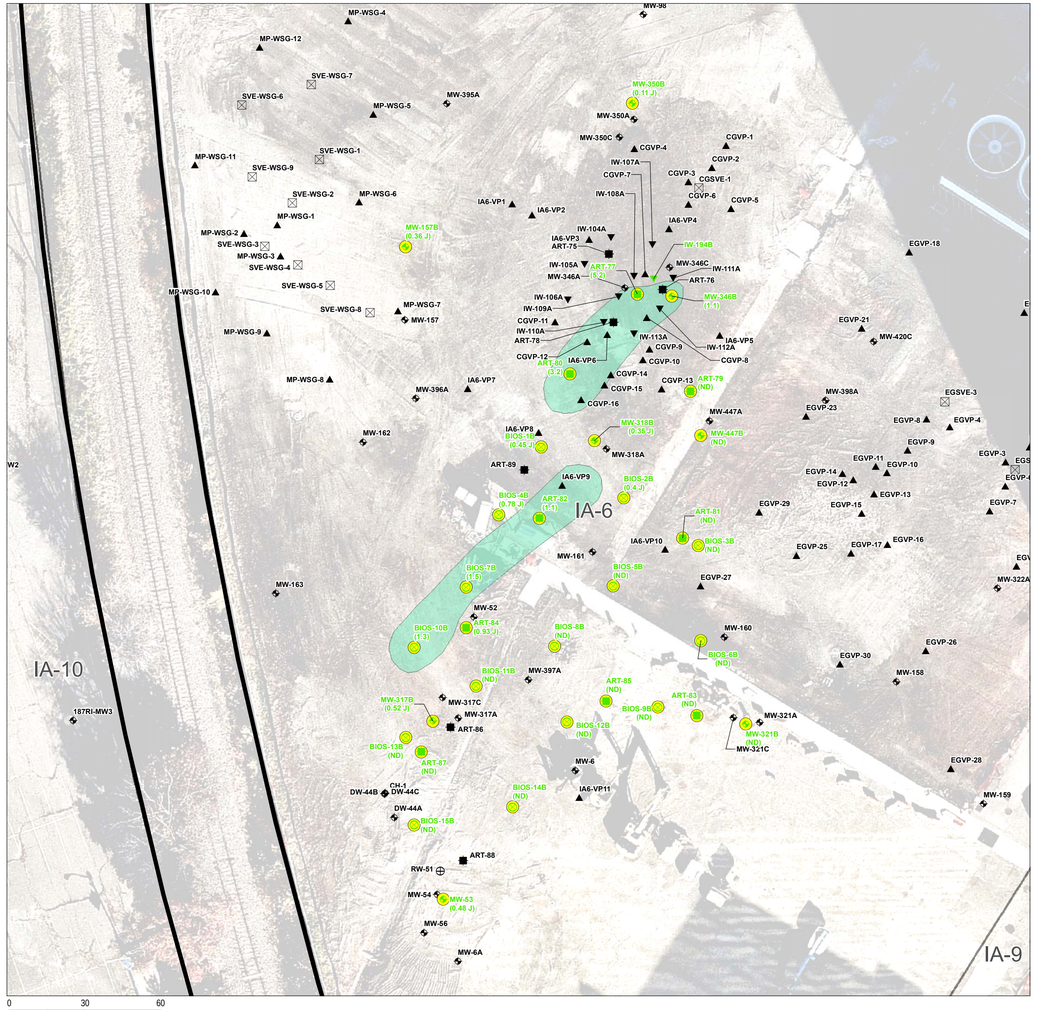
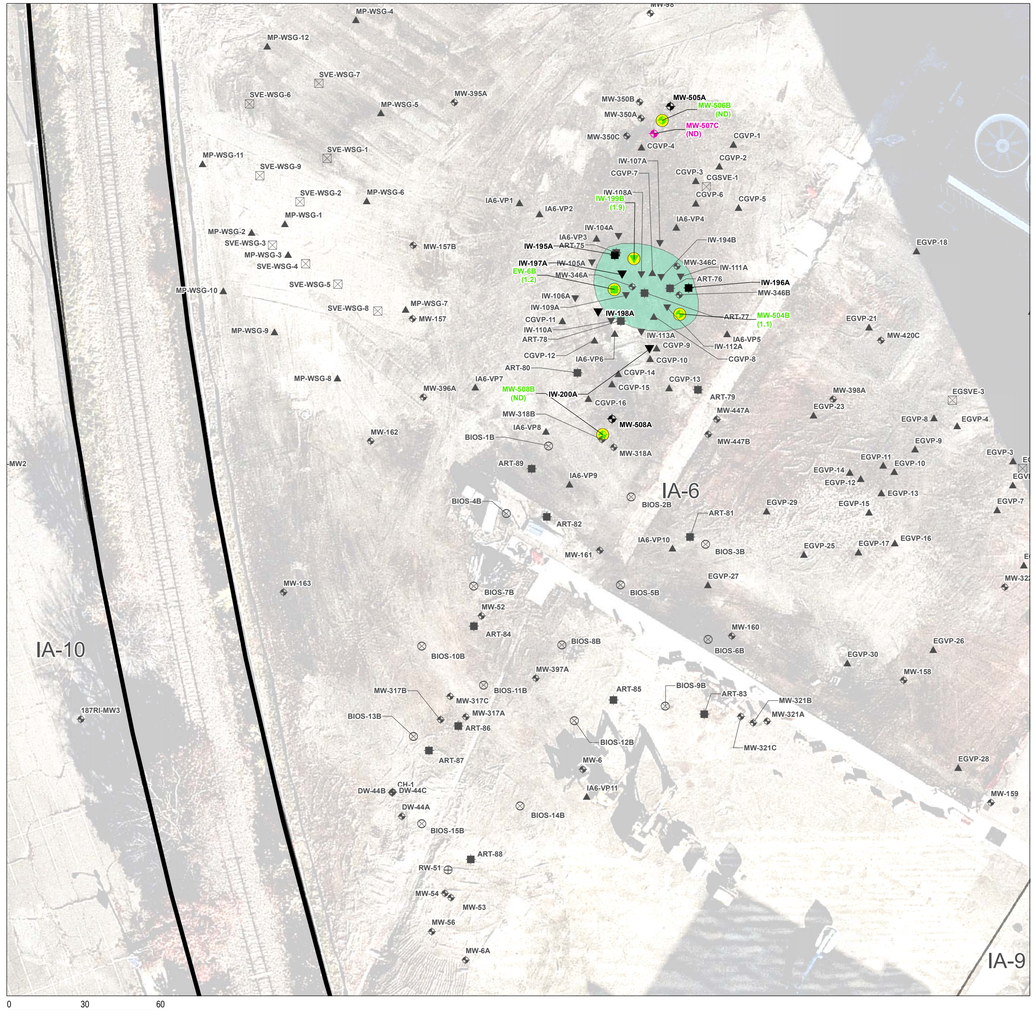
FILE NO.: IA-6_VC_Shallow.mxd

BASELINE - JULY 2017



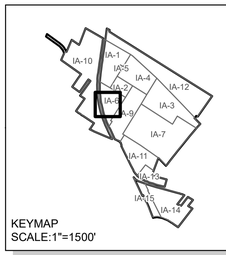
0 30 60 Feet

MOST RECENT*



0 30 60 Feet

N



KEYMAP
SCALE:1"=1500'

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- INTERMEDIATE TREATMENT ZONE
- DEEP TREATMENT ZONE **

PCE ISOCONCENTRATION CONTOURS (ug/L)

- >1 AND ≤ 10

ABBREVIATION	GWQS (µg/L)	COMPOUND
VC	1	Vinyl Chloride

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. INTERMEDIATE TREATMENT ZONE - ~80 - 50 FEET ABOVE MEAN SEA LEVEL
5. DEEP TREATMENT ZONE - ~50 - 0 FEET ABOVE MEAN SEA LEVEL
6. DEPTH – FEET BELOW GROUND SURFACE
7. NE - NO EXCEEDANCE
8. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
9. ND - NOT DETECTED
10. *MOST RECENT DATA IS JULY 2019
11. **NOT INCLUDED IN PLUME DATA
12. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
13. NS - NOT SAMPLED
14. D - DUPLICATE SAMPLE
15. NA - NOT ANALYZED
16. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

MW-53	Depth	VC
04/05/16	35	NE (0.99 J)
06/13/16	35	ND (<0.33)
10/25/16	35	ND (<0.06)
01/10/17	35	ND (<0.06)
04/12/17	35	NE (0.2 J)
7/26/2017 - Baseline	35	NE (0.48 J)
10/05/17	35	ND (<0.06)
01/12/18	35	ND (<0.06)
04/06/18	35	ND (<0.06)

MW-157B	Depth	VC
04/05/16	40	NE (0.24 J)
06/14/16	40	**1.6**
10/24/16	40	**1.1**
01/10/17	40	NA
04/13/17	40	ND (<0.060)
7/26/2017[D] - Baseline	40	NE (0.36 J)
10/05/17	40	NE (0.40 J)
01/11/18	40	ND (<0.060)
03/16/18	40	NE (0.16 J)
4/6/2018[D]	40	NE (0.33 J)

MW-317B	Depth	VC
04/05/16	40	NE (0.44 J)
06/14/16	40	ND (<0.33)
10/25/16	40	ND (<0.06)
01/10/17	40	ND (<0.06)
04/12/17	40	NE (0.11 J)
7/26/2017 - Baseline	40	NE (0.52 J)
10/05/17	40	NE (0.34 J)
11/7/2017	40	ND (<0.06)
01/11/18	40	ND (<0.06)
01/23/18	40	ND (<0.06)
02/20/18	40	ND (<0.06)
04/05/18	40	ND (<0.06)

MW-318B/MW-508B	Depth	VC
04/05/16	50	**2.5**
06/15/16	50	NE (0.67 J)
10/24/16	50	NE (0.094 J)
01/09/17	50	ND (<0.060)
04/12/17	50	ND (<0.060)
7/26/2017 - Baseline	50	NE (0.35 J)
10/05/17	50	ND (<0.060)
11/7/2017	50	ND (<0.060)
01/11/18	50	ND (<0.060)
01/23/18	50	ND (<0.060)
02/20/18	50	ND (<0.060)
03/16/18	50	ND (<0.060)
04/05/18	50	ND (<0.060)
05/21/2018	50	NE (0.4 J)
08/02/18	50	ND (<0.17)
08/30/18	50	ND (<0.17)
09/17/18	50	ND (<0.17)
05/01/19	40.5	ND (<0.17)
05/01/19	45.5	ND (<0.17)
05/01/19	50.5	ND (<0.17)
05/01/19	55.5	NE (0.21 J)
07/20/19	55.5	ND (<0.17)

MW-321B	Depth	VC
04/05/16	50	NE (0.21 J)
06/14/16	50	ND (<0.33)
10/24/16	50	ND (<0.06)
01/10/17	50	ND (<0.06)
04/12/17	50	NE (0.08 J)
7/26/2017 - Baseline	50	ND (<0.06)
10/5/2017	50	ND (<0.06)
01/11/18	50	ND (<0.06)
04/06/18	50	ND (<0.06)

MW-346B/MW-504B	Depth	VC
04/05/16	40	NE (0.91 J)
06/13/16	40	NE (0.38 J)
10/25/16	40	ND (<0.06)
01/10/17	40	NE (0.074 J)
03/22/17	40	ND (<0.33)
04/12/17	40	NE (0.14 J)
7/26/2017 - Baseline	40	**1.1**
10/05/17	40	ND (<0.06)
11/7/2017	40	ND (<0.06)
01/11/18	40	ND (<0.06)
01/23/18	40	ND (<0.06)
02/20/18	40	NE (0.28 J)
03/16/18	40	NE (0.14 J)
04/05/18	40	ND (<0.06)
05/21/18	40	NE (0.31 J)
05/31/18	40	ND (<0.06)
06/26/18	40	NE (0.4 J)
05/01/19	33.5	**1.2**
05/01/19	38.5	**1.4**
07/20/19	38.5	**1.1**

MW-350B/MW-506B	Depth	VC
04/05/16	40	NE (0.53 J)
06/01/16	NA	ND (<0.33)
10/24/16	40	NE (0.23 J)
01/10/17	40	NE (0.31 J)
04/12/17	40	NE (0.12 J)
7/26/2017 - Baseline	40	NE (0.11 J)
10/05/17	40	ND (<0.06)
01/11/18	40	ND (<0.06)
04/05/18	40	ND (<0.06)
05/21/18	40	ND (<0.06)
04/30/19	36	ND (<0.17)
04/30/19	41	ND (<0.17)
07/20/19	41	ND (<0.17)

MW-447B	Depth	VC
04/06/16	40	ND (<0.15)
06/15/16	40	ND (<0.33)
10/24/16	40	ND (<0.06)
01/10/17	40	ND (<0.06)
04/13/17	40	ND (<0.06)
7/26/2017 - Baseline	40	ND (<0.06)
10/05/17	40	ND (<0.06)
11/7/2017	40	ND (<0.06)
01/11/18	40	ND (<0.06)
01/23/18	40	ND (<0.06)
02/20/18	40	ND (<0.06)
03/16/18	40	ND (<0.06)
04/05/18	40	ND (<0.06)

ART-77/EW-6B	Depth	VC
04/07/16	39.4	**38**
06/01/16	NA	NA
01/10/17	36.5	NE (0.25 J)
03/22/17	36.5	ND (<0.33)
04/12/17	36.5	ND (<0.060)
7/26/2017 - Baseline	36.5	**5.2**
10/05/17	36.5	NE (0.52 J)
01/11/18	36.5	ND (<0.060)
02/20/18	36.5	ND (<0.060)
03/16/18	36.5	NE (0.95 J)
04/05/18	36.5	**2.2**
05/18/18	36.5	**1.2**
05/31/18	36.5	ND (<0.060)
6/26/2018[D]	36.5	ND (<0.17)
05/01/19	29.5	**4.8**
05/01/19	34.5	**4.5**
05/01/19	39.5	**2.2**
07/20/19	34.5	**1.2**
07/20/19	39.5	**1.2**

ART-79	Depth	VC
4/7/2016	22.74	ND (<0.15)
4/7/2016	52.08	ND (<0.15)
06/01/16	NA	NA
7/26/2017[D]	22.75	ND (<0.06)
7/26/2017 - Baseline	49	ND (<0.06)
02/20/18	49	ND (<0.06)

ART-80	Depth	VC
04/07/16	22.76	**3.2**
04/07/16	52.06	**7.1**
06/01/16	NA	NA
7/26/2017[D]	22.75	NE (0.42 J)
7/26/2017 - Baseline	49	**3.2**
11/7/2017	31.5	ND (<0.06)
02/20/18	16.5	NE (0.43 J)

ART-81	Depth	VC
4/6/2016	22.54	ND (<0.15)
4/6/2016	51.68	ND (<0.15)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.06)
7/27/2017 - Baseline	49	ND (<0.06)

ART-82	Depth	VC
04/06/16	46.44	NE (0.78 J)
06/01/16	NA	NA
7/27/2017 - Baseline	44	**1.1**

ART-83	Depth	VC
04/07/16	22.54	NE (0.23 J)
04/07/16	51.53	NE (0.26 J)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.06)
7/26/2017 - Baseline	49	ND (<0.06)

ART-84	Depth	VC
04/06/16	46.8	NE (0.31 J)
06/01/16	NA	NA
7/26/2017 - Baseline	44	NE (0.93 J)

ART-85	Depth	VC
04/07/16	46.71	NE (0.29 J)
06/01/16	NA	NA
01/10/17	44	ND (<0.06)
04/12/17	44	ND (<0.06)
7/26/2017 - Baseline	44	ND (<0.06)
10/05/17	44	ND (<0.06)
01/11/18	44	ND (<0.06)
03/16/18	44	ND (<0.06)
04/05/18	44	ND (<0.06)

ART-87	Depth	VC
04/07/16	49.41	NE (0.75 J)
06/01/16	NA	NA
7/26/2017 - Baseline	46.5	ND (<0.06)

BIOS-1B	Depth	VC
04/15/16	66	**4.8**
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (0.45 J)
05/21/18	65	NE (0.64 J)
08/02/18	65	ND (<0.17)
08/30/18	65	ND (<0.17)
9/17/2018[D]	65	ND (<0.17)

BIOS-2B	Depth	VC
04/15/16	66.7	ND (<0.15)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (0.4 J)

BIOS-3B	Depth	VC
04/15/16	66.5	ND (<0.15)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.06)

BIOS-4B	Depth	VC
04/15/16	66.9	**1.4**
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (0.78 J)

BIOS-5B	Depth	VC
4/15/2016	66	ND (<0.15)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.06)

BIOS-6B	Depth	VC
4/15/2016	67.3	ND (<0.15)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.06)

BIOS-7B	Depth	VC
04/15/16	66.4	ND (<1.5)
06/01/16	NA	NA
10/26/16	66.4	ND (<0.06)
7/28/2017 - Baseline	65	**1.5**
10/06/17	65	NE (0.17 J)

BIOS-8B	Depth	VC
04/15/16	66.2	ND (<0.15)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.06)

BIOS-9B	Depth	VC
4/15/2016	66.8	ND (<0.15)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.06)

BIOS-10B	Depth	VC
04/15/16	65.9	ND (<1.5)
06/01/16	NA	NA
7/27/2017 - Baseline	65	**1.3**
10/06/17	65	NE (0.86 J)

BIOS-11B	Depth	VC
04/15/16	65.9	ND (<1.5)
06/01/16	NA	NA
10/26/16	65.9	ND (<0.06)
7/27/2017 - Baseline	65	ND (<0.06)

BIOS-12B	Depth	VC
04/15/16	67	ND (<0.74)
06/01/16	NA	NA
7/27/2017 - Baseline	60	ND (<0.06)

BIOS-13B	Depth	VC
04/15/16	61.8	ND (<1.5)
06/01/16	NA	NA
10/26/16	61.8	ND (<0.06)
7/27/2017 - Baseline	60	ND (<0.06)

BIOS-14B	Depth	VC
04/15/16	61	**3.1**
06/01/16	NA	NA
7/27/2017 - Baseline	60	ND (<0.060)

BIOS-15B	Depth	VC
04/15/16	61.7	ND (<2.9)
06/01/16	NA	NA
10/26/16	61.7	ND (<0.060)
7/27/2017 - Baseline	60	ND (<0.060)

IW-194B/IW-199B	Depth	VC
05/21/18	37.5	NE (0.64 J)
05/31/18	37.5	ND (<0.06)
06/26/18	37.5	ND (<0.86)
08/02/18	40	ND (<0.17)
08/30/18	40	ND (<0.17)
09/17/18	40	ND (<0.17)
05/01/19	29	NE (0.80 J)
05/01/19	34	NE (0.74 J)
05/01/19	39	NE (0.61 J)
07/20/19	39	**1.9**

MW-350C/MW-507C	Depth	VC
4/5/2016	70	NE (0.44 J)
06/01/16	NA	NA
10/24/16	70	NE (0.72 J)
01/10/17	70	NE (0.76 J)
04/12/17	70	NE (0.27 J)
7/26/2017 - Baseline	70	NE (0.47 J)
10/05/17	70	NE (0.45)
01/11/18	70	NE (0.35 J)
04/05/18	70	NE (0.47 J)
05/21/2018	70	ND (<0.06)
04/30/19	61	ND (<0.17)
04/30/19	66	ND (<0.17)
04/30/19	71	ND (<0.17)
04/30/19	76	ND (<0.17)
07/20/19	76	ND (<0.17)

PROJECT:
ROCHE NUTLEY SITE REMEDIATION

TITLE:
VC ISOCONCENTRATION CONTOURS - INTERMEDIATE TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA		
APPROVED BY:	Y. KUNUKCU		
DATE:	DECEMBER 2019		

FIGURE 6B

TRC
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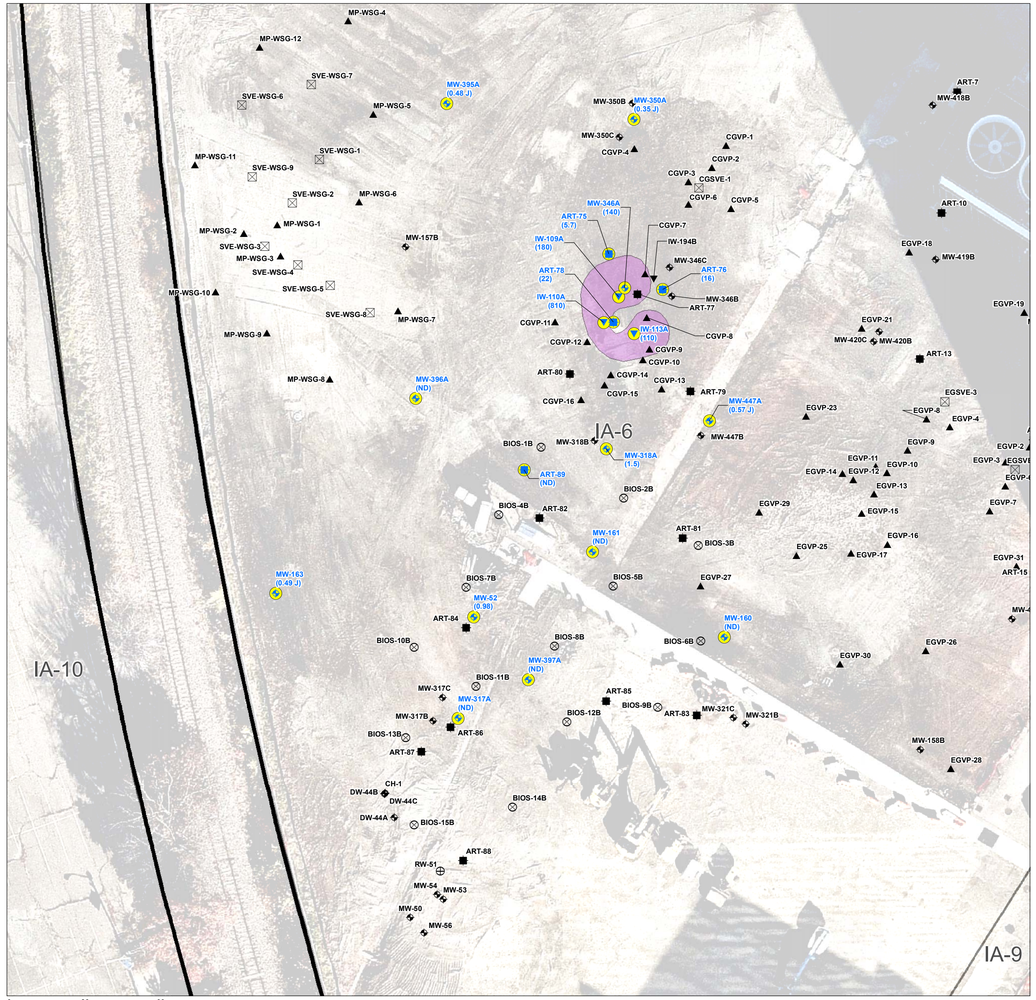
FILE NO.: IA-6_VC_Intermediate.mxd

Plot Date: 2/25/2020, 08:33:07 AM by LBROOKS – LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\ISO\IA6\IA-6Revised_RH Figures\Map Documents\Revised 2_2020\IA-6_VC_Intermediate.mxd
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Ft and US)
Map Rotation: 0

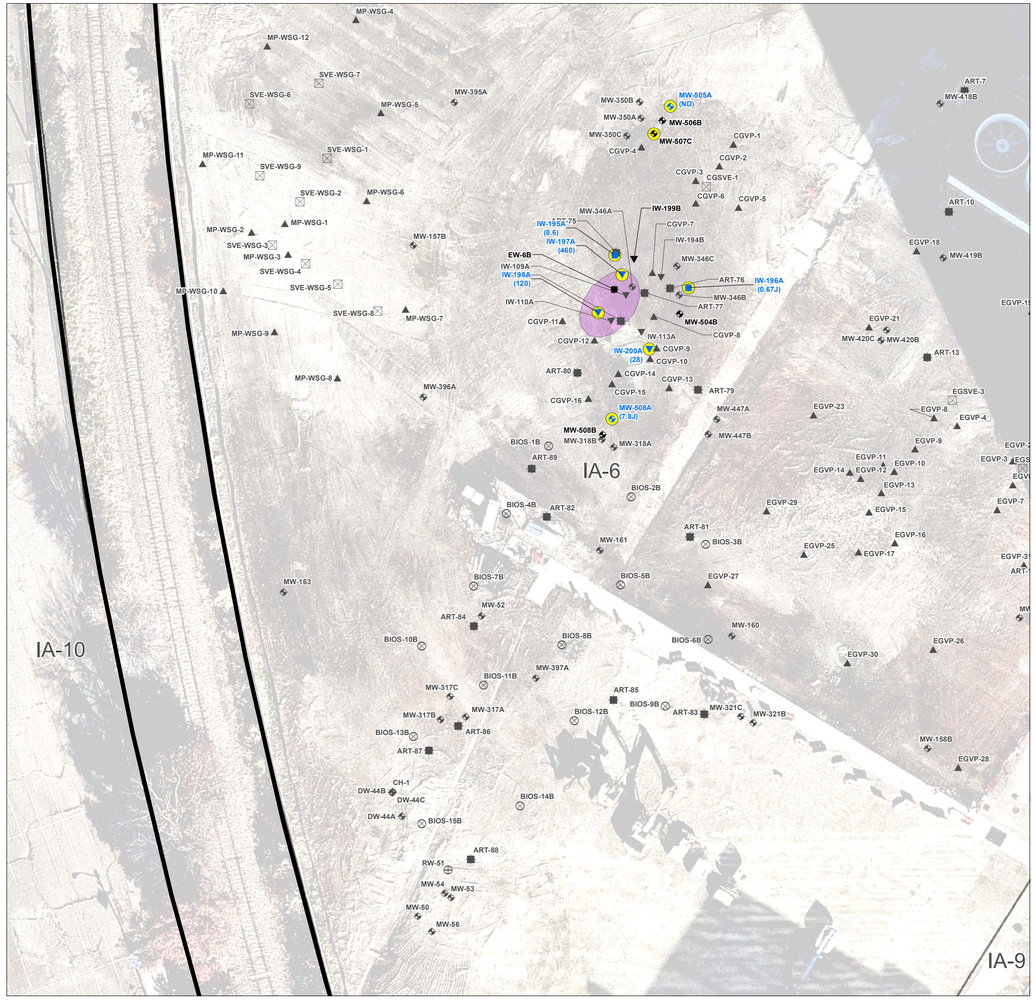
FIGURE 7
CHLOROBENZENE ISOCONCENTRATION CONTOURS

BASELINE - JULY 2017

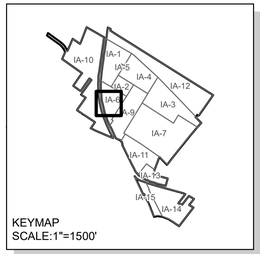


0 30 60 Feet

MOST RECENT*



0 30 60 Feet



KEYMAP
SCALE:1"=1500'

LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

SHALLOW TREATMENT ZONE

CHLOROBENZENE ISOCONCENTRATION CONTOURS (ug/L)

>50 AND ≤ 1000

ABBREVIATION	GWQS (µg/L)	COMPOUND
CB	50	Chlorobenzene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. SHALLOW TREATMENT ZONE - ~100 - 80 FEET ABOVE MEAN SEA LEVEL
5. DEPTH – FEET BELOW GROUND SURFACE
6. NE - NO EXCEEDANCE
7. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
8. ND - NOT DETECTED
9. *MOST RECENT DATA IS JULY 2019
10. **NOT INCLUDED IN PLUME DATA
11. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
12. NS - NOT SAMPLED
13. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

ART-75/ IW-195A	Depth	CB
04/07/16	22.48	111
01/10/17	16.5	NE (0.67 J)
03/22/17	16.5	ND (<0.17)
04/13/17	16.5	ND (<0.24)
7/26/2017 - Baseline	16.5	NE (5.7)
10/05/17	16.5	NE (0.27 J)
01/11/18	16.5	NE (0.82 J)
03/16/18	16.5	NE (7)
04/05/18	16.5	NE (1.9)
05/18/2018	16.5	NE (26)
05/31/18	16.5	NE (17)
06/26/18	16.5	NE (0.58 J)
05/01/19	7.7	NE (17)
05/01/19	12.7	NE (20)
05/01/19	17.7	NE (25)
05/01/19	22.7	NE (26)
05/01/19	27.7	NE (23)
05/01/19	22.7	NE (8.6)

ART-76/ IW-196A	Depth	CB
04/06/16	22.88	151
7/26/2017 - Baseline	23	NE (16)
05/18/2018	16.5	NE (2.1)
05/31/18	16.5	NE (7.7)
06/26/18	16.5	NE (4.4)
04/30/19	7.0	NE (1.2)
04/30/19	17.0	NE (1.3)
04/30/19	22.0	NE (1.0)
04/30/19	27.0	NE (1.1)
07/20/19	17.0	NE (0.67 J)

ART-78	Depth	CB
04/07/16	22.81	631.0
01/10/17	16.5	NE (4.0)
03/22/17	16.5	NE (7)
04/12/17	16.5	NE (1.1)
7/26/2017 - Baseline	16.5	NE (22)
10/05/17	16.5	NE (1.4)
01/11/18	16.5	NE (12)
02/20/18	16.5	NE (8.5)
03/16/18	16.5	NE (1.8)
04/05/18	16.5	NE (0.46 J)
05/18/2018	16.5	NE (8.2)
05/31/18	16.5	NE (7.7)
06/26/18	16.5	NE (9.6)

ART-89	Depth	CB
04/06/16	22.37	NE (4.5)
7/27/2017 - Baseline	22.37	ND (<2.4)

IW-109A/ IW-197A	Depth	CB
7/28/2017 - Baseline	27.5	180
02/20/18	27.5	NE (4.0)
05/18/18	27.5	110
05/31/18	27.5	NE (30)
04/30/19	25.0	370
07/20/19	25.0	460

IW-110A/ IW-198A	Depth	CB
7/28/2017 - Baseline	27.5	810
02/20/18	27.5	NE (5.2)
05/18/18	27.5	NE (24)
05/31/18	27.5	NE (17)
06/26/18	27.5	NE (9.9)
04/30/19	25.5	99
07/20/19	25.5	120

IW-113A/ IW-200A	Depth	CB
7/28/2017 - Baseline	27.5	110
05/21/18	27.5	NE (3.2)
06/26/18	27.5	NE (15)
05/01/19	25.0	57
05/01/19	25.0	NE (28)

MW-160	Depth	CB
04/05/16	14.8	ND (<0.19)
06/13/16	14.8	ND (<0.17)
10/24/16	14.5	ND (<0.24)
01/10/17	14.5	ND (<0.24)
04/12/17	14.5	ND (<0.24)
7/26/2017 - Baseline	14.5	ND (<0.24)
10/05/17	14.5	ND (<0.24)
01/11/18	14.5	ND (<0.24)
04/06/18	14.5	ND (<0.24)

MW-161	Depth	CB
04/05/16	12	ND (<0.19)
06/14/16	12	ND (<0.17)
10/24/16	12	ND (<0.24)
1/10/2017	12	ND (<0.24)
04/12/17	12	ND (<0.24)
7/26/2017 - Baseline	12	ND (<0.24)
10/05/17	12	ND (<0.24)
01/11/18	12	ND (<0.24)
04/06/18	12	ND (<0.24)

MW-163	Depth	CB
04/06/16	14.58	NE (5)
06/15/16	14.60	NE (20)
10/25/16	14.60	NE (15)
04/12/17	14.60	ND (<0.24)
7/26/2017 - Baseline	14.60	NE (0.49 J)
10/05/17	14.60	NE (1.1)
01/11/18	14.60	ND (<0.24)
04/06/18	14.60	ND (<0.24)

MW-317A	Depth	CB
04/05/16	12.85	ND (<0.19)
06/14/16	12.85	ND (<0.17)
10/25/16	12.85	ND (<0.24)
01/10/17	12.85	ND (<0.24)
04/12/17	12.85	ND (<0.24)
7/26/2017 - Baseline	12.85	ND (<0.24)
10/05/17	12.85	ND (<0.24)
01/11/18	12.85	ND (<0.24)
04/06/18	12.85	ND (<0.24)

MW-318A/ MW-508A	Depth	CB
04/05/16	11.74	NE (6.2)
06/15/16	11.74	NE (6.8)
10/24/2016	11.74	NE (1.8)
01/09/17	11.74	NE (0.89 J)
04/12/17	11.74	NE (1.2)
7/26/2017 - Baseline	11.74	NE (1.5)
10/05/17	11.74	NE (2.9)
11/7/2017	10.00	ND (<0.24)
01/11/18	11.74	NE (2.7)
01/23/18	10.00	NE (1.7)
02/20/18	10.00	NE (0.85 J)
03/16/18	11.74	NE (1.5)
04/05/18	11.74	NE (0.58 J)
05/21/2018	10.00	NE (0.29 J)
08/02/18	10.00	NE (6.3)
08/30/18	10.00	NE (3.1)
09/17/18	10.00	NE (2.6)
05/01/19	9.70	NE (3.6 J)
05/01/19	13.00	NE (3.4 J)
07/20/19	9.70	NE (1.8 J)

MW-346A	Depth	CB
04/05/16	13.1	1,520
06/13/16	13.1	64.7
10/25/16	13.1	NE (17)
01/10/17	13.1	NE (18)
03/22/17	13.1	NE (32.3)
04/12/17	13.1	NE (4.0)
7/26/2017 - Baseline	13.1	140
10/05/17	13.1	61
11/7/2017	11.0	NE (2.6)
01/11/18	13.1	NE (6.8)
01/23/18	11.0	NE (15)
02/20/18	13.1	NE (3.0)
03/16/18	13.1	NE (2.2)
04/05/18	13.1	NE (17)
05/21/2018	10.5	NE (0.83 J)
06/26/18	10.5	NE (14)

MW-350A/MW-505A	Depth	CB
04/05/16	11.4	ND (<0.19)
10/24/16	11.4	ND (<0.24)
01/09/17	11.4	ND (<0.24)
04/12/17	11.4	ND (<0.24)
7/26/2017 - Baseline	11.4	NE (0.35 J)
10/05/17	11.4	ND (<0.24)
01/11/18	11.4	ND (<0.24)
04/05/18	11.4	ND (<0.24)
05/21/2018	10.5	ND (<0.24)
04/30/19	5.5	ND (<0.38)
04/30/19	10.5	ND (<0.38)
07/20/19	10.5	ND (<0.38)

MW-395A	Depth	CB
04/06/16	12.5	ND (<0.19)
06/14/16	12.5	ND (<0.17)
10/24/2016	12.5	ND (<0.24)
04/13/17	12.5	ND (<0.24)
7/26/2017 - Baseline	12.5	NE (0.48 J)
10/05/17	12.5	ND (<0.24)
01/11/18	12.5	ND (<0.24)
04/06/18	12.5	ND (<0.24)

MW-396A	Depth	CB
04/05/16	11	ND (<0.19)
6/15/2016	11	ND (<0.17)
10/24/16	11	ND (<0.24)
04/13/17	11	ND (<0.24)
7/26/2017 - Baseline	11	ND (<0.24)
10/05/17	11	ND (<0.24)
01/11/18	11	ND (<0.24)
04/05/18	11	ND (<0.24)

MW-397A	Depth	CB
04/05/16	16	ND (<0.19)
06/15/16	16	ND (<0.17)
10/25/16	16	ND (<0.24)
01/09/17	16	ND (<0.24)
04/12/17	16	ND (<0.24)
7/26/2017 - Baseline	16	ND (<0.24)
10/05/17	16	ND (<0.24)
01/11/18	16	ND (<0.24)
04/06/18	16	ND (<0.24)

MW-447A	Depth	CB
04/06/16	12.3	ND (<0.19)
6/15/2016	12.3	NE (2.7)
10/24/16	12.3	NE (7.3)
01/10/17	12.3	NE (0.25 J)
04/12/17	12.3	ND (<0.24)
7/26/2017 - Baseline	12.3	NE (0.57 J)
10/05/17	12.3	NE (1.9)
11/7/2017	10.0	ND (<0.24)
01/12/18	12.3	ND (<0.24)
1/23/2018	12.3	ND (<0.24)
2/20/2018	12.3	ND (<0.24)
03/16/18	12.3	ND (<0.24)
4/5/2018[9]	12.3	NE (0.38 J)

MW-52	Depth	CB
4/6/2016	25	NE (18.1)
06/14/16	25	NE (0.91 J)
10/25/16	25	NE (1.1)
01/10/17	25	NE (1.2)
04/12/17	25	NE (0.53 J)
7/26/2017 - Baseline	25	NE (0.98)
10/05/17	25	NE (1.9)
11/7/2017	25	NE (0.71 J)
01/12/18	25	NE (0.29 J)
01/23/18	25	ND (<0.24)
02/20/18	25	ND (<0.24)
04/05/18	25	ND (<0.24)

PROJECT:
ROCHE NUTLEY SITE REMEDIATION

TITLE:
CHLOROBENZENE ISOCONCENTRATION CONTOURS - SHALLOW TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA		
APPROVED BY:	Y. KUNUKCU		
DATE:	DECEMBER 2019		

FIGURE 7A

TRC
41 Spring Street
New Providence, NJ 07974
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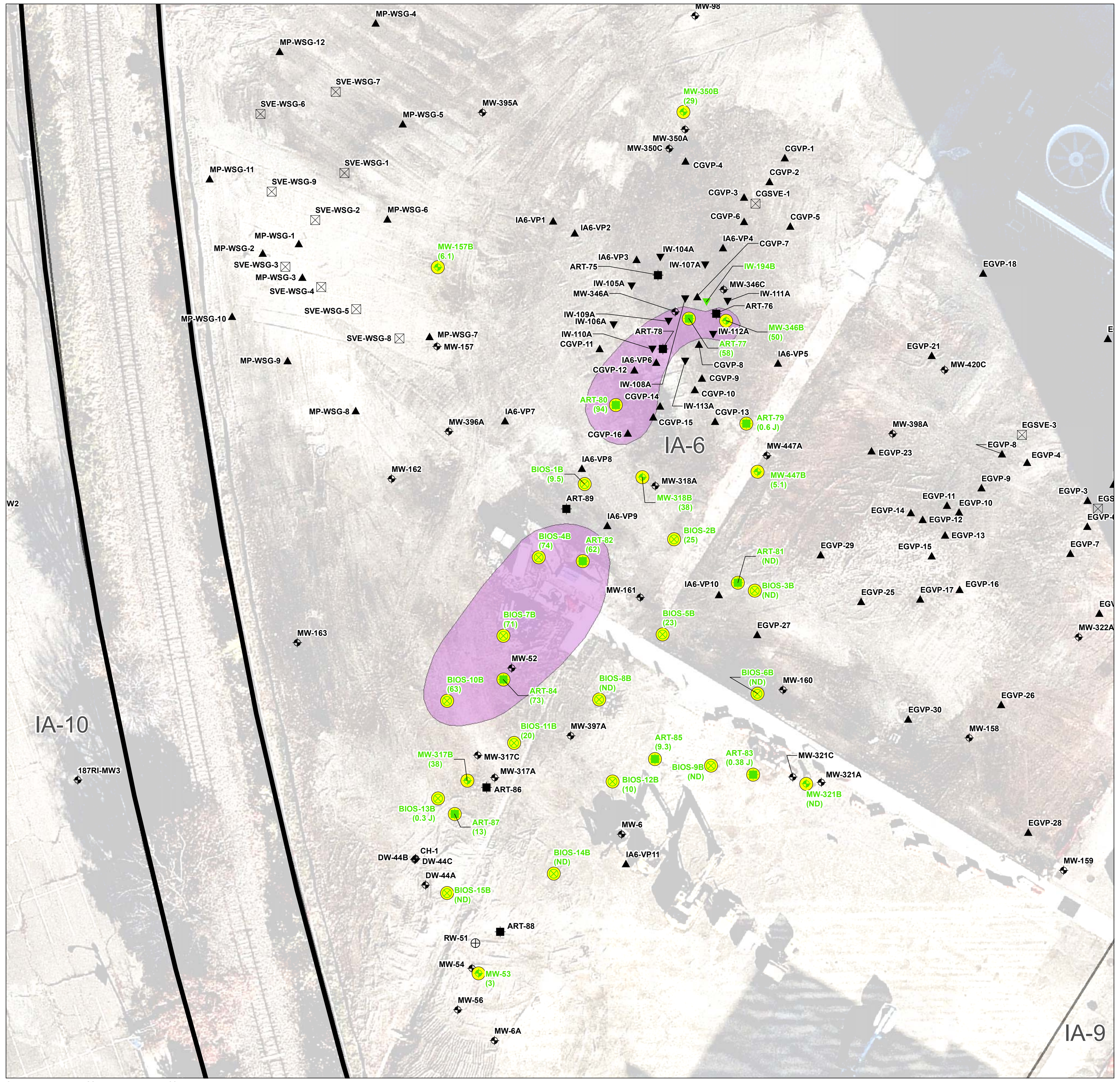
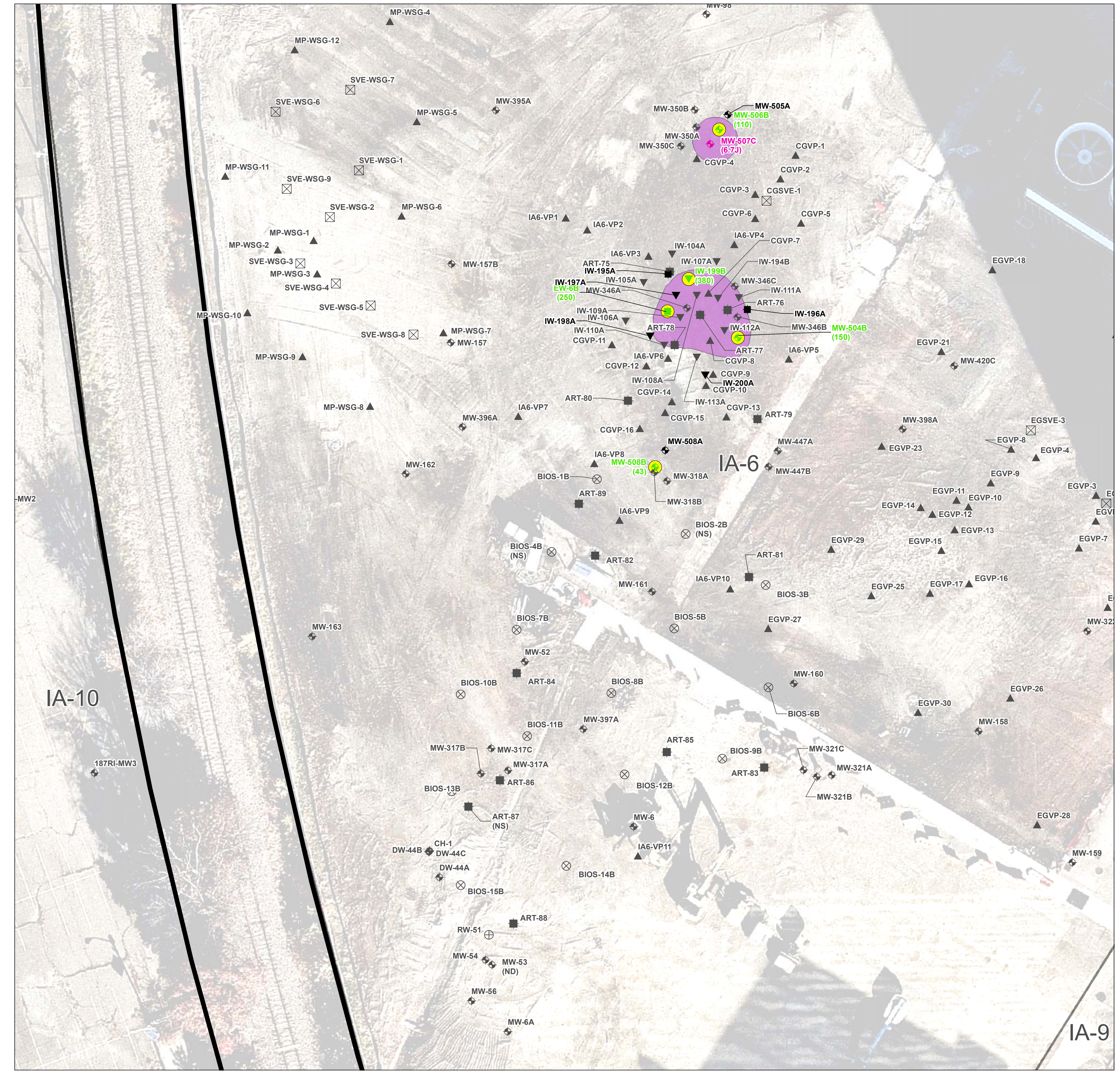
FILE NO.: IA-6_CB_Shallow.mxd

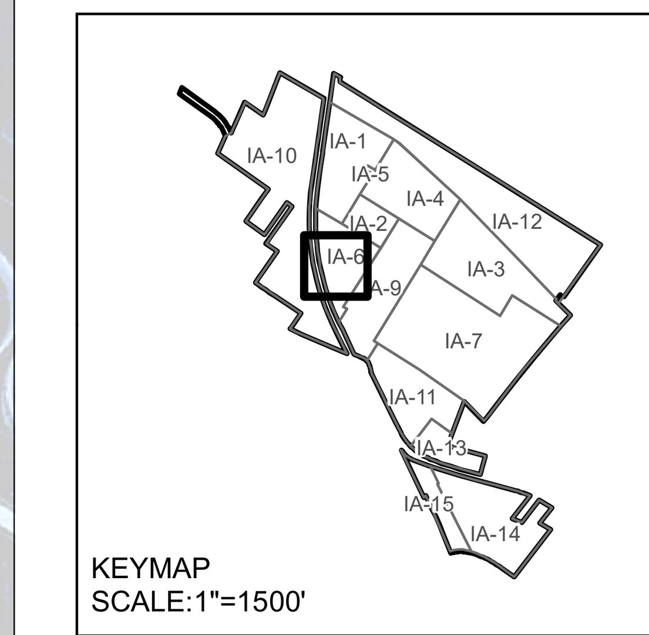
Plot Date: 2/25/2020, 08:38:05 AM by LBROOKS - LAYOUT: ANSI D (22"x34")
Path: M:\ArcGIS Files\105090\mxd\Revised_IRA Figures\Map Documents\Revised 2_2020\IA-6_CB_Shallow.mxd
Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet (Post-US)
Map Rotation: 0

BASELINE - JULY 2017



MOST RECENT*





LEGEND

- PROPERTY BOUNDARY
- INVESTIGATION AREAS (IA)
- MONITORING WELL LOCATION
- INJECTION LOCATION
- IN-WELL STRIPPING WELL LOCATION
- VAPOR POINT
- BIOSPARGE LOCATION
- EXTRACTION LOCATION
- SVE LOCATION
- WELL USED FOR CONTOURING

WELL SYMBOL COLOR LEGEND

- INTERMEDIATE TREATMENT ZONE
- DEEP TREATMENT ZONE **

CHLOROBENZENE ISOCONCENTRATION CONTOURS (ug/L)

- >50 AND ≤ 1000

ABBREVIATION	GWQS (µg/L)	COMPOUND
CB	50	Chlorobenzene

NOTES:
1. µg/L - MICROGRAM PER LITER
2. BASELINE - PRE-INJECTION SAMPLING EVENT FOR THE ACTIVATED PERSULFATE EFFORT
3. GWQS - NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) GROUNDWATER QUALITY STANDARD
4. INTERMEDIATE TREATMENT ZONE - ~80 - 50 FEET ABOVE MEAN SEA LEVEL
5. DEEP TREATMENT ZONE - ~50 - 0 FEET ABOVE MEAN SEA LEVEL
6. DEPTH – FEET BELOW GROUND SURFACE
7. NE - NO EXCEEDANCE
8. BOLD VALUE IN DATA TABLE INDICATES CONCENTRATION ABOVE GWQS
9. ND - NOT DETECTED
10. *MOST RECENT DATA IS JULY 2019
11. **NOT INCLUDED IN PLUME DATA
12. J - ESTIMATED VALUE BELOW SAMPLE REPORTING LIMIT
13. NS - NOT SAMPLED
14. D - DUPLICATE SAMPLE
15. NA - NOT ANALYZED
16. YELLOW HIGHLIGHTED FIGURE BOXES INDICATE DATA FROM ABANDONED AND REPLACEMENT WELLS

MW-53	Depth	CB
04/05/16	35	**60.7**
06/13/16	35	NE (1.6)
10/25/16	35	NE (13)
01/10/17	35	NA
04/12/17	35	NE (6.9)
7/26/2017 - Baseline	35	NE (3)
10/05/17	35	NE (0.75 J)
01/11/18	35	NE (1.1)
04/06/18	35	ND (<0.24)

MW-157B	Depth	CB
04/05/16	40	NE (0.72 J)
06/14/16	40	NE (11.8)
10/24/16	40	NE (12)
01/10/17	40	NE (8.4)
04/13/17	40	NE (1.2)
7/26/2017 - Baseline	40	NE (6.1)
10/5/2017	40	NE (5.9)
01/11/18	40	NE (11)
03/16/18	40	NE (9.2)
4/6/2018	40	NE (8.4)

MW-317B	Depth	CB
04/05/16	40	**169**
06/14/16	40	NE (6.6)
10/25/16	40	NE (5.1)
01/10/17	40	NE (1.8)
04/12/17	40	NE (4.0)
7/26/2017 - Baseline	40	NE (38)
10/05/17	40	NE (6.1)
11/7/2017	40	NE (1.9)
01/11/18	40	ND (<0.24)
01/23/18	40	ND (<0.24)
02/20/18	40	NE (0.37 J)
04/05/18	40	NE (0.37 J)

MW-318B/MW-508B	Depth	CB
04/05/16	50	**158**
06/15/16	50	NE (4)
10/24/16	50	NE (18)
01/09/17	50	NE (2.8)
04/12/17	50	NE (27)
7/26/2017 - Baseline	50	NE (38)
10/05/17	50	ND (<0.24)
11/7/2017	50	NE (0.79 J)
01/11/18	50	NE (6.1)
01/23/18	50	NE (1.5)
02/20/18	50	NE (0.28 J)
03/16/18	50	NE (5.1)
04/05/18	50	NE (4.0)
05/21/18	50	NE (12)
08/02/18	50	NE (43)
08/30/18	50	NE (45)
09/17/18	50	**53**
05/01/19	40.5	NE (40)
05/01/19	45.5	NE (39)
05/01/19	50.5	NE (37)
05/01/19	55.5	NE (38)
07/20/19	55.5	NE (43)

MW-321B	Depth	CB
04/05/16	50	NE (35.7)
06/14/16	50	NE (0.88 J)
07/12/16	50	NE (0.6 J)
10/24/16	50	ND (<0.24)
01/10/17	50	NE (1.5)
04/12/17	50	NE (3.1)
7/26/2017 - Baseline	50	ND (<0.24)
10/5/2017	50	NE (0.9 J)
01/11/18	50	ND (<0.24)
04/06/18	50	ND (<0.24)

MW-346B/MW-504B	Depth	CB
04/05/16	40	**127**
06/13/16	40	NE (4.9)
10/25/16	40	NE (24)
01/10/17	40	NE (9.8)
03/22/17	40	NE (47)
04/12/17	40	NE (61)
7/26/2017 - Baseline	40	**50**
10/05/17	40	NE (8)
11/7/2017	40	NE (3.7)
01/11/18	40	NE (24)
01/23/18	40	NE (13)
02/20/18	40	NE (4.1)
03/16/18	40	NE (8.4)
04/05/18	40	NE (1.1)
05/21/18	40	NE (22)
05/31/18	40	ND (<0.24)
06/26/18	40	NE (3.6)
05/01/19	33.5	**120**
05/01/19	38.5	**140**
07/20/19	38.5	**150**

MW-350B/MW-506B	Depth	CB
04/05/16	40	NA
06/01/16	NA	NA
10/24/16	40	NE (44)
01/10/17	40	NE (40)
04/12/17	40	NE (34)
7/26/2017 - Baseline	40	NE (29)
10/05/17	40	NE (32)
01/11/18	40	**86**
04/05/18	40	**58**
05/21/2018	40	NE (33)
04/30/19	36	**270**
04/30/19	41	**210**
07/20/19	41	**110**

MW-447B	Depth	CB
04/06/16	40	NE (6.2)
06/15/16	40	NE (3.5)
10/24/16	40	NE (1.9)
01/10/17	40	NE (0.3 J)
04/13/17	40	NE (1.4)
7/26/2017 - Baseline	40	NE (5.1)
10/05/17	40	NE (0.92 J)
11/7/2017	40	NE (0.26 J)
01/11/18	40	NE (0.34 J)
01/23/18	40	ND (<0.24)
02/20/18	40	ND (<0.24)
03/16/18	40	NE (1.3)
04/05/18	40	NE (0.65 J)

ART-77/EW-6B	Depth	CB
04/07/16	39.4	**331**
06/01/16	NA	NA
01/10/17	36.5	NE (6.8)
03/22/17	36.5	NE (6.1)
04/12/17	36.5	NE (2.5)
7/26/2017 - Baseline	36.5	**58**
10/05/17	36.5	NE (1.8)
01/11/18	36.5	NE (0.28 J)
02/20/18	36.5	NE (2.6)
03/16/18	36.5	NE (1.6)
04/05/18	36.5	NE (7.5)
05/18/18	36.5	**55**
05/31/18	36.5	NE (8.5)
6/26/2018[D]	36.5	NE (2.0)
05/01/19	29.5	NE (32)
05/01/19	34.5	NE (36)
05/01/19	39.5	**120**
07/20/19	34.5	**170**
07/20/19	39.5	**250**

ART-79	Depth	CB
4/7/2016	22.74	NE (16.6)
4/7/2016	52.08	NE (17.8)
06/01/16	NA	NA
7/26/2017	22.75	NE (0.73 J)
7/26/2017 - Baseline	49	NE (0.6 J)
02/20/18	49	ND (<0.24)

ART-80	Depth	CB
04/07/16	22.76	**106**
04/07/16	52.06	**320**
06/01/16	NA	NA
7/26/2017[D]	22.75	**61**
7/26/2017 - Baseline	49	**94**
11/7/2017	31.5	NE (0.98 J)
02/20/18	16.5	NE (2.3)

ART-81	Depth	CB
4/6/2016	22.54	NE (0.68 J)
4/6/2016	51.68	NE (1.5)
06/01/16	NA	NA
07/27/17	22.54	ND (<0.24)
7/27/2017 - Baseline	49	ND (<0.24)

ART-82	Depth	CB
04/06/16	46.44	**129**
06/01/16	NA	NA
7/27/2017 - Baseline	44	**62**

ART-83	Depth	CB
04/07/16	22.54	NE (48.7)
04/07/16	51.53	**64.2**
06/01/16	NA	NA
07/27/17	22.54	NE (0.43 J)
7/26/2017 - Baseline	49	NE (0.38 J)

ART-84	Depth	CB
4/6/2016[D]	46.8	**137**
06/01/16	NA	NA
7/26/2017 - Baseline	44	**73**

ART-85	Depth	CB
04/07/16	46.71	**93.4**
06/01/16	NA	NA
01/10/17	44	NA
04/12/17	44	NE (2.2)
7/26/2017 - Baseline	44	NE (9.3)
10/05/17	44	ND (<0.24)
01/11/18	44	ND (<0.24)
03/16/18	44	ND (<0.24)
04/05/18	44	ND (<0.24)

ART-87	Depth	CB
04/07/16	49.41	**141**
06/01/16	NA	NA
7/26/2017 - Baseline	46.5	NE (13)

BIOS-1B	Depth	CB
04/15/16	66	**305**
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (9.5)
05/21/18	65	NE (7.4)
08/02/18	65	NE (26)
08/30/18	65	NE (27)
09/17/18	65	NE (44)

BIOS-2B	Depth	CB
04/15/16	66.7	**54.5**
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (25)

BIOS-3B	Depth	CB
04/15/16	66.5	NE (14.6)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.24)

BIOS-4B	Depth	CB
04/15/16	66.9	**316**
06/01/16	NA	NA
7/26/2017 - Baseline	65	**74**

BIOS-5B	Depth	CB
4/15/2016	66	NE (35)
06/01/16	NA	NA
7/26/2017 - Baseline	65	NE (23)

BIOS-6B	Depth	CB
4/15/2016	67.3	NE (35.9)
06/01/16	NA	NA
7/26/2017 - Baseline	65	ND (<0.24)

BIOS-7B	Depth	CB
04/15/16	66.4	NE (10.5)
06/01/16	NA	NA
10/26/16	66.4	NE (2)
7/28/2017 - Baseline	65	**71**
10/06/17	65	NE (15)

BIOS-8B	Depth	CB
04/15/16	66.2	**63.5**
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.24)

BIOS-9B	Depth	CB
4/15/2016	66.8	NE (20.6)
06/01/16	NA	NA
7/28/2017 - Baseline	65	ND (<0.24)

BIOS-10B	Depth	CB
04/15/16	65.9	ND (<1.9)
06/01/16	NA	NA
7/27/2017 - Baseline	65	**63**
10/06/17	65	NE (20)

BIOS-11B	Depth	CB
04/15/16	65.9	**50.1**
06/01/16	NA	NA
10/26/16	65.9	NE (0.76 J)
7/27/2017 - Baseline	65	NE (20)

BIOS-12B	Depth	CB
04/15/16	67	NE (5.9)
06/01/16	NA	NA
7/27/2017 - Baseline	60	NE (10)

BIOS-13B	Depth	CB
04/15/16	61.8	ND (<19)
06/01/16	NA	NA
10/26/16	61.8	NE (3)
7/27/2017 - Baseline	60	NE (0.3 J)

BIOS-14B	Depth	CB
04/15/16	61	**272**
06/01/16	NA	NA
7/27/2017[D] - Baseline	60	ND (<0.24)

BIOS-15B	Depth	CB
04/15/16	61.7	NE (11)
06/01/16	NA	NA
10/26/16	61.7	ND (<0.24)
7/27/2017 - Baseline	60	ND (<0.24)

IW-194B/IW-199B	Depth	CB
05/21/18	37.5	NE (1.9)
05/31/18	37.5	NE (11)
06/26/18	37.5	NE (6.5)
08/02/18	40	NE (6)
08/30/18	40	NE (8.3)
09/17/18	40	NE (18)
05/01/19	29	NE (21)
05/01/19	34	NE (45)
05/01/19	39	**190**
07/20/19	39	**380**

MW-350C/MW-507C	Depth	CB
4/5/2016	70	NE (19.9)
06/01/16	NA	NA
10/24/16	70	NE (22)
01/10/17	70	NE (23)
04/12/17	70	NE (12)
7/26/2017 - Baseline	70	**58**
10/05/17	70	NE (35)
01/11/18	70	NE (18)
04/05/18	70	NE (14)
05/21/2018	70	NE (13)
04/30/19	61	NE (5.1 J)
04/30/19	66	NE (5.2 J)
04/30/19	71	NE (6.5 J)
04/30/19	76	NE (12 J)
07/20/19	76	NE (6.7 J)

PROJECT:

ROCHE NUTLEY SITE REMEDIATION

TITLE:

CHLOROBENZENE ISOCONCENTRATION CONTOURS - INTERMEDIATE TREATMENT ZONE

DRAWN BY:	M. GIAMBATTISTA	PROJ. NO.:	198233
CHECKED BY:	A. HERRERA	**FIGURE 7B**	
APPROVED BY:	Y. KUNUKCU		
DATE:	DECEMBER 2019		

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41 Spring Street
New Providence, NJ 07974
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www.trcsolutions.com

FILE NO.: IA-6_CB_Intermediate.mxd

TABLES

TABLE I

GROUNDWATER VERTICAL PROFILING PLAN

TABLE I
Groundwater Vertical Profiling Plan
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigation Area 6 (IA-6) EISB Progress Addendum

Old Well Designation	New Well Designation	Zone	Screen Interval	Updated Screen Interval	Approximate Sample Depth #1 (feet below grade)	Approximate Sample Depth #2 (feet below grade)	Approximate Sample Depth #3 (feet below grade)	Approximate Sample Depth #4 (feet below grade)	Approximate Sample Depth #5 (feet below grade)	3 Month Sampling [(1)(2)(3)(4)] (Low Flow Method)
Injection Wells										
ART-75	IW-195A	S1	4-29	5.2-30.2	7.7	12.7	17.7	22.7	27.7	VOCs, TOC, Remediation Analytes[(5)], Dissolved Gases[(5)], Microbes[(5)], GWQP
ART-76	IW-196A	S1	4-29	4.5-29.5	7	12	17	22	27	VOCs, TOC, GWQP
IW-109A	IW-197A	S1	25-30	22.5-27.5	25	--	--	--	--	VOCs, TOC, GWQP
IW-110A	IW-198A	S1	25-30	23-28	25.5	--	--	--	--	VOCs, TOC, GWQP
IW-194B	IW-199B	S2	30-45	26.5-41.5	29	34	39	--	--	VOCs, TOC, GWQP
MW-346B	MW-504B	S2	35-45	31-41	33.5	38.5	--	--	--	VOCs, TOC, GWQP
Extraction Wells										
ART-77	EW-6B	S2	29-44	27-42	29.5	34.5	39.5	--	--	VOCs, TOC, Remediation Analytes[(6)], Dissolved Gases[(6)], Microbes[(6)], GWQP
Contingent Injection/Extraction Wells[5]										
IW-113A	IW-200A	S1	25-30	22.5-27.5	25	--	--	--	--	VOCs, TOC, GWQP
Perimeter Monitoring Wells										
MW-350A	MW-505A	S1	5-16	3-14	5.5	10.5	--	--	--	VOCs, TOC, GWQP
MW-350B	MW-506B	S2	35-45	33.5-43.5	36	41	--	--	--	VOCs, TOC, GWQP
MW-350C	MW-507C	S3	60-80	58.5-78.5	61	66	71	76	--	VOCs, TOC, GWQP
MW-318A	MW-508A	S1	5-15	6-16	8.5	13	--	--	--	VOCs, TOC, GWQP
MW-318B	MW-508B	S2	35-65	38-58	40.5	45.5	50.5	55.5	--	VOCs, TOC, GWQP

Notes:

[1] Dissolved Gases: Dissolved Methane, Ethane, Ethene, Carbon Dioxide and VFAs

[2]Microbes: DHC (*Dehalococcoides*) and DHC functional genes (tceA, bvcA, vcrA)

[3]GWQP: pH, Temperature, Dissolved Oxygen (DO), Specific Conductivity (SC), Oxidation-Reduction Potential (ORP), Salinity, and Turbidity.

[4]Remediation Analytes: Chloride, Dissolved Iron, Dissolved Manganese, Sulfate, Nitrate, Orthophosphate, Dissolved Sodium

[5]Only one sample collected at 12.5-ft bgs

[6]Only one sample collected at 34.5-ft bgs

VOCs indicates volatile organic compounds
TOC indicates total organic compounds
GWQP indicates groundwater quality parameters
ft bgs indicates feet below ground surface VFAs
indicates volatile fatty acids

TABLE II

EISB GROUNDWATER MONITORING PLAN

TABLE II
EISB Groundwater Monitoring Plan
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigative Area 6 (IA-6) - EISB Progress Addendum

Old Well Designation	New Well Designation	Zone	Screen Interval	Approximate Sample Depth[6] (feet below grade)	Approximate Sample Depth[7] [8] (feet below grade)	Baseline[1][2][3][4] (Low Flow Method)	1 week after Injection[1] (Low Flow Method)	1 month after Injection[1][2][3][4] (Low Flow Method)	3 Month Sampling[1][2][3][4] (Low Flow Method)	6 Month Sampling[1][2][3][4] (Low Flow Method)
Injection Wells										
ART-75	IW-195A	S1	4-29	16.5	22.7	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, Remediation Analytes, Dissolved Gases, Microbes, GWQP	VOCs, TOC, Remediation Analytes, Dissolved Gases, Microbes, GWQP
ART-76	IW-196A	S1	4-29	16.5	17	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP
IW-109A	IW-197A	S1	25-30	27.5	25	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP
IW-110A	IW-198A	S1	25-30	27.5	25.5	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP
IW-194B	IW-199B	S2	30-45	37.5	39	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP
MW-346B	MW-504B	S2	35-45	40	38.5	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP
Extraction Wells										
ART-77	EW-6B	S2	29-44	36.5	34.5	VOCs, TOC, Remediation Analytes, Dissolved Gases, Microbes, GWQP	VOCs, TOC, GWQP	VOCs, TOC, Remediation Analytes, Dissolved Gases, Microbes, GWQP	VOCs, TOC, Remediation Analytes, Dissolved Gases, Microbes, GWQP	VOCs, TOC, Remediation Analytes, Dissolved Gases, Microbes, GWQP
Contingent Injection/Extraction Wells[5]										
IW-113A	IW-200A	S1	25-30	27.5	25	VOCs, TOC, GWQP	--	VOCs, TOC, GWQP	VOCs, TOC, GWQP	VOCs, TOC, GWQP
Perimeter Monitoring Wells										
MW-350A	MW-505A	S1	5-16	10.5	10.5	VOCs, TOC, GWQP	--	--	--	VOCs, TOC, GWQP
MW-350B	MW-506B	S2	35-45	40	41	VOCs, TOC, GWQP	--	--	--	VOCs, TOC, GWQP
MW-350C	MW-507C	S3	60-80	70	76	VOCs, TOC, GWQP	--	--	--	VOCs, TOC, GWQP
MW-318A	MW-508A	S1	5-15	10	9.7	VOCs, TOC, GWQP	--	--	--	VOCs, TOC, GWQP
MW-318B	MW-508B	S2	35-65	50	55.5	VOCs, TOC, GWQP	--	--	--	VOCs, TOC, GWQP

Notes:

[1] Dissolved Gases: Dissolved Methane, Ethane, Ethene, Carbon Dioxide and VFAs

[2]Microbes: DHC (*Dehalococcoides*) and DHC functional genes (tceA, bvcA, vcrA)

[3]GWQP: pH, Temperature, Dissolved Oxygen (DO), Specific Conductivity (SC), Oxidation-Reduction Potential (ORP), Salinity, and Turbidity.

[4]Remediation Analytes: Chloride, Dissolved Iron, Dissolved Manganese, Sulfate, Nitrate, Orthophosphate, Dissolved Sodium

[5]Contingent injection and extraction wells will be used as monitoring wells if they are not needed for injection/extraction

[6]Approximate sample depth for the samples collected from the baseline and 1-month post injection sampling events

[7]Approximate sample depth for the samples collected from 3-month and 6-month post injection sampling events

[8]Sample depths were selected based on the vertical profiling (See Table I) for the samples collected from 3-month and 6-mosht post injection sampling events

VOCs indicates volatile organic compounds
TOC indicates total organic compounds
GWQP indicates groundwater quality parameters
ft bgs indicateds feet below ground surface
VFAs indicates volatile fatty acids

TABLE III

SUMMARY OF VOLATILE ORGANIC COMPOUNDS (VOCs) IN GROUNDWATER

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	ART-75_LF16.5		ART-75_LF16.5		ART-75_LF16.5		ART-76_LF16.5		ART-76_LF16.5		ART-76_LF16.5	
		Date Sampled:	5/18/2018		5/31/2018		6/26/2018		5/18/2018		5/31/2018		6/26/2018	
		LAB Sample ID:	460156495-1-4		460157265-1-3		460159218-1-3		460156495-1-5		460157265-1-4		460159218-1-4	
		LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	3.4	J B	97	B	67		4.8	J B	140	B	230	
Benzene	*71-43-2*	*1*	0.097	J	0.45	U	0.47	J	0.099	J	**1.2**	J	0.99	J
Bromochloromethane	*74-97-5*	*100*	0.3	U	1.5	U	0.41	U	0.3	U	1.5	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.15	U	0.75	U	0.34	U	0.19	J	0.75	U	0.34	U
Bromoform	*75-25-2*	*4*	0.18	U	0.9	U	0.54	U	0.25	J	0.9	U	0.54	U
Bromomethane	*74-83-9*	*10*	0.18	U	0.9	U	1	U	0.18	U	0.9	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	2.2	U	160		170		2.2	U	88		**1200**	
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.22	U	1.1	U	0.16	U	0.22	U	1.1	U	2.5	
Carbon tetrachloride	*56-23-5*	*1*	0.33	U	*1.7*	U	0.21	U	0.33	U	*1.7*	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	26		17		0.58	J	2.1		7.7		4.4	
Chloroethane	*75-00-3*	*5*	0.37	U	1.9	U	0.32	U	0.37	U	1.9	U	0.32	U
Chloroform	*67-66-3*	*70*	1.1		2.4	J	0.33	U	1.2		4.8	J	0.33	U
Chloromethane	*74-87-3*	*100*	0.22	U	1.1	U	0.14	U	0.22	U	1.1	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	4.7		2.4	J	0.9	J	0.79	J	1.3	U	2.2	
cis-1,3-Dichloropropene	*10061-01-5*	--	0.16	U	0.8	U	0.46	U	0.16	U	0.8	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.26	U	1.3	U	0.32	U	0.26	U	1.3	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.23*	U	*1.2*	U	*0.38*	U	*0.23*	U	*1.2*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.22	U	*1.1*	U	0.28	U	0.22	U	*1.1*	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.19*	U	*0.95*	U	*0.5*	U	*0.19*	U	*0.95*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.22	U	1.1	U	0.43	U	0.22	U	1.1	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.33	U	1.7	U	0.34	U	0.33	U	1.7	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.33	U	1.7	U	0.76	U	0.33	U	1.7	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.14	U	0.7	U	0.12	U	0.14	U	0.7	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.24	U	1.2	U	0.26	U	0.24	U	1.2	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.25	U	1.3	U	0.43	U	0.25	U	1.3	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.34	U	*1.7*	U	0.12	U	0.34	U	*1.7*	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.18	U	0.9	U	0.35	U	0.18	U	0.9	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*8.7*	U	*44*	U	*28*	U	*8.7*	U	*44*	U	*28*	U
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.3	U	1.5	U	1.1		0.3	U	1.5	U	1.2	
2-Hexanone	*591-78-6*	*40*	0.72	U	3.6	U	2.9	U	0.72	U	3.6	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.32	U	1.6	U	0.34	U	0.32	U	1.6	U	0.34	U
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.58	U	4.2	J	34		0.58	U	27		66	
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.13	U	0.65	U	0.48	J	0.13	U	0.65	U	0.66	J
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	0.63	U	3.2	U	2.7	U	0.63	U	3.2	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.22	U	1.1	U	0.26	U	0.22	U	1.1	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.21	U	1.1	U	0.32	U	0.21	J	1.7	J B	0.46	J
Styrene	*100-42-5*	*100*	0.17	U	0.85	U	0.42	U	0.17	U	0.85	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.19	U	0.95	U	0.37	U	0.19	U	0.95	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	**110**		**46**		**5.7**		**22**		**6.7**		**3.4**	
Toluene	*108-88-3*	*600*	0.25	U	1.3	U	0.55	J	0.25	U	1.3	U	0.71	J
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.18	U	0.9	U	0.24	U	0.18	U	0.9	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.19	U	0.95	U	0.49	U	0.19	U	0.95	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.34	U	1.7	U	0.31	U	0.34	U	1.7	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.35	U	1.8	U	0.36	U	0.35	U	1.8	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.28	U	1.4	U	0.24	U	0.28	U	1.4	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.08	U	0.4	U	0.43	U	0.08	U	0.4	U	0.43	U
Trichloroethene	*79-01-6*	*1*	**4**		***3.8***	J	**1.5**		**2.7**		***4***	J	**2.7**	
Trichlorofluoromethane	*75-69-4*	*2000*	0.15	U	0.75	U	0.14	U	0.15	U	0.75	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.27	U	1.4	U	0.37	U	0.27	U	1.4	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.52	J	0.3	U	0.17	U	0.1	J	0.3	U	0.17	U
m,p-Xylene	*179601-23-1*	--	0.28	U	1.4	U	0.66	J	0.28	U	1.4	U	0.65	J
o-Xylene	*95-47-6*	--	0.32	U	1.6	U	0.37	J	0.32	U	1.6	U	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	0.28	U	1.4	U	1.03	J	0.28	U	1.4	U	0.65	J

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	ART-77_LF36.5		ART-77_LF36.5		ART-77_LF36.5		ART-77_LF36.5(A)		ART-77_LF36.5(A)		ART-77_LF36.5(B)	
		Date Sampled:	5/18/2018		5/18/2018		5/31/2018		6/26/2018		6/26/2018		6/26/2018	
		LAB Sample ID:	460156495-1-9		460156495-1-9		460157265-1-10		460159218-1-7		460159218-1-7		460159218-1-8	
		LAB:	TestAmerica Edison		TestAM Burlington		TestAmerica Edison		TestAmerica Edison		TestAM Burlington		TestAmerica Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	9	B	9	B	16	B	93		93		99	
Benzene	*71-43-2*	*1*	**1.5**		**1.5**		**2.7**		**1.2**		**1.2**		**1.2**	
Bromochloromethane	*74-97-5*	*100*	0.3	U	0.3	U	0.55	J	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.15	U	0.15	U	0.15	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.18	U	0.18	U	0.18	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	0.18	U	0.18	U	5.7		**11**		**11**		8.9	
2-Butanone (MEK)	*78-93-3*	*300*	2.2	U	2.2	U	6.2		**1400**		**1400**		**1400**	
Carbon Dioxide	*124-38-9*	*--*	57000		57000		NA		1300000		1300000		1300000	
Carbon Disulfide	*75-15-0*	*700*	0.22	U	0.22	U	2.6		2.9		2.9		2.8	
Carbon tetrachloride	*56-23-5*	*1*	0.33	U	0.33	U	0.33	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	**55**		**55**		8.5		1.9		1.9		2	
Chloroethane	*75-00-3*	*5*	0.37	U	0.37	U	0.37	U	**11**		**11**		**11**	
Chloroform	*67-66-3*	*70*	1.3		1.3		12		1.3		1.3		1.3	
Chloromethane	*74-87-3*	*100*	0.29	J	0.29	J	11		**210**		**210**		**210**	
cis-1,2-Dichloroethene	*156-59-2*	*70*	14		14		3.8		3.7		3.7		4	
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.16	U	0.16	U	0.16	U	0.46	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.26	U	0.26	U	0.26	U	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.23*	U	*0.23*	U	*0.23*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.22	U	0.22	U	0.22	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.19*	U	*0.19*	U	*0.19*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.22	U	0.22	U	0.22	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.33	U	0.33	U	0.33	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.33	U	0.33	U	0.33	U	0.76	U	0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.14	U	0.14	U	0.14	U	0.12	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.24	U	0.24	U	0.24	U	0.26	U	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.25	U	0.25	U	0.25	U	1.6		1.6		1.6	
1,1-Dichloroethene	*75-35-4*	*1*	0.34	U	0.34	U	0.34	U	0.12	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.18	U	0.18	U	0.18	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*8.7*	U	*8.7*	U	***18***	J	*28*	U	*28*	U	*28*	U
Ethane	*74-84-0*	*--*	1.5	U	1.5	U	NA		4.8		4.8		4.6	
Ethene	*74-85-1*	*--*	1.4	U	1.4	U	NA		28		28		27	
Ethylbenzene	*100-41-4*	*700*	0.3	U	0.3	U	11		0.74	J	0.74	J	0.79	J
2-Hexanone	*591-78-6*	*40*	0.72	U	0.72	U	0.72	U	2.9	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.32	U	0.32	U	0.33	J	0.34	U	0.34	U	0.34	U
Methane	*74-82-8*	*--*	32		32		NA		75		75		72	
Methyl Acetate	*79-20-9*	*7000*	0.58	U	0.58	U	190		83		83		84	
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.13	U	0.13	U	1.8		0.87	J	0.87	J	0.89	J
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	0.63	U	0.63	U	0.63	U	2.7	U	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.22	U	0.22	U	0.59	J	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.4	J	0.4	J	2		1.3		1.3		1.1	
Styrene	*100-42-5*	*100*	0.17	U	0.17	U	0.23	J	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.19	U	0.19	U	0.19	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	**220**		**220**		**25**		**1.5**		**1.5**		**1.7**	
Toluene	*108-88-3*	*600*	0.33	J	0.33	J	3.6		0.97	J	0.97	J	1	
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.58	J	0.58	J	0.18	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.19	U	0.19	U	0.19	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.34	U	0.34	U	0.34	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.35	U	0.35	U	0.35	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.28	U	0.28	U	0.28	U	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.08	U	0.08	U	0.08	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	**15**		**15**		**6.7**		**5.1**		**5.1**		**5.6**	
Trichlorofluoromethane	*75-69-4*	*2000*	0.15	U	0.15	U	0.15	U	0.14	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.27	U	0.27	U	0.27	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	**1.2**		**1.2**		0.06	U	0.17	U	0.17	U	0.17	U
m,p-Xylene	*179601-23-1*	*--*	0.38	J	0.38	J	8.9		0.5	J	0.5	J	0.55	J
o-Xylene	*95-47-6*	*--*	0.32	U	0.32	U	3		0.36	U	0.36	U	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	0.38	J	0.38	J	11.9		0.5	U	0.5	U	0.55	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	ART-77_LF36.5(B)		EW-6B_LF29.5(A)		EW-6B_LF29.5(B)		EW-6B_LF34.5		EW-6B_LF34.5		EW-6B_LF39.5	
		Date Sampled:	6/26/2018		5/1/2019		5/1/2019		5/1/2019		7/20/2019		5/1/2019	
		LAB Sample ID:	460159218-1-8		460180889-1-4		460180889-1-5		460180889-1-10		460187118-1-8		460180889-1-17	
		LAB:	TestAM Burlington		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	99		6.2		6.2		5.7		4.4	U	7.8	
Benzene	*71-43-2*	*1*	**1.2**		**3.5**		**3.5**		**4**		**18**		**7.9**	
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	8.9		1	U	1	U	1	U	0.55	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	**1400**		11		11		8.2		1.9	U	1.9	U
Carbon Dioxide	*124-38-9*	*--*	1300000		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	2.8		0.58	J	0.54	J	0.61	J	0.82	U	0.16	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	2		32		32		36		**170**		**120**	
Chloroethane	*75-00-3*	*5*	**11**		0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	1.3		0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	**210**		0.14	U	0.14	U	0.14	U	0.4	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	4		5.5		5.4		5.4		1.5		2.7	
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.46	U	0.46	U	0.46	U	0.46	U	0.22	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.76	U	0.76	U	0.76	U	0.74	J	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.12	U	0.12	U	0.12	U	0.31	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.26	U	0.26	U	0.26	U	0.26	U	0.51	J	0.3	J
1,2-Dichloroethane	*107-06-2*	*2*	1.6		0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.12	U	0.12	U	0.12	U	0.26	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*28*	U	*28*	U	*28*	U	*28*	U	*28*	U	***32***	J
Ethane	*74-84-0*	*--*	4.6		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	*--*	27		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.79	J	0.3	U	0.3	U	0.3	U	1.9		0.86	J
2-Hexanone	*591-78-6*	*40*	2.9	U	2.9	U	2.9	U	2.9	U	1.1	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.34	U	0.46	J	0.42	J	0.64	J	0.49	J	2.2	
Methane	*74-82-8*	*--*	72		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	84		0.31	U	0.31	U	0.31	U	0.79	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.89	J	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	2.7	U	2.7	U	2.7	U	1.3	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	1.1		0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	**1.7**		0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Toluene	*108-88-3*	*600*	1		0.55	J	0.54	J	0.62	J	0.72	J	0.51	J
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	**5.6**		**1.7**		**1.6**		**1.7**		0.45	J	0.8	J
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.14	U	0.14	U	0.14	U	0.32	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.17	U	**4.7**		**4.8**		**4.5**		**1.2**		**2.2**	
m,p-Xylene	*179601-23-1*	*--*	0.55	J	0.47	J	0.42	J	0.43	J	2.1		0.45	J
o-Xylene	*95-47-6*	*--*	0.36	U	0.4	J	0.36	J	0.47	J	0.36	U	1.9	
Xylenes (total)	*1330-20-7*	*1000*	0.55	U	0.87	J	0.78	J	0.9	J	2.1		2.35	

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Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	IW-109A_LF27.5		IW-109A_LF27.5		IW-110A_LF27.5		IW-110A_LF27.5		IW-110A_LF27.5		IW-113A_LF27.5	
		Date Sampled:	5/18/2018		5/31/2018		5/18/2018		5/31/2018		6/26/2018		5/21/2018	
		LAB Sample ID:	460156495-1-6		460157265-1-5		460156495-1-7		460157265-1-6		460159218-1-5		460156736-1-5	
		LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	14	B	210	B	7	B	98	B	66		1.1	U
Benzene	*71-43-2*	*1*	**2.2**		**3.1**	J	0.53	J	**2.1**		**1.4**		0.09	U
Bromochloromethane	*74-97-5*	*100*	0.6	U	1.5	U	0.3	U	0.37	J	0.41	U	0.3	U
Bromodichloromethane	*75-27-4*	*1*	0.3	U	0.75	U	0.15	U	0.15	U	0.34	U	0.15	U
Bromoform	*75-25-2*	*4*	0.36	U	0.9	U	0.21	J	0.18	U	0.54	U	0.18	U
Bromomethane	*74-83-9*	*10*	0.36	U	0.9	U	0.18	U	0.18	U	1	U	0.18	U
2-Butanone (MEK)	*78-93-3*	*300*	4.4	U	49		2.2	U	30		**550**		2.2	U
Carbon Dioxide	*124-38-9*	*--*	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.44	U	10		0.22	U	7.1		1.8		0.22	U
Carbon tetrachloride	*56-23-5*	*1*	0.66	U	*1.7*	U	0.33	U	**1.7**		0.21	U	0.33	U
Chlorobenzene	*108-90-7*	*50*	**110**		30		24		17		9.9		3.2	
Chloroethane	*75-00-3*	*5*	0.74	U	1.9	U	0.37	U	0.37	U	0.32	U	0.37	U
Chloroform	*67-66-3*	*70*	1.1	J	16		1.1		14		0.33	U	0.89	J
Chloromethane	*74-87-3*	*100*	0.44	U	1.1	U	0.22	U	0.61	J	0.14	U	0.22	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	22		32		8.2		26		6.3		2.7	
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.32	U	0.8	U	0.16	U	0.16	U	0.46	U	0.16	U
Cyclohexane	*110-82-7*	*100*	0.52	U	1.3	U	0.26	U	0.26	U	0.32	U	0.26	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.46*	U	*1.2*	U	*0.23*	U	*0.23*	U	*0.38*	U	*0.23*	U
Dibromochloromethane	*124-48-1*	*1*	0.44	U	*1.1*	U	0.22	U	0.22	U	0.28	U	0.22	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.38*	U	*0.95*	U	*0.19*	U	*0.19*	U	*0.5*	U	*0.19*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.44	U	1.1	U	0.22	U	0.22	U	0.43	U	0.22	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.66	U	1.7	U	0.33	U	0.33	U	0.34	U	0.33	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.66	U	1.7	U	0.33	U	0.33	U	0.76	U	0.33	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.28	U	0.7	U	0.14	U	0.14	U	0.12	U	0.14	U
1,1-Dichloroethane	*75-34-3*	*50*	0.48	U	1.2	U	0.24	U	0.24	U	0.26	U	0.24	U
1,2-Dichloroethane	*107-06-2*	*2*	0.5	U	1.3	U	0.25	U	0.25	U	0.43	U	0.25	U
1,1-Dichloroethene	*75-35-4*	*1*	0.68	U	*1.7*	U	0.34	U	0.34	U	0.12	U	0.34	U
1,2-Dichloropropane	*78-87-5*	*1*	0.36	U	0.9	U	0.18	U	0.18	U	0.35	U	0.18	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*17*	U	*44*	U	***14***	J	*8.7*	U	*28*	U	*8.7*	U
Ethane	*74-84-0*	*--*	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	*--*	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.6	U	2.2	J	0.3	U	3		1.2		0.3	U
2-Hexanone	*591-78-6*	*40*	1.4	U	3.6	U	0.72	U	0.72	U	2.9	U	0.72	U
Isopropylbenzene	*98-82-8*	*700*	0.64	U	1.6	U	0.32	U	0.32	U	0.34	U	0.32	U
Methane	*74-82-8*	*--*	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	1.2	U	42		0.58	U	60		22		0.58	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.26	U	0.65	U	0.13	U	0.87	J	0.47	U	0.13	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	1.3	U	3.2	U	0.63	U	0.63	U	2.7	U	0.63	U
Methylcyclohexane	*108-87-2*	*100*	0.44	U	1.1	U	0.22	U	0.22	U	0.26	U	0.22	U
Methylene chloride	*75-09-2*	*3*	0.42	U	1.8	J B	0.27	J	1.7		2.4		0.41	J
Styrene	*100-42-5*	*100*	0.34	U	0.85	U	0.17	U	0.17	U	0.42	U	0.17	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.38	U	0.95	U	0.19	U	0.19	U	0.37	U	0.19	U
Tetrachloroethene	*127-18-4*	*1*	**440**		**22**		**380**		**31**		**4.8**		**82**	
Toluene	*108-88-3*	*600*	2		1.7	J	0.27	J	1.2		0.71	J	0.25	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	1.2	J	1.4	J	0.39	J	0.71	J	0.42	J	0.18	U
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.38	U	0.95	U	0.19	U	0.19	U	0.49	U	0.19	U
Freon 113	*76-13-1*	*20000*	0.68	U	1.7	U	0.34	U	0.34	U	0.31	U	0.34	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.7	U	1.8	U	0.35	U	0.35	U	0.36	U	0.35	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.56	U	1.4	U	0.28	U	0.28	U	0.24	U	0.28	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.16	U	0.4	U	0.08	U	0.08	U	0.43	U	0.08	U
Trichloroethene	*79-01-6*	*1*	**60**		***120***		**26**		**53**		**46**		**6.8**	
Trichlorofluoromethane	*75-69-4*	*2000*	0.3	U	0.75	U	0.15	U	0.15	U	0.14	U	0.15	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.54	U	1.4	U	0.27	U	0.27	U	0.37	U	0.27	U
Vinyl Chloride	*75-01-4*	*1*	**2.5**		0.3	U	**1.4**		**3.1**		0.17	U	0.6	J
m,p-Xylene	*179601-23-1*	*--*	1.4	J	2.1	J	0.56	J	3		1		0.28	U
o-Xylene	*95-47-6*	*--*	0.64	U	1.6	U	0.32	U	1.1		0.36	U	0.32	U
Xylenes (total)	*1330-20-7*	*1000*	1.4	J	2.1	J	0.56	J	4.1		1	J	0.28	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	IW-113A_LF27.5		IW-194B_LF37.5		IW-194B_LF37.5		IW-194B_LF37.5		IW-195A_LF7.7		IW-195A_LF12.7	
		Date Sampled:	6/26/2018		5/21/2018		5/31/2018		6/26/2018		5/1/2019		5/1/2019	
		LAB Sample ID:	460159218-1-9		460156736-1-14		460157265-1-11		460159218-1-12		460180889-1-3		460180889-1-9	
		LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	63		17	B	370	B	91		30		29	
Benzene	*71-43-2*	*1*	**1.2**		0.13	J	**2**		***2.3***	J	0.73	J	0.97	J
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.3	U	0.3	U	2.1	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.15	U	0.15	U	*1.7*	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	0.18	U	0.18	U	2.7	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	1	U	0.18	U	0.18	U	5	U	1	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	**330**		2.2	U	**870**		**860**		57		50	
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.16	U	0.22	U	2.2		0.78	U	0.53	J	0.57	J
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.33	U	0.33	U	1	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	15		1.9		11		6.5		17		20	
Chloroethane	*75-00-3*	*5*	0.32	U	0.37	U	0.37	U	1.6	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	0.33	U	2.3		8.5		1.6	U	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	0.14	U	0.22	U	0.22	U	0.72	U	0.14	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	1		4.6		0.26	U	3	J	6.1		7.2	
cis-1,3-Dichloropropene	*10061-01-5*	--	0.46	U	0.16	U	0.16	U	2.3	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.26	U	0.26	U	1.6	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.23*	U	*0.23*	U	*1.9*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.22	U	0.22	U	*1.4*	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.19*	U	*0.19*	U	*2.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.22	U	0.22	U	2.2	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.33	U	0.33	U	1.7	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.33	U	0.33	U	3.8	U	0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.14	U	0.14	U	0.61	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.26	U	0.24	U	0.24	U	1.3	U	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.25	U	0.25	U	*2.2*	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.34	U	0.34	U	0.59	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.18	U	0.18	U	*1.8*	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*28*	U	*8.7*	U	*8.7*	U	*140*	U	*28*	U	*28*	U
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	1		0.3	U	1.9		8.3		0.6	J	0.58	J
2-Hexanone	*591-78-6*	*40*	2.9	U	0.72	U	0.72	U	15	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.34	U	0.32	U	0.32	U	1.7	U	0.34	U	0.35	J
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	42		0.58	U	27		220		0.31	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.13	U	0.35	J	2.3	U	0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	0.63	U	0.63	U	14	U	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.22	U	0.22	U	1.6	J	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.71	J	0.49	J	1.3		1.6	J	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.42	U	0.17	U	0.17	U	2.1	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.19	U	0.19	U	*1.8*	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	**4**		**120**		**16**		***13***		**3.3**		**4.5**	
Toluene	*108-88-3*	*600*	1		0.25	U	1		2.2	J	0.94	J	1.1	
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.29	J	0.18	U	1.2	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.49	U	0.19	U	0.19	U	2.4	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.34	U	0.34	U	1.6	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.35	U	0.35	U	1.8	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.28	U	0.28	U	1.2	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.08	U	0.08	U	2.2	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	**5.6**		**14**		**4.9**		***5.4***		**8.1**		**9.9**	
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.15	U	0.15	U	0.72	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.27	U	0.27	U	1.8	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.17	U	0.64	J	0.06	U	0.86	U	0.17	U	**2**	
m,p-Xylene	*179601-23-1*	--	0.73	J	0.38	J	2.9		7.1	B	0.52	J	0.55	J
o-Xylene	*95-47-6*	--	0.6	J	0.32	U	1.1		2.6	J	0.49	J	0.48	J
Xylenes (total)	*1330-20-7*	*1000*	1.33	J	0.38	J	4		9.7	J	1.01		1.03	

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	IW-195A_LF17.7		IW-195A_LF22.7		IW-195A_LF22.7(A)		IW-195A_LF22.7(B)		IW-195A_LF27.7		IW-196A_LF7.0	
		Date Sampled:	5/1/2019		5/1/2019		7/20/2019		7/20/2019		5/1/2019		4/30/2019	
		LAB Sample ID:	460180889-1-13		460180889-1-15		460187118-1-2		460187118-1-3		460180889-1-20		460181058-1-7	
		LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	22		24		24		26		29		6.4	
Benzene	*71-43-2*	*1*	**1.4**		**1.8**		0.55	J	0.55	J	**1.4**		0.43	U
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	1	U	1	U	0.55	U	0.55	U	1	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	33		39		11		13		40		1.9	U
Carbon Dioxide	*124-38-9*	*--*	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.16	U	0.16	U	0.82	U	0.82	U	0.16	U	0.16	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	25		26		8.6		7.9		23		1.2	
Chloroethane	*75-00-3*	*5*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	0.14	U	0.14	U	0.4	U	0.4	U	0.14	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	9.2		11		1.8		1.8		9.4		0.22	U
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.46	U	0.46	U	0.22	U	0.22	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.76	U	0.33	U	0.33	U	0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.12	U	0.31	U	0.31	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.12	U	0.26	U	0.26	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*28*	U	*28*	U	*28*	U	*28*	U	*28*	U	*28*	U
Ethane	*74-84-0*	*--*	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	*--*	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.74	J	0.74	J	1.4		1.3		0.64	J	0.3	U
2-Hexanone	*591-78-6*	*40*	2.9	U	2.9	U	1.1	U	1.1	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	J	0.34	U
Methane	*74-82-8*	*--*	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.31	U	0.31	U	0.79	U	0.79	U	0.31	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	2.7	U	2	J	1.5	J	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.32	U	0.32	J	0.32	U	0.32	U	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	**7.7**		**6.8**		0.25	U	0.25	U	**5.5**		0.37	J
Toluene	*108-88-3*	*600*	1		1.1		1		1		1		0.38	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	**8.6**		**9.5**		0.31	U	0.31	U	**9.6**		0.31	U
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.14	U	0.32	U	0.32	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	**2.1**		**2.5**		0.17	U	0.76	J	**2.3**		0.17	U
m,p-Xylene	*179601-23-1*	*--*	0.64	J	0.61	J	0.96	J	0.89	J	0.67	J	0.3	U
o-Xylene	*95-47-6*	*--*	0.58	J	0.6	J	0.51	J	0.6	J	0.64	J	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	1.22		1.21		1.47		1.49		1.31		0.3	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	IW-196A_LF12.0		IW-196A_LF17.0		IW-196A_LF17.0		IW-196A_LF22.0(A)		IW-196A_LF22.0(B)		IW-196A_LF27.0	
		Date Sampled:	4/30/2019		4/30/2019		7/20/2019		4/30/2019		4/30/2019		4/30/2019	
		LAB Sample ID:	460181058-1-10		460181058-1-13		460187118-1-4		460181058-1-17		460181058-1-18		460181058-1-19	
		LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	8.6		5	U	4.4	U	5	U	5	U	5	U
Benzene	*71-43-2*	*1*	0.43	U	0.43	U	0.2	U	0.43	U	0.43	U	0.43	U
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	1	U	1	U	0.55	U	1	U	1	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.16	U	0.16	U	0.82	U	0.16	U	0.16	U	0.16	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	1.3		1.1		0.67	J	1		1		1.1	
Chloroethane	*75-00-3*	*5*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	0.14	U	0.14	U	0.4	U	0.14	U	0.14	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
cis-1,3-Dichloropropene	*10061-01-5*	--	0.46	U	0.46	U	0.22	U	0.46	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.76	U	0.33	U	0.76	U	0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.12	U	0.31	U	0.12	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.12	U	0.26	U	0.12	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*28*	U	*28*	U	*28*	U	*28*	U	*28*	U	*28*	U
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
2-Hexanone	*591-78-6*	*40*	2.9	U	2.9	U	1.1	U	2.9	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.31	U	0.31	U	0.79	U	0.31	U	0.31	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	2.7	U	1.3	U	2.7	U	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.54	J	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Toluene	*108-88-3*	*600*	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.14	U	0.32	U	0.14	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
m,p-Xylene	*179601-23-1*	--	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
o-Xylene	*95-47-6*	--	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	IW-197A_LF25.0		IW-197A_LF25.0		IW-198A_LF25.5		IW-198A_LF25.5		IW-199B_LF29.0		IW-199B_LF34.0	
		Date Sampled:	4/30/2019		7/20/2019		4/30/2019		7/20/2019		5/1/2019		5/1/2019	
		LAB Sample ID:	460181058-1-15		460187118-1-5		460181058-1-14		460187118-1-6		460180889-1-6		460180889-1-11	
		LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	56		8.8	U	5	U	4.4	U	14		13	
Benzene	*71-43-2*	*1*	**44**		**47**		**4.7**		**2.9**		**6**		**7.2**	
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.82	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.69	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	1.1	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	1	U	1.1	U	1	U	0.55	U	1	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	1.9	U	3.7	U	1.9	U	1.9	U	5		1.9	U
Carbon Dioxide	*124-38-9*	*--*	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	1.2		1.6	U	0.27	J	0.82	U	0.54	J	0.16	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.42	U	0.21	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	**370**		**460**		**99**		**120**		21		45	
Chloroethane	*75-00-3*	*5*	0.32	U	0.64	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	9.2		8.4		0.33	U	0.33	U	0.33	U	0.52	J
Chloromethane	*74-87-3*	*100*	0.14	U	0.8	U	0.14	U	0.4	U	0.14	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	**460**		33		23		7.8		1.3		0.87	J
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.46	U	0.44	U	0.46	U	0.22	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.64	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.75*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.56	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*1*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.86	U	0.43	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.68	U	0.34	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.67	U	0.76	U	0.33	U	0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.62	U	0.12	U	0.31	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.81	J	0.82	J	0.26	U	0.26	U	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.86	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	**1.2**		0.53	U	0.12	U	0.26	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.71	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*28*	U	*56*	U	*28*	U	*28*	U	*28*	U	*28*	U
Ethane	*74-84-0*	*--*	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	*--*	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	2.9		2.6		0.75	J	0.68	J	0.64	J	0.79	J
2-Hexanone	*591-78-6*	*40*	2.9	U	2.3	U	2.9	U	1.1	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	1.3		0.67	U	0.34	U	0.34	U	0.34	U	1.2	
Methane	*74-82-8*	*--*	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.31	U	1.6	U	0.31	U	0.79	U	0.31	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.93	U	0.47	U	0.47	U	0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	2.6	U	2.7	U	1.3	U	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.52	U	0.48	J	0.56	J	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	**9.5**		0.63	U	0.32	U	0.32	U	0.32	U	0.43	J
Styrene	*100-42-5*	*100*	0.42	U	0.83	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.73	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	**5.3**		0.5	U	0.25	U	0.25	U	0.25	U	0.25	U
Toluene	*108-88-3*	*600*	12		13		1.8		1.4		1.3		1.1	
trans-1,2-Dichloroethene	*156-60-5*	*100*	3.7		3.5		0.91	J	0.76	J	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.49	U	0.97	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.62	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.71	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.48	U	0.31	J	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.87	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	**3.1**		0.96	J	**11**		**3.1**		**1.2**		0.91	J
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.64	U	0.14	U	0.32	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.73	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	**49**		**170**		**18**		**7.7**		0.8	J	0.74	J
m,p-Xylene	*179601-23-1*	*--*	6.4		5.1		1.2		0.51	J	0.98	J	0.81	J
o-Xylene	*95-47-6*	*--*	4.6		2.9		0.77	J	0.36	U	0.71	J	0.98	J
Xylenes (total)	*1330-20-7*	*1000*	11		8		1.97		0.51	J	1.69		1.79	

GWQS = NJDEP's Ground Water Quality Standard
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NA = Not Analyzed
J = Estimated value below sample reporting limit
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U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	IW-199B_LF39.0		IW-199B_LF39.0		IW-200A_LF25.0		IW-200A_LF25.0		MW-318A_LF10.0		MW-318B_LF50.0	
		Date Sampled:	5/1/2019		7/20/2019		5/1/2019		7/20/2019		5/21/2018		5/21/2018	
		LAB Sample ID:	460180889-1-14		460187118-1-7		460180889-1-8		460187118-1-9		460156736-1-11		460156736-1-12	
		LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		TestAmerica Edison		TestAmerica Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	16		8.1		5.2		4.4	U	9.1		14	
Benzene	*71-43-2*	*1*	**8.7**		**52**		**1.1**		0.45	J	0.09	U	0.2	J
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.3	U	0.3	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.15	U	0.15	U
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.18	U	0.18	U
Bromomethane	*74-83-9*	*10*	1	U	0.55	U	1	U	0.55	U	0.18	U	0.18	U
2-Butanone (MEK)	*78-93-3*	*300*	1.9	U	1.9	U	1.9	U	1.9	U	2.2	U	2.2	U
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.16	U	0.82	U	0.16	U	0.82	U	0.22	U	0.22	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.33	U	0.33	U
Chlorobenzene	*108-90-7*	*50*	**190**		**380**		**57**		28		0.29	J	12	
Chloroethane	*75-00-3*	*5*	0.32	U	0.32	U	0.32	U	0.32	U	0.37	U	0.37	U
Chloroform	*67-66-3*	*70*	0.33	U	0.33	U	0.33	U	0.33	U	0.54	J	0.78	J
Chloromethane	*74-87-3*	*100*	0.14	U	0.4	U	0.14	U	0.4	U	0.22	U	0.22	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	0.86	J	3.4		0.54	J	0.52	J	0.38	J	2.1	
cis-1,3-Dichloropropene	*10061-01-5*	--	0.46	U	0.22	U	0.46	U	0.22	U	0.16	U	0.16	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.32	U	0.32	U	0.26	U	0.26	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.23*	U	*0.23*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.22	U	0.22	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.19*	U	*0.19*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.53	J	0.6	J	0.43	U	0.43	U	0.22	U	0.22	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.36	J	0.34	U	0.34	U	0.34	U	0.33	U	0.33	U
1,4-Dichlorobenzene	*106-46-7*	*75*	1.3		1.3		0.76	U	0.33	U	0.33	U	0.33	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.31	U	0.12	U	0.31	U	0.14	U	0.14	U
1,1-Dichloroethane	*75-34-3*	*50*	0.33	J	1.3		0.26	U	0.26	U	0.24	U	0.24	U
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.43	U	0.43	U	0.43	U	0.25	U	0.25	U
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.26	U	0.12	U	0.26	U	0.34	U	0.34	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.18	U	0.18	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	***70***		*28*	U	*28*	U	*28*	U	***14***	J	***25***	J
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.91	J	6.4		0.3	U	0.3	U	0.3	U	0.3	U
2-Hexanone	*591-78-6*	*40*	2.9	U	1.1	U	2.9	U	1.1	U	0.72	U	0.72	U
Isopropylbenzene	*98-82-8*	*700*	6.6		1.2		0.34	U	0.34	U	0.32	U	0.32	U
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.31	U	0.79	U	0.31	U	0.79	U	0.58	U	0.58	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.47	U	0.47	U	0.47	U	0.16	J	0.25	J
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	1.3	U	2.7	U	1.3	U	0.63	U	0.63	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.41	J	0.26	U	0.26	U	0.22	U	0.22	U
Methylene chloride	*75-09-2*	*3*	0.32	U	0.32	U	0.32	U	0.32	U	0.21	U	0.26	J
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.17	U	0.17	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.19	U	0.19	U
Tetrachloroethene	*127-18-4*	*1*	0.25	U	0.25	U	0.25	U	0.25	U	**4.7**		**52**	
Toluene	*108-88-3*	*600*	0.5	J	1.4		0.38	U	0.38	U	0.25	U	0.25	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.18	U	0.18	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.49	U	0.49	U	0.49	U	0.49	U	0.19	U	0.19	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.34	U	0.34	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.35	U	0.35	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.28	U	0.28	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.08	U	0.08	U
Trichloroethene	*79-01-6*	*1*	0.31	U	0.31	U	0.31	U	0.31	U	0.72	J	**3.8**	
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.32	U	0.14	U	0.32	U	0.15	U	0.15	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.53	J	0.37	U	0.37	U	0.27	U	0.27	U
Vinyl Chloride	*75-01-4*	*1*	0.61	J	**1.9**		0.35	J	0.25	J	0.06	U	0.4	J
m,p-Xylene	*179601-23-1*	--	0.61	J	8.4		0.3	U	0.3	U	0.28	U	0.28	U
o-Xylene	*95-47-6*	--	3.8		1.3		0.36	U	0.36	U	0.32	U	0.32	U
Xylenes (total)	*1330-20-7*	*1000*	4.41		9.7		0.3	U	0.3	U	0.28	U	0.28	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	MW-346B_LF40.0		MW-346B_LF40.0		MW-346B_LF40.0(A)		MW-346B_LF40.0(B)		MW-350A_LF10.5		MW-350B_LF40.0	
		Date Sampled:	5/21/2018		6/26/2018		5/31/2018		5/31/2018		5/21/2018		5/21/2018	
		LAB Sample ID:	460156736-1-3		460159218-1-6		460157265-1-7		460157265-1-8		460156736-1-8		460156736-1-9	
		LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	16	B	79		71	B	58	B	4.9	J B	28	B
Benzene	*71-43-2*	*1*	0.75	J	**1.1**		0.09	U	0.18	U	0.09	U	0.3	J
Bromochloromethane	*74-97-5*	*100*	0.3	U	0.41	U	0.3	U	0.6	U	0.3	U	0.3	U
Bromodichloromethane	*75-27-4*	*1*	0.15	U	0.34	U	0.15	U	0.3	U	0.15	U	0.15	U
Bromoform	*75-25-2*	*4*	0.18	U	0.54	U	0.18	U	0.36	U	0.18	U	0.18	U
Bromomethane	*74-83-9*	*10*	0.18	U	1	U	0.18	U	0.36	U	0.18	U	0.18	U
2-Butanone (MEK)	*78-93-3*	*300*	2.2	U	**840**		230		140		2.2	U	2.2	U
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.22	U	2		0.24	J	0.44	U	0.22	U	0.22	U
Carbon tetrachloride	*56-23-5*	*1*	0.33	U	0.21	U	0.33	U	0.66	U	0.33	U	0.33	U
Chlorobenzene	*108-90-7*	*50*	22		3.6		0.24	U	0.48	U	0.24	U	33	
Chloroethane	*75-00-3*	*5*	0.37	U	0.32	U	0.37	U	0.74	U	0.37	U	0.37	U
Chloroform	*67-66-3*	*70*	0.79	J	0.52	J	0.22	U	0.44	U	0.22	U	0.22	U
Chloromethane	*74-87-3*	*100*	0.48	J	4.2		0.22	U	0.44	U	0.22	U	0.22	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	2.4		3.4		0.26	U	0.52	U	0.26	U	0.26	U
cis-1,3-Dichloropropene	*10061-01-5*	--	0.16	U	0.46	U	0.16	U	0.32	U	0.16	U	0.16	U
Cyclohexane	*110-82-7*	*100*	0.26	U	0.32	U	0.26	U	0.52	U	0.26	U	0.26	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.23*	U	*0.38*	U	*0.23*	U	*0.46*	U	*0.23*	U	*0.23*	U
Dibromochloromethane	*124-48-1*	*1*	0.22	U	0.28	U	0.22	U	0.44	U	0.22	U	0.22	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.19*	U	*0.5*	U	*0.19*	U	*0.38*	U	*0.19*	U	*0.19*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.22	U	0.43	U	0.22	U	0.44	U	0.22	U	0.25	J
1,3-Dichlorobenzene	*541-73-1*	*600*	0.33	U	0.34	U	0.33	U	0.66	U	0.33	U	0.33	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.33	U	0.76	U	0.33	U	0.66	U	0.33	U	1	
Dichlorodifluoromethane	*75-71-8*	*1000*	0.14	U	0.12	U	0.14	U	0.28	U	0.14	U	0.14	U
1,1-Dichloroethane	*75-34-3*	*50*	0.24	U	0.26	U	0.24	U	0.48	U	0.24	U	0.27	J
1,2-Dichloroethane	*107-06-2*	*2*	0.25	U	0.43	U	0.25	U	0.5	U	0.25	U	0.25	U
1,1-Dichloroethene	*75-35-4*	*1*	0.34	U	0.12	U	0.34	U	0.68	U	0.34	U	0.34	U
1,2-Dichloropropane	*78-87-5*	*1*	0.18	U	0.35	U	0.18	U	0.36	U	0.18	U	0.18	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	***12***	J	*28*	U	***11***	J	*17*	U	*8.7*	U	***57***	
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.3	U	0.44	J	0.3	U	0.6	U	0.3	U	0.3	U
2-Hexanone	*591-78-6*	*40*	0.72	U	2.9	U	0.72	U	1.4	U	0.72	U	0.72	U
Isopropylbenzene	*98-82-8*	*700*	0.32	U	0.34	U	0.32	U	0.64	U	0.32	U	0.32	U
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.58	U	45		0.71	J	1.2	U	0.58	U	0.58	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.13	U	0.78	J	0.13	U	0.26	U	0.13	U	0.19	J
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	0.63	U	2.7	U	0.63	U	1.3	U	0.63	U	0.63	U
Methylcyclohexane	*108-87-2*	*100*	0.22	U	0.26	U	0.22	U	0.44	U	0.22	U	0.22	U
Methylene chloride	*75-09-2*	*3*	0.33	J	0.63	J	0.28	J	0.42	U	0.21	U	0.21	U
Styrene	*100-42-5*	*100*	0.17	U	0.42	U	0.17	U	0.34	U	0.17	U	0.17	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.19	U	0.37	U	0.19	U	0.38	U	0.19	U	0.19	U
Tetrachloroethene	*127-18-4*	*1*	**49**		**2.2**		**7.7**		**6**		0.34	J	0.12	U
Toluene	*108-88-3*	*600*	0.25	U	0.54	J	0.25	U	0.5	U	0.25	U	0.25	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.18	U	0.24	U	0.18	U	0.36	U	0.18	U	0.18	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.19	U	0.49	U	0.19	U	0.38	U	0.19	U	0.19	U
Freon 113	*76-13-1*	*20000*	0.34	U	0.31	U	0.34	U	0.68	U	0.34	U	0.34	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.35	U	0.36	U	0.35	U	0.7	U	0.35	U	0.35	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.28	U	0.24	U	0.28	U	0.56	U	0.28	U	0.28	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.08	U	0.43	U	0.08	U	0.16	U	0.08	U	0.08	U
Trichloroethene	*79-01-6*	*1*	**3.4**		**6**		0.36	J	0.44	U	0.22	U	0.22	U
Trichlorofluoromethane	*75-69-4*	*2000*	0.15	U	0.14	U	0.15	U	0.3	U	0.15	U	0.15	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.27	U	0.37	U	0.27	U	0.54	U	0.27	U	0.27	U
Vinyl Chloride	*75-01-4*	*1*	0.31	J	0.4	J	0.06	U	0.12	U	0.06	U	0.06	U
m,p-Xylene	*179601-23-1*	--	0.28	U	0.3	J	0.28	U	0.56	U	0.28	U	0.28	U
o-Xylene	*95-47-6*	--	0.32	U	0.36	U	0.32	U	0.64	U	0.32	U	0.32	U
Xylenes (total)	*1330-20-7*	*1000*	0.28	U	0.3	U	0.28	U	0.56	U	0.28	U	0.28	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:		MW-350C_LF70.0		MW-504B_LF33.5		MW-504B_LF38.5		MW-504B_LF38.5		MW-505A_LF5.5		MW-505A_LF10.5	
			Date Sampled:		5/21/2018		5/1/2019		5/1/2019		7/20/2019		4/30/2019		4/30/2019	
			LAB Sample ID:		460156736-1-10		460180889-1-7		460180889-1-19		460187118-1-10		460181058-1-11		460181058-1-6	
			LAB:		TestAmerica Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***														
Acetone	*67-64-1*	*6000*	34	B	19		28		4.4	U	5	U	5	U
Benzene	*71-43-2*	*1*	0.09	U	**15**		**19**		**27**		0.43	U	0.43	U
Bromochloromethane	*74-97-5*	*100*	0.3	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.15	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.18	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	0.18	U	1	U	1	U	0.55	U	1	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	2.2	U	8.1		30		1.9	U	1.9	U	1.9	U
Carbon Dioxide	*124-38-9*	*--*	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.22	U	0.84	J	0.16	U	0.84	J	0.16	U	0.16	U
Carbon tetrachloride	*56-23-5*	*1*	0.33	U	0.21	U	0.21	U	0.21	U	0.21	U	0.59	J
Chlorobenzene	*108-90-7*	*50*	13		**120**		**140**		**150**		0.38	U	0.38	U
Chloroethane	*75-00-3*	*5*	0.37	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	0.22	U	4.8		3		0.44	J	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	0.22	U	0.14	U	0.14	U	0.4	U	0.14	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	0.27	J	1.3		1.6		1.3		0.22	U	0.22	U
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.16	U	0.46	U	0.46	U	0.22	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.37	J	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.23*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.22	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.19*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.22	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.33	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.33	U	0.76	U	0.76	U	0.33	U	0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.14	U	0.12	U	0.12	U	0.31	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.57	J	0.66	J	0.65	J	0.54	J	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.25	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.34	U	0.12	U	0.12	U	0.26	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.18	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	***120***		***57***		***87***		***50***		0.2	U	0.2	U
Ethane	*74-84-0*	*--*	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	*--*	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.3	U	0.68	J	1.1		1		0.3	U	0.3	U
2-Hexanone	*591-78-6*	*40*	0.72	U	2.9	U	2.9	U	1.1	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.32	U	3		2.2		2.3		0.34	U	0.34	U
Methane	*74-82-8*	*--*	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.58	U	0.31	U	0.31	U	0.79	U	0.31	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	1.9		0.47	U	0.81	J	0.53	J	0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	0.63	U	2.7	U	2.7	U	1.3	U	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.22	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.23	J	1.7		1.9		0.33	J	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.17	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.19	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	0.12	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Toluene	*108-88-3*	*600*	0.25	U	0.38	U	0.58	J	0.43	J	0.38	U	0.38	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.18	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.19	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.34	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.35	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.28	U	0.24	U	0.24	U	0.24	U	0.24	U	2.8	
1,1,2-Trichloroethane	*79-00-5*	*3*	0.08	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	0.22	U	0.66	J	0.64	J	0.61	J	0.31	U	0.31	U
Trichlorofluoromethane	*75-69-4*	*2000*	0.15	U	0.14	U	0.14	U	0.32	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.27	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.06	U	**1.2**		**1.4**		**1.1**		0.17	U	0.17	U
m,p-Xylene	*179601-23-1*	*--*	0.28	U	0.63	J	1		1.1		0.3	U	0.3	U
o-Xylene	*95-47-6*	*--*	0.32	U	1.4		1.5		2.2		0.4	J	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	0.28	U	2.03		2.5		3.3		0.4	J	0.3	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	MW-505A_LF10.5		MW-506B_LF36.0		MW-506B_LF41.0		MW-506B_LF41.0		MW-507C_LF61.0(A)		MW-507C_LF61.0(B)	
		Date Sampled:	7/20/2019		4/30/2019		4/30/2019		7/20/2019		4/30/2019		4/30/2019	
		LAB Sample ID:	460187118-1-11		460181058-1-3		460181058-1-9		460187118-1-12		460181058-1-5		460181058-1-4	
		LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	4.4	U	15		24		15		23		18	
Benzene	*71-43-2*	*1*	0.2	U	**8.5**		**7.6**		**4.6**		0.43	U	0.43	U
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	0.55	U	1	U	1	U	0.55	U	1	U	1	U
2-Butanone (MEK)	*78-93-3*	*300*	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.82	U	0.63	J	0.65	J	0.82	U	0.35	J	0.16	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	0.38	U	**270**		**210**		**110**		5.1		4.9	
Chloroethane	*75-00-3*	*5*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	0.33	U	2.3		8.3		0.33	U	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	0.4	U	0.14	U	0.14	U	0.4	U	0.14	U	0.14	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	0.22	U	0.22	U	0.22	U	0.27	J	0.37	J	0.34	J
cis-1,3-Dichloropropene	*10061-01-5*	--	0.22	U	0.46	U	0.46	U	0.22	U	0.46	U	0.46	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	J	0.37	J
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.69	J	0.5	J	0.45	J	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.49	J	0.38	J	0.35	J	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.33	U	1.6		1.4		1.1		0.76	U	0.76	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.31	U	0.12	U	0.12	U	0.31	U	0.12	U	0.12	U
1,1-Dichloroethane	*75-34-3*	*50*	0.26	U	0.58	J	0.67	J	0.45	J	0.32	J	0.37	J
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.26	U	0.12	U	0.12	U	0.26	U	0.12	U	0.12	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	*28*	U	**49**		**67**		***52***		**79**		**83**	
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.3	U	1.1		1		0.3	U	0.3	U	0.3	U
2-Hexanone	*591-78-6*	*40*	1.1	U	2.9	U	2.9	U	1.1	U	2.9	U	2.9	U
Isopropylbenzene	*98-82-8*	*700*	0.34	U	30		21		1.5		0.34	U	0.34	U
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.79	U	0.31	U	0.31	U	0.79	U	0.31	U	0.31	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.47	U	0.47	U	0.47	U	1.6		1.7	
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	1.3	U	2.7	U	2.7	U	1.3	U	2.7	U	2.7	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.32	U	0.45	J	0.58	J	0.32	U	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Toluene	*108-88-3*	*600*	0.38	U	0.41	J	0.4	J	0.38	U	0.38	U	0.38	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Trichlorofluoromethane	*75-69-4*	*2000*	0.32	U	0.14	U	0.14	U	0.32	U	0.14	U	0.14	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
m,p-Xylene	*179601-23-1*	--	0.3	U	5.7		4.6		0.3	U	0.3	U	0.3	U
o-Xylene	*95-47-6*	--	0.36	U	83		71		1		0.36	U	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	0.3	U	88.7		75.6		1		0.3	U	0.3	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.

Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

		Sample No.:	MW-507C_LF66.0		MW-507C_LF71.0		MW-507C_LF76.0		MW-507C_LF76.0		MW-508A_LF9.7		MW-508A_LF9.7	
		Date Sampled:	4/30/2019		4/30/2019		4/30/2019		7/20/2019		5/1/2019		7/20/2019	
		LAB Sample ID:	460181058-1-8		460181058-1-12		460181058-1-16		460187118-1-13		460180889-1-18		460187118-1-14	
		LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***												
Acetone	*67-64-1*	*6000*	18		20		21		16		5	U	4.4	U
Benzene	*71-43-2*	*1*	0.43	U	0.43	U	0.43	U	0.2	U	0.43	U	0.2	U
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U
Bromomethane	*74-83-9*	*10*	1	U	1	U	1	U	0.55	U	1	U	0.55	U
2-Butanone (MEK)	*78-93-3*	*300*	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U
Carbon Dioxide	*124-38-9*	--	NA		NA		NA		NA		NA		NA	
Carbon Disulfide	*75-15-0*	*700*	0.16	U	0.23	J	0.16	U	0.82	U	0.16	U	0.82	U
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chlorobenzene	*108-90-7*	*50*	5.2		6.5		12		6.7		3.6		1.8	
Chloroethane	*75-00-3*	*5*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Chloroform	*67-66-3*	*70*	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
Chloromethane	*74-87-3*	*100*	0.14	U	0.14	U	0.14	U	0.4	U	0.14	U	0.4	U
cis-1,2-Dichloroethene	*156-59-2*	*70*	0.39	J	0.35	J	0.41	J	0.38	J	0.27	J	0.22	U
cis-1,3-Dichloropropene	*10061-01-5*	--	0.46	U	0.46	U	0.46	U	0.22	U	0.46	U	0.22	U
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.34	J	0.32	U	0.32	U	0.32	U
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.76	U	0.76	U	0.33	U	0.76	U	0.33	U
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.12	U	0.12	U	0.31	U	0.12	U	0.31	U
1,1-Dichloroethane	*75-34-3*	*50*	0.34	J	0.32	J	0.36	J	0.26	U	0.26	U	0.26	U
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.12	U	0.12	U	0.26	U	0.12	U	0.26	U
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND	
1,4-Dioxane	*123-91-1*	*0.4*	**70**		**72**		**93**		***86***		**1.1**		*28*	U
Ethane	*74-84-0*	--	NA		NA		NA		NA		NA		NA	
Ethene	*74-85-1*	--	NA		NA		NA		NA		NA		NA	
Ethylbenzene	*100-41-4*	*700*	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
2-Hexanone	*591-78-6*	*40*	2.9	U	2.9	U	2.9	U	1.1	U	2.9	U	1.1	U
Isopropylbenzene	*98-82-8*	*700*	0.34	U	0.34	U	0.34	U	0.34	U	0.82	J	0.34	U
Methane	*74-82-8*	--	NA		NA		NA		NA		NA		NA	
Methyl Acetate	*79-20-9*	*7000*	0.31	U	0.31	U	0.31	U	0.79	U	0.31	U	0.79	U
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	1.6		1.7		1.8		1.3		0.47	U	0.47	U
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	2.7	U	2.7	U	1.3	U	2.7	U	1.3	U
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Methylene chloride	*75-09-2*	*3*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Tetrachloroethene	*127-18-4*	*1*	0.25	U	0.25	U	0.25	U	0.25	U	0.37	J	0.43	J
Toluene	*108-88-3*	*600*	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
trans-1,3-Dichloropropene	*10061-02-6*	--	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
Trichloroethene	*79-01-6*	*1*	0.31	U	0.31	U	0.31	U	0.31	U	0.42	J	0.31	U
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.14	U	0.14	U	0.32	U	0.14	U	0.32	U
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
Vinyl Chloride	*75-01-4*	*1*	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U
m,p-Xylene	*179601-23-1*	--	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
o-Xylene	*95-47-6*	--	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
Xylenes (total)	*1330-20-7*	*1000*	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
NA = Not Analyzed
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Table III

Summary of Volatile Organic Compounds (VOCs) in Groundwater

Hoffmann-La Roche Inc. - Nutley, New Jersey

Investigation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:		MW-508A_LF13.0		MW-508B_LF40.5		MW-508B_LF45.5		MW-508B_LF50.5		MW-508B_LF55.5		MW-508B_LF55.5	
			Date Sampled:		5/1/2019		5/1/2019		5/1/2019		5/1/2019		5/1/2019		7/20/2019	
			LAB Sample ID:		460180889-1-22		460180889-1-12		460180889-1-16		460180889-1-21		460180889-1-23		460187118-1-15	
			LAB:		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter (ug/l)	***CAS No.***	***GWQS***														
Acetone	*67-64-1*	*6000*	5	U	14		15		16		19		17			
Benzene	*71-43-2*	*1*	0.43	U	**1.1**		**1.1**		**1.1**		**1.3**		**1.4**			
Bromochloromethane	*74-97-5*	*100*	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U		
Bromodichloromethane	*75-27-4*	*1*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U		
Bromoform	*75-25-2*	*4*	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U	0.54	U		
Bromomethane	*74-83-9*	*10*	1	U	1	U	1	U	1	U	1	U	0.55	U		
2-Butanone (MEK)	*78-93-3*	*300*	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U		
Carbon Dioxide	*124-38-9*	*--*	NA		NA		NA		NA		NA		NA			
Carbon Disulfide	*75-15-0*	*700*	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.82	U		
Carbon tetrachloride	*56-23-5*	*1*	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U		
Chlorobenzene	*108-90-7*	*50*	3.4		40		39		37		38		43			
Chloroethane	*75-00-3*	*5*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U		
Chloroform	*67-66-3*	*70*	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U		
Chloromethane	*74-87-3*	*100*	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.4	U		
cis-1,2-Dichloroethene	*156-59-2*	*70*	0.22	U	0.34	J	0.35	J	0.37	J	0.44	J	0.3	J		
cis-1,3-Dichloropropene	*10061-01-5*	*--*	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.22	U		
Cyclohexane	*110-82-7*	*100*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U		
1,2-Dibromo-3-chloropropane	*96-12-8*	*0.02*	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U	*0.38*	U		
Dibromochloromethane	*124-48-1*	*1*	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U		
1,2-Dibromoethane	*106-93-4*	*0.03*	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U	*0.5*	U		
1,2-Dichlorobenzene	*95-50-1*	*600*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U		
1,3-Dichlorobenzene	*541-73-1*	*600*	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U		
1,4-Dichlorobenzene	*106-46-7*	*75*	0.76	U	0.76	U	0.76	U	0.76	U	0.76	U	0.41	J		
Dichlorodifluoromethane	*75-71-8*	*1000*	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.31	U		
1,1-Dichloroethane	*75-34-3*	*50*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U		
1,2-Dichloroethane	*107-06-2*	*2*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U		
1,1-Dichloroethene	*75-35-4*	*1*	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.26	U		
1,2-Dichloropropane	*78-87-5*	*1*	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U		
1,3-Dichloropropene (total)	*542-75-6*	*1*	ND		ND		ND		ND		ND		ND			
1,4-Dioxane	*123-91-1*	*0.4*	**1.1**		***38***	J	***36***	J	***38***	J	*28*	U	***31***	J		
Ethane	*74-84-0*	*--*	NA		NA		NA		NA		NA		NA			
Ethene	*74-85-1*	*--*	NA		NA		NA		NA		NA		NA			
Ethylbenzene	*100-41-4*	*700*	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U		
2-Hexanone	*591-78-6*	*40*	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	1.1	U		
Isopropylbenzene	*98-82-8*	*700*	0.83	J	1.6		1.6		1.3		1.1		0.34	U		
Methane	*74-82-8*	*--*	NA		NA		NA		NA		NA		NA			
Methyl Acetate	*79-20-9*	*7000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.79	U		
Methyl Tert Butyl Ether (MTBE)	*1634-04-4*	*70*	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U		
4-methyl-2-pentanone (MIBK)	*108-10-1*	*100*	2.7	U	2.7	U	2.7	U	2.7	U	2.7	U	1.3	U		
Methylcyclohexane	*108-87-2*	*100*	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U		
Methylene chloride	*75-09-2*	*3*	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U		
Styrene	*100-42-5*	*100*	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U	0.42	U		
1,1,2,2-Tetrachloroethane	*79-34-5*	*1*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U		
Tetrachloroethene	*127-18-4*	*1*	0.4	J	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U		
Toluene	*108-88-3*	*600*	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U	0.38	U		
trans-1,2-Dichloroethene	*156-60-5*	*100*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U		
trans-1,3-Dichloropropene	*10061-02-6*	*--*	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U		
Freon 113	*76-13-1*	*20000*	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U		
1,2,3-Trichlorobenzene	*87-61-6*	*100*	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U		
1,1,1-Trichloroethane	*71-55-6*	*30*	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U		
1,1,2-Trichloroethane	*79-00-5*	*3*	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U		
Trichloroethene	*79-01-6*	*1*	0.47	J	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U		
Trichlorofluoromethane	*75-69-4*	*2000*	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.32	U		
1,2,4-Trichlorobenzene	*120-82-1*	*9*	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U		
Vinyl Chloride	*75-01-4*	*1*	0.17	U	0.17	U	0.17	U	0.17	U	0.21	J	0.17	U		
m,p-Xylene	*179601-23-1*	*--*	0.3	U	0.35	J	0.32	J	0.41	J	0.37	J	0.3	U		
o-Xylene	*95-47-6*	*--*	0.36	U	18		17		15		12		0.36	U		
Xylenes (total)	*1330-20-7*	*1000*	0.3	U	18.35		17.32		15.41		12.37		0.3	U		

GWQS = NJDEP's Ground Water Quality Standard
Bold indicates concentrations above the GWQS
ND = Not Detected
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U = Compound not detected above MDL
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TABLE IV

SUMMARY OF METALS AND GENERAL CHEMISTRY PARAMETERS IN GROUNDWATER

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	ART-75_LF16.5		ART-75_LF16.5		ART-75_LF16.5		ART-76_LF16.5		ART-76_LF16.5		ART-76_LF16.5	
				Date Sampled:	5/18/2018		5/31/2018		6/26/2018		5/18/2018		5/31/2018		6/26/2018	
				LAB Sample ID:	460156495-1-4		460157265-1-3		460159218-1-3		460156495-1-5		460157265-1-4		460159218-1-4	
				LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA		
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		NA		NA		NA		
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		NA		NA		NA		
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA		NA		NA		NA		
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA		NA		NA		NA		
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA		
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA		
Total Organic Carbon	*SRP33*	*ug/l*	*--*	4200	B	257000		614000	B	6200	B	1240000		1390000	B	

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Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	ART-77_LF36.5		ART-77_LF36.5		ART-77_LF36.5 (A)		ART-77_LF36.5 (B)		ART-78_LF16.5		ART-78_LF16.5	
				Date Sampled:	5/18/2018		5/31/2018		6/26/2018		6/26/2018		5/18/2018		5/31/2018	
				LAB Sample ID:	460156495-1-9		460157265-1-10		460159218-1-7		460159218-1-8		460156495-1-3		460157265-1-9	
				LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*	212000	D	NA		**293000**	D	**294000**	D	**433000**	D	NA	
Iron	*7439-89-6*	*ug/l*	*300*	189		NA		129	J	**615**		163		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	**8680**		NA		**2330**		**2550**		**5780**		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	4700		NA		53	J B	61	J B	6400		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	240		NA		21	U	21	U	110		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	**596000**		NA		**12900000**		**13000000**		**331000**		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	**767000**	D	NA		**1120000**	D	**1110000**	D	**1460000**	D	NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*	4800	B	4220000		1830000	B	1820000	B	4500	B	788000	

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Table IV
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Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	ART-78_LF16.5		BIOS-1B_LF65.0		EW-6B_LF29.5 (A)		EW-6B_LF29.5 (B)		EW-6B_LF34.5		EW-6B_LF34.5	
				Date Sampled:	6/26/2018		5/21/2018		5/1/2019		5/1/2019		5/1/2019		5/1/2019	
				LAB Sample ID:	460159218-1-14		460156736-1-13		460180889-1-4		460180889-1-5		460180889-1-10		460180889-1-10F	
				LAB:	TestAmerica Edison		TestAmerica Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*		139000	D	NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*		**53500**		NA		NA		NA		NA		**325**	
Manganese	*7439-96-5*	*ug/l*	*50*		**17500**		NA		NA		NA		NA		**1930**	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*		38	J B	NA		NA		NA		10	U	NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*		420		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*		**379000**		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*		24000	D	NA		NA		NA		154000		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*		366000	B	4700		5200		5000		5200		NA	

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Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	EW-6B_LF34.5			EW-6B_LF34.5			EW-6B_LF39.5			IW-109A_LF27.5			IW-109A_LF27.5			IW-110A_LF27.5		
				Date Sampled:	7/20/2019			7/20/2019			5/1/2019			5/18/2018			5/31/2018			5/18/2018		
				LAB Sample ID:	460187118-1-8			460187118-1-8F			460180889-1-17			460156495-1-6			460157265-1-5			460156495-1-7		
				LAB:	Eurofins TA, Edison			Eurofins TA, Edison			Eurofins TA, Edison			TestAmerica Edison			TestAmerica Edison			TestAmerica Edison		
Parameter	***CAS No.***	***Units***	***GWQS***																				
Chloride	*16887-00-6*	*ug/l*	*250000*	**313000**			NA			NA			NA			NA			NA				
Iron	*7439-89-6*	*ug/l*	*300*	NA			269			NA			NA			NA			NA				
Manganese	*7439-96-5*	*ug/l*	*50*	NA			**1720**			NA			NA			NA			NA				
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	10	U		NA			NA			NA			NA			NA				
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	3000			NA			NA			NA			NA			NA				
Sodium	*7440-23-5*	*ug/l*	*50000*	NA			**321000**			NA			NA			NA			NA				
Sulfate	*14808-79-8*	*ug/l*	*250000*	171000			NA			NA			NA			NA			NA				
Total Organic Carbon	*SRP33*	*ug/l*	*--*	7200			NA			5900		B	4200		B	1610000			4600		B		

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Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	IW-110A_LF27.5		IW-110A_LF27.5		IW-113A_LF27.5		IW-113A_LF27.5		IW-194B_LF37.5		IW-194B_LF37.5	
				Date Sampled:	5/31/2018		6/26/2018		5/21/2018		6/26/2018		5/21/2018		5/31/2018	
				LAB Sample ID:	460157265-1-6		460159218-1-5		460156736-1-5		460159218-1-9		460156736-1-14		460157265-1-11	
				LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		NA		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		NA		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA		NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*	2310000		764000	B	4000		401000	B	5200		1830000	

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
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Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	IW-194B_LF37.5		IW-195A_LF7.7		IW-195A_LF12.7		IW-195A_LF12.7		IW-195A_LF17.7		IW-195A_LF22.7	
			Date Sampled:	6/26/2018		5/1/2019		5/1/2019		5/1/2019		5/1/2019		5/1/2019	
			LAB Sample ID:	460159218-1-12		460180889-1-3		460180889-1-9		460180889-1-9F		460180889-1-13		460180889-1-15	
			LAB:	TestAmerica Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter	***CAS No.***	***Units***	***GWQS***												
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		**2740**		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		**2250**		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		12	J	NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		118000		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*	4850000	B	25300		23500		NA		19000	B	20300	B

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	IW-195A_LF22.7(A)			IW-195A_LF22.7(A)			IW-195A_LF22.7(B)			IW-195A_LF22.7(B)			IW-195A_LF27.7			IW-196A_LF7.0	
				Date Sampled:	7/20/2019			7/20/2019			7/20/2019			7/20/2019			5/1/2019			4/30/2019	
				LAB Sample ID:	460187118-1-24			460187118-1-2F			460187118-1-34			460187118-1-3F			460180889-1-20			460181058-1-7	
				LAB:	Eurofins TA, Edison			Eurofins TA, Edison			Eurofins TA, Edison			Eurofins TA, Edison			Eurofins TA, Edison			Eurofins TA, Edison	
Parameter	***CAS No.***	***Units***	***GWQS***																		
Chloride	*16887-00-6*	*ug/l*	*250000*	35100			NA			34900			NA			NA			NA		
Iron	*7439-89-6*	*ug/l*	*300*	NA			**6900**			NA			**8250**			NA			NA		
Manganese	*7439-96-5*	*ug/l*	*50*	NA			**1850**			NA			**1870**			NA			NA		
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	10	U		NA			10	U		NA			NA			NA		
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	2500			NA			4700			NA			NA			NA		
Sodium	*7440-23-5*	*ug/l*	*50000*	NA			**247000**			NA			**250000**			NA			NA		
Sulfate	*14808-79-8*	*ug/l*	*250000*	26400			NA			27000			NA			NA			NA		
Total Organic Carbon	*SRP33*	*ug/l*	*--*	46300			NA			46900			NA			21000	B		5900		

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	IW-196A_LF12.0		IW-196A_LF17.0		IW-196A_LF17.0		IW-196A_LF22.0(A)		IW-196A_LF22.0(B)		IW-196A_LF27.0	
				Date Sampled:	4/30/2019		4/30/2019		7/20/2019		4/30/2019		4/30/2019		4/30/2019	
				LAB Sample ID:	460181058-1-10		460181058-1-13		460187118-1-4		460181058-1-17		460181058-1-18		460181058-1-19	
				LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		NA		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		NA		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA		NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	--	NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	--	4600		4300		6300		4500		4500		4400	

ND = Not Detected
NA = Not Analyzed
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MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	IW-197A_LF25.0		IW-197A_LF25.0		IW-198A_LF25.5	IW-198A_LF25.5	IW-199B_LF29.0	IW-199B_LF34.0
			Date Sampled:	4/30/2019		7/20/2019		4/30/2019	7/20/2019	5/1/2019	5/1/2019
			LAB Sample ID:	460181058-1-15		460187118-1-5		460181058-1-14	460187118-1-6	460180889-1-6	460180889-1-11
			LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	Eurofins TA, Edison	Eurofins TA, Edison	Eurofins TA, Edison
Parameter	***CAS No.***	***Units***	***GWQS***								
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA	NA	NA	NA
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA	NA	NA	NA
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA	NA	NA	NA
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA	NA	NA	NA
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA	NA	NA	NA
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA	NA	NA	NA
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA	NA	NA	NA
Total Organic Carbon	*SRP33*	*ug/l*	*--*	8900		8100		6600	8600	5600	5500

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	IW-199B_LF39.0		IW-199B_LF39.0		IW-200A_LF25.0		IW-200A_LF25.0		MW-318A_LF10.0		MW-318B_LF50.0	
				Date Sampled:	5/1/2019		7/20/2019		5/1/2019		7/20/2019		5/21/2018		5/21/2018	
				LAB Sample ID:	460180889-1-14		460187118-1-7		460180889-1-8		460187118-1-9		460156736-1-11		460156736-1-12	
				LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		TestAmerica Edison		TestAmerica Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*		NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*		NA		NA		NA		NA		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*		NA		NA		NA		NA		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*		NA		NA		NA		NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*		NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*		NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*		5400	B	8600		6000		6400		6000		4500	

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MDL = Method Detection Limit
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Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	MW-346A_LF10.5		MW-346A_LF10.5		MW-346B_LF40.0		MW-346B_LF40.0		MW-346B_LF40.0(A)		MW-346B_LF40.0(B)	
			Date Sampled:	5/21/2018		6/26/2018		5/21/2018		6/26/2018		5/31/2018		5/31/2018	
			LAB Sample ID:	460156736-1-4		460159218-1-10		460156736-1-3		460159218-1-6		460157265-1-7		460157265-1-8	
			LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter	***CAS No.***	***Units***	***GWQS***												
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		NA		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		NA		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA		NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*	8900		1050000	B	4800		1750000	B	3400		2500	

ND = Not Detected
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MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:	MW-346C_LF70.0		MW-346C_LF70.0(A)		MW-346C_LF70.0(B)		MW-350A_LF10.5		MW-350B_LF40.0		MW-350C_LF70.0	
				Date Sampled:	6/26/2018		5/21/2018		5/21/2018		5/21/2018		5/21/2018		5/21/2018	
				LAB Sample ID:	460159218-1-11		460156736-1-6		460156736-1-7		460156736-1-8		460156736-1-9		460156736-1-10	
				LAB:	TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison		TestAmerica Edison	
Parameter	***CAS No.***	***Units***	***GWQS***													
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		NA		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		NA		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA		NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*	13700	B	4600		4600		6000		4100		4500	

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	MW-504B_LF33.5		MW-504B_LF38.5		MW-504B_LF38.5		MW-505A_LF10.5		MW-506B_LF41.0		MW-507C_LF76.0	
			Date Sampled:	5/1/2019		5/1/2019		7/20/2019		7/20/2019		7/20/2019		7/20/2019	
			LAB Sample ID:	460180889-1-7		460180889-1-19		460187118-1-10		460187118-1-11		460187118-1-12		460187118-1-13	
			LAB:	Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison		Eurofins TA, Edison	
Parameter	***CAS No.***	***Units***	***GWQS***												
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA		NA		NA		NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA		NA		NA		NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA		NA		NA		NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	*--*	NA		NA		NA		NA		NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA		NA		NA		NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	*--*	10700		13500	B	8100		4200		3700		3700	

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

Table IV
Summary of Metals and General Chemistry Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investiation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	MW-508A_LF9.7		MW-508B_LF55.5	
			Date Sampled:	7/20/2019		7/20/2019	
			LAB Sample ID:	460187118-1-14		460187118-1-15	
			LAB:	Eurofins TA, Edison		Eurofins TA, Edison	
Parameter	***CAS No.***	***Units***	***GWQS***				
Chloride	*16887-00-6*	*ug/l*	*250000*	NA		NA	
Iron	*7439-89-6*	*ug/l*	*300*	NA		NA	
Manganese	*7439-96-5*	*ug/l*	*50*	NA		NA	
Nitrogen, Nitrate	*14797-55-8*	*ug/l*	*10000*	NA		NA	
Phosphate, Ortho	*14265-44-2*	*ug/l*	--	NA		NA	
Sodium	*7440-23-5*	*ug/l*	*50000*	NA		NA	
Sulfate	*14808-79-8*	*ug/l*	*250000*	NA		NA	
Total Organic Carbon	*SRP33*	*ug/l*	--	6200		4100	

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
B = Detected in the method blank

TABLE V
SUMMARY OF VOLATILE FATTY ACIDS (VFAs) IN GROUNDWATER

Table V
Summary of Volatile Fatty Acids (VFAs) in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:		Date Sampled:		LAB Sample ID:		LAB:		Sample No.:		Date Sampled:		LAB Sample ID:		LAB:		Sample No.:		Date Sampled:		LAB Sample ID:		LAB:		Sample No.:		Date Sampled:		LAB Sample ID:		LAB:	
				ART-77_LF36.5		5/18/2018		460156495-1-9		TestAmerica Buffalo		ART-77_LF36.5 (A)		6/26/2018		460159218-1-7		TestAmerica Buffalo		ART-77_LF36.5 (B)		6/26/2018		460159218-1-8		TestAmerica Buffalo		ART-78_LF16.5		5/18/2018		460156495-1-3		TestAmerica Buffalo		ART-78_LF16.5		6/26/2018		460159218-1-14		TestAmerica Buffalo		EW-6B_LF34.5		5/1/2019		302160002MG		PAES	
Parameter	***CAS No.***	***Units***	***GWQS***																																		
Acetic Acid	*64-19-7*	*ug/l*	--	2900	U							1200000								1200000								2900	U							620000						46	J		
Butyric Acid	*107-92-6*	*ug/l*	--	2600	U							430000								421000								2600	U							5200	U					7	U		
Formic Acid	*64-18-6*	*ug/l*	--	2600	U							56500								73400								2600	U							5200	U					340	J		
Lactic Acid	*50-21-5*	*ug/l*	--	3100	U							485000								529000								3100	U							6200	U					48	U		
Propionic Acid	*79-09-4*	*ug/l*	--	3500	U							408000								381000								3500	U							197000						3.4	J		
Pyruvic Acid	*127-17-3*	*ug/l*	--	3700	U							74000	U							74000	U							3700	U							7400	U					5	U		

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
D = Diluted for analysis

Table V
Summary of Volatile Fatty Acids (VFAs) in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	EW-6B_LF34.5		IW-195A_LF12.7		IW-195A_LF22.7	
			Date Sampled:	7/20/2019		5/1/2019		7/20/2019	
			LAB Sample ID:	309480002MG		302160001MG		309480001MG	
			LAB:	PAES		PAES		PAES	
Parameter	***CAS No.***	***Units***	***GWQS***						
Acetic Acid	*64-19-7*	*ug/l*	--	490	"J,D"	24000	D	12000	D
Butyric Acid	*107-92-6*	*ug/l*	--	110	"U,D"	36	J	83	J
Formic Acid	*64-18-6*	*ug/l*	--	2500	"J,D"	880		460	J
Lactic Acid	*50-21-5*	*ug/l*	--	430	"U,D"	48	U	43	U
Propionic Acid	*79-09-4*	*ug/l*	--	40	"U,D"	150	"J,D"	360	
Pyruvic Acid	*127-17-3*	*ug/l*	--	50	"U,D"	170		48	J

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
D = Diluted for analysis

TABLE VI
SUMMARY OF DISSOLVED GASES
IN GROUNDWATER

Table VI
Summary of Dissolved Gases in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigation Area 6 (IA-6) EISB Progress Addendum

				Sample No.:		ART-77_LF36.5 (A)		ART-77_LF36.5 (B)		ART-78_LF16.5		ART-78_LF16.5		EW-6B_LF34.5	
				Date Sampled:		5/18/2018		6/26/2018		6/26/2018		5/18/2018		6/26/2018		5/1/2019	
				LAB Sample ID:		460156495-1-9		460159218-1-7		460159218-1-8		460156495-1-3		460159218-1-14		302160002MG	
				LAB:		TestAM Burlington		TestAM Burlington		TestAM Burlington		TestAM Burlington		TestAM Burlington		PAES	
Parameter	***CAS No.***	***Units***	***GWQS***														
Carbon Dioxide	*124-38-9*	*ug/l*	--	57000		1300000		1300000		56000		310000		62000	
Ethane	*74-84-0*	*ug/l*	--	1.5	U	4.8		4.6		1.5	U	3.3	J	2	
Ethene	*74-85-1*	*ug/l*	--	1.4	U	28		27		1.4	U	1.4	U	2.3	
Methane	*74-82-8*	*ug/l*	--	32		75		72		32		56		12000	D

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
D = Diluted for analysis

Table VI
Summary of Dissolved Gases in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigation Area 6 (IA-6) EISB Progress Addendum

			Sample No.:	EW-6B_LF34.5		IW-195A_LF12.7		IW-195A_LF22.7	
			Date Sampled:	7/20/2019		5/1/2019		7/20/2019	
			LAB Sample ID:	309480002MG		302160001MG		309480001MG	
			LAB:	PAES		PAES		PAES	
Parameter	***CAS No.***	***Units***	***GWQS***						
Carbon Dioxide	*124-38-9*	*ug/l*	--	90000		49000		190000	
Ethane	*74-84-0*	*ug/l*	--	2	D	1.5		0.59	"J,D"
Ethene	*74-85-1*	*ug/l*	--	0.32	"J,D"	1		0.33	"J,D"
Methane	*74-82-8*	*ug/l*	--	12000	D	13000	D	11000	D

ND = Not Detected
NA = Not Analyzed
J = Estimated value below sample reporting limit
MDL = Method Detection Limit
U = Compound not detected above MDL
Values in italics indicate MDL above applicable criterion.
D = Diluted for analysis

TABLE VII
SUMMARY OF BIOLOGICAL PARAMETERS IN GROUNDWATER

Table VII
Summary of Biological Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigative Area 6 (IA-6) EISB Progress Addendum

		Sample Designation	ART-77_LF36.5	EW-6B_LF34.5	IW-195A_LF22.7
		Sampling Zone Designation	S2	S2	S1
		Sample Depth (ft bgs)	36.5	34.5	12.7
		Sample Method	Low Flow	Low Flow	Low Flow
		Date	5/18/2018	5/3/2019	5/3/2019
		Microbial Insights Lab ID	089PE-2	011QE-2	011QE-1
Analytes	CAS #	Units			
DHC	CENSUS	cells/mL	1.3	6480	1430
BVC	CENSUS	cells/mL	0.2 J	153	40.3
TCE	CENSUS	cells/mL	0.5 J	180	97.9
VCR	CENSUS	cells/mL	0.1 J	875	169

Notes:
ft bgs indicates feet below ground surface
DHC = Dehalococcoides
BVC = BAV1 Vinyl Chloride Reductase
TCE = tceA Reductase
VCR = Vinyl Chloride Reductase
cells/mL = number of cell copies per milliliter of groundwater
J indicates an estimated value
Zone S1: greater than 80 feet above mean sea level.
Zone S2: between 80 to 50 feet above mean sea level.

Table VII
Summary of Biological Parameters in Groundwater
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigative Area 6 (IA-6) EISB Progress Addendum

		Sample Designation	EW-6B_LF34.5	IW-195A_LF12.7
		Sampling Zone Designation	S2	S1
		Sample Depth (ft bgs)	34.5	22.7
		Sample Method	Low Flow	Low Flow
		Date	7/22/2019	7/22/2019
		Microbial Insights Lab ID	065QG-1	065QG-2
Analytes	CAS #	Units		
DHC	CENSUS	cells/mL	1780	783
BVC	CENSUS	cells/mL	47.4	102
TCE	CENSUS	cells/mL	186	194
VCR	CENSUS	cells/mL	316	532

Notes:
ft bgs indicates feet below ground surface
DHC = Dehalococcoides
BVC = BAV1 Vinyl Chloride Reductase
TCE = tceA Reductase
VCR = Vinyl Chloride Reductase
cells/mL = number of cell copies per milliliter of groundwater
J indicates an estimated value
Zone S1: greater than 80 feet above mean sea level.
Zone S2: between 80 to 50 feet above mean sea level.

TABLE VIII
FIELD GROUNDWATER
QUALITY PARAMETERS
SUMMARY TABLE

TABLE VIII
Field Groundwater Quality Parameters Summary Table
Hoffmann La Roche, Inc. - Nutley, NJ
Investigation Area 6 (IA-6) EISB Progress Addendum

Screen Interval	Approximate Sample Depths	Date	Time	Depth to Water (ft)	Temperature (°C)	pH (su)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation - Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppt)	TDS (mg/L)
ART-75/IW-195A												
4 to 29	22.48	04/07/16	10:15	13.26	14.91	6.61	3.93	4.82	-50	20.8	2.1	2,520
4 to 29	16.5	01/10/17	14:30	13.48	23.51	6.69	3.01	5.01	132.1	5.1	1.57	1,970
4 to 29	16.5	03/22/17	14:10	11.93	22.94	7.88	1.8	5.02	191	7.3	0.9	1,150
4 to 29	16.5	04/13/17	14:35	11.18	27.02	8.28	2.403	7.81	130.7	9.3	1.23	1,522
4 to 29	16.5	05/15/17	13:15	11.1	27.67	8.24	2.117	6.3	33.1	2	1.09	1,383
4 to 29	16.5	06/07/17	9:05	12.53	18.2	6.82	0.913	2.2	147.8	11	0.45	596
4 to 29	16.5	07/26/17	9:05	13.64	19.98	7.01	1.074	0.48	41.9	4.1	0.53	700
4 to 29	16.5	10/05/17	10:30	13.98	28.96	9.37	2.549	7.3	-198.8	4.2	1.31	1,660
4 to 29	16.5	11/07/17	9:10	12.34	24.41	7.84	3.4	7.49	46.1	2.7	1.78	2,207
4 to 29	16.5	01/11/18	11:50	12.78	17.37	5.95	3.343	13.23	303.6	18.9	1.76	2,175
4 to 29	16.5	03/16/18	10:20	10.89	10.51	6.62	2.128	2.8	237.9	55.7	1.1	1,383
4 to 29	16.5	04/05/18	12:30	10.83	13.64	6.67	2.443	0.86	184.8	50.3	1.27	1,589
4 to 29	16.5	05/18/18	8:55	11.28	17.03	6.32	1.242	1.41	202.8	50.7	0.62	807
4 to 29	16.5	05/31/18	14:00	12.3	18.35	6.08	1.623	1.42	37.9	36.9	0.83	1060
4 to 29	16.5	06/26/18	11:30	NA	21.32	5.86	2.290	1.20	-151.2	16.8	1.18	1145
4 to 29	7.70	05/01/19	9:25	4.84	13.84	6.74	1.280	0.00	-242	18.4	0.6	819
4 to 29	12.7	05/01/19	10:20	5.43	13.84	6.80	1.270	0.00	-291	9.0	0.6	810
4 to 29	17.7	05/01/19	11:55	5.24	14.53	6.83	1.260	0.00	-281	6.7	0.6	806
4 to 29	22.7	05/01/19	12:45	5.05	14.73	6.86	1.268	0.00	-289	7.4	0.6	810
4 to 29	27.7	05/01/19	13:40	5.10	14.39	6.85	1.130	0.00	-289	9.2	0.6	720
4 to 29	22.7	07/20/19	10:15	5.36	20.40	6.89	1.330	1.95	-211	52.5	0.7	847
ART-76/IW-196A												
4 to 29	22.88	04/06/16	14:40	13.8	15.19	6.62	3.04	0.24	-159	2.4	1.6	1,950
4 to 29	23	07/26/17	11:17	13.37	19.86	6.27	3.312	3.97	149.1	18.6	1.74	2,146
4 to 29	16.5	11/07/17	9:28	14.71	27.26	6.46	3.727	24.3	149.1	33.4	1.97	2,425
4 to 29	16.5	05/18/18	10:06	11.8	17.4	5.86	2.782	2.99	234.9	53.1	1.45	1808
4 to 29	16.5	05/31/18	15:05	NA	18.87	5.76	4.099	0.09	-17.6	77	2.18	2669
4 to 29	16.5	06/26/18	12:58	NA	21.97	5.67	4.717	2.89	-196.1	5.3	2.52	3064
4 to 29	7.0	04/30/19	12:28	4.10	14.95	6.91	0.705	0.00	-64	6.4	0.34	452
4 to 29	12.0	04/30/19	13:24	4.15	15.29	7.03	0.649	0.00	-53	1.3	0.31	415
4 to 29	17.0	04/30/19	14:07	4.15	15.84	7.06	0.644	0.00	-47	1.8	0.31	410
4 to 29	22.0	04/30/19	14:57	4.00	15.53	7.04	0.630	0.00	-49	2.0	0.30	402
4 to 29	27.0	04/30/19	15:47	4.05	14.10	7.03	0.658	0.00	-42	2.4	0.32	421
4 to 29	17.0	07/20/19	12:09	3.34	21.20	7.61	0.585	0.00	-140	48.1	0.29	371

Notes
ft indicates Feet
ºC indicates degrees Celcius
su indicates standard unit
mS/cm indicates millisiemens per centimeter
mg/l indicates milligrams per liter
mV indicates milliVolts
NTU indicates Nephelometric Turbidity Unit ppt
indicates parts per thousand

TABLE VIII
Field Groundwater Quality Parameters Summary Table
Hoffmann La Roche, Inc. - Nutley, NJ
Investigation Area 6 (IA-6) EISB Progress Addendum

Screen Interval	Approximate Sample Depths	Date	Time	Depth to Water (ft)	Temperature (°C)	pH (su)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation - Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppt)	TDS (mg/L)
ART-77/EW-6B												
29 to 44	39.4	04/07/16	10:10	13.79	15.74	6.92	4.41	0	-113	12.1	2.3	2,820
29 to 44	36.5	01/10/17	13:25	13.73	24.42	9.89	4.277	4.7	100.2	5.6	2.23	2,721
29 to 44	36.5	03/22/17	13:15	12.75	26.14	6.79	3.34	6.86	120	9	1.7	2,130
29 to 44	36.5	04/12/17	13:30	11.89	23.9	6.41	4.041	10.9	189.2	31.3	2.14	2,625
29 to 44	36.5	05/15/17	9:00	12.07	25.28	5.95	3.592	9.2	186.1	7.1	1.89	2,342
29 to 44	36.5	06/07/17	11:07	12.92	19.97	6.85	3.114	0.5	115.2	7.1	1.62	2,019
29 to 44	36.5	07/26/17	12:25	13.61	21.97	7.02	2.144	0.37	-127.9	4.5	1.11	1,412
29 to 44	36.5	10/05/17	11:45	14.42	28.81	8.08	2.965	7.55	92.9	44.1	1.53	1,923
29 to 44	36.5	11/07/17	11:25	13.73	22.89	7.11	4.452	7.78	40.2	4.3	2.38	2,903
29 to 44	36.5	01/11/18	12:04	13.81	15.04	2.21	22.54	32.92	519.7	105.9	13.64	14,650
29 to 44	36.5	02/20/18	12:07	12.23	18.22	5.43	9.438	12.9	444.1	67.9	5.31	6,128
29 to 44	36.5	03/16/18	9:10	12.14	12.42	6.39	5.286	6.3	259.2	3.4	2.87	3,437
29 to 44	36.5	04/05/18	10:05	11.98	12.82	6.32	5.025	7.87	228.3	12.4	2.71	3,261
29 to 44	36.5	05/18/18	10:30	11.94	17.99	6.62	3.417	6.82	212.9	16.9	1.8	2225
29 to 44	36.5	05/31/18	14:21	12.49	19.79	6.44	7.003	1.49	-95.1	1022	3.82	4543
29 to 44	36.5	06/26/18	9:25	15.6	20.35	7.14	41.56	8.28	-5.4	117	26.71	20800
29 to 44	29.5	05/01/19	9:26	7.28	13.84	6.87	0.846	0.00	-239	2.6	0.41	542
29 to 44	34.5	05/01/19	10:40	7.71	15.01	6.86	0.866	0.00	-245	3.6	0.42	555
29 to 44	39.5	05/01/19	13:15	7.24	15.21	6.70	2.080	0.00	-214	5.1	1.05	1330
29 to 44	34.5	07/20/19	10:09	8.44	18.65	6.85	1.530	0.00	-115	13.2	0.9	1140
IW-109A/IW-197A												
25 to 30	27.5	07/28/17	9:20	10.67	21.86	6.64	2.396	1.96	128.8	26.4	1.23	1,560
25 to 30	27.5	02/20/18	10:30	NM	16.86	5.89	6.013	15.74	261.4	63	3.29	3,909
25 to 30	27.5	05/18/18	9:17	NA	17.91	6.82	3.017	4.69	177.6	65.9	1.73	1992
25 to 30	27.5	05/31/18	14:00	NA	19.17	5.27	4.777	0.29	-35.7	1188	2.57	2388
25 to 30	27.5	06/26/18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25 to 30	25.5	04/30/19	14:50	8.71	18.11	7.32	0.175	0.00	-145	15.6	0.9	112
25 to 30	25.0	07/20/19	9:12	8.57	20.93	7.32	2.270	0.00	-72	18.6	1.1	1460
IW-110A/IW-198A												
25 to 30	27.5	07/28/17	10:20	10.7	20.91	6.99	2.23	1.33	143.9	15.1	1.15	1,450
25 to 30	27.5	02/20/18	11:21	NM	15.29	6.2	3.194	15.29	202.9	19.1	1.69	2,102
25 to 30	27.5	05/18/18	10:20	NA	17.64	6.4	3.209	0.66	121.4	9.6	1.69	1607
25 to 30	27.5	05/31/18	12:55	NA	19.52	5.19	4.686	0.43	-16.4	1666	2.52	2344
25 to 30	27.5	06/26/18	11:15	NA	22.03	6.31	4.293	0.11	-83.7	8	2.29	2790
25 to 30	25.5	04/30/19	14:45	5.38	19.32	6.80	1.300	0	-208	10.4	0.6	830
25 to 30	25.5	07/20/19	10:31	5.37	22.13	7.28	1.150	0.00	-101	7	0.58	751
IW-113A/IW-200A												
25 to 30	27.5	07/28/17	11:42	11.39	24.72	6.88	2.32	1.42	129.4	13.9	1.19	1,509
25 to 30	27.5	05/21/18	11:51	NA	21.62	6.19	2.516	3.82	238.8	14	1.29	1633
25 to 30	27.5	06/26/18	12:20	NA	23.82	5.99	3.506	0.2	5.5	11.2	1.84	2279
25 to 30	25	05/01/19	10:11	6.75	14.8	6.75	1.940	0.00	-82	10.3	1.0	124
25 to 30	25	07/20/19	11:00	6.41	20.11	7.31	1.270	0.00	-161	8.1	0.0	825
IW-194B/IW-199B												
35 to 45	37.5	05/21/18	10:37	9.05	21.13	6.22	3.372	1.04	225.6	50.6	1.77	2193
35 to 45	37.5	05/31/18	12:55	NA	18.38	5.45	3.857	1.17	-2.9	1026	2.06	2516
35 to 45	37.5	06/26/18	9:29	9.96	20.3	6.23	11.570	0.22	-316.1	*	6.61	7513
35 to 45	40	08/30/18	8:37	9.61	22.71	5.38	8.358	5.4	-220.9	917	4.65	5428
35 to 45	29	05/01/19	10:05	6.95	14.57	6.84	0.812	0.0	-116	0.0	0.4	519
35 to 45	34	05/01/19	10:55	7.15	14.84	6.92	0.911	0.0	-167	0.0	0.4	583
35 to 45	39	05/01/19	12:20	6.85	16.14	6.96	2.668	0.0	-215	0.0	1.4	1710
35 to 45	39	07/20/19	9:40	7.40	23.00	6.89	1.270	0.02	-154	9.9	0	860

Notes
ft indicates Feet
ºC indicates degrees Celcius
su indicates standard unit
mS/cm indicates millisiemens per centimeter
mg/l indicates milligrams per liter
mV indicates milliVolts
NTU indicates Nephelometric Turbidity Unit ppt
indicates parts per thousand

TABLE VIII
Field Groundwater Quality Parameters Summary Table
Hoffmann La Roche, Inc. - Nutley, NJ
Investigation Area 6 (IA-6) EISB Progress Addendum

Screen Interval	Approximate Sample Depths	Date	Time	Depth to Water (ft)	Temperature (°C)	pH (su)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation - Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppt)	TDS (mg/L)
MW-318A/MW-508A												
5 to 15	11.74	04/05/16	12:45	9.25	12.41	5.86	3.1	5.08	206	9.21	1.6	1,990
5 to 15	11.74	05/25/16	11:05	6.35	25.53	5.5	4.3	0	183	68.2	2.3	2,750
5 to 15	11.74	06/14/16	14:20	6.75	20.09	5.66	4.5	0	161	3.6	2.4	2,880
5 to 15	11.74	07/12/16	11:55	7.02	23.14	5.73	5.211	0.18	77.6	9.91	2.82	3,391
5 to 15	11.74	10/24/16	12:36	7.37	22.49	5.77	4.85	0.27	152.2	6.29	2.56	3,105
5 to 15	11.74	01/09/17	12:40	7.45	12.96	6.05	4.693	3.04	-104.2	12.1	2.52	3,048
5 to 15	11.74	02/15/17	9:55	7.8	12.52	6.35	3.478	0.46	192.5	25.2	1.84	2,257
5 to 15	11.74	03/23/17	09:30	7.63	11.67	6	2.86	1.52	208	269	1.5	1,820
5 to 15	11.74	04/12/17	12:05	7.13	13.81	5.95	2.875	0.3	200.4	17	1.5	1,861
5 to 15	11.74	05/15/17	10:20	7.36	15.43	6.11	1.908	1.8	195.3	112.1	0.98	1,242
5 to 15	11.74	06/08/17	12:01	8.3	18.09	6.19	1.553	0.2	97.4	2.7	0.78	1,007
5 to 15	11.74	07/26/17	11:40	7.93	22.82	6.05	1.587	0.29	127	8.8	0.8	1,032
5 to 15	11.74	10/05/17	9:20	7.19	22.73	6.1	3.286	0.63	144.7	8	1.72	2,137
5 to 15	10	11/07/17	10:15	7.8	18.21	6.46	3.778	1.65	66.4	83.3	2	2,448
5 to 15	11.74	01/11/18	10:29	10.06	12.87	7.11	4.129	5.86	232.1	*	2.16	2,647
5 to 15	10	01/23/18	9:15	9.49	12.43	6.26	3.36	4.8	199.1	651	1.77	2,171
5 to 15	11.74	02/20/18	10:10	7.76	12.11	6.52	2.721	4.39	210.7	12.7	1.41	1,803
5 to 15	11.74	03/16/18	9:00	6.9	11.46	5.75	5.307	0.9	18.7	112	2.87	3,447
5 to 15	11.74	04/05/18	11:50	5.89	12.46	6.41	5.477	0.91	192.1	754	2.98	3,562
5 to 15	10	05/21/18	11:30	7.98	17.64	6.47	1.947	1.16	106.3	17.7	1	977
5 to 15	10	08/30/18	11:06	7.55	26.61	6.53	1.557	2.6	-182.3	12.7	0.79	1015
5 to 15	9.7	05/01/19	13:35	5.05	13.43	7.25	0.597	0.0	-51	0.0	0.3	382
5 to 15	13	05/01/19	14:30	5.08	13.16	7.22	0.601	0.0	-23	0.0	0.3	385
5 to 15	9.7	07/20/19	12:03	4.31	21.08	7.56	0.413	0.0	-12	35.5	0.2	270
MW-318B/MW-508B												
35 to 65	50	04/05/16	14:30	10.8	16.63	6.79	4.19	2.37	-106	0.1	2.2	2,680
35 to 65	50	05/25/16	11:23	11.74	18.23	6.69	4.35	0	22	3.2	2.3	2,790
35 to 65	50	06/14/16	14:40	11.56	23.63	6.63	4.09	0	120	13.9	2.1	2,600
35 to 65	50	07/12/16	10:40	11.56	17.87	6.56	4.617	1.73	-30.2	14.9	2.48	2,960
35 to 65	50	10/24/16	13:53	12.13	19.26	6.51	4.4	0.37	145.1	20.7	2.35	2,859
35 to 65	50	01/09/17	14:00	10.84	12.24	6.53	4.513	7.71	-49.9	1277	2.42	2,929
35 to 65	50	02/15/17	9:05	9.86	17.73	7.25	3.62	0.71	174.8	87.1	1.93	2,367
35 to 65	50	03/23/17	10:10	10.3	17.72	6.71	3.49	0.58	140	14.9	1.8	2,230
35 to 65	50	04/12/17	11:00	9.51	18.01	7.11	3.379	0.41	172.5	71.1	1.78	2,196
35 to 65	50	05/15/17	11:25	10.31	17.97	8.94	2.903	3.5	75.1	53.6	1.66	1,993
35 to 65	50	06/08/17	13:05	10.4	19.02	7	3.104	0.1	40.9	8.5	1.63	2,020
35 to 65	50	07/26/17	12:45	10.35	20.31	6.96	3.07	0.31	119.3	43.4	1.6	1,994
35 to 65	50	10/05/17	10:25	15.37	19.79	7.21	2.814	9.27	118.9	92	1.47	1,832
35 to 65	50	11/07/17	11:30	12.18	17.61	6.9	3.191	7.65	87.6	1,070	1.69	2,085
35 to 65	50	01/11/18	9:34	11.51	13.81	6.51	7.287	16.83	291.4	177	4.12	4,872
35 to 65	50	01/23/18	10:30	11.31	15.26	6.94	6.793	11.32	198.7	1,470	3.62	4,387
35 to 65	50	02/20/18	9:07	9.10	17.07	7.61	5.547	15.03	189.1	1,104	3.01	3,597
35 to 65	50	03/16/18	10:00	10.17	17.09	6.85	4.129	13.4	6.5	376	2.24	2,724
35 to 65	50	04/05/18	13:25	11.00	15.61	6.83	4.44	12.26	167.6	4,028	2.39	2,869
35 to 65	50	05/21/18	10:30	10.72	19.26	6.28	4.316	0.49	149.3	77.1	2.28	2129
35 to 65	50	08/30/18	12:13	9.2	24.2	6.50	4.481	7.1	-161.8	699	2.38	2906
35 to 65	40.5	05/01/19	11:50	7.92	15.39	6.97	2.240	0.00	-120	2.00	1.1	144
35 to 65	45.5	05/01/19	13:05	7.84	16.28	6.92	2.230	0.00	-124	2.00	1.1	143
35 to 65	50.5	05/01/19	14:15	7.82	16.37	6.93	2.220	0.00	-109	28.6	1.1	142
35 to 65	55.5	05/01/19	15:05	7.75	16.48	6.87	2.380	0.00	-125	18.1	1.2	152
35 to 65	55.5	07/20/19	11:58	7.95	27.21	7.33	2.138	0.00	-123	0.6	1.1	1380

Notes
ft indicates Feet
ºC indicates degrees Celcius
su indicates standard unit
mS/cm indicates millisiemens per centimeter
mg/l indicates milligrams per liter
mV indicates milliVolts
NTU indicates Nephelometric Turbidity Unit ppt
indicates parts per thousand

TABLE VIII
Field Groundwater Quality Parameters Summary Table
Hoffmann La Roche, Inc. - Nutley, NJ
Investigation Area 6 (IA-6) EISB Progress Addendum

Screen Interval	Approximate Sample Depths	Date	Time	Depth to Water (ft)	Temperature (°C)	pH (su)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation - Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppt)	TDS (mg/L)
MW-346B/MW-504B												
35 to 45	40	04/05/16	16:15	11.32	16.44	7.02	4.21	0.24	-191	13.3	2.2	2,690
35 to 45	40	05/25/16	14:40	12.44	24.89	6.84	4.54	0	-12	14.1	2.3	2,880
35 to 45	40	06/13/16	13:55	11.98	22.65	6.73	4	3.61	175	59.6	2.1	2,560
35 to 45	40	07/12/16	11:50	12.27	21.48	7.26	5.001	0.27	79.4	8.75	2.8	3,377
35 to 45	40	10/25/16	10:30	12.58	22.35	6.37	4.804	0.14	91.7	16.9	2.58	3,124
35 to 45	40	01/10/17	12:05	11.73	16.69	6.96	5.297	8.29	-4	7.9	2.87	3,443
36 to 45	40	02/15/17	10:10	10.89	19.34	7.66	4.102	0.22	37.2	8.9	2.18	2,665
36 to 45	40	03/22/17	11:35	10.68	17.9	6.91	3.28	1.72	101	2.5	1.7	2,100
36 to 45	40	04/12/17	10:55	10.5	18.56	10.89	2.969	1.07	-23.5	10.6	1.55	1,931
36 to 45	40	05/15/17	11:10	10.04	18.84	6.84	3.278	0.3	75.2	13.1	1.73	2,131
36 to 45	40	06/07/17	10:05	10.62	19.01	6.75	3.172	0.4	96.9	16.3	1.68	2,061
36 to 45	40	07/26/17	10:07	11.52	20.09	6.88	2.807	0.18	-3.6	6.5	1.47	1,786
36 to 45	40	10/05/17	9:30	15.24	21.32	6.95	2.868	1.62	173.8	10.2	1.49	1,861
36 to 45	40	11/07/17	13:40	12.04	19.35	6.77	3.192	4.36	65.4	10.1	1.67	2,071
36 to 45	40	01/11/18	10:51	12.13	16.94	5.63	14.92	22.08	377.9	78.5	8.72	9,693
36 to 45	40	01/23/18	10:45	11.88	17.7	5.9	10.27	15.91	355.4	76.9	5.82	6,670
36 to 45	40	02/20/18	10:52	10.20	16.93	6.18	9.408	10.78	280.7	64.2	5.27	6,110
36 to 45	40	03/16/18	11:30	10.22	17.64	6.42	5.697	1.9	285.4	29.3	3.11	3,715
36 to 45	40	04/05/18	10:31	10.60	10.62	6.44	5.291	2.5	267.3	39.7	2.86	3,439
36 to 45	40	05/21/18	11:15	9.75	20.44	6.43	4.890	0.77	123.2	21.2	2.63	3179
36 to 45	40	05/31/18	13:02	11.53	18.97	7.08	0.850	5.1	159.1	5.3	0.42	553
36 to 45	40	06/26/18	11:15	NA	22.03	6.31	4.293	0.11	-83.7	8	2.29	2790
36 to 45	33.5	05/01/19	10:02	16.52	14.19	6.93	3.680	0.0	-115	56.5	1.90	236
36 to 45	38.5	05/01/19	13:36	28.33	15.51	6.89	4.440	0.0	-88	40.26	2.40	284
36 to 45	38.5	07/20/19	12:15	23.20	24.8	7.05	3.820	0.11	-140	33	0.00	243
MW-350A/MW-505A												
40 to 50	11.4	04/05/16	10:30	7.69	11.75	6.18	4.62	0.36	176	25.2	2.4	2,940
40 to 50	10.5	07/12/16	13:05	7.62	21.91	6.03	3.65	0.58	145.8	8.25	2.05	2,515
40 to 50	11.4	10/24/16	10:10	10.5	20.16	6.54	2.895	1.6	63.1	18.4	1.6	1,978
40 to 50	11.4	01/09/17	12:47	6.79	9.74	7.24	1.216	4.99	202.6	42.1	0.61	615
40 to 50	11.4	02/15/17	12:15	6.58	11.95	6.95	2.418	1.86	92.4	719	1.25	1,565
40 to 50	11.4	03/23/17	12:55	7.68	9.96	6.57	1.37	6.8	230	180	0.7	890
40 to 50	11.4	04/12/17	12:50	6.59	14.3	7.26	1.064	4.78	26.4	70.1	0.53	687
40 to 50	11.4	05/15/17	11:35	6.62	16.14	7.29	0.897	2.9	5.2	37.9	0.45	585
40 to 50	11.4	06/07/17	10:35	6.98	18.02	6.7	1.562	0.4	68.9	15.7	0.78	1,040
40 to 50	11.4	07/26/17	11:50	7.43	22.46	6.88	1.605	1.75	-66.5	78.3	0.79	984
40 to 50	11.4	10/05/17	9:21	7.85	22.11	6.51	2.907	0.91	167.4	891	1.51	1,888
40 to 50	11.4	01/11/18	11:40	9.11	13.17	6.9	2.479	0.81	68.6	24.9	1.29	1,612
40 to 50	11.4	04/05/18	9:10	6.82	11.01	6.65	1.88	5.67	169.6	65	0.98	1,278
40 to 50	10.5	05/21/18	12:11	8.08	16.95	7	0.854	3.26	55.7	24.2	0.42	555
40 to 50	10.5	04/30/18	12:15	3.31	13.49	7.60	0.414	0.00	112	8.2	0.2	269
40 to 50	5.5	04/30/18	13:25	3.32	13.59	7.63	0.400	0.00	87	1.8	0.2	260
40 to 50	10.5	07/20/19	8:54	3.19	22.77	7.65	0.468	0.00	89	91.2	0.22	304

Notes
ft indicates Feet
ºC indicates degrees Celcius
su indicates standard unit
mS/cm indicates millisiemens per centimeter
mg/l indicates milligrams per liter
mV indicates milliVolts
NTU indicates Nephelometric Turbidity Unit ppt
indicates parts per thousand

TABLE VIII
Field Groundwater Quality Parameters Summary Table
Hoffmann La Roche, Inc. - Nutley, NJ
Investigation Area 6 (IA-6) EISB Progress Addendum

Screen Interval	Approximate Sample Depths	Date	Time	Depth to Water (ft)	Temperature (°C)	pH (su)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Oxidation - Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppt)	TDS (mg/L)
MW-350B/MW-506B												
35 to 45	40	04/05/16	10:00	9.55	11.85	6.98	5.32	0	-161	9.6	2.8	3,340
35 to 45	40	07/12/16	14:45	10.58	21.55	7.14	4.81	0.4	-91.6	5.05	2.58	3,131
35 to 45	40	10/24/16	11:25	11.93	18.24	7.25	4.494	0.18	-56.2	2.75	2.41	2,922
35 to 45	40	01/10/17	8:55	16.68	16.65	8.79	4.305	8.35	17.3	11.2	2.3	2,798
35 to 45	40	02/15/17	11:20	9.99	11.85	9.46	4.131	2.7	19.6	20.5	2.2	2,550
35 to 45	40	03/23/17	12:50	9.82	13.07	6.72	3.47	1.53	-163	16.3	1.8	2,220
35 to 45	40	04/12/17	11:43	17.04	16.8	7.31	3.535	0.49	-80.4	11.6	1.87	2,298
35 to 45	40	05/15/17	10:29	11.9	17.03	7.24	3.197	0.2	-121.9	7.8	1.69	2,076
35 to 45	40	06/07/17	11:37	12.91	16.57	7.25	3.061	0.2	-125.7	8.7	1.61	2,017
35 to 45	40	07/26/17	10:20	10.07	19.81	7.73	2.945	0.88	-183.1	23.1	1.54	1,915
35 to 45	40	10/05/17	10:12	13.37	18.79	7.75	2.938	0.22	-42	18.5	1.54	1,910
35 to 45	40	01/11/18	10:37	11.85	15.24	8.81	3.01	0.08	-123.6	22.9	1.58	1,956
35 to 45	40	04/05/18	10:30	9.74	13.87	9.79	2.933	0.93	55.2	19.4	1.54	1,911
35 to 45	40	05/21/18	11:28	12.3	17.7	7.26	3.159	0.15	-102.7	6	1.66	2052
35 to 45	36	04/30/19	11:20	7.10	15.04	7.25	2.650	0.00	-132	5.7	1.40	1690
35 to 45	41	04/30/19	12:55	7.10	15.87	7.17	2.980	0.00	-149	3.9	1.50	1900
35 to 45	41	07/20/19	8:40	10.65	19.65	7.68	2.670	0.18	-171	7.6	1.38	1710
MW-350C/MW-507C												
60 to 80	70	04/05/16	11:10	11.07	12.35	6.73	6.32	0	-41	7.5	3.4	3,980
60 to 80	70	07/13/16	10:35	13.08	17.93	6.73	5.58	0.81	-77.5	3.03	2.97	3,581
60 to 80	70	10/24/16	10:09	13.49	17.73	7.14	5.373	0.92	-55.9	9.89	2.91	3,496
60 to 80	70	01/10/17	10:15	13.94	16.03	7.1	5.229	8.4	21.8	6.2	2.83	3,398
60 to 80	70	02/15/17	10:15	10.81	14.15	6.83	5.214	1.22	-37.7	9.2	2.8	3,371
60 to 80	70	03/24/17	09:30	11.38	14.55	6.37	5.01	0.93	-92	10.9	2.7	3,150
60 to 80	70	04/12/17	10:30	11.82	17.4	6.83	5.356	0.53	-69.2	9.21	2.9	3,481
60 to 80	70	05/15/17	9:15	10.53	16.91	6.8	5.178	0.4	-68.7	3.2	2.75	3,362
60 to 80	70	06/07/17	13:11	11.7	17.99	6.72	5.21	0.2	-84.9	2.9	2.81	3,330
60 to 80	70	07/26/17	9:00	11.35	18.52	7.05	5.018	1.3	-41.5	10	0.7	1,281
60 to 80	70	10/05/17	11:07	14.8	19.57	7.24	5.064	0.2	-18.4	6.6	2.73	3,291
60 to 80	70	01/11/18	9:29	12.35	14.72	7.07	5.191	0.39	-90.2	10.1	2.81	3,374
60 to 80	70	04/05/18	12:20	12	16.14	6.98	4.843	0.82	-25.9	12	2.61	3,144
60 to 80	70	05/21/18	10:38	11.02	17.61	6.82	4.807	0.29	-46	2.5	2.59	3127
60 to 80	61	04/30/19	12:23	8.97	14.19	7.04	0.381	0.00	-84	0.6	2.00	244
60 to 80	66	04/30/19	12:41	8.74	15.90	7.01	0.381	0.00	-94	0.3	2.00	244
60 to 80	71	04/30/19	13:52	9.17	15.98	7.03	0.376	0.00	-101	0.0	2.00	241
60 to 80	76	04/30/19	14:45	8.94	16.15	6.99	0.377	0.00	-99	0.5	2.00	241
60 to 80	76	07/20/19	9:30	9.5	20.40	7.46	0.413	0.00	-20	2.4	2.19	264

Notes
ft indicates Feet
ºC indicates degrees Celcius
su indicates standard unit
mS/cm indicates millisiemens per centimeter
mg/l indicates milligrams per liter
mV indicates milliVolts
NTU indicates Nephelometric Turbidity Unit
ppt indicates parts per thousand

APPENDIX A
AS-BUILT IRM WELL CONSTRUCTION DETAILS

Appendix A
As-Built IRM Well Construction Details
Hoffmann-La Roche Inc. - Nutley, New Jersey
Investigation Area (IA) -6

Former Well Designation	Replacement Well Designation	Install Date	Permit Number	NJ State Plane Easting (NAD83)	NJ State Plane Northing (NAD83)	Ground Elevation (ft msl) (NAVD88)	Vertical Zone	Casing Type/ Well Diameter (in)	Screen Interval (ft bgs)			Total Depth of the well (ft bgs)
ART-75	IW-195A	04/09/19	E201903464	586818.7	729254.7	112.46	S1	4-inch PVC	5.2	-	30.2	31.2
ART-76	IW-196A	04/10/19	E201903465	586848	729241.7	112.49	S1	4-inch PVC	4.5	-	29.5	30.5
ART-77	EW-6B	04/09/19	E201903463	586818.5	729241	112.94	S2	4-inch PVC	27.0	-	42.0	43
IW-109A	IW-197A	04/08/19	E201903466	586821.6	729246.8	112.6	S1	4-inch PVC	22.5	-	27.5	28.5
IW-110A	IW-198A	04/05/19	E201903467	586812.1	729231.8	112.98	S1	4-inch PVC	23.0	-	28.0	29
IW-113A	IW-200A	04/11/19	E201903469	586832.5	729217.4	112.78	S1	4-inch PVC	22.5	-	27.5	28.5
IW-194B	IW-199B	04/05/19	E201903468	586826.3	729252.9	112.44	S2	4-inch PVC	26.5	-	41.5	42.5
MW-318A	MW-508A	04/09/19	E201903474	586817.6	729189.7	112.99	S1	2-inch PVC	6.0	-	16.0	16
MW-318B	MW-508B	04/05/19	E201903475	586813.9	729183.5	113.03	S2	2-inch PVC	38.0	-	58.0	58
MW-346B	MW-504B	04/09/19	E201903471	586844.5	729231.3	112.28	S2	2-inch PVC	32.0	-	42.0	42
MW-350A	MW-505A	04/03/19	E201903476	586840.8	729313.5	112.94	S1	2-inch PVC	3.0	-	14.0	14
MW-350B	MW-506B	04/03/19	E201903472	586837.6	729308	113	S2	2-inch PVC	33.5	-	43.5	43.5
MW-350C	MW-507C	04/03/19	E201903473	586834.3	729302.7	112.97	S3	2-inch PVC	58.5	-	78.5	78.5

Notes
ft msl - Feet Mean Sea Level
ft bgs - Feet Below Ground Surface
in - Inches
NAD 83 - The North American Datum of 1983
NAVD 88 - The North American Vertical Datum of 1988
S1 - Shallow Zone
S2 - Intermediate Zone
S3 - Deep Zone

APPENDIX B

GROUNDWATER SAMPLING MEASUREMENTS AND CALCULATIONS – LOW-FLOW PURGING

Appendix B
GW Sampling Measurements and Calculations - Low Flow Purging
Hoffmann-La Roche, Inc. - Nutley, New Jersey
Investigation Area (IA) - 6

PRE-PURGE INFORMATION								PURGING INFORMATION							INITIAL PURGE PARAMETERS								METER-PROBE INFO		
Well Number	Sample Date	Time	Total Depth (ft)	Depth to Water (ft)	PID (ppm)	Depth to Prod (ft)	Prod Thick (ft)	Pump Type	Tubing Type	Pump Intake Depth (ft)	Purge Start Time	Purge Stop Time	Flow Rate	Total Purge Vol (gal)	Temp (C°)	pH (s.u.)	K25 (µS/cm)	SAL	D.O. (ppm)	ORP (mv)	Turb (NTU)	TDS (mg/L)	Meter Model	Meter Serial Number	Probe Serial Number
EW-6B	5/1/2019	10:15	42.8	7.53	NA	ND	ND	Submersible	TLP	34.5	10:15	10:40	350	2	14.86	6.89	860	0.41	0	-222	6.1	549	Horiba U-52_Pine	043838	043837
EW-6B	5/1/2019	12:45	42.8	6.94	NA	ND	ND	Submersible	TLP	39.5	12:45	13:15	200	2	15.39	6.73	1790	0.91	0	-130	16.1	1150	Horiba U-52_Pine	043838	043837
EW-6B	5/1/2019	09:00	42.8	6.86	NA	ND	ND	Submersible	TLP	29.5	09:00	09:55	180	2	14.33	6.97	844	0.41	0	-111	6.2	540	Horiba U-52_Pine	043838	043837
EW-6B	7/20/2019	10:43	43	8.85	0.6	ND	ND	Submersible	TLP	39.5	10:45	11:15	400	3	17.97	6.87	2360	1.21	0	-116	9.4	1520	Horiba U-52_Pine	045922	045921
EW-6B	7/20/2019	09:20	43	10.06	0.6	ND	ND	Submersible	TLP	34.5	09:22	10:38	400	7.5	19.44	7.02	1040	0.52	0.45	-71	10.6	673	Horiba U-52_Pine	045922	045921
IW-195A	5/1/2019	11:15	31.2	4.21	NA	NM	NM	Submersible	TLP	17.7	11:15	11:55	180	2	14.12	6.83	1120	0.6	0	-275	7.7	714	Horiba U-52_Pine	041023	041024
IW-195A	5/1/2019	13:07	30.84	4.21	NA	NM	NM	Submersible	TLP	27.7	13:07	13:40	150	1.5	14.76	6.9	1130	0.6	0	-234	13.7	722	Horiba U-52_Pine	041023	041024
IW-195A	5/1/2019	09:38	31.2	4.21	NA	NM	NM	Submersible	TLP	12.7	09:38	10:20	175	2.5	13.79	6.78	1130	0.6	0	-261	6.3	720	Horiba U-52_Pine	041023	041024
IW-195A	5/1/2019	12:10	30.84	4.21	NA	NM	NM	Submersible	TLP	22.7	12:10	12:45	150	1.5	14.69	6.85	1110	0.5	0	-261	7.4	710	Horiba U-52_Pine	041023	041024

FINAL 3 READINGS

Well: EW-6B | Sample Start Time: 10:40 | Finish: 11:10
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
10:30	7.70	14.99	6.91	857	0.42	0	-244	3.5	548
10:35	7.71	15.03	6.87	861	0.42	0	-245	3.6	552
10:40	7.71	15.01	6.86	866	0.42	0	-245	3.6	555

Comments:

Well: EW-6B | Sample Start Time: 13:15 | Finish: 13:24
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:05	7.16	14.91	6.7	2020	1.02	0	-204	5.6	1290
13:10	7.21	15.01	6.78	2030	1.03	0	-210	5	1300
13:15	7.24	15.21	6.7	2080	1.05	0	-214	5.1	1330

Comments:

Well: EW-6B | Sample Start Time: 09:55 | Finish: 10:06
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:45	7.24	13.83	6.85	848	0.41	0	-229	2.9	543
09:50	7.27	13.87	6.85	846	0.41	0	-234	2.9	541
09:26	7.28	13.84	6.87	846	0.41	0	-239	2.6	542

Comments:

Well: EW-6B | Sample Start Time: 11:10 | Finish: 11:15
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:00	8.50	18.05	6.87	2470	1.27	0	-124	3.9	1590
11:05	8.50	18.09	6.88	2480	1.27	0	-125	3.5	1590
17:24	8.50	18.1	6.88	2480	1.27	0	-126	3.1	1590

Comments:

Well: EW-6B | Sample Start Time: 10:10 | Finish: 10:36
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:59	8.43	18.65	6.86	1520	0.77	0	-114	13.6	989
10:04	8.44	18.64	6.85	1540	0.83	0	-115	13.1	1050
10:09	8.44	18.65	6.85	1530	0.9	0	-115	13.2	1140

Comments:

Well: IW-195A | Sample Start Time: 11:55 | Finish: 11:58
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:45	5.24	14.41	6.83	1260	0.6	0	-272	6.7	806
11:50	5.24	14.49	6.83	1260	0.6	0	-279	6.3	806
11:55	5.24	14.53	6.83	1260	0.6	0	-281	6.7	806

Comments:

Well: IW-195A | Sample Start Time: 13:40 | Finish: 13:46
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:30	5.09	14.39	6.85	1120	0.6	0	-291	9.6	721
13:35	5.10	14.38	6.85	1130	0.6	0	-291	9.6	721
13:40	5.10	14.39	6.85	1130	0.6	0	-289	9.2	720

Comments:

Well: IW-195A | Sample Start Time: 10:20 | Finish: 10:28
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
10:10	5.38	13.85	6.8	1270	0.6	0	-292	8.1	812
10:15	5.41	13.89	6.8	1270	0.6	0	-293	8.9	810
10:20	5.43	13.84	6.8	1270	0.6	0	-291	9	810

Comments:

Well: IW-195A | Sample Start Time: 12:45 | Finish: 12:49
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:35	5.13	14.77	6.86	1260	0.6	0	-292	6.9	809
12:40	5.05	14.72	6.86	1270	0.6	0	-282	7.2	810
12:45	5.05	14.73	6.86	1268	0.6	0	-289	7.4	810

Comments:

The well was considered stabilized when the final three readings were: +/- 0.1 s.u. for pH; +/- 3% for temperature and conductivity; +/- 10% for D.O. and turbidity; and +/- 10 mv for Eh (for values greater than 1).
Analytical Methods (EPA): Temp (SM2550 B); pH (SM 4500-H B); Cond (120.1 and SM 2510 B); DO (SM 4500-O G); Salinity (SM 2520 B); Turbidity (EPA180.1)
TDS readings are field screening data measured with a rental meter. TRC is not certified in New Jersey for this parameter.
K25 = Conductivity to 25°.
SAL = Salinity in parts per thousand (ppt).
PID lamp is 10.6 eV, unless otherwise noted.
NA = Not Available
TLP = Teflon Lined Poly

NJDEP Lab Certification No. 20043

Reviewed & Approved by: _____
Laboratory Manager or Designated Supervisor

TRC Project No. 105009

Appendix B
GW Sampling Measurements and Calculations - Low Flow Purging
Hoffmann-La Roche, Inc. - Nutley, New Jersey
Investigation Area (IA) - 6

PRE-PURGE INFORMATION								PURGING INFORMATION							INITIAL PURGE PARAMETERS								METER-PROBE INFO		
Well Number	Sample Date	Time	Total Depth (ft)	Depth to Water (ft)	PID (ppm)	Depth to Prod (ft)	Prod Thick (ft)	Pump Type	Tubing Type	Pump Intake Depth (ft)	Purge Start Time	Purge Stop Time	Flow Rate	Total Purge Vol (gal)	Temp (C°)	pH (s.u.)	K25 (µS/cm)	SAL	D.O. (ppm)	ORP (mv)	Turb (NTU)	TDS (mg/L)	Meter Model	Meter Serial Number	Probe Serial Number
IW-195A	5/1/2019	08:40	31.2	4.21	NA	NM	NM	Submersible	TLP	7.7	08:40	09:25	240	1.5	16.46	8.44	1120	0.5	0.16	-192	16.4	714	Horiba U-52_Pine	041023	041024
IW-195A	7/20/2019	09:33	31.2	3.58	0.8	ND	ND	Peristaltic	TLP	22.7	09:35	10:15	500	5.5	22.89	7.06	1360	0.7	3.79	-117	178	878	Horiba U-52_Pine	41073	041074
IW-196A	4/30/2019	15:15	30.5	4.15	NA	ND	ND	Submersible	TLP	27	15:15	15:47	300	5	14.22	7.04	649	0.31	0	-37	12.4	415	Horiba U-52_Pine	043838	043837
IW-196A	4/30/2019	12:49	30.5	4.15	NA	ND	ND	Submersible	TLP	12	12:49	13:24	300	5	14.89	7.09	626	0.3	0	-40	3.7	401	Horiba U-52_Pine	043838	043837
IW-196A	4/30/2019	11:22	30.5	4.10	NA	ND	ND	Submersible	TLP	7	11:22	12:29	200	7.5	13.95	7.11	691	0.34	0	-80	27.5	444	Horiba U-52_Pine	043838	043837
IW-196A	4/30/2019	14:27	30.5	4.15	NA	ND	ND	Submersible	TLP	22	14:27	14:57	200	5	15.12	7.04	641	0.31	0	-48	14.3	410	Horiba U-52_Pine	043838	043837
IW-196A	4/30/2019	13:36	30.5	4.15	NA	ND	ND	Submersible	TLP	17	13:36	14:07	200	5	15.54	7.01	653	0.32	0	-40	4.2	0.32	Horiba U-52_Pine	043838	043837
IW-196A	7/20/2019	11:35	30.5	2.94	1.3	ND	ND	Submersible	TLP	17	11:35	12:12	400	4.75	21.13	7.68	595	0.029	0.28	-131	326	382	Horiba U-52_Pine	045921	045922
IW-197A	4/30/2019	13:45	28.45	4.95	NA	ND	ND	Submersible	TLP	25	13:45	14:50	200	4	18.06	7.42	181	0.9	0	-107	11.9	117	Horiba U-52_Pine	19274	024319

FINAL 3 READINGS

Well: IW-195A | Sample Start Time: 09:25 | Finish: 09:27
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:15	4.84	13.79	6.78	1130	0.6	0	-183	18.7	820
09:20	4.84	13.81	6.74	1280	0.6	0	-230	19	819
09:25	4.84	13.84	6.74	1280	0.6	0	-242	18.4	819

Comments:

Well: IW-195A | Sample Start Time: 10:15 | Finish: 10:40
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
10:05	5.35	19.41	6.9	1340	0.7	2.05	-207	57.8	855
10:10	5.37	19.55	6.9	1330	0.7	2.01	-208	56.6	849
10:15	5.36	20.4	6.89	1330	0.7	1.95	-211	52.5	847

Comments:

Well: IW-196A | Sample Start Time: 15:47 | Finish: 15:53
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
15:35	4.50	14.33	7.02	654	0.32	0	-41	2.5	419
15:42	4.05	14.67	7.04	651	0.32	0	-42	2.4	418
15:47	4.05	14.1	7.03	658	0.32	0	-42	2.4	421

Comments:

Well: IW-196A | Sample Start Time: 13:24 | Finish: 13:32
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:15	4.15	15.61	7.03	651	0.31	0	-50	1.8	414
13:19	4.15	15.42	7.02	651	0.31	0	-52	1.4	415
13:24	4.15	15.29	7.03	649	0.31	0	-53	1.3	415

Comments:

Well: IW-196A | Sample Start Time: 12:28 | Finish: 12:35
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:18	4.10	14.91	6.88	707	0.35	0	-66	9.1	456
12:23	4.10	15.42	6.89	706	0.34	0	-66	8.3	452
12:28	4.10	14.95	6.91	705	0.34	0	-64	6.4	452

Comments:

Well: IW-196A | Sample Start Time: 16:57 | Finish: 17:07
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:47	4.00	15.43	7.04	634	0.31	0	-49	2.5	406
16:52	4.05	15.39	7.04	643	0.31	0	-49	2.5	410
14:57	4.00	15.53	7.04	630	0.3	0	-49	2	402

Comments: Dup IW-196_LF22(B) at 1500

Well: IW-196A | Sample Start Time: 14:07 | Finish: 14:21
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:57	4.15	15.46	7.02	644	0.31	0	-46	3	412
14:02	4.15	15.73	7.06	644	0.31	0	-47	2.2	412
14:07	4.15	15.84	7.06	644	0.31	0	-47	1.8	410

Comments:

Well: IW-196A | Sample Start Time: 12:10 | Finish: 12:12
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:59	3.34	21.16	7.59	590	0.29	0	-140	108	377
12:04	3.34	21.19	7.61	588	0.29	0	-141	75.6	323
12:09	3.34	21.2	7.61	585	0.29	0	-140	48.1	371

Comments:

Well: IW-197A | Sample Start Time: 14:50 | Finish: 15:00
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:40	7.93	17.11	7.32	178	0.9	0	-144	15.2	114
15:11	8.65	17.5	7.32	177	0.9	0	-144	15.3	113
14:50	8.71	18.11	7.32	175	0.9	0	-145	15.6	112

Comments:

The well was considered stabilized when the final three readings were: +/- 0.1 s.u. for pH; +/- 3% for temperature and conductivity; +/- 10% for D.O. and turbidity; and +/- 10 mv for Eh (for values greater than 1).
Analytical Methods (EPA): Temp (SM 2550 B); pH (SM 4500-H B); Cond (120.1 and SM 2510 B); DO (SM 4500-O G); Salinity (SM 2520 B); Turbidity (EPA180.1)
TDS readings are field screening data measured with a rental meter. TRC is not certified in New Jersey for this parameter.
K25 = Conductivity to 25°.
SAL = Salinity in parts per thousand (ppt).
PID lamp is 10.6 eV, unless otherwise noted.
NA = Not Available
TLP = Teflon Lined Poly

NJDEP Lab Certification No. 20043

Reviewed & Approved by: _____
Laboratory Manager or Designated Supervisor

Appendix B
GW Sampling Measurements and Calculations - Low Flow Purging
Hoffmann-La Roche, Inc. - Nutley, New Jersey
Investigation Area (IA) - 6

PRE-PURGE INFORMATION								PURGING INFORMATION							INITIAL PURGE PARAMETERS								METER-PROBE INFO		
Well Number	Sample Date	Time	Total Depth (ft)	Depth to Water (ft)	PID (ppm)	Depth to Prod (ft)	Prod Thick (ft)	Pump Type	Tubing Type	Pump Intake Depth (ft)	Purge Start Time	Purge Stop Time	Flow Rate	Total Purge Vol (gal)	Temp (C°)	pH (s.u.)	K25 (µS/cm)	SAL	D.O. (ppm)	ORP (mv)	Turb (NTU)	TDS (mg/L)	Meter Model	Meter Serial Number	Probe Serial Number
IW-197A	7/20/2019	08:35	28.5	5.63	6.2	ND	ND	Submersible	TLP	25	08:37	09:22	500	5.5	20.73	7.54	2390	1.2	0.39	-67	14.4	1530	Horiba U-52_Pine	041073	041074
IW-198A	4/30/2019	14:08	28.61	5.25	0.9	ND	ND	Submersible	TLP	25.5	14:11	14:45	150	2.5	18.9	6.9	1330	0.7	0.19	-181	12.7	850	Horiba U-52_Pine	041023	041024
IW-198A	7/20/2019	09:54	29	5.18	6.9	ND	ND	Submersible	TLP	25.5	09:56	10:31	250	2.5	23.13	7.66	1250	0.57	1.52	-47	42.4	736	Horiba U-52_Pine	044013	044012
IW-199B	5/1/2019	09:30	42.5	6.28	NA	ND	ND	Submersible	TLP	29	09:30	10:05	200	5	14.95	7.45	830	0.4	5.01	-85	0	531	Horiba U-52_Pine	24798	21057
IW-199B	5/1/2019	11:45	41.54	6.28	NA	NM	NM	Submersible	TLP	34	11:45	12:20	300	3	15.71	6.92	2720	1.4	0	-203	0	1750	Horiba U-52_Pine	24798	21057
IW-199B	5/1/2019	11:45	41.54	6.28	NA	NM	NM	Submersible	TLP	39	11:45	12:20	300	3	15.71	6.92	2720	1.4	0	-203	0	1750	Horiba U-52_Pine	24798	21057
IW-199B	7/20/2019	08:58	42.5	6.50	2.4	ND	ND	Submersible	TLP	39	09:00	09:45	500	4.5	20.45	6.9	962	0	0.51	-91	12.8	630	Horiba U-52_Pine	045870	045871
IW-200A	5/1/2019	09:56	6.45	6.48	NA	NM	NM	Submersible	TLP	25	10:23	10:24	200	2	14.89	6.83	1910	1	0.66	.65	14	122	Horiba U-52_Pine	19274	19284
IW-200A	7/20/2019	10:01	28.5	6.11	4.6	ND	ND	Submersible	TLP	25	10:05	11:03	500	8	22.56	7.33	1220	0	0.21	-135	34.8	0.78	Horiba U-52_Pine	045870	045871

FINAL 3 READINGS

Well: IW-197A | Sample Start Time: 09:12 | Finish: 21:12
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:02	8.57	21.05	7.36	2270	1.1	0	-66	17.9	1450
09:07	8.58	20.75	7.35	2260	1.1	0	-68	18	1450
09:12	8.57	20.93	7.32	2270	1.1	0	-72	18.6	1460

Comments:

Well: IW-198A | Sample Start Time: 14:45 | Finish: 14:47
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:35	5.38	19.4	6.81	1290	0.6	0	-206	10.1	827
14:40	5.38	19.37	6.79	1290	0.6	0	-207	10.3	827
14:45	5.38	19.32	6.8	1300	0.6	0	-208	10.4	830

Comments:

Well: IW-198A | Sample Start Time: 10:31 | Finish: 10:41
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
10:21	5.44	20.98	7.29	1130	0.56	0	-93	9.3	721
10:26	5.47	20.88	7.47	1120	0.55	0	-96	8.8	715
10:31	5.37	22.13	7.28	1150	0.58	0	-101	7	751

Comments:

Well: IW-199B | Sample Start Time: 10:05 | Finish: 10:16
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:55	6.78	14.6	6.83	813	0.4	0	-111	0	520
10:00	6.85	14.68	6.83	812	0.4	0	-113	0	520
10:05	6.95	6.84	6.84	812	0.4	0	-116	0	519

Comments:

Well: IW-199B | Sample Start Time: 12:20 | Finish: 12:30
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:10	6.78	15.69	6.95	2670	1.4	0	-213	0	1710
12:15	6.60	15.9	7.15	2660	1.3	0	-201	0	1680
12:20	6.85	16.14	6.96	2668	1.4	0	-215	0	1710

Comments:

Well: IW-199B | Sample Start Time: 12:20 | Finish: 12:30
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:10	6.78	15.69	6.95	2670	1.4	0	-213	0	1710
12:15	6.60	15.9	7.15	2660	1.3	0	-201	0	1680
12:20	6.85	16.14	6.96	2668	1.4	0	-215	0	1710

Comments:

Well: IW-199B | Sample Start Time: 21:44 | Finish: 09:45
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:30	7.49	22.94	6.94	1220	0	0.03	-150	12.4	778
09:35	7.41	22.94	6.99	1260	0	0.05	-157	1.06	810
09:40	7.40	23	6.89	1270	0	0.02	-154	9.9	860

Comments:

Well: IW-200A | Sample Start Time: 10:16 | Finish: 10:24
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
10:29	6.45	15.02	6.84	1950	1	0	0.91	8	125
10:06	6.35	14.8	6.76	1920	1	0	-72	11	123
10:11	6.75	140.81	6.75	1940	1	0	-82	10.3	124

Comments:

Well: IW-200A | Sample Start Time: 11:00 | Finish: 11:03
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
10:50	6.45	19.69	7.32	1270	0	0.8	-159	10.4	816
10:55	6.43	20.24	7.31	1280	0	0	-162	8.5	816
11:00	6.41	20.11	7.31	1270	0	0	-161	8.1	825

Comments:

The well was considered stabilized when the final three readings were: +/- 0.1 s.u. for pH; +/- 3% for temperature and conductivity; +/- 10% for D.O. and turbidity; and +/- 10 mv for Eh (for values greater than 1).
Analytical Methods (EPA): Temp (SM 2550 B); pH (SM 4500-H B); Cond (120.1 and SM 2510 B); DO (SM 4500-O G); Salinity (SM 2520 B); Turbidity (EPA180.1)
TDS readings are field screening data measured with a rental meter. TRC is not certified in New Jersey for this parameter.
K25 = Conductivity to 25°.
SAL = Salinity in parts per thousand (ppt).
PID lamp is 10.6 eV, unless otherwise noted.
NA = Not Available
TLP = Teflon Lined Poly

NJDEP Lab Certification No. 20043

Reviewed & Approved by: _____
Laboratory Manager or Designated Supervisor

TRC Project No. 105009

Appendix B
GW Sampling Measurements and Calculations - Low Flow Purging
Hoffmann-La Roche, Inc. - Nutley, New Jersey
Investigation Area (IA) - 6

PRE-PURGE INFORMATION								PURGING INFORMATION							INITIAL PURGE PARAMETERS								METER-PROBE INFO		
Well Number	Sample Date	Time	Total Depth (ft)	Depth to Water (ft)	PID (ppm)	Depth to Prod (ft)	Prod Thick (ft)	Pump Type	Tubing Type	Pump Intake Depth (ft)	Purge Start Time	Purge Stop Time	Flow Rate	Total Purge Vol (gal)	Temp (C°)	pH (s.u.)	K25 (µS/cm)	SAL	D.O. (ppm)	ORP (mv)	Turb (NTU)	TDS (mg/L)	Meter Model	Meter Serial Number	Probe Serial Number
MW-504B	5/1/2019	08:52	41.01	6.85	NA	NM	NM	Submersible	TLP	33.5	08:52	10:02	200	2.5	18.15	3.36	0	0	10.2	355	264	0	Horiba U-52_Pine	23852	21073
MW-504B	5/1/2019	10:30	41.01	21.25	NA	NM	NM	Submersible	TLP	38.5	10:30	13:36	150	2	14.31	6.92	4790	2.6	0	-93	270	316	Horiba U-52_Pine	23852	21073
MW-504B	7/20/2019	11:31	42	6.55	3.1	ND	ND	Submersible	TLP	38.5	11:33	12:15	17.9	4	21.96	7.08	4160	0	0.36	-149	144	2.77	Horiba U-52_Pine	045870	045871
MW-505A	4/30/2019	12:35	16	3.27	NA	ND	ND	Submersible	TLP	5.5	12:35	13:25	350	8	13.56	7.69	398	0.2	0	115	461	259	Horiba U-52_Pine	24798	21057
MW-505A	4/30/2019	11:05	14	3.27	NA	ND	ND	Submersible	TLP	10.5	11:05	12:15	240	10	12.57	8.41	444	0.2	0	172	1000	288	Horiba U-52_Pine	24798	21057
MW-505A	7/20/2019	08:00	14	3.08	0	ND	ND	Submersible	TLP	10.5	08:02	08:59	350	4.75	22.3	7.86	450	0.24	0.85	81	999	318	Horiba U-52_Pine	045922	045921
MW-506B	4/30/2019	10:25	43.1	6.02	1.8	ND	ND	Submersible	TLP	36	10:25	11:20	210	3.5	14.53	7.3	2680	1.4	0	-118	27.8	1720	Horiba U-52_Pine	041023	041024
MW-506B	4/30/2019	10:15	43.1	6.02	1.8	ND	ND	Submersible	TLP	41	12:23	12:55	160	1	16.98	7.19	3130	1.6	0.7	-89	18	2020	Horiba U-52_Pine	041023	041024
MW-506B	7/20/2019	08:03	43.5	9.10	1.7	ND	ND	Submersible	TLP	41	08:05	08:55	325	3	19.1	7.78	2680	1.36	1.43	-114	351	1.69	Horiba U-52_Pine	045870	045871

FINAL 3 READINGS

Well: MW-504B | Sample Start Time: 10:07 | Finish: 10:15
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:52	14.20	13.61	6.94	3690	1.9	0	-111	56.7	236
09:57	15.37	13.81	6.93	3690	1.9	0	-113	57.1	236
10:02	16.52	14.19	6.93	3680	1.9	0	-115	56.5	236

Comments:

Well: MW-504B | Sample Start Time: 13:36 | Finish: 13:40
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:26	27.15	15.05	6.92	4570	2.4	0	-80	43	290
13:31	28.03	15.35	6.91	4550	2.4	0	-83	40.3	291
13:36	28.33	15.51	6.89	4440	2.4	0	-88	40.26	284

Comments:

Well: MW-504B | Sample Start Time: 12:15 | Finish: 00:21
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:05	15.05	23.4	7.06	3890	0	0.2	-135	35.9	2.48
12:10	16.25	24.8	7.06	3840	0	0.13	-135	33.5	2.46
12:15	23.20	7.05	7.05	3820	0	0.11	-140	33	2.43

Comments:

Well: MW-505A | Sample Start Time: 13:25 | Finish: 13:30
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:15	3.33	13.55	7.61	402	0.2	0	80	5.9	260
13:20	3.32	13.61	7.61	399	0.2	0	86	5	260
13:25	3.32	13.6	7.64	400	0.2	0	87	1.8	260

Comments:

Well: MW-505A | Sample Start Time: 12:15 | Finish: 12:25
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:05	3.31	13.07	7.59	414	0.2	0	118	9.3	269
12:10	3.31	13.22	7.6	414	0.2	0	115	8.4	269
12:15	3.31	13.49	7.6	414	0.2	0	112	8.2	269

Comments:

Well: MW-505A | Sample Start Time: 08:55 | Finish: 08:59
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
08:44	3.19	22.76	7.65	466	0.22	0	90	137	303
08:49	3.19	22.78	7.63	468	0.22	0	88	103	303
08:54	3.19	22.77	7.65	468	0.22	0	89	91.2	304

Comments:

Well: MW-506B | Sample Start Time: 11:20 | Finish: 11:22
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:10	7.10	15.03	7.27	2680	1.4	0	-130	6	1710
11:15	7.10	15.03	7.27	2660	1.4	0	-132	5.8	1710
11:20	7.10	15.04	7.25	2650	1.4	0	-132	5.7	1690

Comments: MS/MSD (12 VOAs)

Well: MW-506B | Sample Start Time: 12:55 | Finish: 12:57
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:45	7.10	15.79	7.15	3080	1.6	0	-134	8.7	1970
12:50	7.10	15.88	7.16	3020	1.6	0	-143	5.3	1930
12:55	7.10	15.87	7.17	2980	1.5	0	-149	3.9	1900

Comments:

Well: MW-506B | Sample Start Time: 08:40 | Finish: 08:50
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
08:30	10.00	19.54	7.72	2700	1.39	0.22	-167	13.8	1.72
08:35	10.35	19.61	7.69	2670	1.39	0.23	-169	9.8	1.71
08:40	10.65	19.65	7.68	2670	1.38	0.18	-171	7.6	1.71

Comments:

The well was considered stabilized when the final three readings were: +/- 0.1 s.u. for pH; +/- 3% for temperature and conductivity; +/- 10% for D.O. and turbidity; and +/- 10 mv for Eh (for values greater than 1).
NJDEP Lab Certification No. 20043
Analytical Methods (EPA): Temp (SM2550 B); pH (SM 4500-H B); Cond (120.1 and SM 2510 B); DO (SM 4500-O G); Salinity (SM 2520 B); Turbidity (EPA180.1)
TDS readings are field screening data measured with a rental meter. TRC is not certified in New Jersey for this parameter.
K25 = Conductivity to 25°.
SAL = Salinity in parts per thousand (ppt).
PID lamp is 10.6 eV, unless otherwise noted.
NA = Not Available
TLP = Teflon Lined Poly

Reviewed & Approved by: _____
Laboratory Manager or Designated Supervisor

Appendix B
GW Sampling Measurements and Calculations - Low Flow Purging
Hoffmann-La Roche, Inc. - Nutley, New Jersey
Investigation Area (IA) - 6

PRE-PURGE INFORMATION								PURGING INFORMATION							INITIAL PURGE PARAMETERS								METER-PROBE INFO		
Well Number	Sample Date	Time	Total Depth (ft)	Depth to Water (ft)	PID (ppm)	Depth to Prod (ft)	Prod Thick (ft)	Pump Type	Tubing Type	Pump Intake Depth (ft)	Purge Start Time	Purge Stop Time	Flow Rate	Total Purge Vol (gal)	Temp (C°)	pH (s.u.)	K25 (µS/cm)	SAL	D.O. (ppm)	ORP (mv)	Turb (NTU)	TDS (mg/L)	Meter Model	Meter Serial Number	Probe Serial Number
MW-507C	4/30/2019	12:57	78.5	9.10	NA	NM	NM	Submersible	TLP	71	12:57	13:52	300	4	15.92	7.01	374	2	0	-95	4.5	239	Horiba U-52_Pine	23852	21073
MW-507C	4/30/2019	14:10	77.85	9.09	NA	ND	ND	Submersible	TLP	76	14:10	14:45	300	4	16.39	7.02	377	2	0	-84	1.4	241	Horiba U-52_Pine	23852	21073
MW-507C	4/30/2019	11:46	78.5	8.78	NA	NM	NM	Submersible	TLP	66	11:46	12:41	300	3.5	15	7.16	383	2	0	-74	15	245	Horiba U-52_Pine	23852	21073
MW-507C	4/30/2019	10:12	8.97	9.31	NA	NM	NM	Submersible	TLP	61	10:23	11:15	200	2.5	14.56	6.85	370	2	0	-59	6.7	242	Horiba U-52_Pine	23852	21073
MW-507C	7/20/2019	08:08	78.5	8.35	1.2	ND	ND	Submersible	TLP	76	08:10	09:36	250	7	20.47	7.82	402	2.14	3.09	-5	0	2.59	Horiba U-52_Pine	044012	044013
MW-508A	5/1/2019	12:55	15.5	8.35	NA	ND	ND	Submersible	TLP	8.5	12:55	13:35	300	5	13.44	7.14	578	0.3	0	-30	532	370	Horiba U-52_Pine	24798	21057
MW-508A	5/1/2019	13:57	15.5	8.35	NA	ND	ND	Submersible	TLP	13	13:57	14:30	300	5	13.26	7.29	592	0.3	0	-13	0	379	Horiba U-52_Pine	24798	21057
MW-508A	7/20/2019	11:23	16	4.21	3.2	ND	ND	Submersible	TLP	9.7	11:25	12:15	250	3	24.02	7.92	399	0.19	0.81	14	443	258	Horiba U-52_Pine	044012	044013
MW-508B	5/1/2019	12:30	58.25	7.80	NA	NM	NM	Submersible	TLP	45.5	12:30	13:15	200	3	15.86	6.94	2240	1.1	0	-92	1.51	143	Horiba U-52_Pine	313009	313009

FINAL 3 READINGS

Well: MW-507C | Sample Start Time: 13:52 | Finish: 13:59
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:42	9.17	15.95	7.01	375	2	0	-101	0	240
13:47	9.17	15.99	7.15	376	2	0	-99	0	240
13:52	9.17	15.98	7.03	376	2	0	-101	0	241

Comments:

Well: MW-507C | Sample Start Time: 14:52 | Finish: 15:00
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:35	8.98	16.19	6.99	378	2	0	-95	2.5	242
14:31	8.98	16.17	6.99	377	2	0	-98	1.3	241
14:45	8.94	16.15	6.99	377	2	0	-99	0.5	241

Comments:

Well: MW-507C | Sample Start Time: 12:46 | Finish: 12:50
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:31	8.89	15.91	7.01	378	2	0	-91	1	242
12:36	8.75	15.94	7.01	379	2	0	-93	1.5	243
12:41	8.74	15.9	7.01	381	2	0	-94	0.3	244

Comments:

Well: MW-507C | Sample Start Time: 11:23 | Finish: 11:30
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:13	8.96	14.25	7.04	382	2	0	-83	1.1	244
11:18	8.96	14.25	7.04	381	2	0	-83	0.9	244
12:23	8.97	14.19	7.04	381	2	0	-84	0.6	244

Comments:

Well: MW-507C | Sample Start Time: 09:30 | Finish: 09:36
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
09:20	9.45	20.16	7.46	413	2.19	0	-20	2.3	2.64
09:25	9.53	20.43	7.46	412	2.19	0	-21	2.5	2.64
09:30	9.50	20.4	7.46	413	2.19	0	-20	2.4	2.64

Comments:

Well: MW-508A | Sample Start Time: 13:35 | Finish: 13:47
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
13:25	5.05	13.57	7.27	598	0.3	0	-49	9.8	383
13:30	5.05	13.44	7.26	592	0.3	0	-52	0	382
13:35	5.05	13.43	7.25	597	0.31	0	-51	0	382

Comments:

Well: MW-508A | Sample Start Time: 14:30 | Finish: 14:40
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:20	5.08	13.1	7.23	601	0.3	0	-27	0	385
14:25	5.08	13.07	7.23	599	0.3	0	-26	0	383
14:30	5.08	13.16	7.22	601	0.3	0	-23	0	385

Comments:

Well: MW-508A | Sample Start Time: 12:05 | Finish: 12:15
Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:55	4.92	20.92	7.57	410	0.2	0	-11	38.2	264
12:00	4.31	20.96	7.57	414	0.2	0	-11	35.1	269
12:03	4.31	21.08	7.56	413	0.2	0	-12	33.5	270

Comments:

Well: MW-508B | Sample Start Time: 13:05 | Finish: 13:10
Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
12:55	7.85	16.32	6.92	2220	1.1	0	-119	4	142
13:00	7.84	16.32	6.93	2230	1.1	0	-122	3	143
13:05	7.84	16.28	6.92	2230	1.1	0	-124	2	143

Comments:

The well was considered stabilized when the final three readings were: +/- 0.1 s.u. for pH; +/- 3% for temperature and conductivity; +/- 10% for D.O. and turbidity; and +/- 10 mv for Eh (for values greater than 1).
Analytical Methods (EPA): Temp (SM2550 B); pH (SM 4500-H B); Cond (120.1 and SM 2510 B); DO (SM 4500-O G); Salinity (SM 2520 B); Turbidity (EPA180.1)
TDS readings are field screening data measured with a rental meter. TRC is not certified in New Jersey for this parameter.
K25 = Conductivity to 25°.
SAL = Salinity in parts per thousand (ppt).
PID lamp is 10.6 eV, unless otherwise noted.
NA = Not Available
TLP = Teflon Lined Poly

NJDEP Lab Certification No. 20043

Reviewed & Approved by: _____
Laboratory Manager or Designated Supervisor

Appendix B
GW Sampling Measurements and Calculations - Low Flow Purging
Hoffmann-La Roche, Inc. - Nutley, New Jersey
Investigation Area (IA) - 6

PRE-PURGE INFORMATION								PURGING INFORMATION							INITIAL PURGE PARAMETERS								METER-PROBE INFO		
Well Number	Sample Date	Time	Total Depth (ft)	Depth to Water (ft)	PID (ppm)	Depth to Prod (ft)	Prod Thick (ft)	Pump Type	Tubing Type	Pump Intake Depth (ft)	Purge Start Time	Purge Stop Time	Flow Rate	Total Purge Vol (gal)	Temp (C°)	pH (s.u.)	K25 (µS/cm)	SAL	D.O. (ppm)	ORP (mv)	Turb (NTU)	TDS (mg/L)	Meter Model	Meter Serial Number	Probe Serial Number
MW-508B	5/1/2019	13:25	58.25	7.65	NA	NM	NM	Submersible	TLP	50.5	13:25	14:20	150	2	16.4	5.99	2280	1.2	0	-99	322	1460	Horiba U-52_Pine	313009	313009
MW-508B	5/1/2019	14:30	58.25	7.85	NA	NM	NM	Submersible	TLP	55.5	14:30	15:10	200	2	17.27	6.87	2460	1.3	0	-116	177	1570	Horiba U-52_Pine	313009	313009
MW-508B	5/1/2019	11:15	58.25	7.80	NA	NM	NM	Submersible	TLP	40.5	11:15	12:00	200	1.5	16.14	6.9	2320	1.2	0	-99	21.1	148	Horiba U-52_Pine	313009	313009
MW-508B	7/20/2019	11:21	58	7.81	10.5	ND	ND	Submersible	TLP	55.5	11:23	12:08	500	5.5	29.37	7.34	2420	1.3	0.44	-78	491	1570	Horiba U-52_Pine	041073	041074

FINAL 3 READINGS

Well: MW-508B | Sample Start Time: 14:15 | Finish: 14:19

Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:05	7.80	16.65	7	2230	1.1	0.31	-94	1.49	142
14:10	7.80	16.39	6.93	2230	1.1	0	-100	59.2	142
14:15	7.82	16.37	6.93	2220	1.1	0	-109	28.6	142

Comments:

Well: MW-508B | Sample Start Time: 15:05 | Finish: 15:09

Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
14:55	7.78	16.49	6.86	2420	1.2	0	-123	34.4	155
15:00	7.76	16.46	6.87	2400	1.2	0	-124	24.3	153
15:05	7.75	16.48	6.87	2380	1.2	0	-125	18.1	152

Comments:

Well: MW-508B | Sample Start Time: 11:50 | Finish: 11:57

Weather Conditions: Overcast

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:40	7.90	15.95	6.91	2280	1.2	0	-116	3	146
11:45	7.80	16.05	6.92	2270	1.2	0	-119.0	2.7	145
11:50	7.92	15.39	6.97	2240	1.1	0	-120	2	144

Comments:

Well: MW-508B | Sample Start Time: 11:58 | Finish: 12:08

Weather Conditions: Sunny

Time	DTW	Temp	pH	K25	SAL	D.O.	ORP	Turb	TDS
11:48	7.95	27.29	7.31	2160	1.1	0	-129	4.5	1380
11:53	7.85	27.24	2.33	2430	1.1	0	-135	2.4	1360
11:58	7.95	27.21	7.33	2138	1.1	0	-123	0.6	1380

Comments:

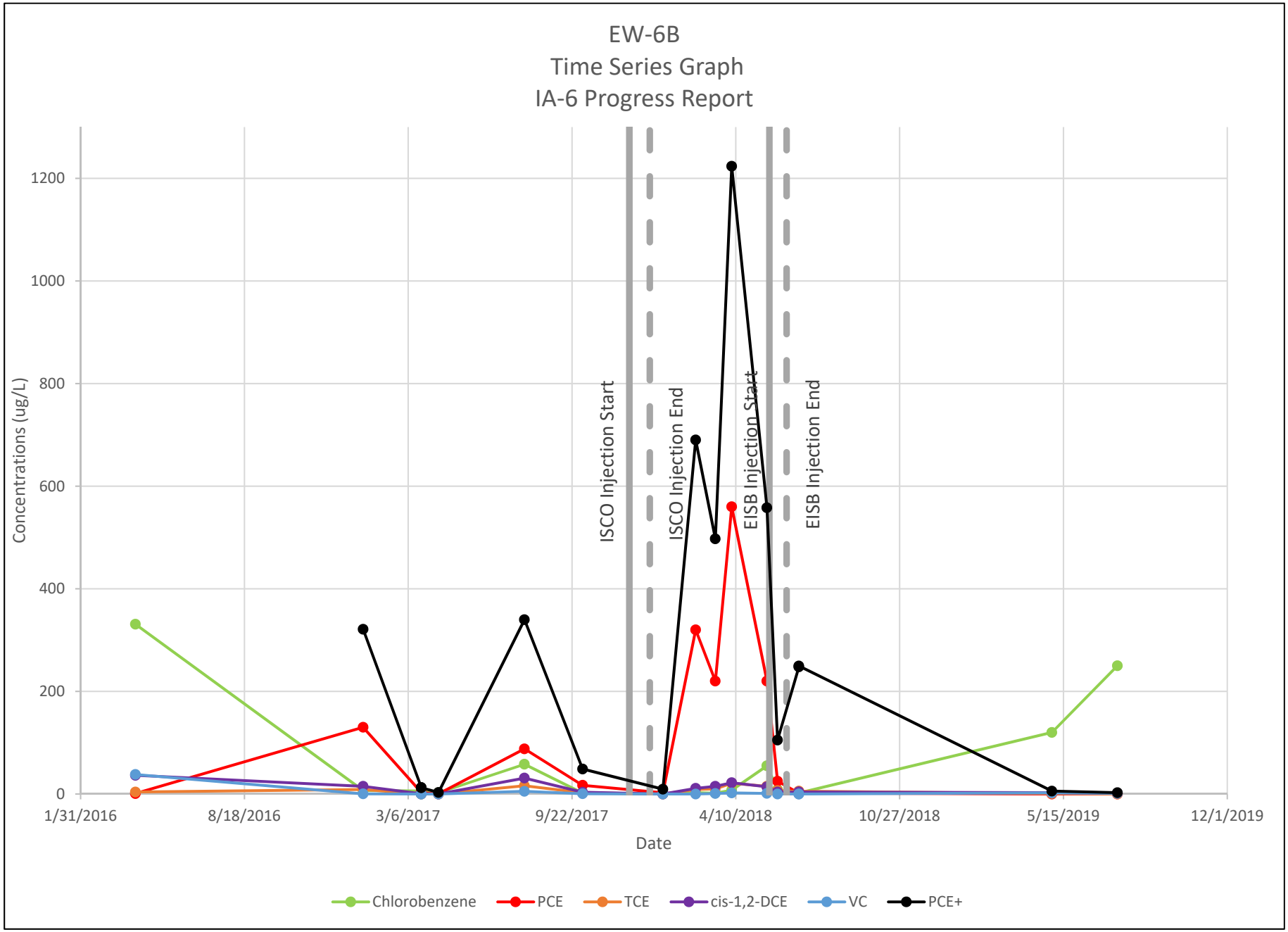
The well was considered stabilized when the final three readings were: +/- 0.1 s.u. for pH; +/- 3% for temperature and conductivity; +/- 10% for D.O. and turbidity; and +/- 10 mv for Eh (for values greater than 1).
Analytical Methods (EPA): Temp (SM2550 B); pH (SM 4500-H B); Cond (120.1 and SM 2510 B); DO (SM 4500-O G); Salinity (SM 2520 B); Turbidity (EPA180.1)
TDS readings are field screening data measured with a rental meter. TRC is not certified in New Jersey for this parameter.
K25 = Conductivity to 25°.
SAL = Salinity in parts per thousand (ppt).
PID lamp is 10.6 eV, unless otherwise noted.
NA = Not Available
TLP = Teflon Lined Poly

NJDEP Lab Certification No. 20043

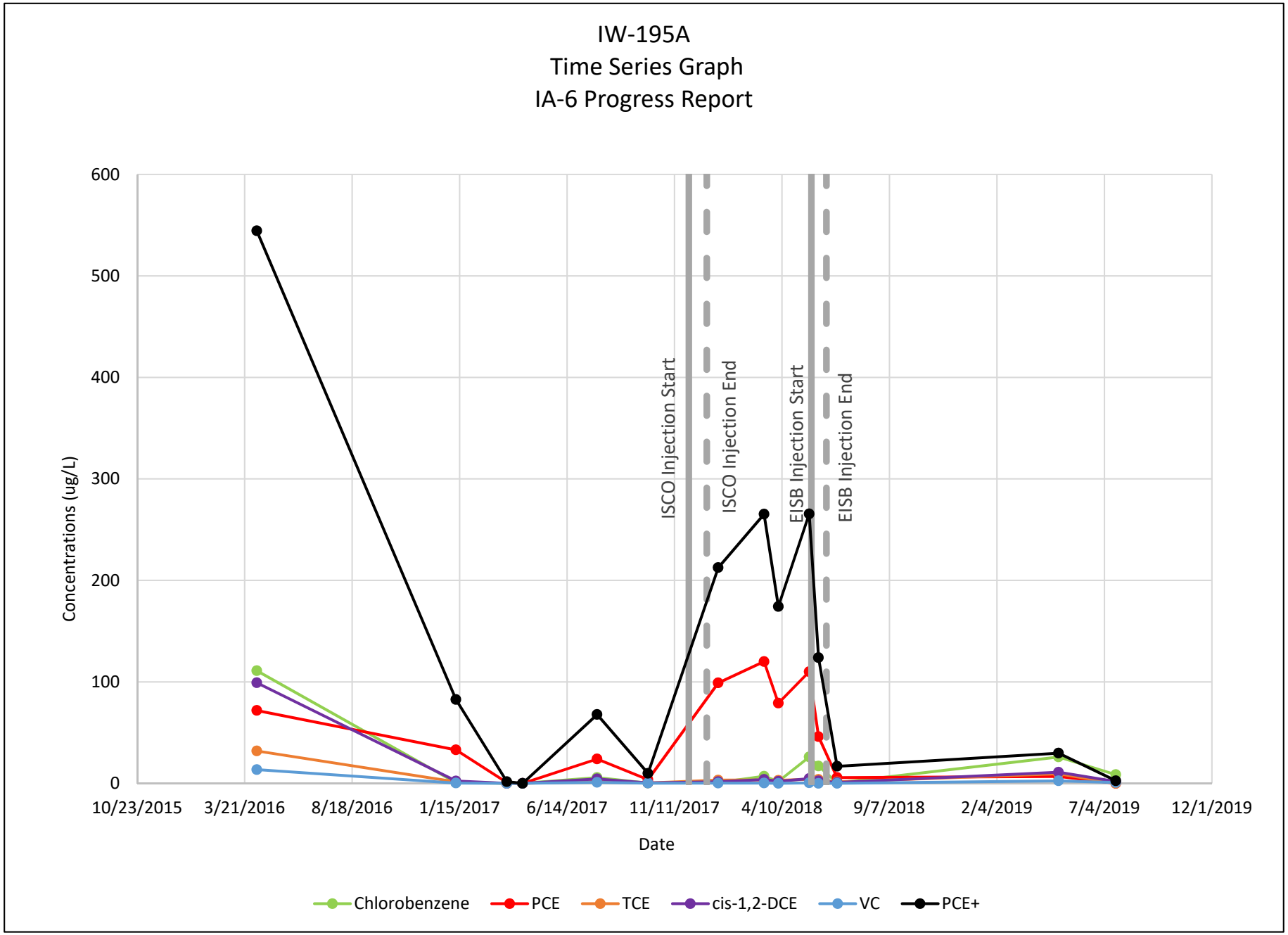
Reviewed & Approved by: _____
Laboratory Manager or Designated Supervisor

TRC Project No. 105009

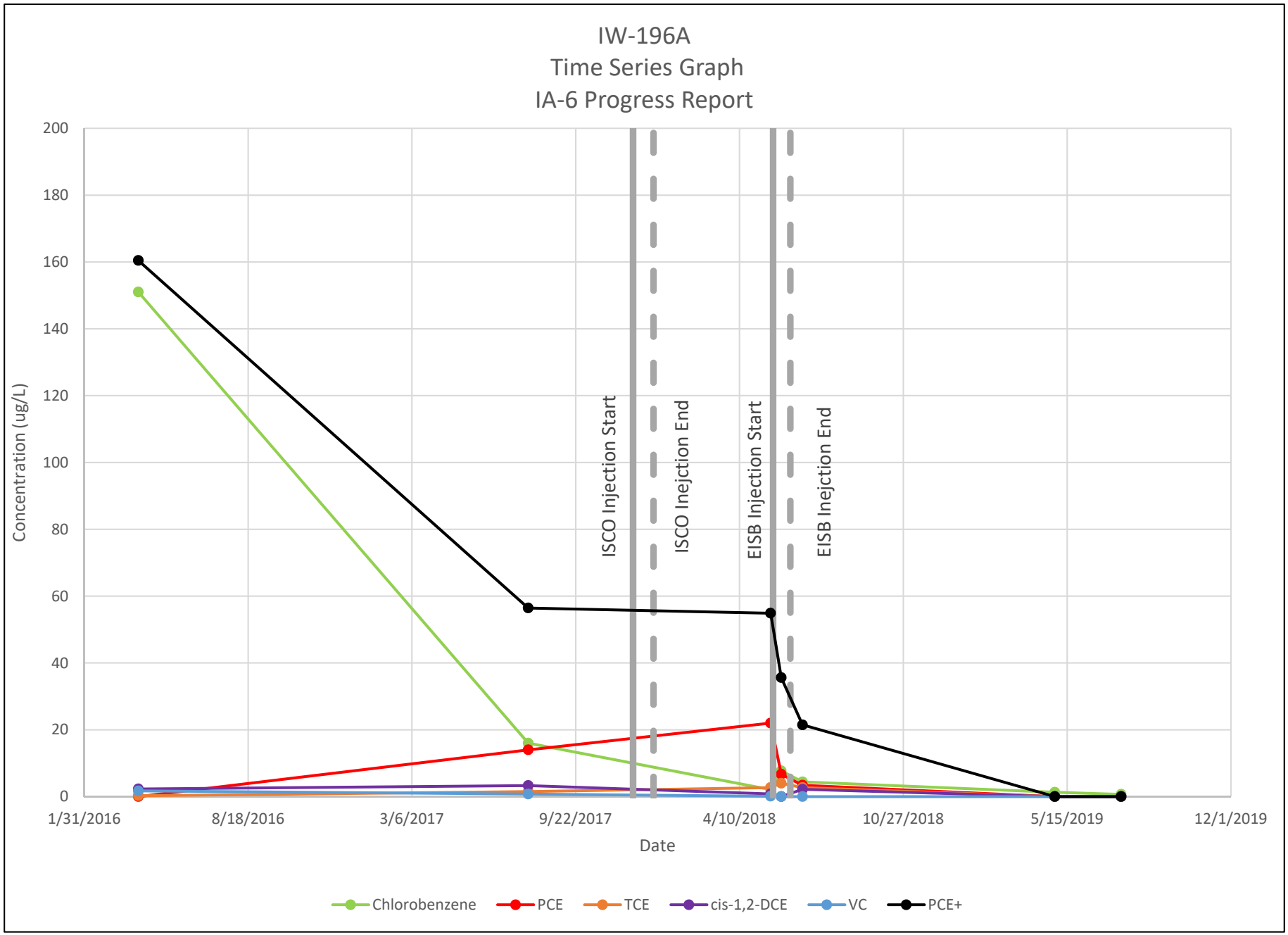
APPENDIX C
GROUNDWATER CONCENTRATION TREND GRAPHS



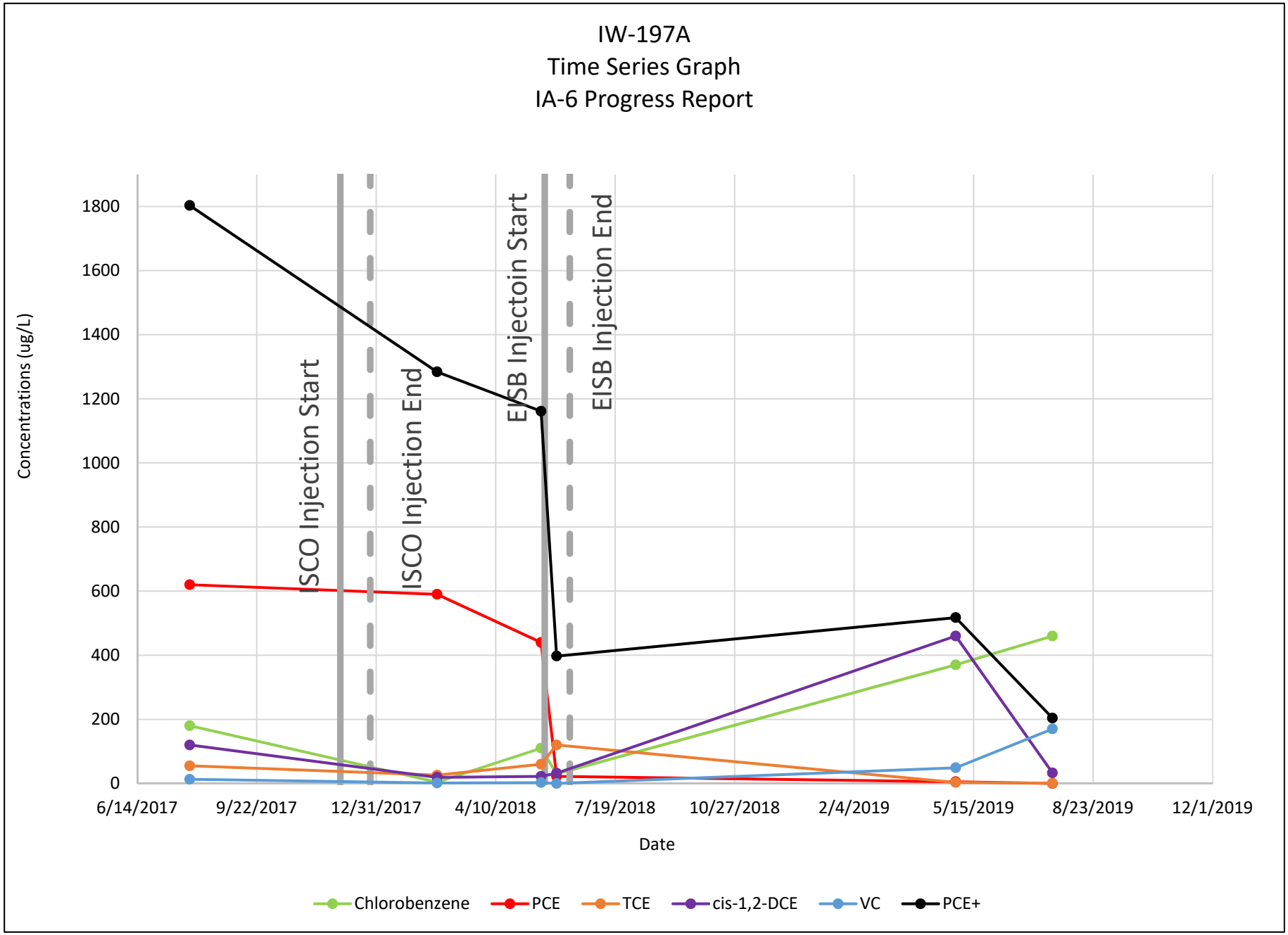
Note: Former Well Art-77



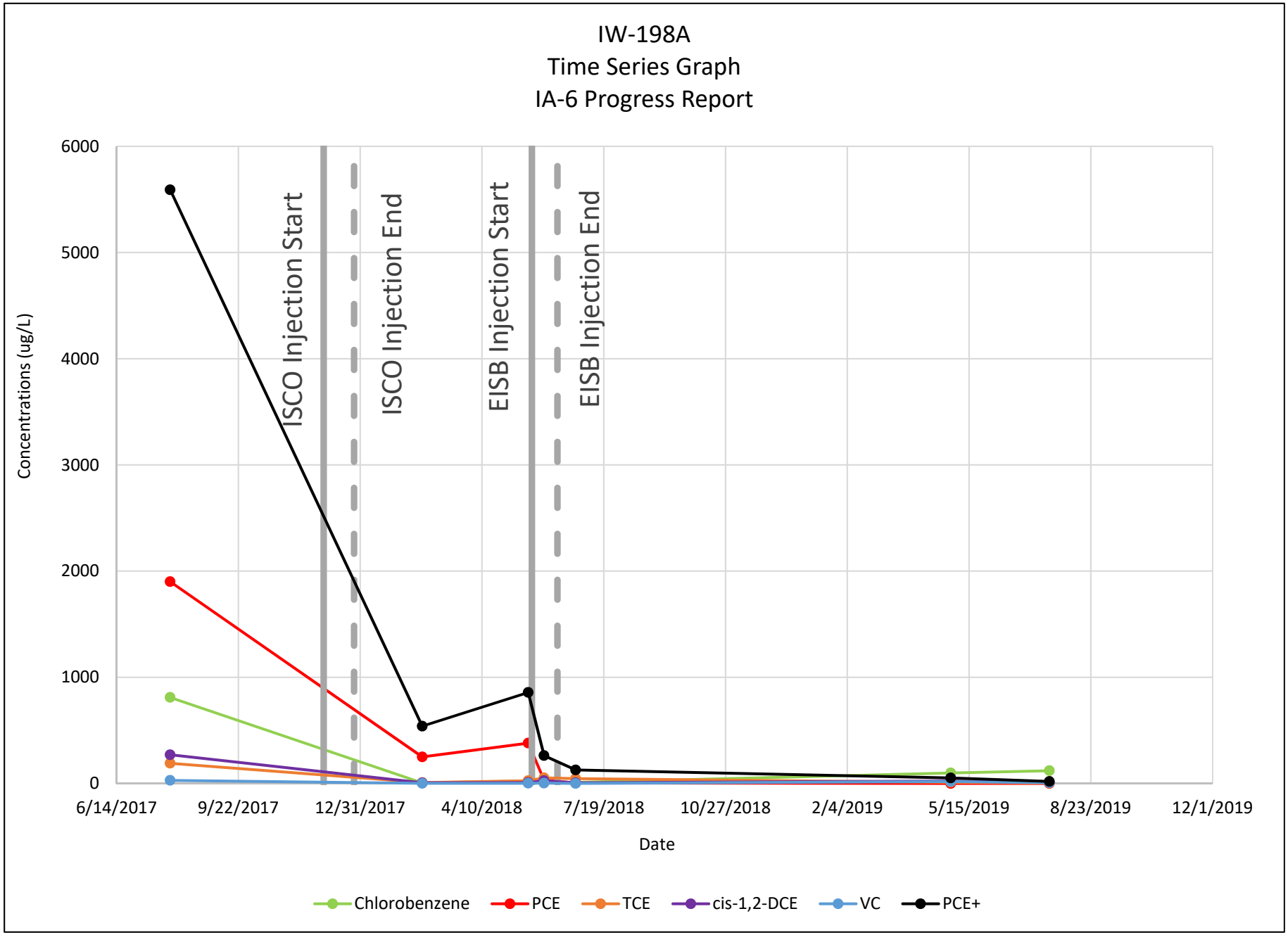
Note: Former Well Art-75



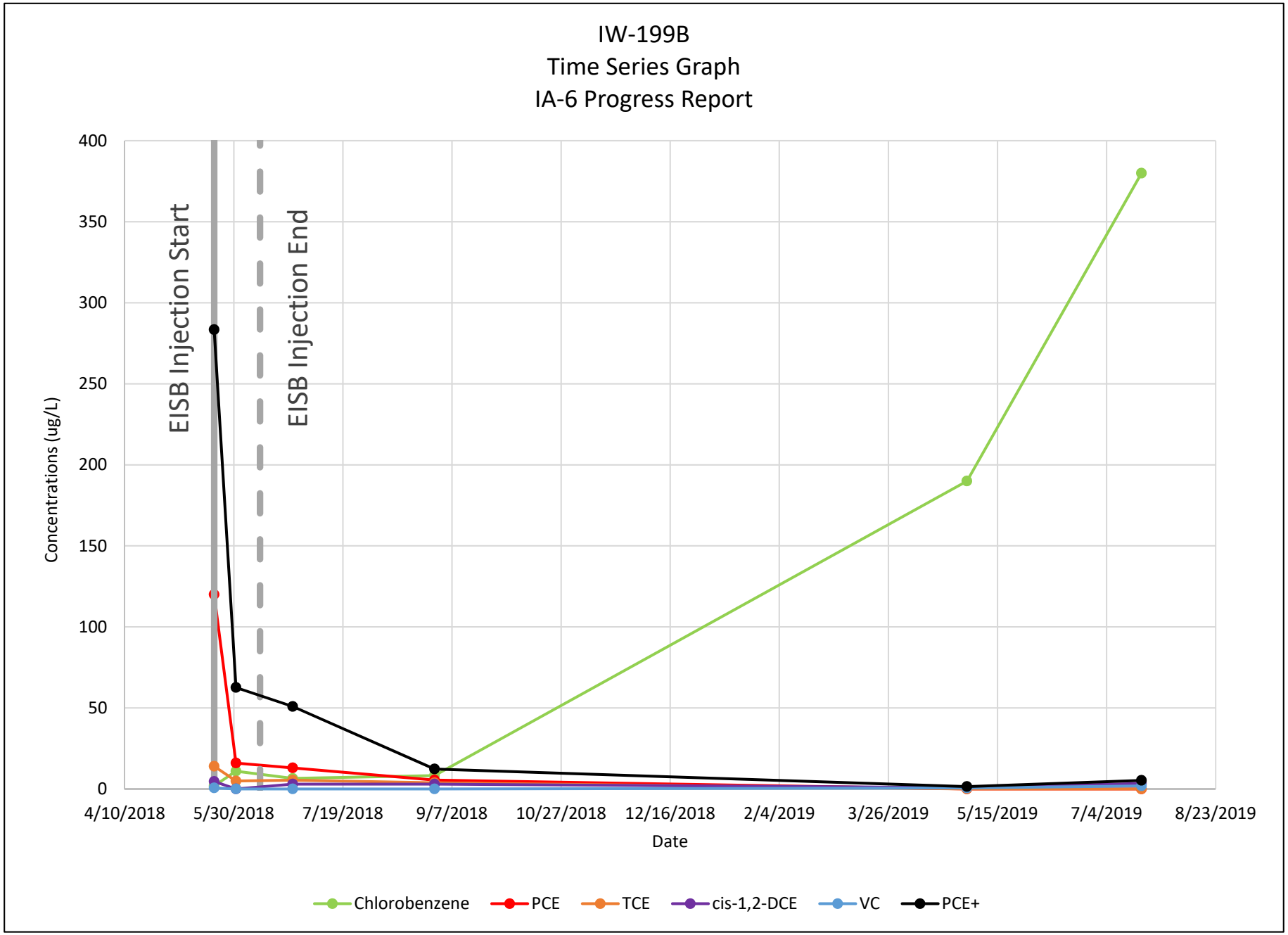
Note: Former Well Art-76



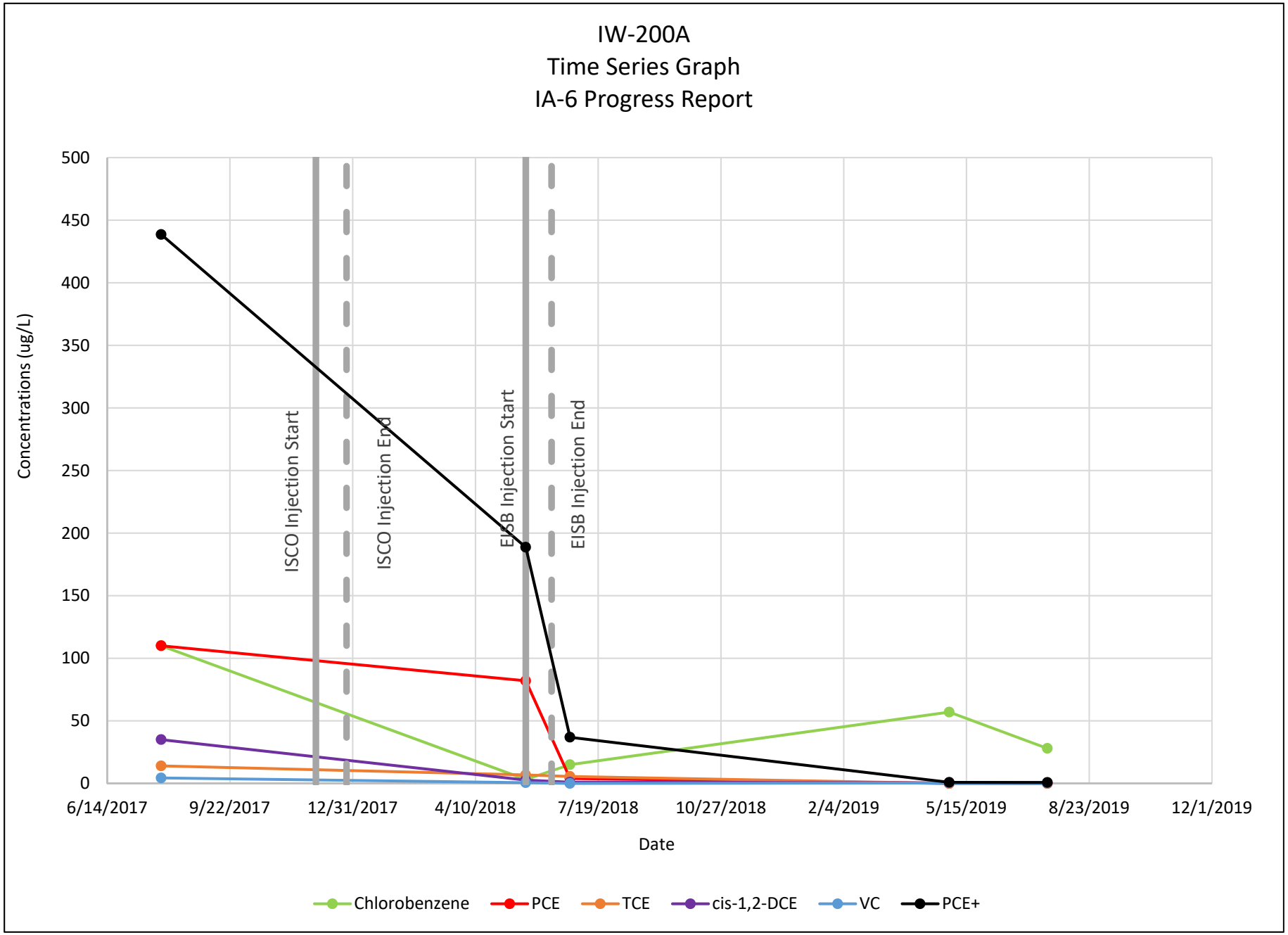
Note: Former Well IW-109A



Note: Former Well IW-110A



Note: Former IW-194B



Note: Former Well IW-113A

APPENDIX D

LABORATORY DATA REPORTS AND ELECTRONIC DATA DELIVERABLES/ELECTRONIC DATA SUBMISSIONS (EDD/EDS) AND DATA USABILITY REPORTS

NOTE FOR APPENDIX D

The Laboratory Data Packages and Electronic Data Deliverables (EDDs) are part of the project file at the TRC New Providence office. CD(s) containing laboratory analytical reports and EDDs associated with the Site-Wide Groundwater Progress Report were submitted to the NJDEP under Appendix D of this report. As required by the current Site Remediation Program Electronic Data Interchange Manual (February 21, 2013), the EDDs were also submitted electronically (via e-mail) to the NJDEP SRP (srpedd@dep.nj.gov). Copies of the e-mails, submitting the EDD files to the NJDEP, are attached.

From:	Clare, April
To:	srpedd@dep.nj.gov
Cc:	Kunukcu, Yasemin; Lippencott, Robert; Harvey, Brittney
Subject:	009949, RPC070001, 009949
Date:	Friday, March 13, 2020 12:29:13 PM
Attachments:	DTST.txt HZSAMPLE.txt HZRESULT.txt image003.png

Case Name: Hoffmann LaRoche
Directory: IA-6 PR
Submit Date: 3/13/2020
Description: HLR IA-6 PR EISB Progress Addendum

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Project Manager/Geologist

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