

# **2013 Third Quarter Groundwater Monitoring Report**

**July - September 2013**

**Claremont Polychemical Corporation Site**

**505 Winding Road**

**Old Bethpage, Nassau County, NY 11804**

**Site Code: 130015**

**WA# D006130-19**

## **Prepared for:**

New York State Department of Environmental Conservation  
Division of Environmental Remediation  
625 Broadway  
Albany, New York 12233

## **Prepared by:**

HRP Engineering, P.C.  
1 Fairchild Square Suite 110  
Clifton Park, New York 12065  
518.877.7101



---

**Tom Sicilia**  
**Project Geologist**



---

**Jennifer Koch**  
**Senior Project Geologist**



---

**Nancy Garry, PE**  
**Project Manager**

**Submitted: October 25, 2013**

## TABLE OF CONTENTS

Section	Page
CERTIFICATION.....	iii
1.0 INTRODUCTION .....	1
2.0 SITE BACKGROUND.....	2
2.1 Site Overview .....	2
2.2 Location.....	2
2.3 Site History .....	3
2.4 Site Geological Setting.....	3
3.0 GROUNDWATER TREATMENT SYSTEM.....	5
3.1 Groundwater Treatment System Description.....	5
3.2 Groundwater Treatment System Performance Evaluation .....	7
3.2.1 Flow Rate.....	7
3.2.2 Groundwater Treatment System Contaminant Removal.....	7
3.2.3 Groundwater Treatment System Discharge Monitoring .....	7
4.0 GROUNDWATER MONITORING PROGRAM .....	8
4.1 Hydrological Data.....	8
4.2 Groundwater Sample Collection .....	8
4.3 Groundwater Analytical Results.....	8
4.3.1 Comparison to Historical Groundwater Quality .....	9
4.3.2 Plume Evaluation.....	9
5.0 EXTRACTION WELL CONTAMINANT PROFILE AND MODIFICATION.....	11
6.0 CONCLUSIONS AND RECOMMENDATIONS .....	11
6.1 Conclusions.....	11
6.2 Recommendations .....	12

## **TABLE OF CONTENTS**

(continued)

### **List of Figures**

(follows text)

- 1 Site Location
- 2a Monitoring Well Network
- 2b Shallow Groundwater Elevation Contour
- 3a PCE Contamination – September 2013
- 3b TCE Contamination – September 2013

### **List of Tables**

(follows figures)

- 1 Groundwater Elevations
- 2 Summary of Analytical Results – September 2013 (Third Quarter 2013)

### **List of Charts**

(follows tables)

- 1 Groundwater Influent Concentration (PCE, TCE, and 1,1-DCE) vs. Time
- 1a EXT-1 Concentration (PCE, TCE, 1,1-DCE) vs Time
- 1b EXT-2 Concentration (PCE, TCE, 1,1-DCE) vs Time
- 1c EXT-3 Concentration (PCE, TCE, 1,1-DCE) vs Time
- 2 Groundwater Influent Concentration (Iron and Manganese) vs. Time
- 3 Treated Effluent Concentration (PCE, TCE, 1,1-DCE) vs. Time
- 4 Treated System Effluent Concentration (Iron and Manganese) vs. Time
- 5 VOC Removal vs Time (PCE, TCE)
- 6a PCE and TCE Concentrations in EW-1a
- 6b PCE and TCE Concentrations in EW-4c
- 6c PCE and TCE Concentrations in SW-1

### **List of Appendices**

- A Groundwater Sample Log

**2013 Third Quarter Groundwater Monitoring Report  
July - September 2013  
Claremont Polychemical Corporation Site  
Old Bethpage, New York 11804**

Report Submittal Date: October 25, 2023

Prepared by: Jennifer Kotch, Tom Sicilia, Nancy Garry, PE  
HRP Engineering, P.C.

1 Fairchild Square, Suite 110

Clifton Park, New York 12065

Phone: (518) 877-7101 / Fax: (518) 877-8561

Project Address: Claremont Polychemical, 505 Winding Rd, Old Bethpage, NY

**CERTIFICATION**

I, Nancy Garry, certify that I am currently a NYS Registered Professional Engineer as defined in 6 Part NYCRR Part 375 and that this report, 2013 Third Quarter Groundwater Monitoring Report, was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER -10) and that all activities were performed in full accordance with the DER-approved workplan and any DER-approved modifications.

Environmental Contractor: HRP Engineering, P.C.

By:

Nancy Garry

**2013 Third Quarter Groundwater Monitoring Report  
July-September 2013  
Claremont Polychemical Corporation Site  
Old Bethpage, New York 11804**

**1.0 INTRODUCTION**

HRP Engineering, P.C. (HRP) is pleased to submit this report containing groundwater quality data, discussions and data deliverables related to the third quarter 2013 (July – September 2013) groundwater monitoring event conducted at the Claremont Polychemical Corporation Site (hereinafter referred to as the “Site”) (Figure 1). The groundwater monitoring event and the preparation of this deliverable are part of the routine groundwater monitoring program being conducted at the Site. This report has been prepared for submittal to the New York State Department of Environmental Conservation (NYSDEC) and includes the following:

- Brief overview of historical site activities;
- Discussion of the on-site groundwater treatment system;
- Brief description of the scope of the field activities;
- Groundwater elevation contours;
- Tetrachloroethylene (PCE) and trichloroethylene (TCE) contaminant concentration profiles in groundwater;
- Groundwater PCE and TCE contaminant concentrations discussion;
- Brief discussion of the groundwater quality data;
- Comparison of data from this monitoring period to data from previous periods; and
- Recommendations and Conclusions.

## **2.0 SITE BACKGROUND**

### **2.1 Site Overview**

The Claremont Polychemical Corporation (Claremont), a former manufacturer of pigments for plastics and inks, coated metal flakes, and vinyl stabilizers, operated on-site from 1966 to 1980. The Site was proposed for inclusion on the Environmental Protection Agency (EPA) National Priorities List (NPL) in October 1984 and was listed as a superfund site in June 1986. A Comprehensive Remedial Investigation/ Feasibility Study (RI/FS) for the Site was initiated in March 1988 by the EPA. Under this RI/FS, EPA sampled the surface and subsurface soil, the groundwater, underground storage tanks, and the building. The EPA RI/FS reports were released to the public in August 1990. The EPA RI/FS findings indicated that on-site soils contaminated with PCE, located in the former "spill area", constituted a potential threat to groundwater resources. A comprehensive remedy for the Site was completed and documented in several EPA Records of Decisions (RODs) issued in 1989-1990. The Site was divided into six operable units (OU), each with a specific remedial activities. Operable Unit No.4 (OU IV) is designated "Remedial Program" and involves the treatment of the on-site volatile organic compounds (VOC) that have contaminated groundwater.

A groundwater treatment system was installed on-site by the EPA and Army Corp of Engineers (ACOE) to control OU IV. Full-scale operation of the groundwater remedial system began in February 2000, reportedly pumping and treating 470 gpd (gallons per day). SAIC Inc. operated and maintained the treatment system from 2000 to May 2011. During that period SAIC monitored the treatment system operation on a regular basis by collecting system discharge and quarterly groundwater samples. In May 2011, the operation, maintenance, and sampling of the remediation system was relinquished from the ACOE/EPA to the NYSDEC, who subsequently retained HRP to operate, maintain and sample the remediation system.

During the work responsibility transition from the EPA to the NYSDEC, the NYSDEC requested copies of reports and analytical results generated during the EPA's operations of the remediation system, including but not limited to quarterly groundwater sampling data from SAIC, EPA Region 2 and the ACOE. Previous groundwater monitoring reports were not available for HRP's review. Therefore, the historical groundwater data was not reviewed by HRP and incorporated into this report.

### **2.2 Location**

The site is located on a 9.5-acre parcel located in an industrial section of Old Bethpage, Nassau County, New York (see Figure 1 for location). The property has one two-story building, covering approximately 35,000 square feet (the former processing plant) and a water treatment building, covering approximately 5,200 square feet. The site lies approximately 800 feet east of the border between Nassau and Suffolk County and is accessed via Winding Road on the

property's western border. Adjacent properties include:

South and Southeast - Bethpage State Park and a golf course;  
East - State University of New York-Farmingdale Campus;  
West - Oyster Bay Solid Waste Disposal Complex; and  
North - Commercial and light industrial.

The Oyster Bay Solid Waste Disposal Complex is a NYSDEC Superfund Site with the Town of Oyster Bay as the responsible party. The Nassau County Fireman's Training Center, which has also contributed to soil and groundwater contamination in the area, is located approximately 500 feet south of the Oyster Bay Solid Waste Disposal Complex. The Oyster Bay Solid Waste Disposal Complex and Fireman's Training Center have groundwater extraction and treatment systems in operation. In addition, the golf course has a number of pump/irrigation wells, which are used for watering their fairways. The closest residences are approximately one-half mile from the site immediately west of the Old Bethpage Landfill Superfund site. The nearest public supply well is located 3,500 feet northwest of the site and nearly 47,000 people are drawing water from private-use wells located within three miles of the site.

### **2.3 Site History**

According to the "Five - Year Review Report for Claremont Polychemical Corporation" prepared by EPA Region 2, dated September 2008, the Claremont Polychemical Corporation manufactured pigments for plastics and inks, coated metal flakes, and vinyl stabilizers operated from 1966 to 1980. During its operation, Claremont disposed of liquid waste in three leaching basins and deposited solid wastes and treatment sludges in drums or in old, aboveground metal tanks. The principal wastes generated were organic solvents, resins and wash wastes (mineral spirits). Located inside the process building were a solvent recovery system (steam distillation), two pigment dust collectors and a sump. To the west of the building, there were five concrete treatment basins, each with a capacity of 5,000 gallons, which contained sediments and water. Six aboveground tanks, three of which contained wastes, were located east of the process building. Other features included an underground tank farm, construction and demolition debris, dry wells and a water supply well.

### **2.4 Site Geological Setting**

The "Claremont Polychemical Superfund Site Long-term Groundwater Monitoring Old Bethpage, New York" report (dated December 2001) prepared by SAIC reported that site-specific subsurface investigations from a variety of soil borings and monitoring/injection/extraction well installations to a maximum depth of 250 feet below ground surface (bgs) identified "well-stratified fine to medium sand with silt lenses, abundant peat laminae, and discontinuous sand layers" (Ebasco, 1990). Borings in the northern portion of the site also encountered numerous interbedded silt and clay horizons. A comparison of Site

logs with municipal supply well logs to the north suggest that the Site is located within a transitional area between the predominately sandy southern portion of the Magothy Formation and an interbedded clayey-sand portion to the north (Ebasco, 1990).

The 2001 report also indicated that groundwater flow was generally to the south-southeast with historical gradients ranging from 0.001-0.002 ft/ft and horizontal flow velocities of 0.43 ft/day or 157 ft/yr (Ebasco, 1990). Groundwater elevations are depressed in the areas of the extraction wells while the system is in operation. Hydraulic permeability (slug) tests performed during the EPA RI calculated hydraulic conductivities ranging between 200 and 400 gdp/ft<sup>2</sup> which is significantly lower than historical data from actual pump tests. The vertical component of flow was historically less than 0.5 ft/ft and lacked any consistency or pattern. It was thus determined to be insignificant with respect to contaminant movement (Ebasco, 1990).

The 2001 report also stated that the direction of groundwater flow from the western portion of the site is to the east, south and southeast and reverses on the eastern and southeastern portions of the site. The gradient was reported to be approximately 0.024 ft/ft as measured between monitoring wells SW-1 and SW-2 over a distance of approximately 500 ft. The semi-radial component of flow and steep gradient are indicative of the groundwater extraction system's capture zone. However, groundwater levels were recorded from five sets of clustered monitoring wells, or 13 data points, in and around the source area. Hence, the report concluded that the capture zone is not realistically defined as it tends to center around monitoring well cluster SW-2/DW-2 instead of the three extraction wells slightly to the southeast.



## GROUNDWATER TREATMENT SYSTEM

A description of the groundwater treatment system and a review of its effectiveness of contamination recovery and hydraulic control are provided below.

### 2.5 Groundwater Treatment System Description

The groundwater treatment system is designed to treat metals, organic contaminants, and provide final pH adjustment. The system consists of an extraction system, above-ground treatment, and a reinjection system. Each of the system components is discussed below.

#### Groundwater Treatment System Extraction Wells

The groundwater collection system consists of three extraction wells (EXT-1, EXT-2, and EXT-3) installed approximately 150 feet apart south of the site oriented in a southwest-northeast line. EXT-1, EXT-2, and EXT-3 are screened from approximately 75, 95, and 94 feet mean sea level (MSL) (just below the water table) to approximately 175, 190, and 194 feet MSL, respectively, and are outfitted with 10 horsepower pumps. In May 2013, fixed end packers (packers) were installed in EX-1 and EX-2, effectively blocking the clean, bottom portion of each extraction well, at 115 feet MSL and 125 feet MSL, respectively.

Each extraction well pump is capable of pumping up to 200 gpm. However, historically, EXT-1, EXT-2, and EXT-3 extract 190 gpm, 188 gpm, and 175 gpm for a total of approximately 553 gpm, respectively. Based on the step-down test completed in June 2013, the pumping rate of EX-1 and EX-2 were reduced to 110 gpm and 120 gpm, a 10% reduction in the pumping rates. The average flow rate over the course of a month is approximately 350 to 390 gpm. This average pumping rate translates to approximately 500,000 to 560,000 per day which meets the on-site remedy goal of treating 500,000 gallons per day.

It is important to note that in April/May 2011, SAIC replaced the Equalization tank level controllers, which formerly controlled the extraction well pumps, with level transducers located in the extraction wells. The level transducers allow the extraction pumps to maintain a static water level in the extraction wells and a more consistent capture zone. Each well pump is controlled by a well transducer that maintains a groundwater elevation of 38.3 to 46.7 feet MSL.

Based on discussions with the NYSDEC and HRP regarding the 2012 Remedial System Optimization (2012 RSO), the extraction wells were temporarily suspended on December 5, 2012 to allow for groundwater sampling and analysis to evaluate contaminant profiles across the screened intervals. Based on this evaluation, extraction wells EXT-1 and EXT-2 were retrofitted with packers to focus groundwater removal to shallow groundwater, found to be the majority of the remaining contaminated intervals from the site. Following completion of the retrofitted packers, pumps were reinstalled and the treatment system was re-activated. A step-test was conducted on each well to ensure that capture is being achieved. The results of this test were evaluated and indicate that a 10% percentage reduction in order to reduce overall influent clean

groundwater and limit capture from the up-gradient plume/source while maintaining the capture from contamination originating on-site from EX-1 and EX-2.

#### Groundwater Treatment System Path of Remediation

Groundwater pumped from the extraction wells enters a 60,000-gallon equalization tank situated adjacent to the treatment building. Water from the equalization tank flows through two parallel metals-removal trains that are each rated for 250 gpm. Each train includes a reaction tank, a flocculation tank, a clarifier, and a filter and is followed by air-stripper feed tanks. The feed tanks divert the water through a single packed tower air stripper rated at an average rate of 500 gpm and then through parallel liquid phase carbon units each rated at 250 gpm. The air emission from the air stripper is treated with vapor phase carbon. The treated water is then stored in two 42,000-gallon vessels prior to reinjection to the subsurface via four butterfly valve injection wells and/or two infiltration galleries located on the adjacent SUNY Farmingdale campus. The extraction wells are equipped with high-level alarms and are regularly gauged. However, the infiltration galleries are not equipped with level sensors or alarms.

In 2001, after the first nine months of operation, the addition of oxidizing chemicals (potassium permanganate) to the metals removal system was discontinued as the influent metals analytical concentration to the plant met EPA discharge standards for metals. Water continues to flow through the metals portion of the treatment system.

The remediation system is manned by two operators working 40-hour weeks, and an autodialer (telemetry unit) is installed to contact the operators in case of plant alarms. The operators typically respond to alarms within 30 minutes.

#### Groundwater Treatment System Operating Permits

##### *Water Permit*

The plant was issued a water discharge permit dated January 1, 1998. According to Brian Baker, NYSDEC Section Chief, Western Section, Bureau of Water Permits the permit was extended to the end of calendar year 2013. A permit renewal application was submitted to the NYSDEC Bureau of Water permits to review the application and complete a permit reauthorization. It is important to note that the NYSDEC Bureau of Water does not have regulatory authority over a discharge from a State, PRP, or Federal Superfund Site. Therefore, Effluent Limitations and Monitoring Requirements outlined in the permit must be submitted to the NYSDEC Division of Environmental Remediation, Remedial Bureau E.

##### *Air Permit*

An air permit is not required for the remediation system operation. In particular, NYSDEC regulation 6 NYCRR Part 375-1.7 states that "no permit is required when the substantive compliance is achieved as indicated by the NYSDEC

approval of the workplan". Based on a review of the information pertaining to the remediation system, volatile organic compounds (VOCs) air emissions from the remediation system historically have been negligible.

## **2.6 Groundwater Treatment System Performance Evaluation**

### **2.6.1 Flow Rate**

The volume of treated water discharged by the treatment plant to the injection well field is determined daily from readings of the magnetic flow meter on the plant effluent line. Since startup, the system has treated more than 1.92 billion gallons of groundwater. During the third quarter of 2013 (July - September), the treatment system processed 43.3 million gallons of water.

Flow to infiltration galleries IG-1 and IG-3 is restricted so that flow to IW-1 and IW-3 is maximized. The plant's effluent discharge is limited by injection pump system capacity.

### **2.6.2 Groundwater Treatment System Contaminant Removal**

To evaluate the treatment system's contaminate removal rate, HRP reviewed available treatment system inlet (Charts 1, 1a, 1b, 1c and 2) and effluent analytical results from monthly operation and maintenance (O&M) sampling when the system is operational. Approximately 890 kilograms of chlorinated solvents have been removed since 2002. A plot of historic mass removal rates and cumulative PCE and TCE mass removal is presented as Chart 5. In addition, HRP prepares and submits monthly Groundwater Treatment System O&M Activities reports which discusses monthly O&M activities, technical support, remediation system sample results and project goals meet.

### **2.6.3 Groundwater Treatment System Discharge Monitoring**

When the system is operational, effluent data for select VOC compounds (PCE, TCE, and 1,1-DEC) and metals (Iron and Manganese) are analyzed to evaluate compliance with established effluent discharge limits. Chart 3 shows that the past and current effluent concentrations remained below permissible discharge limit levels. Chart 4 shows that the concentrations of iron were over during the first quarter 2012 sampling results, but has since been within permissible discharge levels. Refer to the monthly O&M and the Significant Events reports for additional information on remediation system performance and daily operations.

### **3.0 GROUNDWATER MONITORING PROGRAM**

On September 23 and 24, 2013 HRP sampled a total of 41 on-site and off-site monitoring wells. On-site monitoring wells included DW-1, DW-2, EW-5, EW-7C, EW-7D, EW-8D, EW-9D, and SW-1. Off-site wells included BP-3A, BP-3B, BP-3C, EW-1A, EW-1B, EW-1C, EW-2A, EW-2B, EW-2C, EW-2D, EW-3A, EW-3B, EW-3C, EW-4A, EW-4B, EW-4C, EW-4D, EW-6A, EW-6C, EW-10C, EW-11D, EW-12D, EW-13D, EW-14D, LF-02, MW-6D, MW-8A, MW-8B, MW-8C, MW-10B, MW-10C, MW-10D, and WT-01. In addition, the three extraction wells were sampled by isolating each recovery well pumps production water. The monitoring well locations are depicted in Figure 2a. A description of the groundwater sampling event is provided below.

#### **3.1 Hydrological Data**

At the time prior to sample collection, static groundwater levels were measured at all 41 locations on September 20, 2013. Depths to groundwater in June 2013 when the PDBs were installed ranged from 41.81 ft (EW-14D) to 118.32 ft (MW-8C) below ground surface (bgs). Depths to groundwater in September 2013 when the PDB were retrieved ranged from 42.75 ft (EW-14D) to 101.80 ft (EW-11D) bgs. The inferred groundwater flow direction is to south-southeast. Overall, groundwater elevations (Table 1) and inferred groundwater flow direction based on groundwater elevation contours (Figure 2b) were generally consistent with previous data.

#### **3.2 Groundwater Sample Collection**

The groundwater samples from the third quarter 2013 monitoring event were collected utilizing passive diffusion bags (PDBs), inserted into the monitoring wells. PDBs were first utilized for sample collection during the May 2012 sample event. PDBs were placed at predetermined, fixed depths (Appendix A) on June 17 and 18, 2013 following the second quarter 2013 sampling event. On, September 23 and 24, 2013 HRP collected and sampled the PDBs. At the time of sample collection, the PDB bag is retrieved, pierced with a decontaminated item, and the water inside is collected in VOA vials with septum caps, preserved with HCl. The VOA vials are labeled, recorded on a chain of custody, and placed in a cooler with ice.

The samples were submitted to Test America Laboratory, of Edison, New Jersey, an NYSDOH ELAP approved laboratory, to be analyzed for VOCs via EPA Method 8260. A list of wells sampled and analytical results are presented in Table 2. Based on the historic analytical results of metals, groundwater sampling for metals was discontinued by the NYSDEC following the July 2011 sampling event.

#### **3.3 Groundwater Analytical Results**

To assess the status of groundwater quality at the Site and adjacent area which has monitoring wells, HRP compared collected analytical data from the September 2013 sampling event to historical conditions and to applicable

NYSDEC water quality criteria. Compounds detected above criteria during the September 2013 sampling event include tetrachloroethylene, trichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethylene, vinyl chloride, 1,1,1-trichloroethane, 1,2-dichloroethane, benzene, dichlorofluoromethane, and isopropylbenzene. See Table 2 for complete results. The measured VOC concentrations during this event are generally consistent with results from the previous sampling event results and from the step-draw down test evaluation, during which the extraction wells were shut off for a portion of the PDB contact time.

### **3.3.1 Comparison to Historical Groundwater Quality**

The attached charts (Chart 6a through Chart-6c) illustrate the historical concentration trends for PCE and/or TCE in three wells (EW-1a, EW-4c, SW-1). These wells were selected due to consistent elevated VOC analytical results and the presence of sufficient historical data. In all cases, the results continue to indicate a general downward trend in VOC concentrations.

### **3.3.2 Plume Evaluation**

An assessment of groundwater contamination distribution was conducted by creating contaminant isopleth charts depicting PCE and TCE concentrations versus time (Charts 6a through 6c). In addition, cross sections and plume footprint maps (Figures 3a and 3b) were generated for this sampling event. In general, a decreasing level of contamination was observed. Monitoring wells not associated with the Claremont Site monitoring program, but with the Former American Louvre site and the Old Bethpage Landfill site are represented on the map as these sites are located hydraulically upgradient from the Claremont Site.

#### PCE Contamination (Figure 3a)

PCE has historically been present above groundwater criteria in two zones of the sampling area for the site. Cross section A-A' east of the site shows an on-site migrating PCE plume with maximum observed concentrations of 5.8 ug/l at EW-7d. A separate plume appears to originate on-site, with maximum concentrations of 98 ug/l in SW-1 (Cross section C-C'). These plumes seem to be separate (Figure 3A, Cross Section Location cutout). Additional exceedances were noted in the southern portion of the study area, centered on wells BP-3b and BP-3c (190 ug/l).

#### TCE Contamination (Figure 3b)

TCE contamination is predominant to the east of the site building (Cross section A-A'), and is at its highest concentration (400 ug/l) in well EW-7c, upgradient of the site, and may extend to the southeast towards EW-14d (320 ug/l). This plume appears to be separate from an onsite generated plume (Cross section B-B'). The on-site generated plume has maximum

observed concentrations of 12 ug/l in SW-1 (Cross section C-C'). As with PCE contamination, additional exceedances were noted in the southern portion of the study area, centered on well BP-3c (19 ug/l).

#### **4.0 EXTRACTION WELL CONTAMINANT PROFILE AND MODIFICATION**

On December 5, 2012, the recovery pumps were removed from the extraction wells and a series of PDBs were deployed in each extraction well at several predetermined depths described below to evaluate the contributing zones of contamination in each extraction well. Previous to this sample event, the extraction wells had not been sampled utilizing PDBs, they were sampled in a single stream through the use of the extraction system utilizing the pumps. Prior to this data was used to optimize recovery pump placements and install packers to limit groundwater flow from clean screened intervals in the extraction wells.

Contaminated groundwater was observed in EXT-1 and EXT-2 in the shallowest samples, and throughout EXT-3. Packers were installed in EXT-1 and EXT-2 to concentrate groundwater removal to the impacted depths. Following installation of the packers, all three pumps were replaced, and system operation resumed. Step-draw down pumping tests were conducted on June 27, 2013 in each recovery well to optimize flow rates and ensure contaminant capture. The step-draw down test data recommended a 10% percentage reduction in order to reduce overall influent clean groundwater and limit capture from the up-gradient plume/source while maintaining the capture from contamination originating on-site from EX-1 and EX-2.

#### **5.0 CONCLUSIONS AND RECOMMENDATIONS**

##### **5.1 Conclusions**

HRP completed a groundwater monitoring event in September 2013 at the Claremont Polychemical Corporation site, in which groundwater samples from 44 wells were collected. Analysis of the data has resulted in the following conclusions:

- A groundwater plume of VOCs, primarily PCE originates from the south of the main site building;
- Based on the contamination noted in the upgradient monitoring wells, additional co-mingled plumes (potentially former American Louvre site, Old Bethpage Landfill, Trilite Site, and/or the Fireman's Training Center) migrate into the study area, and are marked by TCE predominance. The upgradient wells and southeastern wells are out of the radius of influence of the remediation system;
- Some or all of the TCE plume originating northeast of the site is not being captured by the current treatment system;
- Two plumes identified southeast of the site may be related to the northernmost plume, although based on the current monitoring network, data gaps between the plumes exist;

- Since the reduction in the flow rate to EXT-1 and EXT-2 and retrofit of the packers, the rate of contamination has been consistent with past sampling rounds, and has slightly increased from historic removal rates as shown on Chart 5;
- The results from the third quarter 2013 groundwater sampling event showed compounds detected above criteria during the September 2013 sampling event include tetrachloroethylene, trichloroethylene, cis-1,2-dichloroethylene, 1,1-dichloroethylene, vinyl chloride, 1,1,1-trichloroethane, 1,2-dichloroethane, benzene, dichlorofluoromethane, and isopropylbenzene; and
- Data gaps reported in the 2012 RSO have been confirmed. Additional subsurface data information is needed to evaluate potential source areas in the southern and eastern portions of the site and their contributions to shallow groundwater contamination observed in EXT-2 and EXT-3.

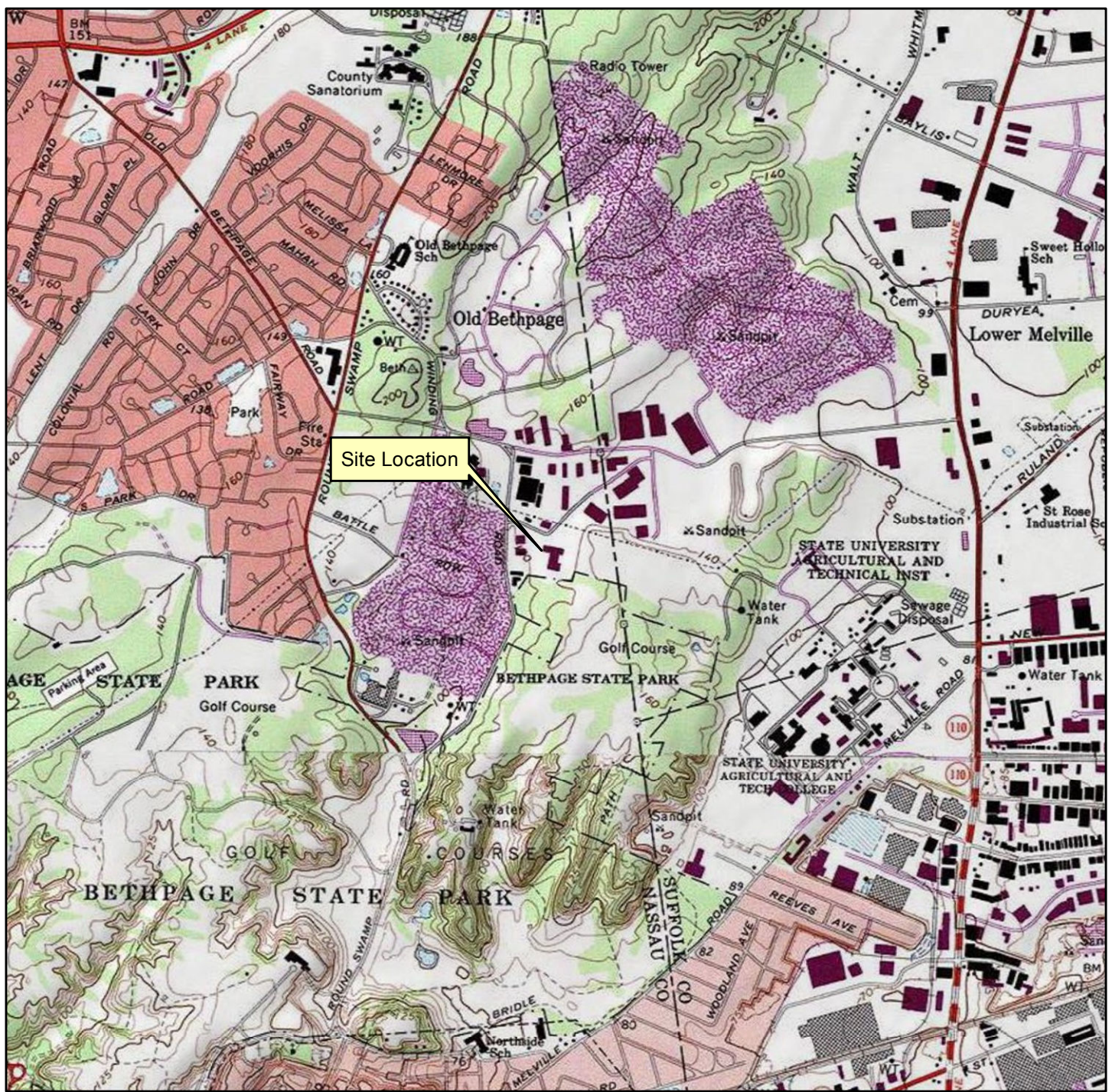
## 5.2 **Recommendations**

Based on analysis of data collected during this and historical events, HRP has the following recommendations for the Claremont Polychemical Corporation site:

- Resample the groundwater in the three extraction wells in December 2013 to observe any contamination concentrations changes due to remediation system adjustments or plume migration as compared to the past analytical results;
- Continued quarterly VOC monitoring of 41 observation wells using PDBs;
- Investigation of soils in the southern and eastern portions of the site to evaluate shallow groundwater impact observed in EXT-2 and EXT-3, and
- Additional investigation to identify the source and connectivity of the plumes or elevated concentrations identified in the MW-10 well cluster, the BP-3 well cluster and specifically at EW-14D (Figure 3d).



## FIGURES



USGS Quadrangle Information  
 Quad ID: 40073-G4  
 Name: Huntington, New York  
 Date Rev: 1977  
 Date Pub: 1979

0 1,000 2,000 4,000 6,000 8,000 Feet  
 1 inch = 2,000 feet



**Figure 1**  
**Site Location**  
**Claremont Polychemical Corporation**  
**Old Bethpage, New York**  
**HRP # NEW9625.OM**  
**Site Code 130015**  
**Scale 1" = 2,000'**

**HRP Associates, Inc.**  
 Environmental/Civil Engineering & Hydrogeology  
 Creating the Right Solutions Together  
 Offices in CT, SC, NY, FL, MA, TX and PA  
 197 Scott Swamp Road  
 Farmington, Connecticut 06032  
 Ph: (860) 674-9570 Fax: (860) 674-9624  
[www.hrpassociates.com](http://www.hrpassociates.com)





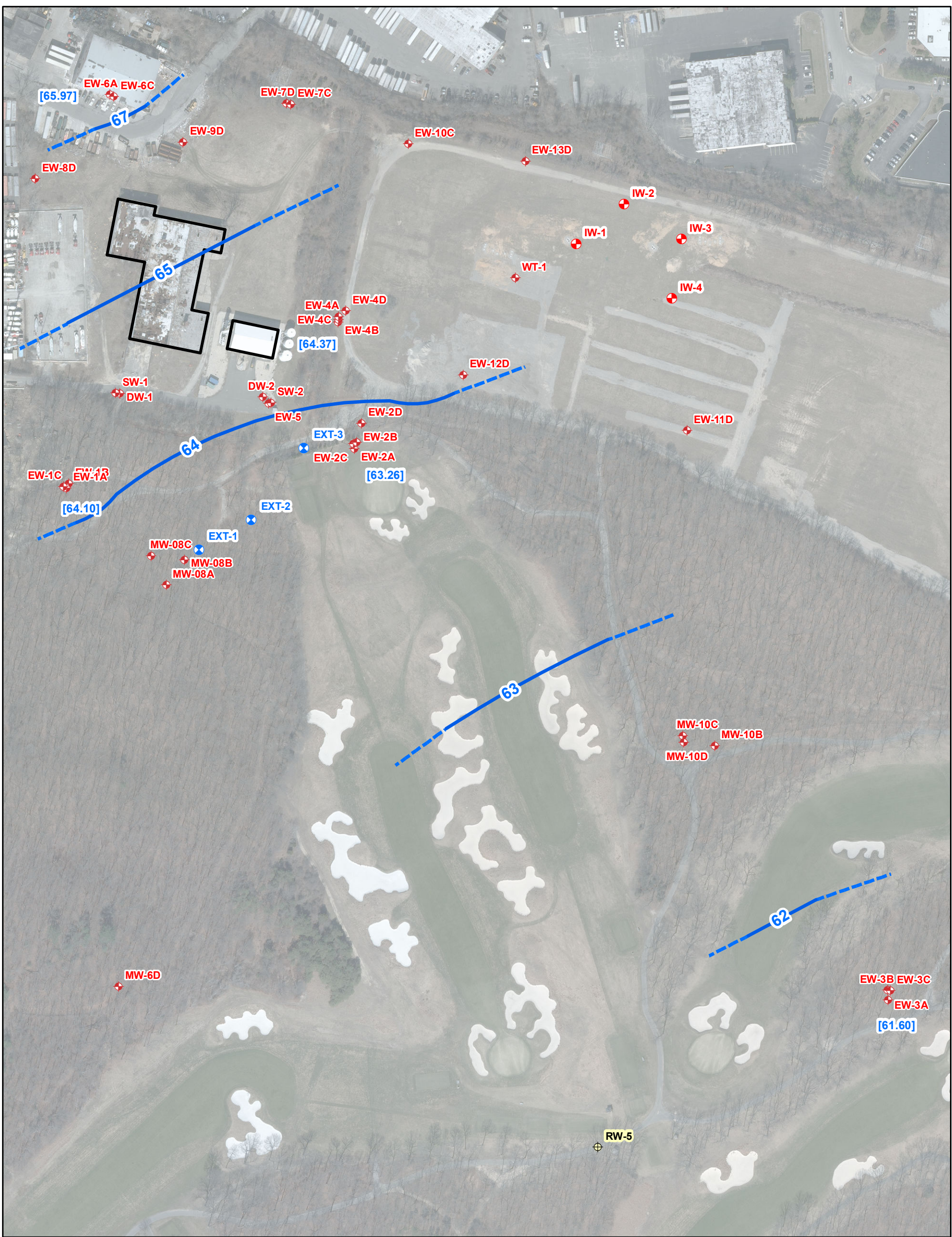
**Figure 2a - Monitor Well Network**  
**Claremont Polychemical Corporation**  
**Old Bethpage, New York**  
**HRP # NEW9625.OM - Site Code 130015**  
**Scale 1" = 300'**

- Legend**
- Monitoring Well
  - Extraction Well
  - Injection Well
  - Oyster Bay Extraction Well
  - Site Buildings

300 150 0 300  
Feet  
**1 inch = 300 feet**


**HRP** Associates, Inc.  
dba HRP Engineering P.C.  
Environmental/Civil Engineering & Hydrogeology  
Creating the Right Solutions Together  
Offices in CT, SC, NY, FL, MA and TX  
197 Scott Swamp Road  
Farmington, Connecticut 06032  
Ph: (860) 674-9570 Fax: (860) 674-9624  
[www.hrpassociates.com](http://www.hrpassociates.com)





**Figure 2b**  
**Shallow Groundwater**  
**Elevation Contours**  
**September 2013**  
**Claremont Polychemical Corporation**  
**Old Bethpage, New York**  
**HRP # NEW9625.OM**  
**Site Code 130015**  
**Scale 1" = 200'**

### Legend

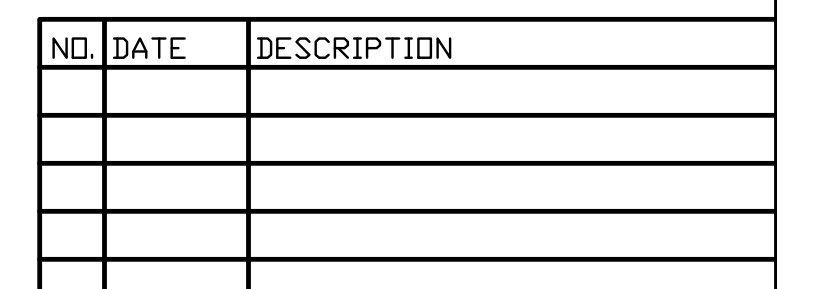
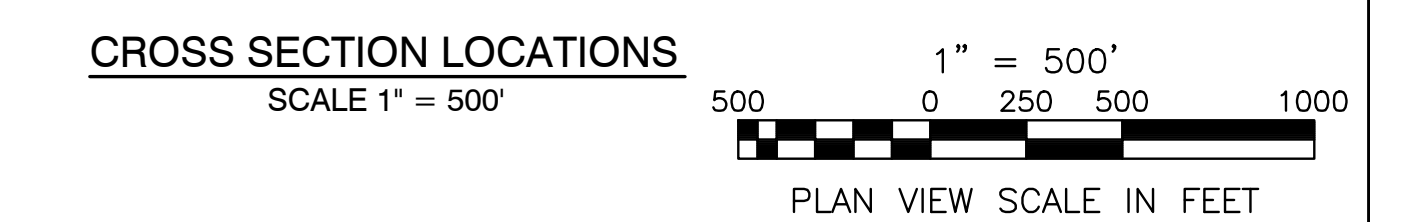
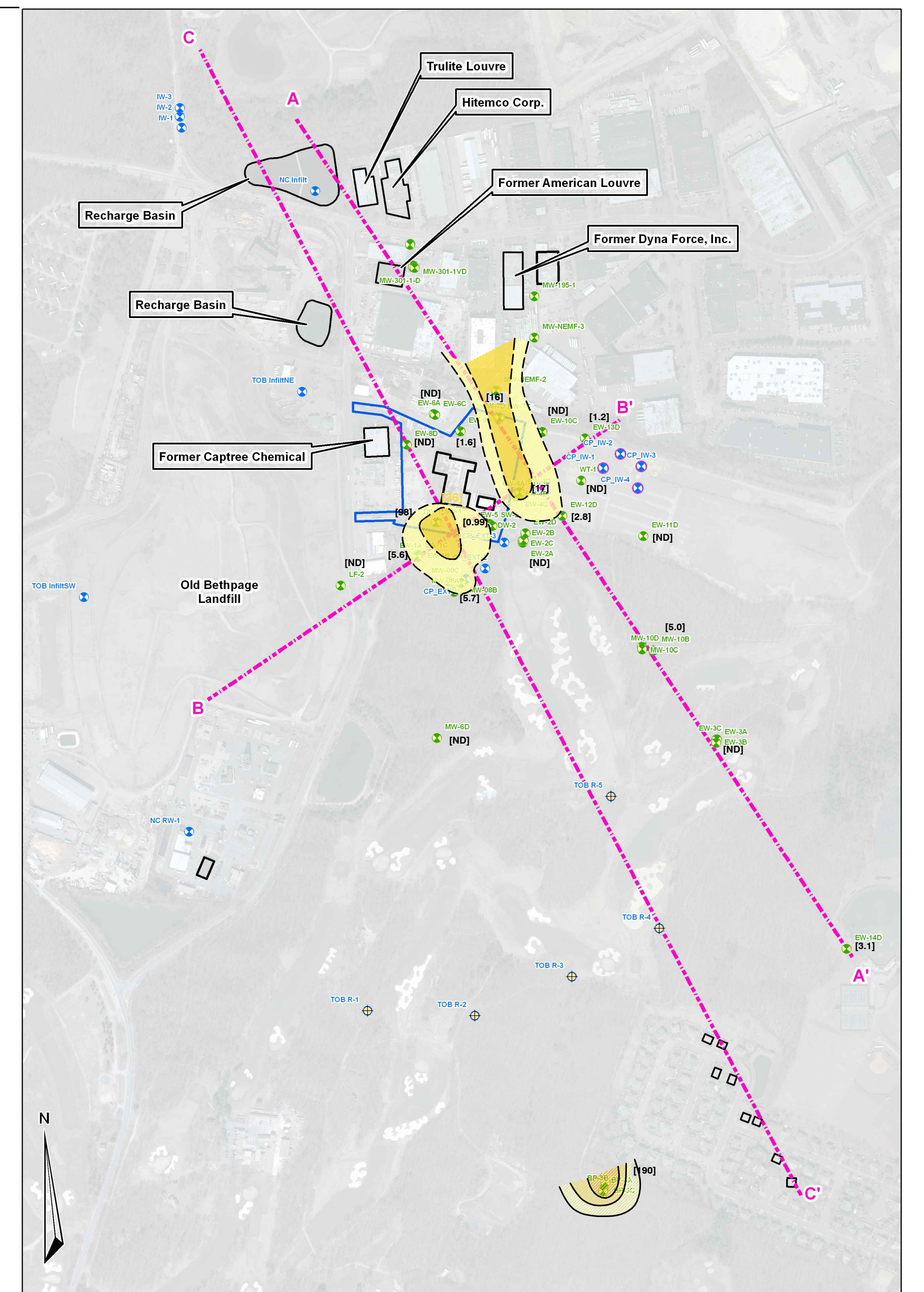
-  Monitoring Well
-  Extraction Well
-  Injection Well
-  Oyster Bay Extraction Well
-  September 2013 Groundwater

Note: Contours dashed where inferred.

200 100 0 200 400  
Feet  
1 inch = 200 feet

**HRP** Associates, Inc.  
dba HRP Engineering P.C.  
Environmental/Civil Engineering & Hydrogeology  
Creating the Right Solutions Together  
Offices in CT, SC, NY, FL, MA, TX and PA  
197 Scott Swamp Road  
Farmington, Connecticut 06032  
Ph: (860)674-9570 Fax: (860)674-9624  
[www.hrpassociates.com](http://www.hrpassociates.com)



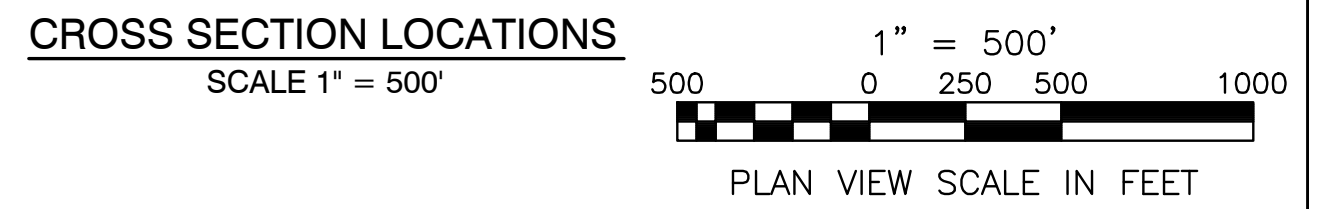
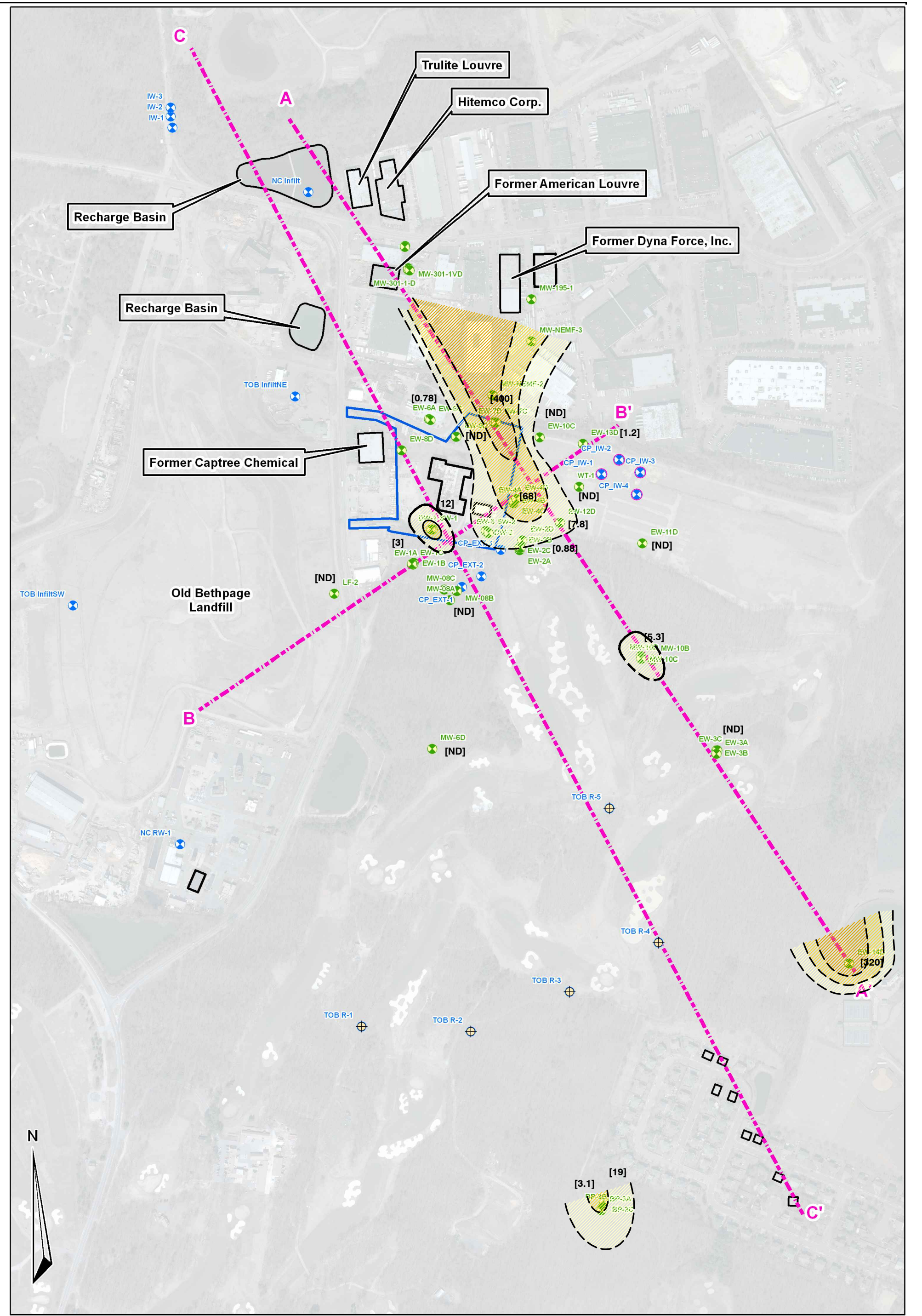
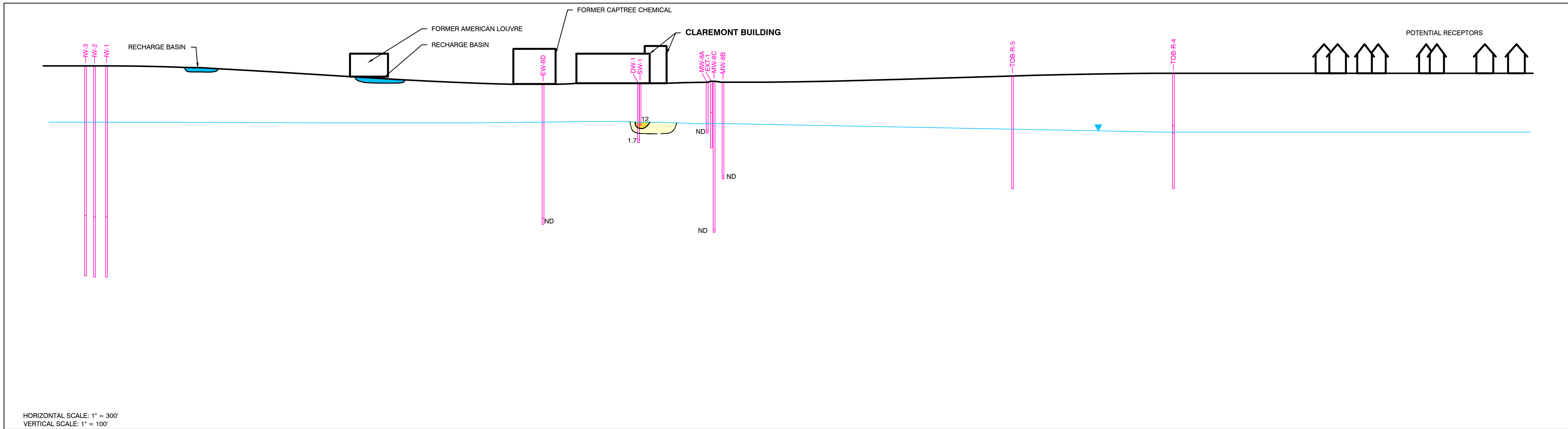
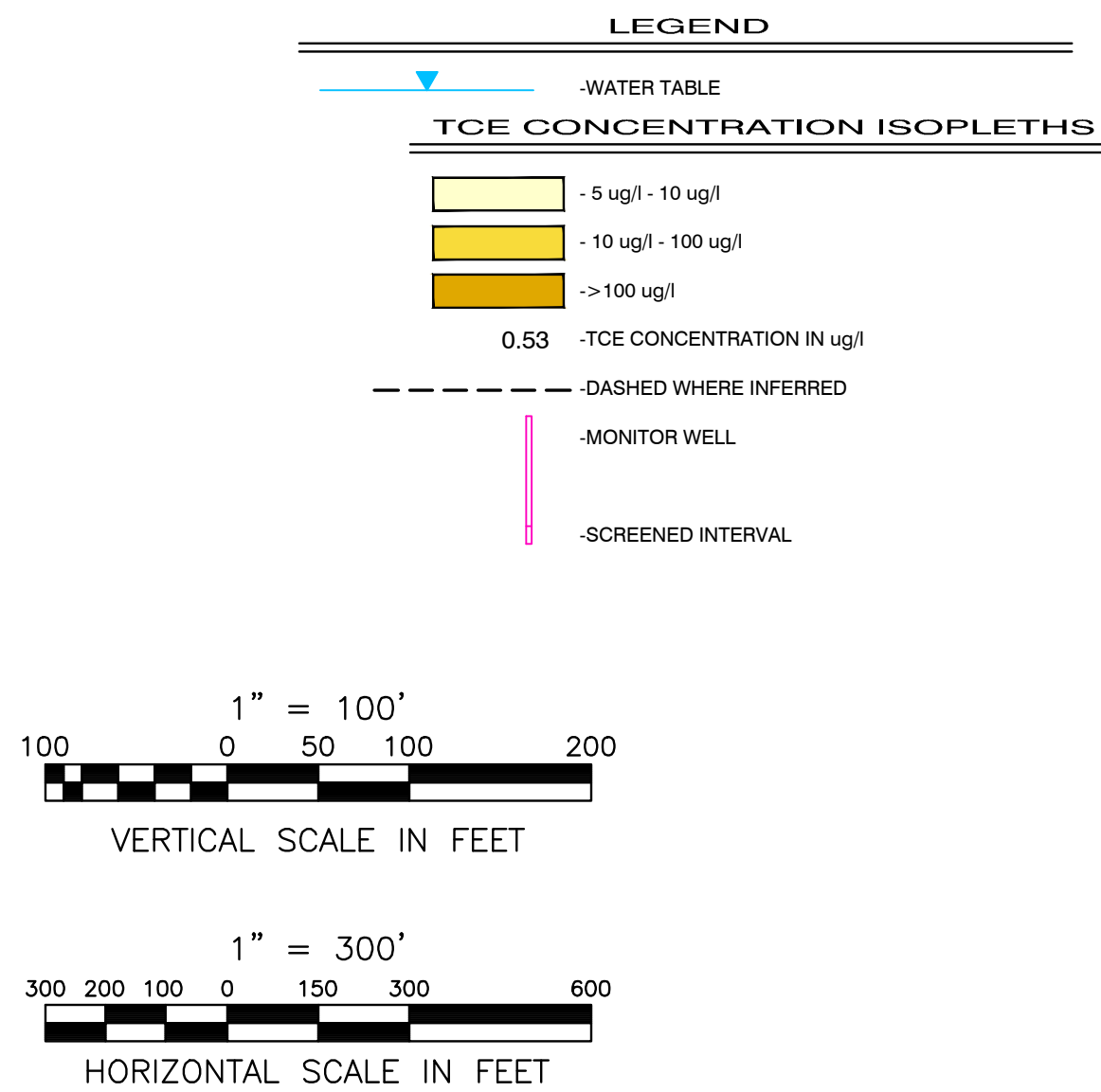
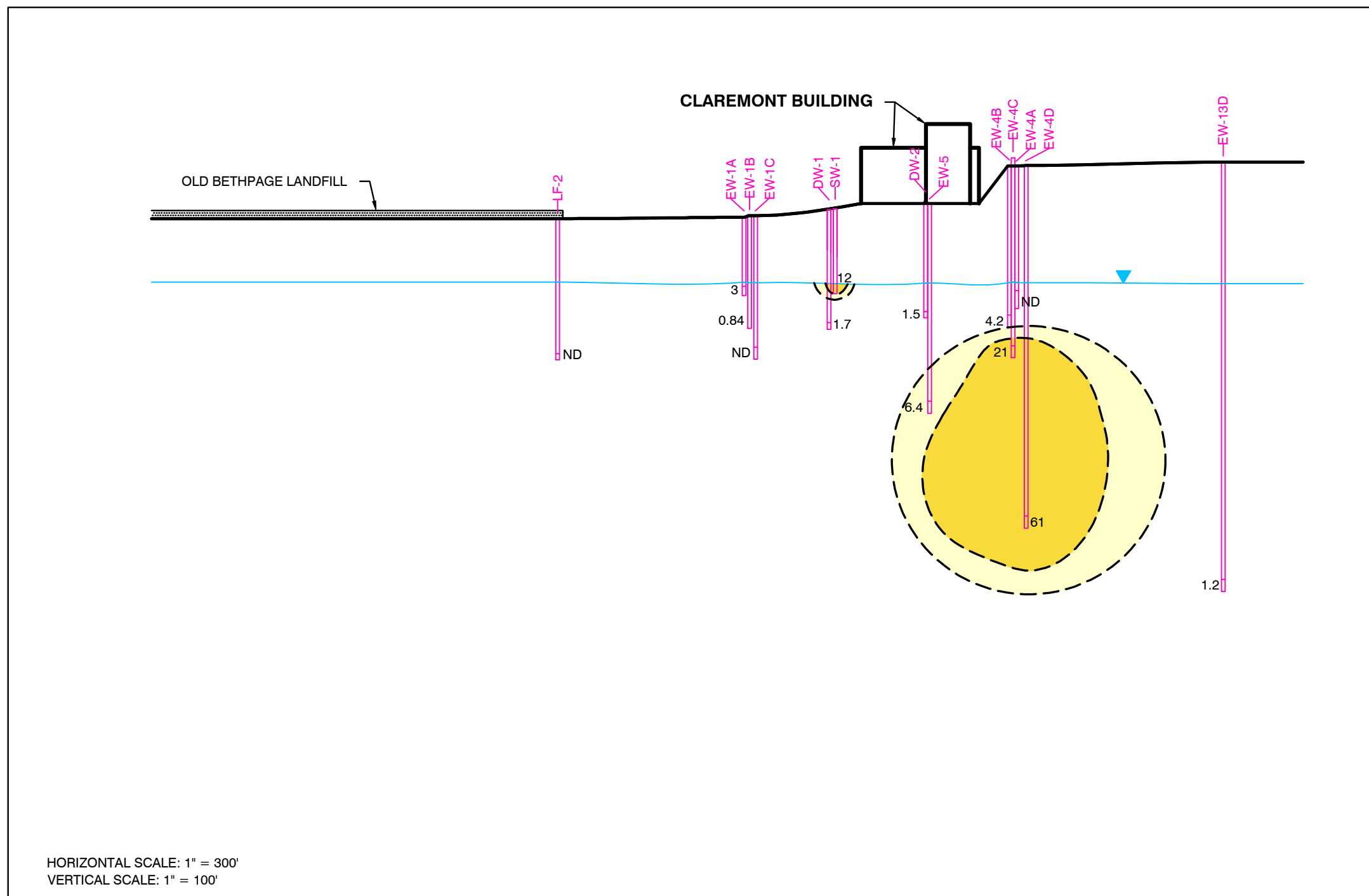
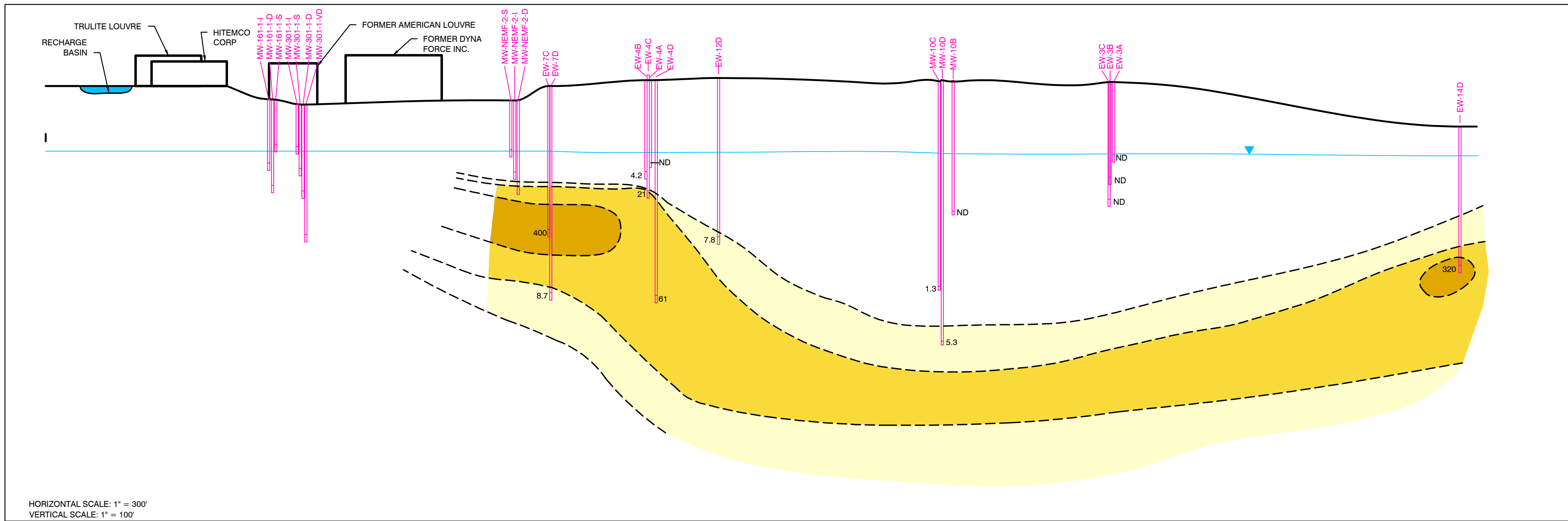


CLAREMONT POLYCHEMICAL CORP.  
OLD BETHPAGE, NEW YORK

C. gy er A	JMP DESIGNED	BPW APPROVED	AS NOTED SCALE
	DML DRAWN	10/21/2013 DATE	FIG.  SHEET NO.
	GTS CHECKED	NEW9625.OM PROJECT NO.	

FIG. 3A





NO.	DATE	DESCRIPTION

TCE CONTAMINATION - SEPTEMBER 2013

CLAREMONT POLYCHEMICAL CORP.  
OLD BETHPAGE, NEW YORK

<b>HRP</b> Associates, Inc. <small>dba HRP Engineering P.C.</small> Environmental/Civil Engineering & Hydrogeology Creating the Right Solutions Together Offices in CT, SC, NY, FL, MA, TX and PA 197 Scott Swamp Road Farmington, Connecticut 06032 Ph: (860) 674-9570 Fax: (860) 674-9624 <a href="http://www.hrpassociates.com">www.hrpassociates.com</a>	JMP DESIGNED	BPW APPROVED	AS NOTED SCALE
	DML DRAWN	DATE	10/21/2013
	GTS CHECKED	NEW9625.OM PROJECT NO.	FIG. 3B SHEET NO.



## TABLES

Table 1: Groundwater Elevations  
Claremont Polychemical Superfund Site  
September 2013 (3Q13) Groundwater Sampling Event  
Old Bethpage, NY  
HRP#NEW9625.OM  
Site Code: 130015  
WA# D006130-19

Well ID	Measurement Date	Depth to Water Below Ref El <sup>b</sup> (ft)	Water Elevation (ft AMSL)
EW-1A	20-Sep-13	65.90	64.10
EW-1B	20-Sep-13	66.46	64.07
EW-1C	20-Sep-13	66.29	64.15
EW-2A	20-Sep-13	94.10	63.26
EW-2B	20-Sep-13	94.20	63.53
EW-2C	20-Sep-13	94.32	63.34
EW-2D	20-Sep-13	94.42	63.82
EW-3A	20-Sep-13	97.35	61.60
EW-3B	20-Sep-13	97.65	61.44
EW-3C	20-Sep-13	97.54	61.41
EW-4A	20-Sep-13	97.41	64.37
EW-4B	20-Sep-13	97.49	64.31
EW-4C	20-Sep-13	97.25	64.29
EW-4D	20-Sep-13	97.52	64.25
EW-5	20-Sep-13	72.30	64.68
EW-6A	20-Sep-13	64.35	65.97
EW-6B	abandoned		
EW-6C	20-Sep-13	64.99	65.41
EW-7C	20-Sep-13	88.55	65.24
EW-7D	20-Sep-13	88.50	65.21
EW-8D	20-Sep-13	66.45	65.09
EW-9D	20-Sep-13	72.47	65.06
EW-10C	20-Sep-13	66.45	94.49
EW-11D	20-Sep-13	101.80	63.53
EW-12D	20-Sep-13	100.58	63.84
EW-13D	20-Sep-13	100.68	64.05
EW-14D	20-Sep-13	42.75	59.38
SW-2	dry		
DW-2	20-Sep-13	73.20	63.22
SW-1	20-Sep-13	67.28	64.21
DW-1	20-Sep-13	67.07	64.31
LF-02	20-Sep-13	53.98	64.72
PPW-1	Permanently closed Oct. 2008		
WT-01	20-Sep-13	99.85	64.72
MW-6D	20-Sep-13	97.12	63.27
MW-8A	20-Sep-13	71.85	61.33
MW-8B	20-Sep-13	70.87	63.37
MW-8C	20-Sep-13	70.90	64.82
MW-10B	20-Sep-13	98.45	62.67
MW-10C	20-Sep-13	97.65	62.62
MW-10D	20-Sep-13	98.75	62.42
BP-3A	20-Sep-13	63.05	61.49
BP-3B	20-Sep-13	66.13	57.44
BP-3C	20-Sep-13	66.36	57.32
RW-01	abandoned		



September 2013 (3Q13) Sampling Event  
Claremont Polychemical Superfund Site  
Old Bethpage, NY  
Groundwater Samples - Analyzed for VOCs 8260C  
HRP#NEW9625.OM  
Site Code: 130015  
WA# D006130-19

[illegible]

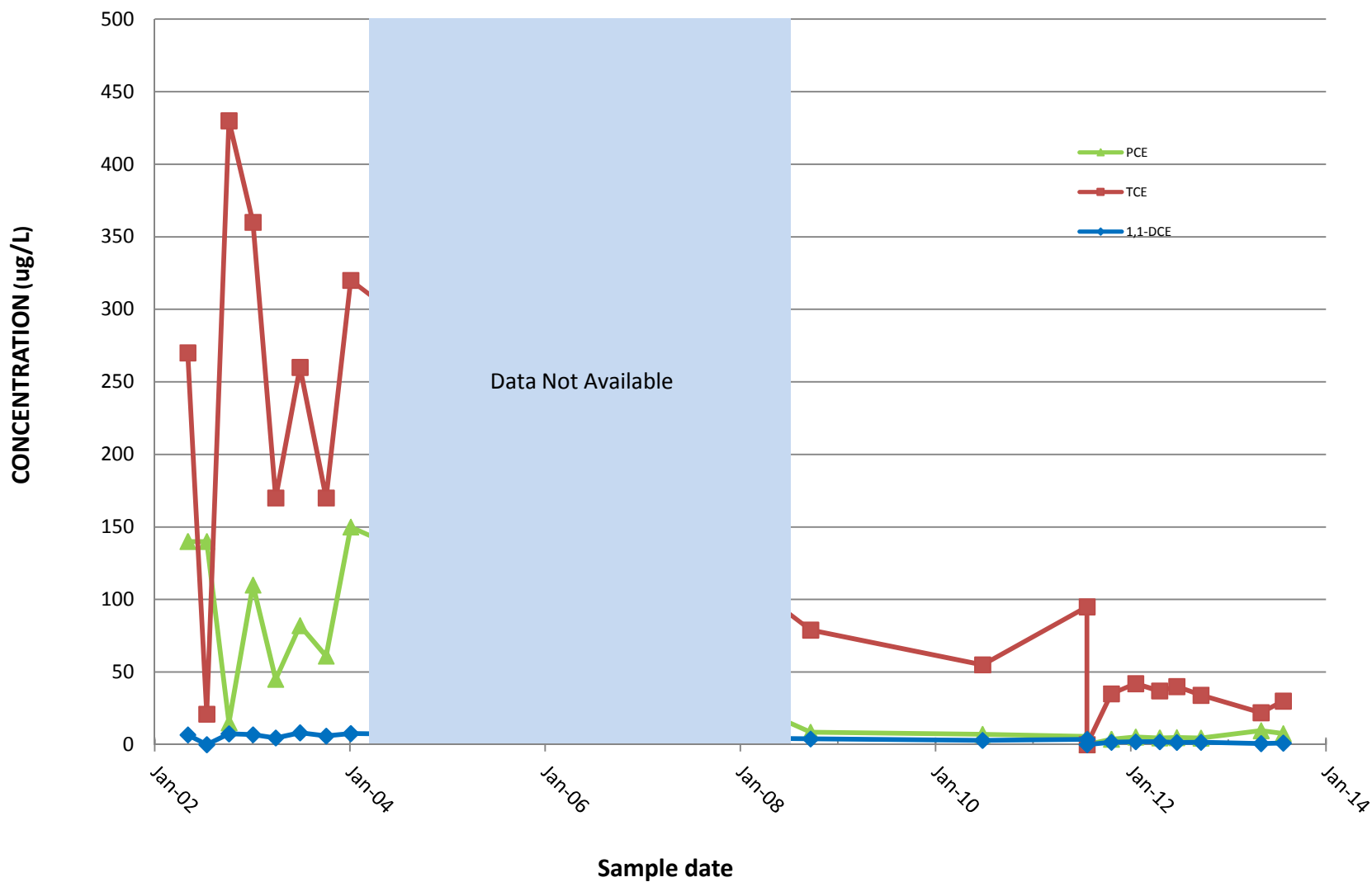
NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

<b>Bold and Shaded</b>	- Sample Exceeds NYSDEC Class GA Criteria
<b>Bold</b>	- Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
<b>( )</b>	- Indicates the stated minimum detectable level exceeds a criteria.
MW	- Monitor Well
ug/l	-micrograms per liter
VOCs	-Volatile Organic Compounds
J	- an estimated concentration

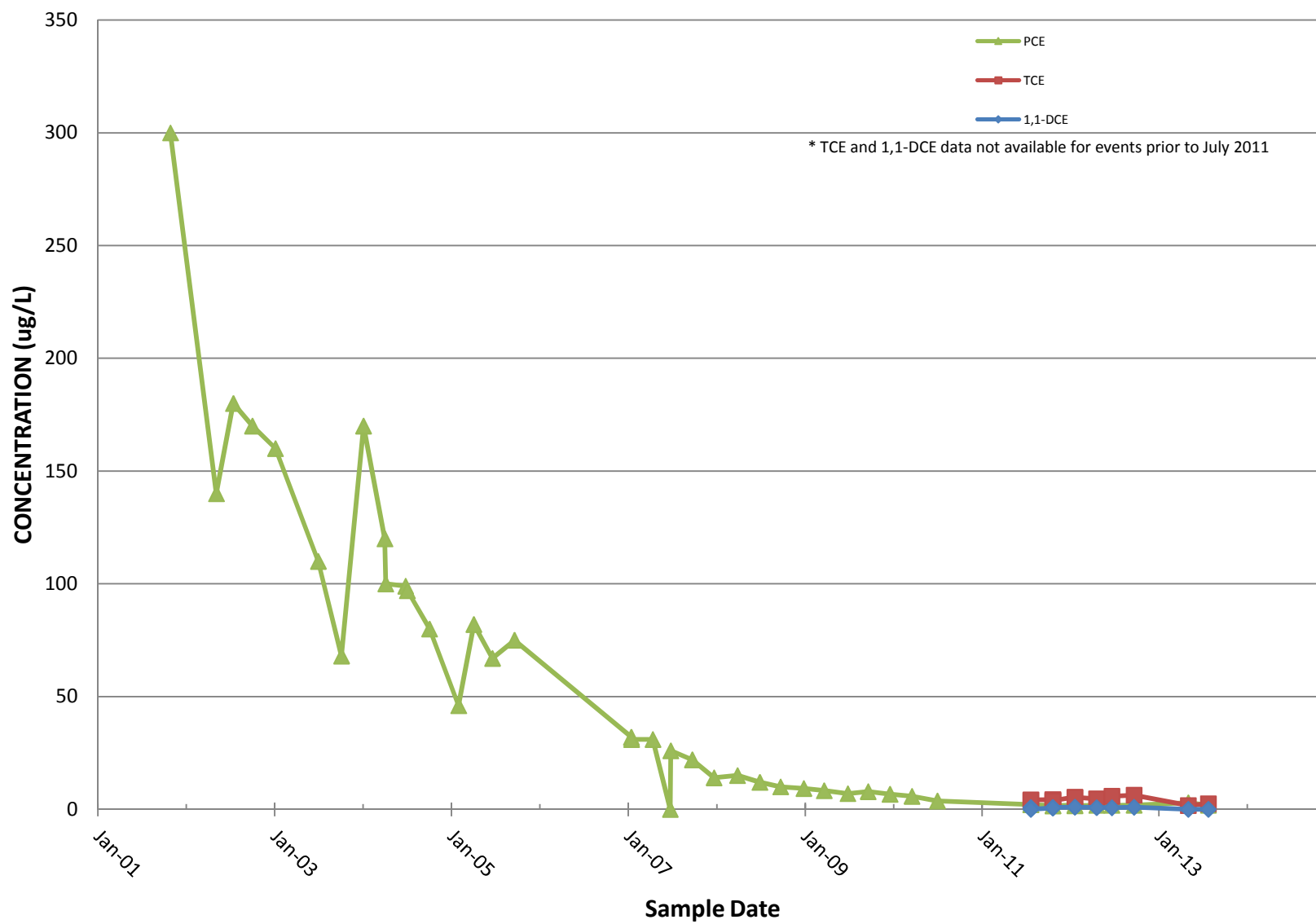
## CHARTS

# Chart 1: Groundwater Influent Concentration (PCE, TCE, and 1,1-DCE) vs. Time

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19

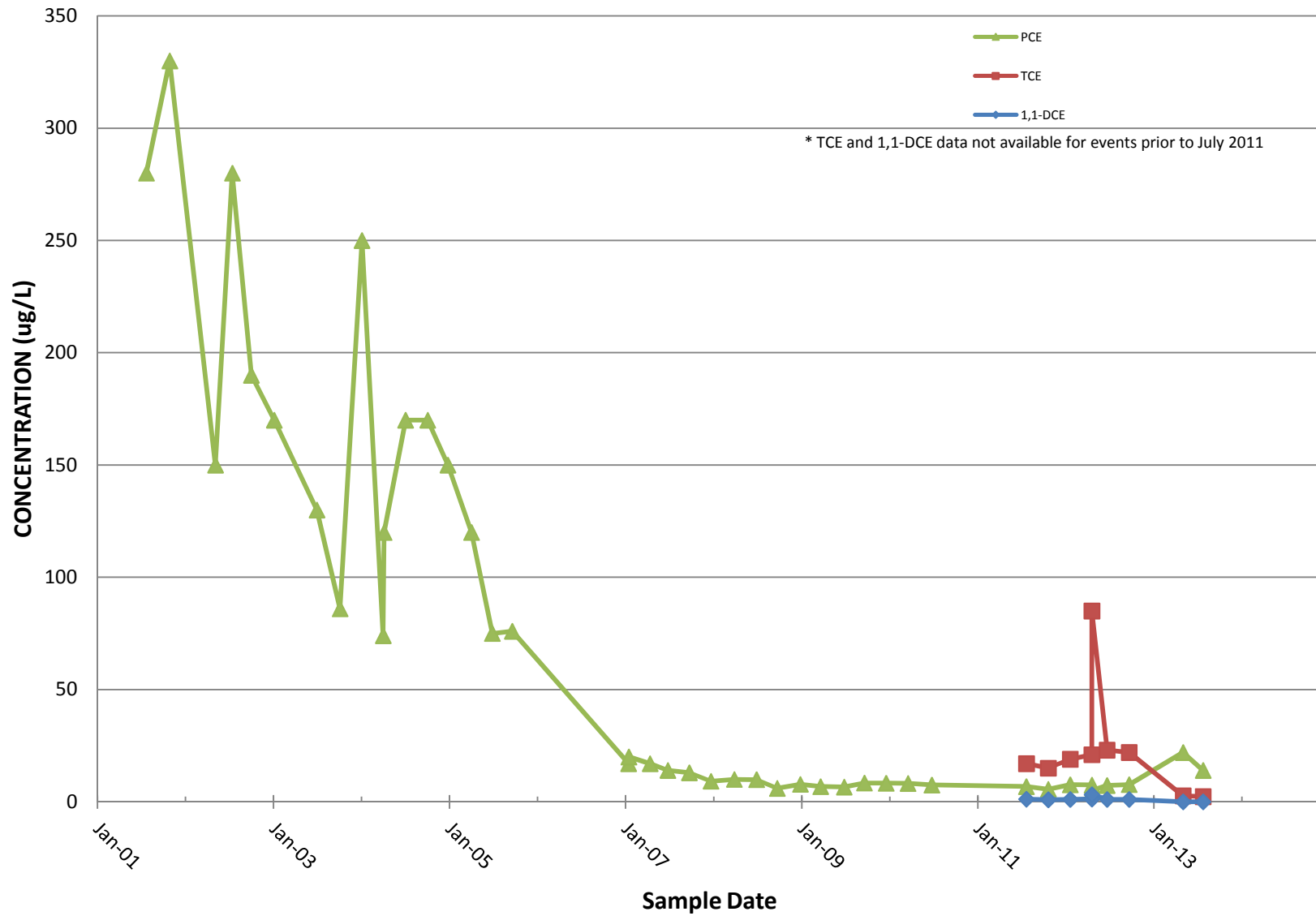


September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



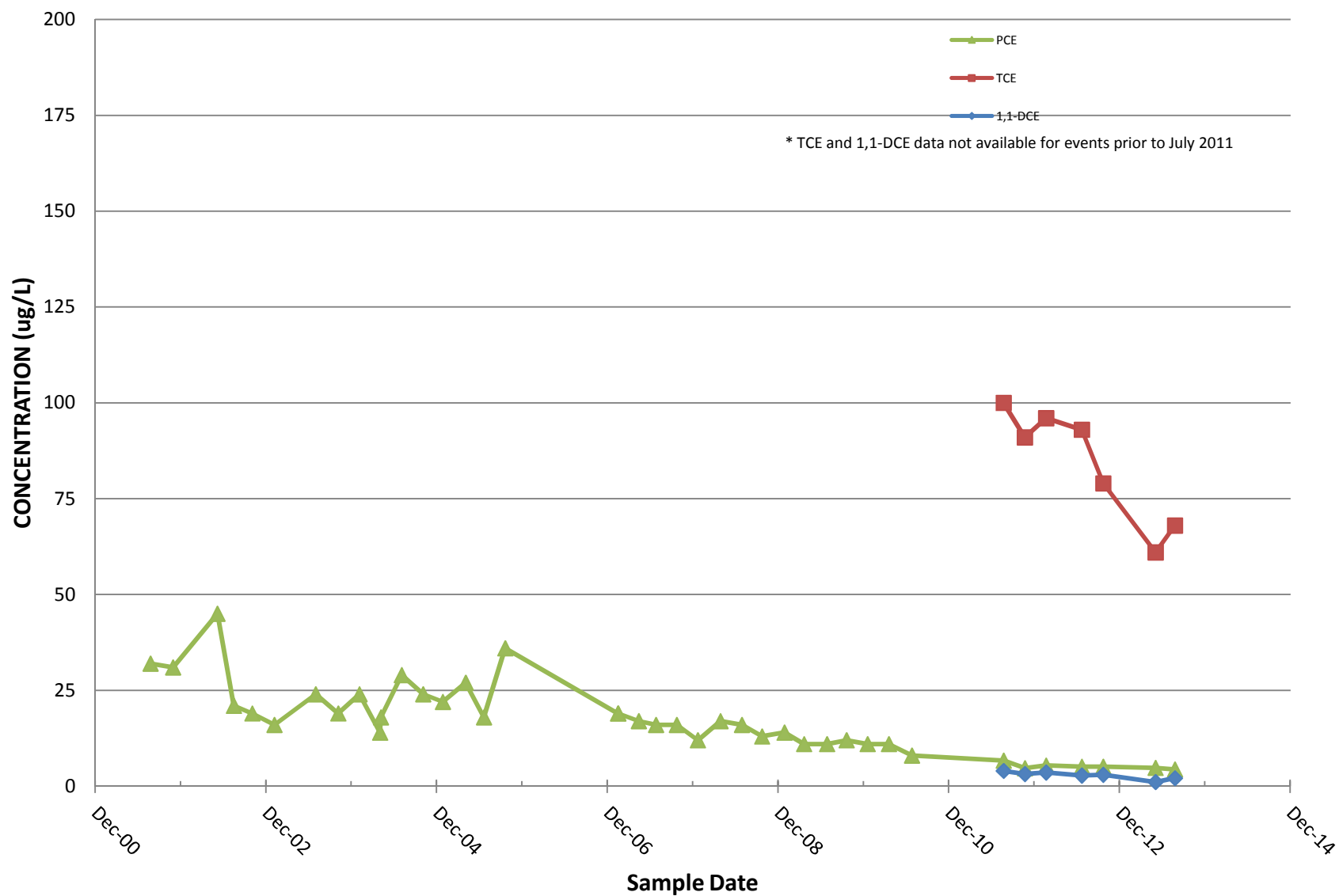
## Chart 1b: EXT-2 Concentration (PCE, TCE, 1,1-DCE) vs Time

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



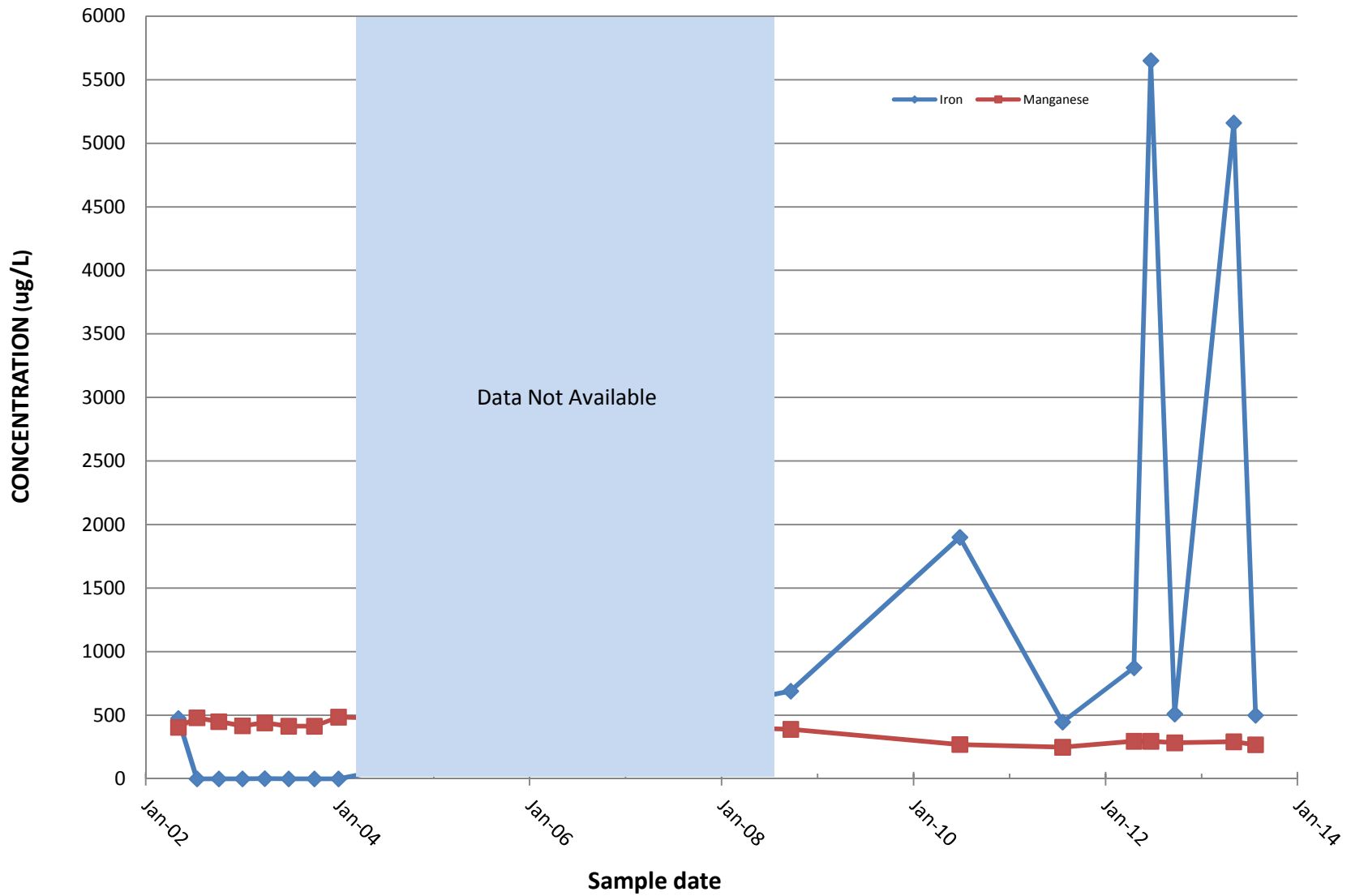
# Chart 1c: EXT-3 Concentration (PCE, TCE, 1,1-DCE) vs Time

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



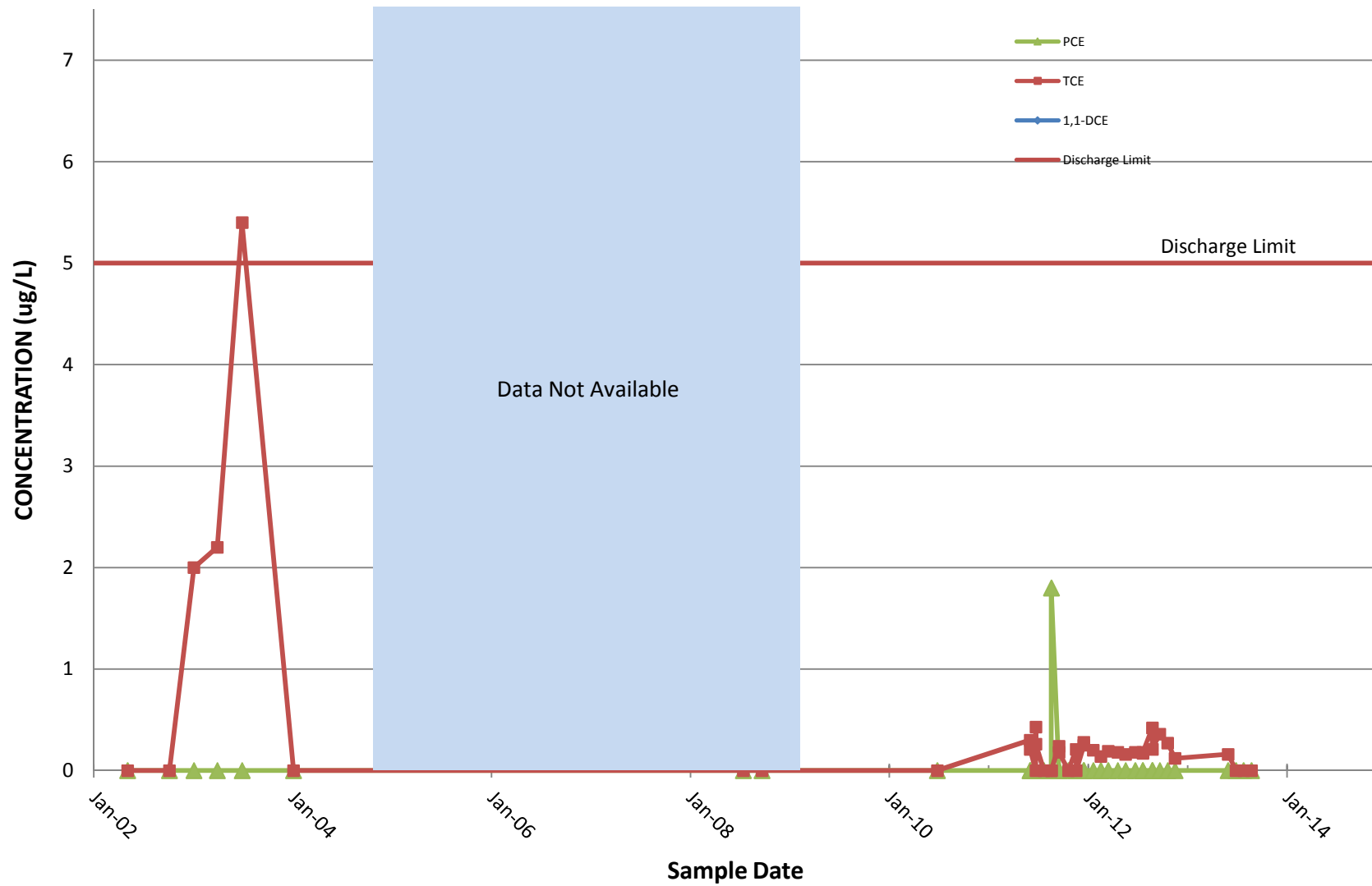
## Chart 2: Groundwater Influent Concentration (Iron and Manganese) vs. Time

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



### Chart 3: Treated Effluent Concentration (PCE, TCE, 1,1-DCE) vs Time

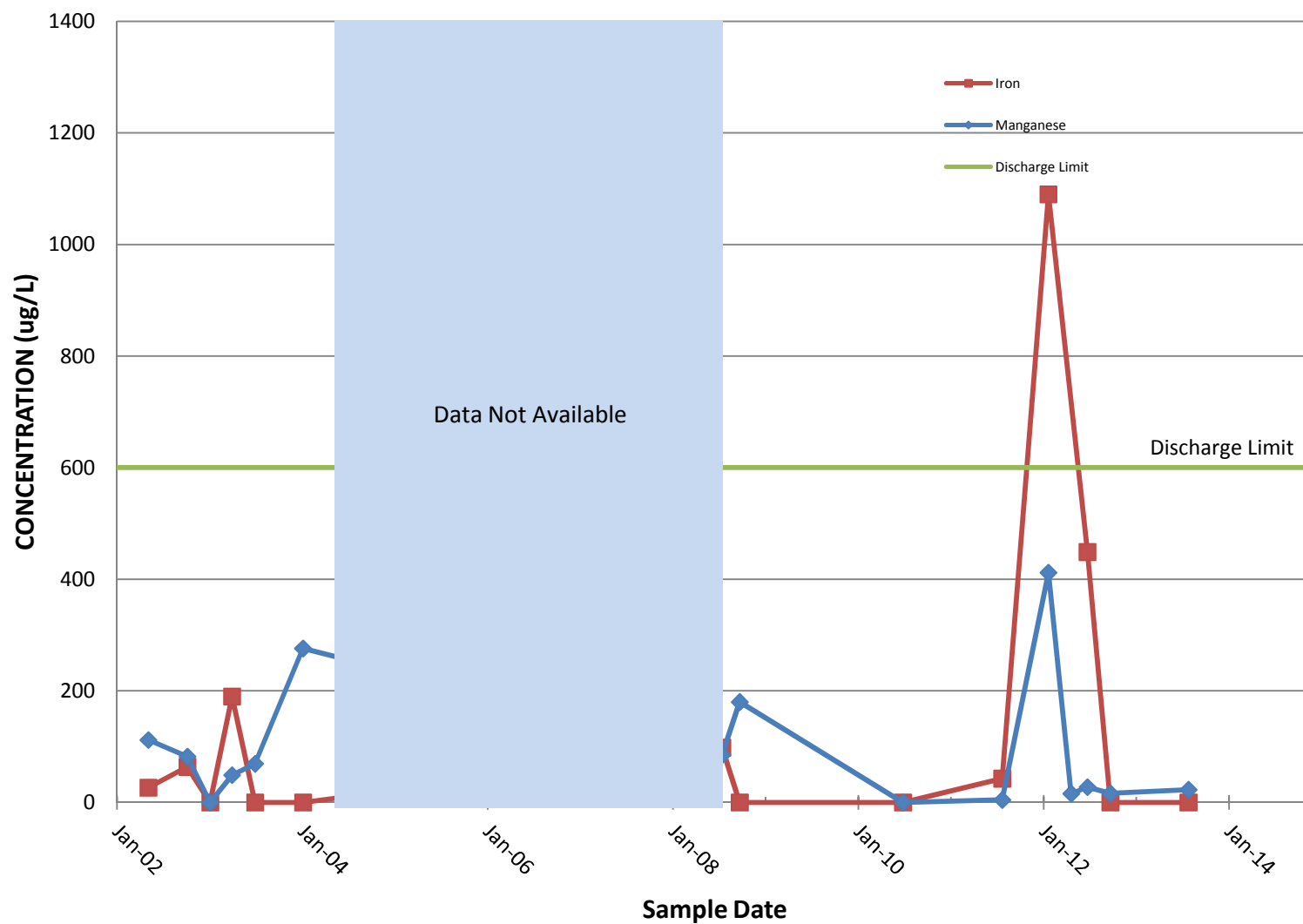
September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19





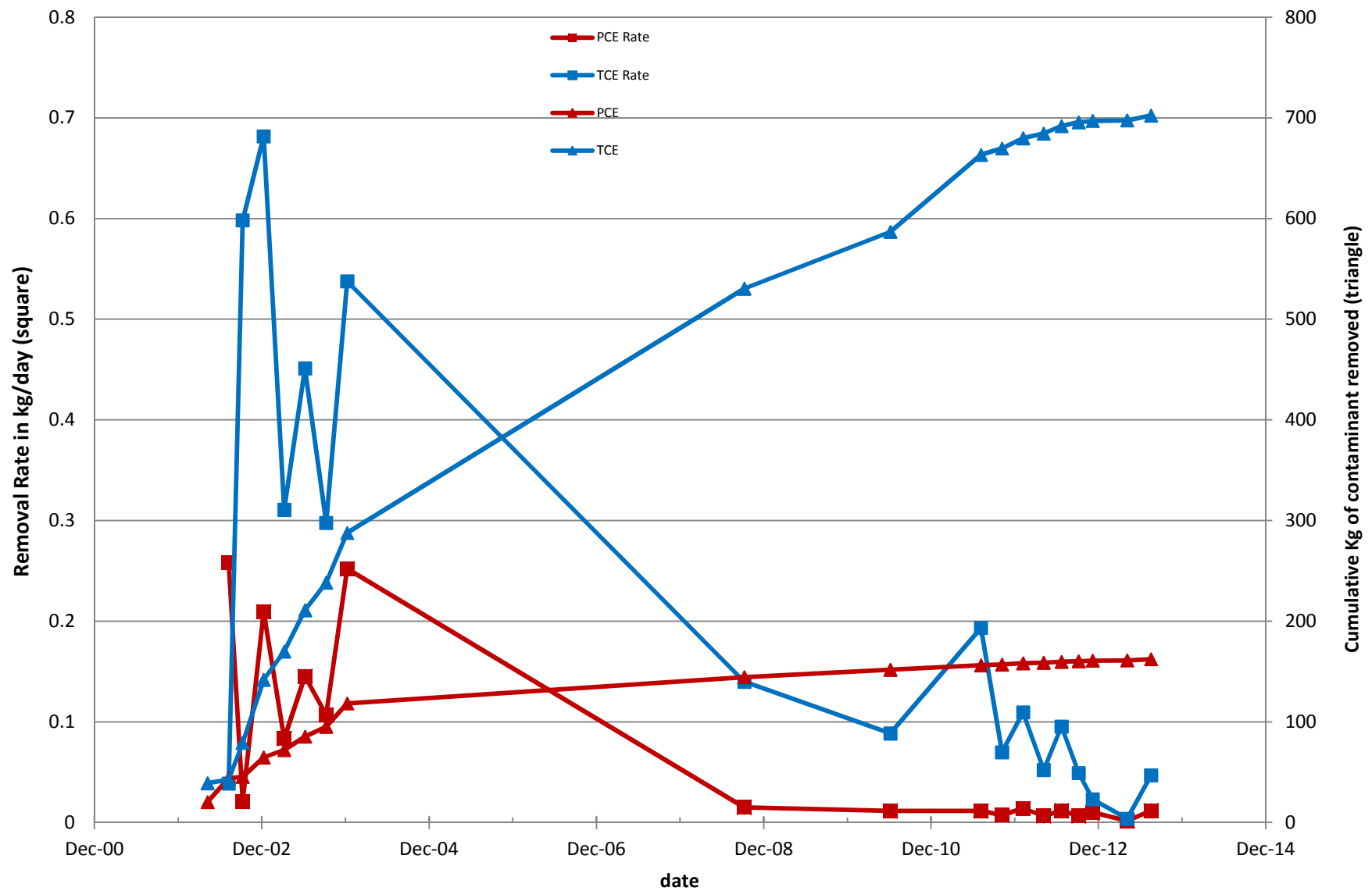
## Chart 4: Treated System Effluent Concentration (Iron and Manganese) vs Time

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



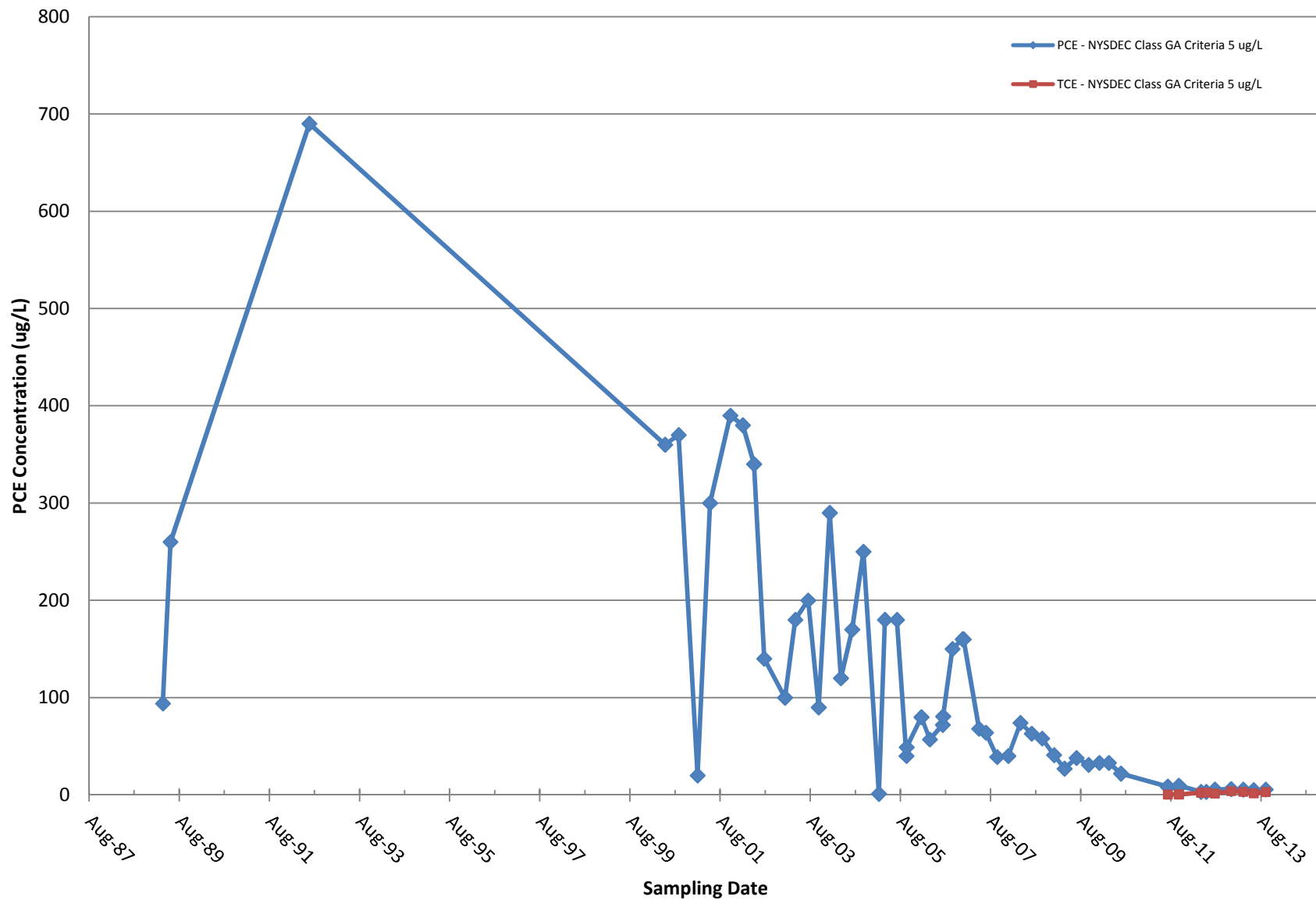
## Chart 5: VOC Removal vs Time (PCE, TCE)

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



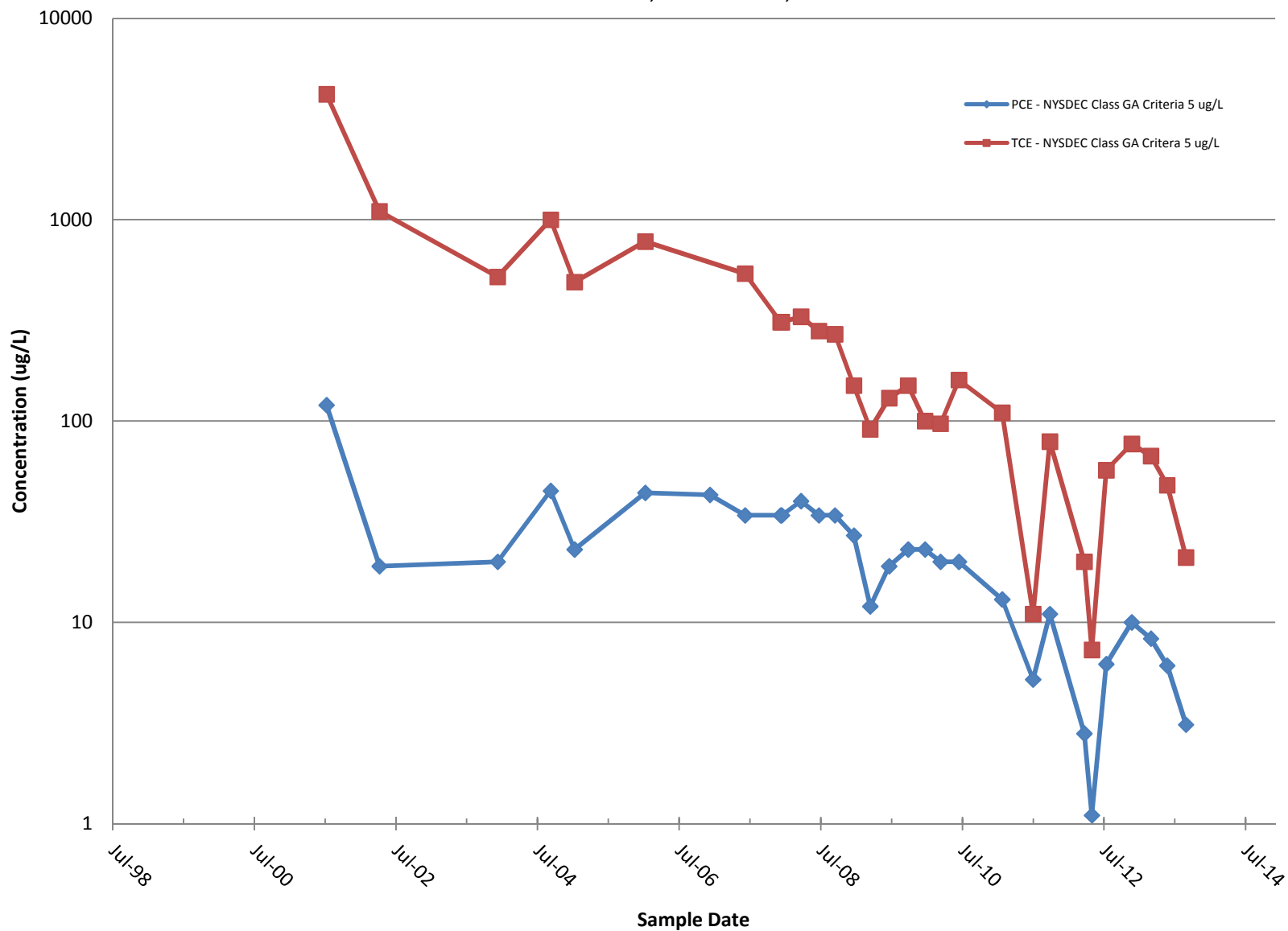
## Chart 6a - PCE and TCE Concentrations In EW-1a

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



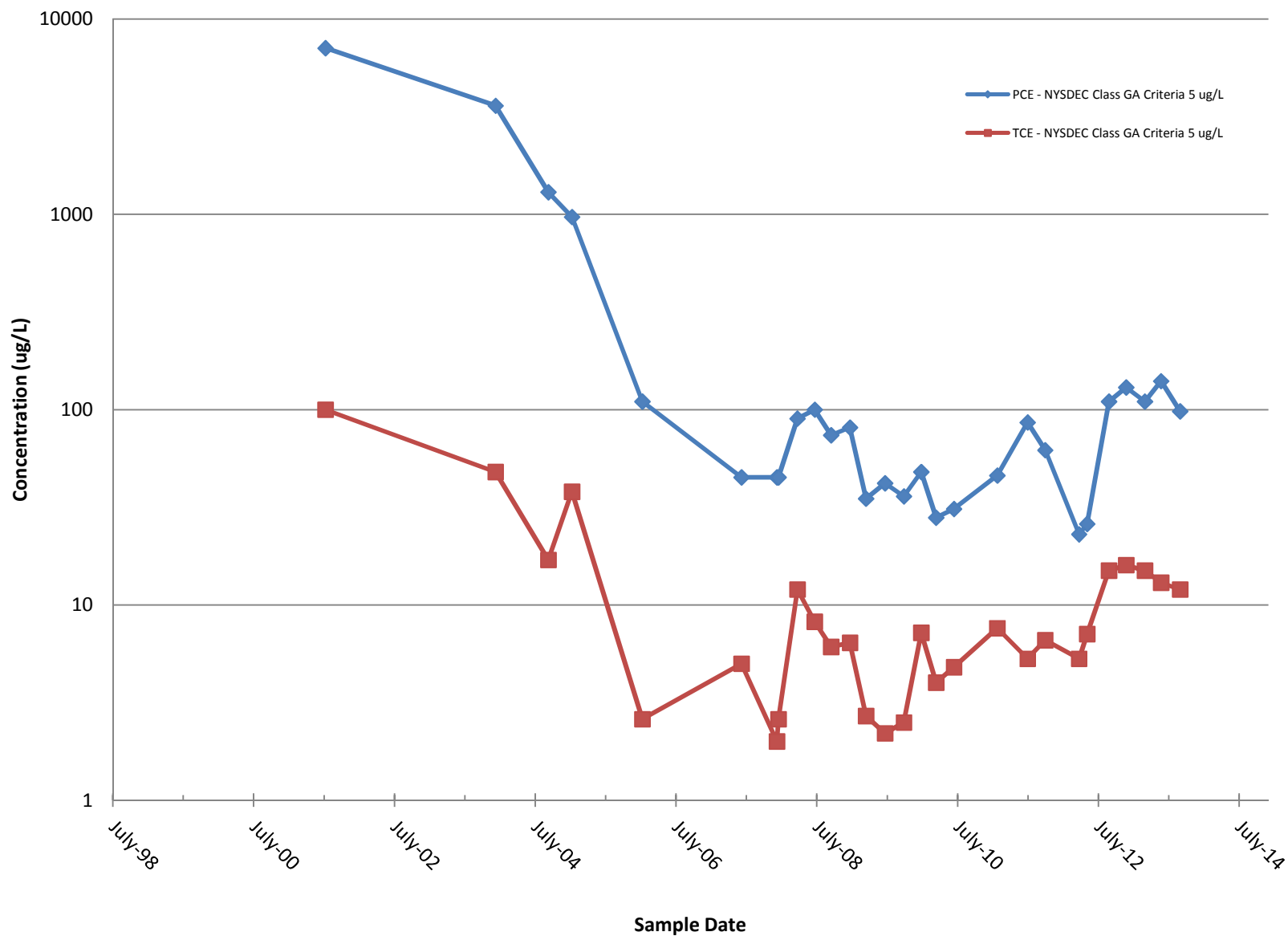
## Chart 6b - PCE and TCE Concentrations in EW-4c

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



## Chart 6c - PCE and TCE Concentrations in SW-1

September 2013 Sampling Event, Claremont Polychemical Superfund Site, Old Bethpage, NY  
HRP#NEW9625.OM, Site Code: 130015, WA# D006130-19



**APPENDIX A**  
**Groundwater Sample Log**

**Water Level Data Sheet**

Claremont Polychemical GWTS

Old Bethpage, NY

**Date:** Friday September 20, 2013**Recorded By:** Jackson, Takach

Well ID	Time	DTW	PID	Comments
BP-3A	11:38	63.05	0	
BP-3B	11:39	66.13	0	
BP-3C	11:40	66.36	0	
DW-1	9:33	67.07	0	
DW-2	9:22	73.20	0	
EW-1A	9:05	65.90	0	
EW-1B	9:06	66.46	0	
EW-1C	9:07	66.29	0	
EW-2A	7:02	94.10		
EW-2B	7:03	94.20		
EW-2C	7:04	94.32		
EW-2D	7:05	94.42		
EW-3A	14:15	97.35	0	
EW-3B	7:14	97.65	0	
EW-3C	7:15	97.54	0	
EW-4A	8:20	97.41	0	
EW-4B	8:21	97.49	0	
EW-4C	8:22	97.25	0	
EW-4D	8:23	97.52	0	
EW-5	9:23	72.30	0	
EW-6A	10:24	64.35	0	
EW-6C	10:25	64.99	0	
EW-7C	14:25	88.55		
EW-7D	14:30	88.50		
EW-8D	10:14	66.45	0	
EW-9D	10:34	72.47	0	
EW-10C	8:02	95.52	0	
EW-11D	7:53	101.80	0	
EW-12D	7:55	100.58	0	
EW-13D	8:06	100.68	0	
EW-14D	11:12	42.75	0	
LF-02	9:52	53.98	0	
MW-6D	8:35	97.12	0	
MW-8A	8:51	71.85	0	
MW-8B	8:52	70.87	0	
MW-8C	8:54	70.90	0	
MW-10B	7:32	98.45	0	
MW-10C	7:41	97.65	0	
MW-10D	7:43	98.75	0	
SW-1	9:32	67.28	0	
WT-01	8:11	98.85		
EXT-1				
EXT-2				
EXT-3				