FINAL

ANNUAL OPERATIONS REPORT
(JULY 1, 2012 THROUGH JUNE 30, 2013)

ARMY & AIR FORCE EXCHANGE SERVICE
RETAIL FUEL FACILITY (BLDG 200)
UNDERGROUND STORAGE TANK (UST) SPILL REMEDIATION
SPILL NO. 9802727

U.S. ARMY GARRISON FORT HAMILTON
BROOKLYN, NEW YORK

November 2013

Contract No.: W912DY-10-D0025/Delivery Order DA02

Prepared For:

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I have reviewed this document and certify that it contains accurate content and is sufficient to guide project execution.

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TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION 1-1
1.1 SITE BACKGROUND 1-1
1.1.1 Site Description 1-1
1.1.2 Site History 1-2
1.1.3 1.1.3 Summary of Previous Investigations 1-2
1.1.4 1.1.4 Summary of Previous Remedial Actions 1-2
2.0 SUMMARY OF FIELD ACTIVITIES 2-1
2.1 QUARTERLY GROUNDWATER MONITORING ACTIVITIES 2-1
2.1.1 Quarterly Level Gauging 2-1
2.1.2 Quarterly Sampling 2-1
2.2 REMEDIATION SYSTEM OPERATION, MAINTENANCE, AND MONITORING ACTIVITIES 2-1
2.2.1 System Operation and Conversion 2-1
2.2.2 System Maintenance and Monitoring 2-2
3.0 RESULTS 3-1
3.1 GROUNDWATER SAMPLING EVENTS RESULTS 3-1
3.1.1 Occurrence and Movement of Site Groundwater 3-1
3.1.2 Groundwater Sample Analytical Results 3-1
3.1.2.1 August 2012 Groundwater Sampling Event 3-1
3.1.2.2 February 2013 Groundwater Sampling Event 3-1
3.1.2.3 March 2013 Groundwater Sampling Event 3-2
3.1.2.4 June 2013 Groundwater Sampling Event 3-2
3.2 SYSTEM PERFORMANCE RESULTS 3-2
3.2.1 Operational Problems/Impacts to Treatment 3-3
4.0 CONCLUSIONS 4-1
5.0 RECOMMENDATIONS 5-1
6.0 REFERENCES 6-1

LIST OF TABLES

Title

Table 1 Fort Hamilton Monitoring and Extraction Well Status

Table 2 Historical Groundwater Data Tables

Table 3 Fort Hamilton Multi-Phase Treatment System Compliance Data

Table 4 Fort Hamilton Treatment Unit Information

LIST OF FIGURES

Title

Figure 1 Site Location Map

Figure 2 Site Map

Figure 3 Piping and Instrumentation Diagram

Figure 4 COC Concentrations Detected in MW-4 Groundwater Samples vs. Time

Figure 5 COC Concentrations Detected in MW-5 Groundwater Samples vs. Time

Figure 6 Cumulative Petroleum Hydrocarbon Mass Recovered vs. Time

Figure 7 Cumulative Groundwater Recovered vs. Time

LIST OF ACRONYMS AND ABBREVIATIONS

AAFES	Army & Air Force Exchange Service
bgs	below ground surface
BTEX	Benzene, toluene, ethylbenzene and xylenes
COC	Constituent of Concern
gal	gallon
GWQS	New York Ground Water Quality Standards and Guidance Values
ISCO	In-Situ Chemical Oxidation
LEL	Lower Explosive Limit
lb	Pound
LNAPL	Light Non-Aqueous Phase Liquid
MPE	Multiphase Extraction
MTBE	methyl tertiary-butyl ether
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
OWS	Oil Water Separator
PID	Photo-Ionization Detector
PIKA	PIKA International, Inc.
Pirnie	Malcolm Pirnie, Inc.
RAWP	Remedial Action Work Plan
SVE	Soil Vapor Extraction
The JV	PIKA International, Incorporated - Malcolm Pirnie, Incorporated Joint Venture, Limited Liability Corporation
TPH	Total Petroleum Hydrocarbon
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VEFE	Vacuum Enhanced Fluid Extraction
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The PIKA International, Inc. (PIKA), Malcolm Pirnie, Inc. (Pirnie) JV, LLC (the JV) is pleased to submit this Annual Operations Report for the period July 1, 2012 through June 30, 2013 on behalf of the United States Army Corps of Engineers (USACE), Baltimore District for the Army & Air Force Exchange Service (AAFES) Retail Fuel Facility - Building 200, U.S. Army Garrison at Fort Hamilton in Brooklyn, New York (the Site). A Multi-Phase Extraction (MPE) system has been operating at the site since 2009 in accordance with the 2007 Remedial Action Work Plan (RAWP) (Plexus Scientific Corporation, 2007) to remove and treat petroleum hydrocarbons from the sub-surface. Evaluation of system performance data indicated that the recovery of residual adsorbed, dissolved and free-phase hydrocarbons had decreased over time and appeared to be approaching the effective limits of the current system. In order to increase recovery, the MPE system was converted to a Soil-Vapor Extraction (SVE) System in June 2013 in accordance with recommendations provided in a May 2013 RAWP prepared by the JV (JV, 2013). This report summarizes the activities associated with the operation and maintenance (O&M) of the system and the effectiveness of the operation. It also discusses the compliance of the system with the effluent limits for air and water established by the New York State Department of Environmental Conservation (NYSDEC) and New York City Department of Environmental Protection (NYCDEP), respectively. All original data collected, including laboratory analytical reports, was previously submitted within the 13th through 16th Quarterly System Operations Reports, and is therefore not included herein.

1.1 SITE BACKGROUND

1.1.1 Site Description

The AAFES station (Bldg 200) is located at 200 General Lee Avenue in Fort Hamilton, Brooklyn, New York (**Figure 1**). The layout of the Site is shown on **Figure 2**. The majority of surrounding land use is residential, administrative and retail buildings. Presently, the Site contains a single story building utilized as a convenience store and gasoline station.

The parking lot at the Site is underlain by road base, concrete, and fill to approximately five feet below ground surface (bgs). Below this is a silty sand and clayey sand to approximately 32 feet bgs, in which gravel to boulder size slate and concrete fill is common. Inter-bedded in the silty sand and clayey sand lithofacies from 18 to 20 feet bgs is a cobble and boulder fill layer. The fine-grained silty sand and clayey sand facies that comprises the water table aquifer results in a low groundwater yield (General Physics, 2003). Based on historical groundwater elevations, the groundwater at the site flows predominantly west-northwest.

The Site is located in Kings County New York and is underlain by four known aquifers: the Upper Glacial Aquifer, the Jameco Aquifer, the Magothy Aquifer and the Lloyd Aquifer which are part of the Long Island Aquifer System. The Upper Glacial Aquifer is the unconfined aquifer directly underlying the ground surface in the area and depth to water in Site groundwater

monitoring wells ranged from 22.12 to 27.05 feet bgs during the December 2012 gauging event. The depth and thickness of the aquifers vary greatly across both Kings and Queens Counties.

1.1.2 Site History

The building at the Site was constructed in the 1960s as a service station with two service bays, three gasoline underground storage tanks (USTs), and one waste oil UST. The three gasoline USTs (two 3,000-gallon [gal] and one 4,000-gal) were replaced in 1991 with three new double-walled fiberglass tanks. Soil staining was noted during tank removal. The new tanks were located in the existing excavation; however, some contaminated soil remained. In 1998 the NYSDEC was notified of a petroleum release at this site, and the release was logged as incident 9802727 in the NYSDEC Spill Incidents Database. The site was opened in the Army Environmental Database as site CCHAM0200. During 1999-2000, the service station was converted into a convenience store. The site is currently operating as an active retail gasoline service station and convenience store.

1.1.3 1.1.3 Summary of Previous Investigations

Below is a summary of previous investigations at the Site:

- 1997: TRC Environmental Corporation conducted a site investigation involving soil sampling. The results indicated elevated benzene, toluene, ethylbenzene, and total xylene (BTEX) concentrations in soil at approximately 19-31 feet bgs. Groundwater samples were not collected during the investigation.

- 2000: Parsons Engineering Science conducted a site investigation involving monitoring well installation and soil sampling. Total BTEX, and methyl tertiary-butyl ether (MTBE) concentrations were detected in the soil. Light non-aqueous phase liquid (LNAPL) was detected in several of the wells.

- 2003: General Physics completed a site assessment. Petroleum hydrocarbons were reported at concentrations above NYSDEC Class GA groundwater standards and guidance values, and LNAPL was observed. General Physics proposed implementing mobile VEFE events as a corrective action for the site.

- 2004: General Physics completed a Corrective Action Plan that evaluated remedial alternatives and recommended that a bioslurping/ MPE treatment system be installed to address areas of the site impacted by LNAPL.

1.1.4 1.1.4 Summary of Previous Remedial Actions

Below is a summary of previous remedial actions at the Site:

- 2005: EA Engineering pilot tested MPE and conducted an MPE optimization study to evaluate the technology as a potential component of the corrective measures to address petroleum-impacted soil and groundwater.

- 2006: The Army proposed to NYSDEC to use MPE to remediate LNAPL and soil contamination.

- 2007: A RAWP was submitted and a Stipulation Agreement was signed with NYSDEC.

- 2008: The remediation system installation was completed by Plexus Scientific and the system was started in single-phase SVE mode on October 1, 2008.

- 2009: Plexus Scientific personnel started the system in multi-phase soil vapor and groundwater extraction mode and initiated O&M.

- 2009: Shaw Environmental and Infrastructure took over system operation from Plexus Scientific.

- 2012: The JV took over system operation from Shaw Environmental and Infrastructure.

- 2013: An updated Final RAWP was submitted on May 31, 2013 and approved on June 18, 2013. The MPE system was then modified to operate as an SVE system on June 28, 2013. The current system configuration is shown **Figure 3**.

2.0 SUMMARY OF FIELD ACTIVITIES

A summary of the field activities conducted during the reporting period is presented below. Field activities conducted at the Site included four quarterly groundwater monitoring events, routine system O&M and monitoring and conversion of the MPE system to a SVE system.

2.1 QUARTERLY GROUNDWATER MONITORING ACTIVITIES

Four quarterly groundwater monitoring events were conducted during the reporting period (August 30, 2012, February 6, 2013, March 19, 2013 and June 26, 2013).

2.1.1 Quarterly Level Gauging

The fluid levels within the Site monitoring and recovery wells were measured monthly. An oil/water interface probe, which was decontaminated between wells, was used to collect groundwater level measurements and check for the presence of LNAPL in each Site well prior to purging/sampling activities. The depth to water and total well depth were measured from designated measuring points and recorded.

2.1.2 Quarterly Sampling

Groundwater samples were collected via United States Environmental Protection Agency (USEPA) low flow sampling methodology and transferred to laboratory-provided containers with the appropriate preservative (if required). Quality assurance/quality control samples, including field duplicate samples and trip blanks, were also collected. The filled containers were labeled, packed in a cooler, and chilled to approximately four degrees Celsius. The collected samples were submitted to the Eurofins Lancaster Laboratories in Lancaster, Pennsylvania where they were analyzed for NYSDEC Spill Technology Remediation Series list volatile organic compounds (VOCs) using USEPA Method 8260.

2.2 REMEDIATION SYSTEM OPERATION, MAINTENANCE, AND MONITORING ACTIVITIES

2.2.1 System Operation and Conversion

The MPE remediation system operated from July 2009 to June 2013. The MPE remediation system used high vacuum and a one-inch pipe installed to approximately 20 feet below grade to recover vapors and fluids. The MPE system configuration utilized most of the blower vacuum to lift fluid and therefore limited the vacuum radius of influence. Extracted water was then separated from the air stream in the knockout tank which feeds into the oil water separator (OWS). The water from the OWS was treated with sequesterant (Redux 390) to limit iron fouling. The sequesterant treated water was pumped into the air stripping unit. The off-gas from the air stripper was discharged to the atmosphere via the unit's air discharge pipe. The discharged water from the air stripper was pumped through two parallel bag filter housings (for final solids removal) and two liquid carbon drums (for final polishing). Once through these drums, the flow was metered and discharged into the NYCDEP sewer system. The contaminate

air stream that was separated in the knock out tank was discharged to the vapor carbon units. The contaminants were adsorbed onto the carbon and the contaminant-free air stream was discharged to the atmosphere via the unit's discharge stack.

On June 28, 2013 in accordance with the May 2013 Final RAWP the existing MPE system was modified to operate as an SVE system by removing the drop tubes from the extraction wells. Because liquids are no longer removed via drop tubes, the applied vacuum to the unsaturated subsurface is greater than the previously applied vacuum, resulting in an increased pneumatic radius of influence and mass recovery rates. The vacuum has been adjusted as necessary to minimize the amount of water recovered. Any recovered water is transferred to the OWS for disposal through the groundwater treatment system. Additional details regarding system operation are provided in Section 3.2.

2.2.2 System Maintenance and Monitoring

The remediation system was routinely inspected, maintained, and monitored by a local field technician. Routine maintenance activities performed included:

- Inspecting and testing critical equipment
- General equipment maintenance and repair as required
- Cleaning and/or replacing filters
- Confirming operation of motors, fans, and pumps
- Recording system operation conditions (temperature, pressures, vacuums, and air/water flow rates)
- Taking vapor effluent readings using a calibrated photo-ionization detector (PID) to estimate Constituent of Concern (COC) vapor mass recovery rates
- Collecting influent and effluent water samples to evaluate performance of the groundwater treatment system and document compliance with permit requirements

System O&M data and sample information were recorded and maintained by the field technician and are further discussed in Section 3.2.

3.0 RESULTS

This section presents the results of the field activities performed during the reporting period and includes discussions on the occurrence, movement, and quality of the groundwater at the Site and remediation system performance.

3.1 GROUNDWATER SAMPLING EVENTS RESULTS

3.1.1 Occurrence and Movement of Site Groundwater

The groundwater level gauging data collected during the reporting period is presented on **Table 1**. The average depth to groundwater between July 2012 and June 2013 over all site wells ranged from 14.35 to 27.11 feet bgs with an average depth of 22.65 feet bgs. Groundwater flow is generally from the east to the west/northwest.

From July 2012 through June 2013, LNAPL was detected at MW-1 and MW-5, which is consistent with historical monitoring and assessment data. LNAPL thickness was observed ranging from a sheen (October 2012) to 0.19 feet (April 2013) at MW-1. LNAPL was recorded in December 2012 at 0.05 feet at MW-5. A small amount of LNAPL was also detected in MW-4 in June 2013 (0.02 feet). This was the first occurrence of LNAPL in MW-4. A sorbent sock was placed in the well to recover the LNAPL.

3.1.2 Groundwater Sample Analytical Results

The analytical data for the groundwater samples collected during the reporting period is presented on **Table 2**. Groundwater sample results were compared against their respective Division of Water Technical and Operational Guidance Series 1.1.1 and New York Codes, Rules and Regulations Title 6 – New York Quality Standards and Guidance Values (GWQS) and also to Site-specific closure threshold values. The analytical results are discussed below. **Figures 4 and 5** present the COC concentrations over time at MW-4 and MW-5, respectively. Similar graphs are not provided for MW-1 due to the consistent presence of LNAPL nor for MW-2, MW-3 and MW-6 due to historically low detections of VOCs.

3.1.2.1 August 2012 Groundwater Sampling Event

The August 30, 2012 groundwater monitoring results as shown on **Table 2** indicate exceedances of GWQS at MW-03, MW-04, and MW-05, while only MW-04 and MW-05 indicate exceedances of the closure threshold values. These results are consistent with previous results. VOC concentrations in groundwater have historically been below the closure threshold at MW-02, and below both the closure threshold and GWQS at MW-06 and MW-07. LNAPL was observed at MW-01 (0.17 feet) and therefore a groundwater sample was not collected from this well.

3.1.2.2 February 2013 Groundwater Sampling Event

The February 6, 2013 groundwater monitoring results as shown on **Table 2** indicate exceedances of GWQS at MW-02, MW-03, MW-04, and MW-05, while only MW-04 and MW-05 indicate

exceedances of the Site-specific closure threshold values. LNAPL was observed at MW-01 (0.10 feet) and therefore a groundwater sample was not collected from this well.

3.1.2.3 March 2013 Groundwater Sampling Event

The March 19, 2013 groundwater monitoring results as shown on **Table 2** indicate exceedances of GWQS at MW-03, MW-04, and MW-05, while only MW-04 and MW-05 indicate exceedances of the Site-specific closure threshold values. LNAPL was observed at MW-01 (0.09 feet) and therefore a groundwater sample was not collected from this well.

3.1.2.4 June 2013 Groundwater Sampling Event

The June 26, 2013 groundwater monitoring results as shown on **Table 2** indicate exceedances of GWQS at MW-03 and MW-05, while only MW-05 indicates exceedances of the Site-specific closure threshold values. LNAPL was observed at MW-01 (0.01 feet) and MW-04 (0.02 feet) and therefore a groundwater sample was not collected from these wells. This was the first occurrence of LNAPL in MW-04.

3.2 SYSTEM PERFORMANCE RESULTS

As of June 2013, the remediation system has been operating since July 2009 and has removed approximately 1,620 gals of LNAPL. During the current reporting period, approximately 268 gals of LNAPL were removed (**Figure 6**). **Figure 7** presents the cumulative volume of groundwater recovered and treated by the system from July 1, 2012 to June 30, 2013.

The analytical results for VOCs detected in water samples collected from the system effluent are presented on **Table 3** for the VOCs monitored for the Site permit. Compliance with the site NYCDEP discharge permit parameters has been maintained during this reporting period.

The remedial system has removed approximately 9,926 pounds (lbs) of total petroleum hydrocarbons (TPH) since 2009. Vapors extracted from the subsurface are treated through two granular activated carbon vessels prior to discharge to the atmosphere. Air sampling is conducted quarterly and O&M is completed on the MPE system bi-monthly. The analytical results for the regulated discharge parameter benzene are presented on **Table 3**. Compliance with the NYSDEC Stipulation Agreement has been maintained during this reporting period. The system performance data is provided on **Table 4**, including operation vacuums, pressures, airflow rates, temperatures, and PID data over time. Based on a review of the MPE system's operating data, it appeared that the system was no longer removing hydrocarbon mass effectively. Approximately 60% of hydrocarbon mass removed by the MPE system to date was removed during the first quarter of operation. Since then, the system's mass removal rate had become asymptotic. The average removal rate of TPH between quarters 3 and 15 of operation was less than 100 lbs per quarter.

The system has achieved an operation runtime of 87 percent (excluding the planned shutdown for Hurricane Sandy) during the reporting period. A planned system shutdown occurred for Hurricane Sandy for approximately 210 hours from October 28 through November 6, 2012.

Additionally, the system was also down for a total of approximately 677 hours for a necessary lower explosive limit (LEL) sensor repair from November 8 through December 5, 2012. Every effort was made to minimize downtime; however in addition to the LEL sensor repair, necessary system repairs and alarms caused the system to be down during this reporting period for approximately 458.5 additional hours. Overall, the system operated 7,414.5 hours out of 8,550 hours (excluding the planned shut down for Hurricane Sandy).

3.2.1 Operational Problems/Impacts to Treatment

i. From October 28 to November 6, 2012 the remediation system was proactively shut down prior to and during the aftermath of Hurricane Sandy. The system was shut off and de-energized to prevent damage and the potential for a possible release. Both NYSDEC and NYCDEP were notified of the shutdown and the restart of the system.

ii. On November 6 and 8, 2012, the system experienced two alarm conditions due to a high level process influent air LEL. After reviewing all available data and speaking with both the equipment manufacturer, Detcon, and service representative Pine Environmental Services, it was determined that the LEL meter sensor was nearing its lifespan and should be removed so that it could be properly replaced and calibrated. To be proactive, both breathing zone and process meters were removed for repair and new sensors were ordered. The sensors were received on November 15th. Upon installation of the new sensor it was determined there was still an electrical issue with the process LEL meter. The process LEL meter was then sent to Detcon for repair on November 19th. The meter was received back on December 4th and installed on December 5th. Both sensors have been operable since that time.

iii. On January 9, 2013 the system experienced a low pressure alarm at the air stripper blower. The air stripper was evaluated and the top tray was found to be fouled with iron and calcium. The air stripper was disassembled for cleaning and reassembled. The problem was resolved upon departure.

iv. On January 29, 2013, the vacuum conduit for MPE-2 was clogged and no effluent had discharged since the last O&M visit. The conduit was cleared and no discharge was present. The NYCDEP system effluent samples were unable to be collected because there was no discharge.

v. On February 7, 2013, the system experienced a low pressure alarm at the air stripper. Upon investigation, the fernco reducing coupler on the air stripper had become loose. The coupler was replaced and additional support was added to prevent the coupler from becoming loose in the future.

vi. On April 4, 2013, the system was shut down after it was determined the extraction blower had one broken and one worn drive belt. Two new drive belts were installed on August 5, 2013 and the system was restarted.

vii. On April 30, 2013, the system experienced a high temperature alarm on the extraction blower. The exhaust and heater thermostat were adjusted and the vacuum was lowered. The problem was resolved upon departure.

viii. On June 12, 2013, it was observed the lid on one of the liquid carbon vessels was rusted through and a minor leak was appearing on the lid surface. No environmental impact was observed at the trailer or surrounding area. On June 13, 2013 a new lid and gasket was installed and the system was restarted.

ix. On June 28, 2013, the system experienced a high alarm in the vapor liquid separator. The groundwater phase of the system was turned off on June 28, 2013 after the conversion of the system from MPE to SVE. Due to the continued recovery of moisture, the system was restarted with the groundwater phase of the system on.

Other than the items noted, there were no other non-routine maintenance activities required during the reporting period. All system components continue to operate as designed and have been maintained in accordance with manufacturer's recommendations.

4.0 CONCLUSIONS

Based on the data presented in this Report, the following conclusions and recommendations can be made with respect to remediation system performance and groundwater quality at the Site:

- The remediation approach at the Site has been effective at recovering LNAPL from MW-1 and MW-5. LNAPL was last detected in MW-5 during December 2012 (0.05 feet). The average LNAPL thickness of MW-1 has also overall decreased over time, and was most recently detected at a thickness of 0.01 feet in June 2013.

- The minor detection of LNAPL at MW-4 in June 2013 does not appear indicative of a significant presence of LNAPL in that area. A sorbent sock was installed in the well at the time of detection and as of July 29, 2013 there was no further LNAPL detected in MW-4.

- COCs were detected above their GWQS and also the specific closure threshold values in the groundwater samples collected from wells MW-4 and MW-5. Concentrations at MW-4 increased during the reporting period from 712.23 ug/L total VOCs to 12,596 ug/L total VOCs and LNAPL was detected on one occasion. The observed increase in dissolved-phase concentrations is likely attributable to the presence of LNAPL in the vicinity of MW-4. It is noted that the concentration of total VOCs showed a decrease during the September 2013 groundwater sampling event (to 9,637 ug/L) and no additional detections of LNAPL have been observed. The concentration of total VOCs in MW-5 initially increased (to 50,952.8 ug/L) then decreased during the reporting period with an ending concentration of 10,572 ug/L. It is also noted that the concentration of total VOCs in MW-5 continued to decrease into the following reporting period with a concentration of 4,4,20 ug/L during the September 2013 groundwater sampling event. The system modification to SVE coupled with the planned groundwater pumping/vacuum extraction events is expected to further increase the hydrocarbon mass recovery thereby resulting in further declining groundwater concentration trends.

5.0 RECOMMENDATIONS

It is recommended that the scope of work and remedial activities outlined in the current RAWP that was submitted to NYSDEC on May 31, 2013 and approved on June 18, 2013 continue to be implemented as follow:

- The SVE system will remain in operation with extraction focused at wells/areas containing LNAPL.

- To address residual LNAPL and high dissolved hydrocarbon concentrations in groundwater, a series of groundwater pumping/ VEFE events will be conducted.

- Additional characterization data collection will be completed through the installation of an angled well beneath the station building near existing well MW-5.

- An in-situ chemical oxidation (ISCO) pilot test will be conducted from a new injection well installed in the vicinity of existing well MW-5 and this technology will be further evaluated for full scale application. Upon further/sustained reduction in LNAPL thickness at MW-1 and dissolved-phase concentrations at MW-5 the in-situ chemical oxidation pilot test will be implemented adjacent to MW-5. This is expected to further reduce dissolved-phase concentrations in the vicinity of MW-5. If effective as expected, the in-situ technology will be expanded to treat other areas of the site as necessary.

Implementation of the activities outlined above began in July 2013 and are expected to continue through the remainder of the year with the ISCO Pilot Test planned for November 2013 and subsequent data collection and evaluation to follow. Future Quarterly System Operations Reports will further document the operational influence and effectiveness of the SVE system and the planned VEFE events. A Corrective Action Plan, to be submitted in early 2014, will then provide further evaluation including the results of the ISCO Pilot Test along with recommendations for additional remedial actions at the site, as necessary.

6.0 REFERENCES

General Physics Corporation, 2003. Site Assessment at AAFES Station-Building 200 (NYSDEC Spill # 9802727), June 2003

PIKA-PIRNIE JV, LLC, 2013. Remedial Action Work Plan, AAFES Retail Fuel Facility (Bldg 200) UST Spill Remediation, U.S. Army Garrison Fort Hamilton, Brooklyn, New York, May 2013.

Plexus Scientific Corporation, 2007. Remedial Action Work Plan for AAFES Station Building 200 U.S. Army Garrison Fort Hamilton Brooklyn, New York, December 2007.

Tables

FORT HAMILTON MONITORING AND EXTRACTION WELL STATUS
TABLE 1

Description	7/9/2012	8/30/2012	9/28/2012	10/25/2012	12/27/2012	1/29/2013	2/8/2013	3/19/2013	4/18/2013	5/30/2013	6/26/2013
MW-1 (Elevation)	98.93	98.93	98.93	98.93	98.93	98.93	98.93	98.93	98.93	98.93	98.93
DTW	21.77	24.45	26.3	26.20	24.25	24.22	24.88	24.50	23.71	24.67	21.90
DTP	NPD	24.28	26.05	sheen	24.15	NPD	NPD	24.41	23.52	24.6	21.89
LNAPL THICKNESS	0	0.17	0.25	sheen	0.1	0.0	0.0	0.09	0.19	0.07	0.01
GWELEV	77.16	74.48	72.63	72.73	74.68	74.71	74.1	74.4	75.2	74.3	77.0
CORRECTED GWELEV	77.16	74.36	72.45	72.73	74.75	74.71	74.1	74.5	75.4	74.3	77.0
PID READING - BREATHING ZONE (ppm)	583	806	489	0.9	0.0	0.0	0.0	0.1	0.0	0.2	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	801.0	1197.0	21.5	8.8	0.8	0.7	0.0
MW - 4 (Elevation)	98.10	98.10	98.10	98.10	98.10	98.10	98.1	98.1	98.1	98.1	98.1
DTW	18.32	20.75	20.57	22.42	22.47	23.01	22.1	21.0	24.0	24.9	17.4
DTP	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	17.4
LNAPL THICKNESS	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GWELEV	79.78	77.35	77.53	78.73	75.63	75.09	76.0	77.1	74.2	73.3	80.7
CORRECTED GWELEV	79.78	77.35	77.53	78.73	75.63	75.09	76.0	77.1	74.2	73.3	80.7
PID READING - BREATHING ZONE (ppm)	0.5	0.8	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	656.0	532.0	203.1	798.0	0.0	0.0	165.0
MW - 7 (Elevation)	99.47	99.47	99.47	99.47	99.47	99.47	99.5	99.5	99.5	99.5	99.5
DTW	19.11	20.71	21.35	22.04	22.12	22.73	21.7	20.3	20.0	21.1	17.7
DTP	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
LNAPL THICKNESS	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GWELEV	80.36	78.76	78012	77.43	77.35	76.74	77.8	79.2	79.4	78.4	81.8
CORRECTED GWELEV	80.36	78.76	78.12	77.43	77.35	76.74	77.8	79.2	79.4	78.4	81.8
PID READING - BREATHING ZONE (ppm)	0	0	0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	0.8	1.3	0.0	0.0	0.0	0.0	0.0
MPE-3 (Elevation)	98.14	98.14	98.14	98.14	98.14	98.14	98.1	NMT	98.1	98.1	NMT
DTW	19.68	**G**	22.75	23.16	14.35	20.55	23.1		21.1	22.1	
DTP	NPD	**W**	NPD	NPD	NPD	NPD	NPD		NPD	NPD	
LNAPL THICKNESS	0		0	0.0	0.0	0.0	0.0		0.0	0.0	
GWELEV	78.46	**S**	75.39	74.98	83.79	77.59	75.1		77.0	76.1	
CORRECTED GWELEV	78.46	**A**	75.39	74.98	83.79	77.59	75.1		77.0	76.1	
MPE WELL VACUUM (in. Hg.)	(off)	**M**	(off)	(off)	(off)	(off)	(off)		(off)	(off)	
PID READING - BREATHING ZONE (ppm)	0	**P**	0	0.0	0.0	0.0	0.0		0.0	0.0	
PID READING - HEADSPACE (ppm)	NMT	**L**	NMT	NMT	1.7	0.2	0.1		0.3	0.3	
MPE-6 (Elevation)	98.93	**I**	98.93	98.93	98.93	98.93	98.9	NMT	98.9	98.9	NMT
DTW	18.67	**N**	21.91	22.69	22.97	22.42	22.4		22.4	23.3	
DTP	NPD	**G**	NPD	NPD	NPD	NPD	NPD		NPD	NPD	
LNAPL THICKNESS	0		0	0.00	0.00	0.00	0.0		0.0	0.0	
GWELEV	80.26	**E**	77.02	76.24	75.96	76.51	76.6		76.6	75.7	
CORRECTED GWELEV	80.26	**V**	77.02	76.24	75.96	76.51	76.6		76.6	75.7	
MPE WELL VACUUM (in. Hg.)	(off)	**E**	(off)	(off)	(off)	(off)	4.0		NMT	NMT	
PID READING - BREATHING ZONE (ppm)	0	**N**	0	0.0	0.0	0.0	0.0		0.0	0.0	
PID READING - HEADSPACE (ppm)	NMT	**T**	NMT	NMT	390.0	18.0	241.4		0.0	0.0	

FORT HAMILTON MONITORING AND EXTRACTION WELL STATUS
TABLE 1

Description	7/9/2012	8/20/2012	9/28/2012	10/25/2012	12/27/2012	1/29/2013	2/8/2013	3/19/2013	4/18/2013	5/30/2013	6/26/2013
MW - 2 (Elevation)	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44	99.44
DTW	20.46	22.57	23.88	24.47	24.34	23.93	24.18	23.23	25.58	23.51	19.07
DTP	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
LNAPL THICKNESS	0	0	0	0.0	0.0	0	0	0	0	0	0
GWELEV	78.98	76.87	75.56	74.97	75.10	75.51	75.26	76.21	73.86	75.93	80.37
CORRECTED GWELEV	78.98	76.87	75.56	74.97	75.10	75.51	75.26	76.21	73.86	75.93	80.37
PID READING - BREATHING ZONE (ppm)	0	0	0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	0.7	85.8	0.1	0.0	1.1	1.7	0.0
MW - 5 (Elevation)	98.74	98.74	98.74	98.74	98.74	98.74	98.74	98.74	98.74	98.74	98.74
DTW	21.38	24.08	24.42	24.98	23.52	25.78	23.97	24.69	22.78	23.82	19.95
DTP	NPD	NPD	NPD	NPD	23.47	NPD	NPD	NPD	NPD	NPD	NPD
LNAPL THICKNESS	0	0	0	0.0	0.05	0.0	0.0	0.0	0.0	0.0	0.0
GWELEV	77.36	74.66	74.32	73.76	75.22	72.96	74.77	74.05	75.96	74.92	78.79
CORRECTED GWELEV	77.36	74.66	74.32	73.76	75.26	72.96	74.77	74.05	75.96	74.92	78.79
MPE WELL VACUUM (in. Hg)	-7	-7	-7.5	5.0	5.0	5.2	4.7	5.1	NMT	NMT	NMT
PID READING - BREATHING ZONE (ppm)	0	0	0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	253.0	2.5	0.2	0.0	2.8	2	43.3
MPE-1 (Elevation)	99	**G**	Well Dry	Well Dry		Well Dry		NMT	Could not access well.		
DTW	24.55	**W**									
DTP	NPD										
LNAPL THICKNESS	0	**S**									
GWELEV	74.45	**A**									
CORRECTED GWELEV	74.45	**M**									
MPE WELL VACUUM (in. Hg)	(off)	**P**		(off)	(off)	(off)	(off)				
PID READING - BREATHING ZONE (ppm)	0	**L**		NMT	0.0	0.0	0.0				
PID READING - HEADSPACE (ppm)	NMT	**I**		NMT	0.0	0.0	0.0				
MPE-4 (Elevation)	99.19	**N**	99.19	99.19	99.19	99.19	99.19	NMT	99.19	99.19	NMT
DTW	20.39	**G**	20.57	25.18	23.96	23.55	24.26		22.55	23.44	
DTP	NPD		NPD	NPD	NPD	NPD	NPD		NPD	NPD	
LNAPL THICKNESS	0	**E**	0	0.0	0.0	0.0	0.0		0.0	0.0	
GWELEV	78.8	**V**	78.62	74.01	75.23	75.64	74.93		76.64	75.75	
CORRECTED GWELEV	78.8	**E**	78.62	74.01	75.23	75.64	74.93		76.64	75.75	
MPE WELL VACUUM (in. Hg)	(off)	**N**	(off)	(off)	(off)	(off)	(off)		(off)	(off)	
PID READING - BREATHING ZONE (ppm)	0	**T**	0	0.0	0.0	0.0	0.0		0.0	0.0	
PID READING - HEADSPACE (ppm)	NMT		NMT	NMT	206.0	443.0	6.4		0.5	0.4	
MPE-7 (Elevation)	97.42		97.42	97.42	97.42	97.42	97.42	NMT	97.42	97.42	NMT
DTW	17.38		19.8	20.65	21.13	20.97	20.58		18.78	19.83	
DTP	NPD		NPD	NPD	NPD	NPD	NPD		NPD	NPD	
LNAPL THICKNESS	0		0	0.0	0.0	0.0	0.0		0.0	0.0	
GWELEV	80.04		77.62	76.77	76.29	76.45	76.84		78.64	77.59	
CORRECTED GWELEV	80.04		77.62	76.77	76.29	76.45	76.84		78.64	77.59	
MPE WELL VACUUM (in. Hg.)	(off)		(off)	(off)	(off)	(off)	(off)		(off)	(off)	
PID READING - BREATHING ZONE (ppm)	0		0	0.0	0.0	0.0	0.0		0.1	0.0	
PID READING - HEADSPACE (ppm)	NMT		NMT	NMT	0.5	7.0	0.0		0.0	0.0	

FORT HAMILTON MONITORING AND EXTRACTION WELL STATUS
TABLE 1

Description	7/9/2012	8/20/2012	9/28/2012	10/25/2012	12/27/2012	1/29/2013	2/8/2013	3/19/2013	4/18/2013	5/30/2013	6/26/2013
MW- 3 (Elevation)	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00	99.00
DTW	18.77	21.15	22.82	23.37	23.20	23.71	22.88	22.64	23.94	24.8	21.17
DTP	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
LNAPL THICKNESS	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GWELEV	80.23	77.85	76.18	75.63	75.80	75.29	76.12	76.36	75.06	74.20	77.83
CORRECTED GWELEV	70.23	77.85	76.18	75.63	75.80	75.29	76.12	76.36	75.06	74.20	77.83
PID READING - BREATHING ZONE (ppm)	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	605.0	496.0	306.2	289.0	0.0	0.0	0.0
MW - 6 (Elevation)	99.10	99.10	99.10	99.10	99.10	99.10	99.10	99.10	99.10	99.10	99.10
DTW	24.88	25.85	26.22	26.71	27.05	26.99	27.11	25.90	25.42	25.95	24.03
DTP	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD	NPD
LNAPL THICKNESS	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GWELEV	74.22	73.3	72.88	72.39	72.05	72.11	71.99	73.20	73.68	73.15	75.07
CORRECTED GWELEV	74.22	73.25	72.88	72.39	72.05	72.11	71.99	73.20	73.68	73.15	75.07
PID READING - BREATHING ZONE (ppm)	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PID READING - HEADSPACE (ppm)	NMT	NMT	NMT	NMT	0.2	0.0	0.0	0.5	0.0	0.0	0.0
MPE-2 (Elevation)	98.75	G	98.75	98.75	Well Dry	98.75	98.75	NMT	98.75	98.75	NMT
DTW	19.72	**W**	23.18	23.55		23.56	23.50		23.54	24.50	
DTP	NPD		NPD	NPD		NPD	NPD		NPD	NPD	
LNAPL THICKNESS	0	**S**	0	0.0		0.0	0.0		0.0	0.0	
GWELEV	79.03	**A**	75.57	75.20		75.19	75.25		75.21	74.25	
CORRECTED GWELEV	79.03	**M**	75.57	75.20		75.19	75.25		75.21	74.25	
MPE WELL VACUUM (in. Hg.)	-7	**P**	-7.5	5.0	5.0	5.2	4.7		NMT	NMT	
PID READING - BREATHING ZONE (ppm)	0	**L**	0	0.0	0.0	0.0	0.0		0.0	0.0	
PID READING - HEADSPACE (ppm)	NMT	**I**	NMT	NMT	292	0.8	0.0		0.0	0.3	
MPE-5 (Elevation)	97.93	N	Could not access well	97.93	Could not access well.	Could not access well.			Could not access well.		
DTW	18.86	**G**		22.09							
DTP	NPD			NPD							
LNAPL THICKNESS	0	**E**		0.0							
GWELEV	79.07	**V**		75.84							
CORRECTED GWELEV	79.07	**E**		75.84							
MPE WELL VACUUM (in. Hg.)	(off)	**N**		(off)							
PID READING - BREATHING ZONE (ppm)	0	**T**		NMT							
PID READING - HEADSPACE (ppm)	NMT			NMT							

Notes:
NPD - no product detected
NMT - no measurement taken
ppm - parts per million
in Hg. - inches mercury
DTW - depth to water
DTP - depth to product

Table 2
Historical Groundwater Data Tables
U.S. Army Garrison Fort Hamilton
Brooklyn, New York

Well ID	Date	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Methyl t-Butyl Ether (MTBE)	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Total Xylenes	Total Benzene	Total BTEX	Total VOC's
TOGS 1.1.1 Values		**1 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**nr**	**10 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**Closure Threshold < 100 ug/l**	**Closure Threshold < 500 ug/l**	**Closure Threshold < 1000 ug/l**
6 NYCRR Values		**1 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**nvr**	**nvr**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**			
MW-01	12/19/2011	**2170**	4.1 J	ND	ND	**1850**	**129**	ND	3280	**639**	**241**	**10400**	**3560**	**1000**	**20700**	**2170**	**35120**	**43973.1**
	3/15/2012	**2680**	**38.5 J**	**<50**	**<100**	**1860**	**123**	**<50**	6830	**202**	**192**	**9250**	**2440**	**699**	**15900**	**2680**	**29690**	**40414.5**
	6/26/2012	**2800**	**<100**	**<50**	**<100**	**2180**	**176**	**<50**	5040	**458**	**247**	**11200**	**2750**	**911**	**19100**	**2800**	**35280**	**45162**
	8/30/2012	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/6/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/19/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-02	11/12/2008	**18.5**	NT	NT	NT	**52.4**	NT	NT	22.8	**28.9**	NT	**120**	NT	NT	**195**	**18.5**	385.9	437.6
	8/18/2009	ND	NT	NT	NT	**6.0**	NT	NT	1.8 J	ND	NT	0.96 J	NT	NT	**10.4 J**	ND	17.36	19.16
	11/18/2009	ND	NT	NT	NT	3.2 J	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	3.2	3.2
	3/10/2010	ND	NT	NT	NT	ND	NT	NT	0.27	ND	NT	ND	NT	NT	ND	ND	0	0.27
	6/28/2010	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	1.6 J	ND	1.6	1.6
	9/9/2010	0.54 J	NT	NT	NT	**19.1**	NT	NT	3.1	ND	NT	0.55 J	NT	NT	3.9	0.54 J	24.09	27.19
	12/6/2010	0.67 J	NT	NT	NT	**19.9**	NT	NT	3.5	0.59	NT	0.93 J	NT	NT	**10.4**	0.67 J	32	36.09
	3/17/2011	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	6/15/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/22/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/19/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/14/2012	ND	2.3	3.9	ND	2.2	**10.9**	0.99 J	ND	0.46 J	**5.4**	0.34 J	**31.6**	ND	7.9	ND	10.44	65.99
	6/25/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/30/2012	ND	ND	1.1	ND	ND	2.5	ND	0.62 J	ND	1.8	ND	3.6	ND	ND	ND	2.7	12.32
	2/6/2013	<0.5	1 J	5	<1	<0.8	2 J	<1	2 J	<1	2 J	<0.7	**5**	<1	4 J	<0.5	<6	21
	3/19/2013	<0.5	<1	<1	<1	<0.8	<1	<1	1 J	<1	<1	<0.7	<1	<1	<0.8	<0.5	<2.8	<12.8
	6/26/2013	0.6 J	<1	<1	<1	<0.8	<1	<1	<0.5	<1	<1	0.8 J	<1	<1	<0.8	0.6 J	<3.0	<12.5
MW-03	11/12/2008	**15.2**	NT	NT	NT	**12.2**	NT	NT	30.1	0.73 J	NT	1.5	NT	NT	**8.2**	15.2	37.1	38.56
	8/18/2009	**99.5**	NT	NT	NT	**5.2**	NT	NT	13.7	ND	NT	1	NT	NT	3.8	99.5	109.5	123.2
	11/18/2009	**53.9**	NT	NT	NT	**460**	NT	NT	74.8	**42.2**	NT	ND	NT	NT	**3680**	53.9	***4193.9***	***4310.9***
	3/10/2010	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	7.7	ND	7.7	7.7
	6/28/2010	**4.1**	NT	NT	NT	0.29 J	NT	NT	7.60	ND	NT	0.26 J	NT	NT	ND	4.1	4.36	11.96
	9/9/2010	**7.2**	NT	NT	NT	3.0	NT	NT	9.3	ND	NT	0.90 J	NT	NT	1.7 J	7.2	12.8	22.1
	12/6/2010	**3.8**	NT	NT	NT	3.6	NT	NT	7.1	ND	NT	ND	NT	NT	2.3 J	3.8	9.7	16.8
	3/17/2011	0.40 J	NT	NT	NT	ND	NT	NT	1.8	ND	NT	ND	NT	NT	ND	0.40 J	0.4	2.2
	6/15/2011	**2.3**	ND	1.6	ND	ND	0.84 J	ND	2.8	ND	ND	ND	ND	ND	ND	2.3	2.3	7.54
	9/22/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/19/2011	ND	ND	1.1	ND	ND	0.92 J	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND	2.02 J
	3/14/2012	ND	ND	ND	ND	**5.4**	4.4	ND	0.93 J	ND	3.0	0.42 J	**44.3**	ND	**7.5**	ND	13.32	65.95
	6/25/2012	ND	ND	ND	ND	ND	ND	ND	3.0	ND	ND	ND	ND	ND	ND	ND	ND	3.0
	8/30/2012	ND	**6.2**	**14.6**	ND	4	**45.9**	ND	ND	3	**51.5**	0.26 J	**24.3**	ND	ND	ND	4.26	149.8
	2/6/2013	**26**	3 J	**6**	<1	3 J	**25**	<1	5	2 J	**22**	**15**	**59**	**10**	**45**	26	89	223
	3/19/2013	**34**	<1	<1	<1	<0.8	4 J	<1	18	<1	4 J	**30**	**16**	3 J	**42**	34	106.8	151
	6/26/2013	**8**	<1	<1	<1	2 J	2 J	<1	19	1 J	1 J	2 J	**7**	**7**	**13**	8	25	<67

Table 2
Historical Groundwater Data Tables
U.S. Army Garrison Fort Hamilton
Brooklyn, New York

Well ID	Date	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Methyl t-Butyl Ether (MTBE)	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Total Xylenes	Total Benzene	Total BTEX	Total VOC's
TOGS 1.1.1 Values		**1 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**nr**	**10 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**Closure Threshold < 100 ug/l**	**Closure Threshold < 500 ug/l**	**Closure Threshold < 1000 ug/l**
6 NYCRR Values		**1 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**nvr**	**nvr**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**			
MW-04	11/12/2008 -NS	**373.0**	NT	NT	NT	**2180.0**	NT	NT	417.0	**257.0**	NT	**2470.0**	NT	NT	**16500.0**	**373**	**21523**	**22197**
	11/12/2008 - FD	**274.0**	NT	NT	NT	**2230.0**	NT	NT	346.0	**265.0**	NT	**2480.0**	NT	NT	**16500.0**	**274**	**21484**	**22095**
	8/18/2009	**33.8**	NT	NT	NT	**576.0**	NT	NT	65.0	**85.9**	NT	**326.0**	NT	NT	**2020.0**	33.8	**2955.8**	**3106.7**
	11/18/2009	**53.9**	NT	NT	NT	**460.0**	NT	NT	74.8	**42.2**	NT	ND	NT	NT	**3680.0**	53.9	**4193.9**	**4310.9**
	3/10/2010	**1.4**	NT	NT	NT	**44.0**	NT	NT	ND	3.4	NT	ND	NT	NT	**286.0**	1.4	331.4	334.8
	6/28/2010	**3.2**	NT	NT	NT	**10.5**	NT	NT	ND	6.5	NT	**10.1**	NT	NT	**105**	3.2	128.8	135.3
	9/9/2010	**26.7**	NT	NT	NT	**278.0**	NT	NT	12.7	**33.7**	NT	154.0	NT	NT	**2470.0**	26.7	**2928.7**	**2975.7**
	12/6/2010	**26.8**	NT	NT	NT	**292.0**	NT	NT	ND	**24.8**	NT	153.0	NT	NT	**2560.0**	26.8	**3031.8**	**3056.6**
	3/17/2011	**7.0**	NT	NT	NT	**113.0**	NT	NT	1.2	**55.0**	NT	**109.0**	NT	NT	**3070.0**	7	**3299**	**3355.2**
	6/15/2011	0.98 J	3.5	ND	ND	4.7	**8.5**	2.1	ND	**11.6**	ND	3.5	**40.9**	**9.7**	**145**	*0.98 J*	154.18	230.48
	9/22/2011	ND	ND	ND	ND	ND	**8.3**	2.1	ND	3.4	**13.8**	1.2	**129**	**16.7**	**89.1**	*ND*	90.3	263.6
	12/19/2011	**1.2**	3.1	ND	ND	0.49 J	**7.0**	1.1	0.35 J	6.8	3.2	1.9	**83.9**	ND	**74.1**	1.2	77.69 J	183.14
	3/14/2012	**2.0**	ND	ND	ND	6.4	2.6	2.5	0.63 J	**14.8**	ND	**17.3**	**304**	ND	**362**	2.0	387.7	712.23
	6/26/2012	0.61 J	ND	ND	ND	ND	3.3	ND	ND	7.3	ND	1.9	**128**	ND	**64.4**	0.61	66.91	205.51
	8/30/2012	**7.4**	ND	ND	ND	**90.3**	**26.0**	**16.2**	3.2	**38.6**	**31**	**59.9**	**535**	**50**	**863**	2.0	387.7	712.23
	2/6/2013	**5 J**	**190**	<2	**23**	**22**	**68**	**11**	<1	**77**	**80**	**140**	**1700**	**430**	**4100**	5 J	**4435**	**6846**
	3/19/2013	**46**	**430**	<2	**39**	**20**	**110**	**16**	5 J	**150**	**170**	**550**	**3,000**	**860**	**7,200**	46	**8226**	**12596**
	6/26/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-05	3/10/2010	**4.7**	NT	NT	NT	**117.0**	NT	NT	ND	8.2	NT	**261.0**	NT	NT	**1210.0**	4.7	**1592.7**	**1600.9**
	6/28/2010	**414**	NT	NT	NT	**1680.0**	NT	NT	87.8	**218**	NT	**7820.0**	NT	NT	**14300.0**	**414**	**24214**	**24519.8**
	9/9/2010	**800.0**	NT	NT	NT	**842.0**	NT	NT	135.0	**305.0**	NT	**9370.0**	NT	NT	**15100.0**	**800**	**26112**	**26552**
	12/6/2010	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
	3/17/2011	**97.8**	NT	NT	NT	ND	NT	NT	35.8	ND	NT	**402.0**	NT	NT	**1480.0**	97.8	**1979.8**	**2015.6**
	6/15/2011	**689**	ND	ND	ND	**715**	**30.1**	**6.1**	139	**134**	**42.4**	**6240**	**911**	**290**	**7530**	**689**	**15174**	**16726.6**
	9/22/2011	**788**	ND	ND	ND	**1700**	**93.9**	ND	60.6	**152**	**153**	**10200**	**2120**	**464**	**15400**	**788**	**28088**	**31131.5**
	12/19/2011	**2860**	48.3	ND	ND	**1990**	**101**	ND	754	**375**	**191**	**17700**	**1870**	**519**	**14100**	**2860**	**36650**	**40508.3**
	3/15/2012	**1750**	**18.8 J**	**<10**	**<20**	**1720**	**92.7**	**<10**	459	**309**	**148**	**16200**	**1550**	**453**	**13000**	**1750**	**32670**	**35740.5**
	6/25/2012	**89.6**	**<100**	**<50**	**<100**	**<50**	**<50**	**<50**	28.6 J	**<100**	**<50**	**577**	**253**	**156**	**1620**	**89.6**	**2336.6**	**3274.2**
	8/30/2012	**2320**	**<100**	**<50**	**<100**	**2350**	**159**	**50.8**	233	**609**	**293**	**19200**	**3730**	**958**	**20800**	**2320**	**44670**	**50952.8**
	2/6/2013	**890**	**10 J**	**8 J**	**<5**	**1,100**	**61**	**<5**	180	**250**	**99**	**9,200**	**1,100**	**300**	**8,800**	**890**	**19990**	**21998**
	3/19/2013	**1,800**	**15 J**	**7 J**	**<5**	**1,900**	**86**	**<5**	190	**330**	**140**	**17,000**	**1,900**	**450**	**15,000**	**1,800**	**35700**	**38818**
	6/26/2013	**79**	**14**	**6 J**	<2	**490**	**50**	4 J	4 J	**180**	**84**	**2,400**	**1,100**	**310**	**5,400**	79	**8,369**	**<10,572**
MW-06	11/12/2008	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	0.37 J	NT	NT	1.5 J	ND	1.87	1.87
	8/18/2009	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	11/18/2009	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	3/10/2010	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	6/28/2010	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	9/9/2010	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	12/6/2010	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	3/17/2011	ND	NT	NT	NT	ND	NT	NT	ND	ND	NT	ND	NT	NT	ND	ND	ND	ND
	6/15/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND
	9/22/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND
	12/19/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND
	3/14/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND
	6/25/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND
	8/30/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND
	2/6/2013	<0.5	<1	<1	<1	<0.8	<1	<1	<0.5	<1	<1	<0.7	<1	<1	<0.8	<0.5	<2.8	<12.3
	3/19/2013	<0.5	<1	<1	<1	<0.8	<1	<1	<0.5	<1	<1	<0.7	<1	<1	<0.8	<0.5	<2.8	<12.3
	6/26/2013	0.8 J	<1	<1	<1	<0.8	<1	<1	<0.5	<1	<1	1 J	<1	<1	<0.8	0.8 J	<3.4	<12.9

Table 2
Historical Groundwater Data Tables
U.S. Army Garrison Fort Hamilton
Brooklyn, New York

Well ID	Date	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Methyl t-Butyl Ether (MTBE)	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-trimethylbenzene	Total Xylenes	Total Benzene	Total BTEX	Total VOC's
TOGS 1.1.1 Values		**1 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**nr**	**10 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**Closure Threshold < 100 ug/l**	**Closure Threshold < 500 ug/l**	**Closure Threshold < 1000 ug/l**
6 NYCRR Values		**1 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**nvr**	**nvr**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**	**5 ug/l**			
MW-07	11/12/2008	0.92 J	NT	NT	NT	**11.6**	NT	NT	87.8	1.9	NT	**9.4**	NT	NT	**92.3**	0.92 J	114.22	203.92
	8/18/2009	0.49 J	NT	NT	NT	ND	NT	NT	67.5	ND	NT	ND	NT	NT	ND	0.49 J	0.49	67.99
	11/18/2009	ND	NT	NT	NT	ND	NT	NT	74.4	ND	NT	ND	NT	NT	ND	ND	ND	74.4
	3/10/2010	ND	NT	NT	NT	ND	NT	NT	14.8	ND	NT	ND	NT	NT	ND	ND	ND	14.8
	6/28/2010	ND	NT	NT	NT	ND	NT	NT	18.8	ND	NT	ND	NT	NT	ND	ND	ND	18.8
	9/9/2010	ND	NT	NT	NT	ND	NT	NT	45.4	ND	NT	ND	NT	NT	ND	ND	ND	45.4
	12/6/2010	ND	NT	NT	NT	ND	NT	NT	55.7	ND	NT	ND	NT	NT	ND	ND	ND	55.7
	3/17/2011	ND	NT	NT	NT	ND	NT	NT	4.0	ND	NT	ND	NT	NT	ND	ND	ND	4
	6/15/2011	ND	ND	ND	ND	ND	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND	ND	3.5
	9/22/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/19/2011	ND	ND	ND	ND	ND	ND	ND	0.86 J	ND	ND	ND	ND	ND	ND	ND	ND	0.86 J
	3/14/2012	ND	ND	ND	ND	ND	ND	ND	2.2	ND	ND	ND	ND	ND	ND	ND	ND	2.2
	6/25/2012	ND	ND	ND	ND	ND	ND	ND	0.81 J	ND	ND	ND	ND	ND	ND	ND	ND	0.81
	8/30/2012	ND	ND	ND	ND	ND	ND	ND	2.4	ND	ND	ND	ND	ND	ND	ND	ND	2.4
	2/6/2013	<0.5	<1	<1	<1	<0.8	<1	<1	2 J	<1	<1	<0.7	<1	<1	<0.8	<0.5	<2.8	2
	3/19/2013	<0.5	<1	<1	<1	<0.8	<1	<1	<0.5	<1	<1	<0.7	1 J	<1	0.9 J	<0.5	<2.8	1.9
	6/26/2013	0.5 J	<1	<1	<1	<0.8	<1	<1	<0.5	<1	<1	0.8 J	<1	<1	<0.8	0.5 J	<2.9	<13.9

Notes:
nvr - no value recorded.
nr - not regulated as per Table 3 of TOGS guidance manual.
NS - Not Sampled (LNAPL Present in well during sampling event).
ND - Not Detected - All method detection limits are below regulatory guidance values.
> - Sample was below the method detection limit shown.
Bold concentration results denotes exceedance of guidance value.
J - Estimated.
NT- Not Tested.

Parameter	Solubility in Water
Benzene	1,280,000 ug/l
EthylBenzene	152,000 ug/l
Toluene	535,000 ug/l
T. Xylenes	167,000 ug/l
Naphthalene	30,000 ug/l

FORT HAMILTON MULTI-PHASE TREATMENT SYSTEM COMPLIANCE DATA
TABLE 3

Daily Water Discharge Per Month				12-Jul	12-Aug	12-Sep	18-Oct	6-Nov	27-Dec	9-Jan	8-Feb	22-Mar	18-Apr	30-May	26-Jun
< 9,000 Gallons Per Day (recommended)			(Gallons / Day)	116	203	205	140	85	8	0	1000	470	227	169	331
Air Effluent	***(Stack - Height 15 feet)***		**(Quarterly)**	**FH-081312-NS-SE (T015)**			**Air Stripper Summa Can #21 (T015) Dec 27, 2012**			**Air Stripper (T015) March 22, 2013**			**Air Stripper (T015) June 28, 2013**		
Air flow (cfm)	Max. Benzene Emissions (ppm-v)	Max Benzene Emissions (ug/m3)	Max Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)
250 (design rate)	1.60	5272	0.00494	**<0.002**	**<6.0**	**<0.00494**	**0.00077 J**	**2.5**	**<0.00494**	**0.093 J**	**300**	**<0.00494**	**0.0047 J**	**15 J**	**<0.00494**
Air Stripper Off - Gas			**(Quarterly)**	**FH-081312-NS-SE (T015)**			**Effluent Summa Can #102 (T015) Dec 27, 2012**				**Effluent (T015) March 22, 2013**		**Effluent (T015) June 28, 2013**		
Air flow (cfm)	Max. Benzene Emissions (ppm-v)	Max Benzene Emissions (ug/m3)	Max Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)	Benzene Emissions (ppm-v)	Benzene Emissions (ug/m3)	Benzene Emissions (lbs./hr)
150 (design rate)	2.66	8787	0.00494	**0.0058**	**19**	**<0.00494**	**0.0098**	**31.0**	**<0.00494**	**0.0012**	**3.9**	**<0.00494**	**0.0015**	**4.8**	**<0.00494**

Water Effluent		***(NYCDEP Discharge Parameters)***		**(Monthly)**								
Parameter	**Method**	**Daily Limit / Monthly Limit**	**Units**	**Sample Type**	**Effluent Grab Effluent Composite July 18, 2012**	**Effluent Grab Effluent Composite August 13, 2012**	**Effluent Grab Effluent Composite September 6, 2012**	**Effluent Grab Effluent Composite November 6, 2012**	**Effluent Grab Effluent Composite December 27, 2012**	**Effluent Grab Effluent Composite February 22, 2013**	**Effluent Grab Effluent Composite March 22, 2013**	**Effluent Grab Effluent Composite April 18, 2013**
Non-polar material	1664	50	mg/l	Instantaneous	<1.9	<2.1	0.44 J	<1.4	<1.4	2.8 J	<1.4	3.1 J
pH	SM4500	5-11	SU's	Instantaneous	8.12	7.98	7.67	7.70	7.9	7.31 *	NC	7.23*
Temperature		< 150	Degree F	Instantaneous	73.2	74.3	73.4	34.5	33.8	59 *	NC	72*
Flash Point	1010A	> 140	Degree F	Instantaneous	>200	>200	>200	>158	>175	>161	>158	>151
Cadmium	200.7	2	mg/l	Instantaneous	<0.0010	<0.0010	<0.0010	<0.00036	<0.00036	<0.00036	<0.00036	<0.00036
		0.69	mg/l	Composite	<0.0010	<0.0010	<0.0010	<0.00036	<0.00036	<0.00036	<0.00036	<0.00036
Chromium (VI)	SM3500	5	mg/l	Instantaneous	<0.010	<0.010	<0.010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Copper	200.7	5	mg/l	Instantaneous	0.0087	0.065	0.065	<0.0021	<0.0021	<0.0021	0.0032 J	<0.0021
Lead	200.7	2	mg/l	Instantaneous	0.0033	0.018	.0011 J	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
Mercury	245.1	0.05	mg/l	Instantaneous	<0.00020	<0.00020	<0.00020	<0.00007	<0.00007	<0.00007	<0.00007	<0.000070
Nickel	200.7	3	mg/l	Instantaneous	0.0060 J	0.015	<0.010	0.0063 J	0.0088 J	0.0077 J	0.0023 J	0.0050 J
Zinc	200.7	5	mg/l	Instantaneous	0.021	0.084	0.07	0.0086 J	0.0334	0.0150 J	0.0072 J	0.0058 J
Benzene	624	134 / 57	ppb	Instantaneous	<1.0	<1.0	<1.0	<0.9	<0.9	<0.9	<0.9	<0.9
Carbon tetrachloride	624	---	---	Composite	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Chloroform	624	---	---	Composite	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1
1,4 Dichlorobenzene	624	---	---	Composite	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Ethylbenzene	624	380/142	ppb	Instantaneous	<1.0	<1.0	<1.0	<0.8	<0.8	<0.8	<0.8	<0.8
MTBE (Methyl-Tert-Butyl-Ether)	624	50	ppb	Instantaneous	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Naphthalene	625	47/19	ppb	Composite	<1.4	<1.4	<1.4	<0.2	<0.2	<0.2	<0.2	<0.2
Phenol	420.4	---	---	Composite	<0.01	<0.01	<0.01	<0.015	<0.015	0.015	<0.015	<0.015
Tetrachloroethylene (Perc)	624	20	ppb	Instantaneous	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Toluene	624	74/28	ppb	Instantaneous	<1.0	<1.0	<1.0	<0.8	<0.8	<0.8	<0.8	<0.8
1,2,4 Trichlorobenzene	625	---	---	Composite	<2.9	<2.9	<2.8	<0.3	<0.3	<0.3	<0.3	<0.3
1,1,1 Trichloroethane	624	---	---	Composite	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1
Xylenes (Total)	624	74/28	ppb	Instantaneous	<3.0	<3.0	<3.0	<0.9	<0.9	<0.9	<0.9	<0.9
PCB's (Total)	608	1	ppb	Composite	<0.48	<0.47	<0.47	<0.20	<0.21	<0.22	<0.22	<0.21
Total Suspended Solids (TSS)	2540	350	mg/l	Instantaneous	8	<5.0	8	<3.0	<3.0	4.4 J	<3.0	<3.0
CBOD	5210B	---	---	Composite	1.0 J	<2.0	<2.0	3.9	<2.5	<2.3	4.5	<4.5
Chloride	300.0	---	---	Instantaneous	853	834	768	2200	877	2960	1050	581
Total Nitrogen	Calculation	---	---	Composite	1.9	<1.0	<1.0	<0.50	<0.50	<0.50	0.045 J	<0.50
Total Solids	2540	---	---	Instantaneous	2300	1900	1930	2280	1660	5320	2040	1390

Notes:
CFM - Cubic feet per minute.
ppm-v - Parts per million by volume.
ug/m3 - Micrograms per cubic meter.
lbs./hr - Pounds per hour.
mg/L- Milligrams per liter.
su- Standard Unit
Deg. F- Degrees Fahrenheit
ug/L - Micrograms per liter.
ppb - Parts per billion.

FORT HAMILTON TREATMENT UNIT INFORMATION
Table 4

Description	7/9/2012	8/31/2012	9/28/2012	10/11/2012	10/18/2012	10/25/2012	11/6/2012	11/7/2012	11/12/2012	12/5/2012	12/27/2012
MPE System Blower Vacuum (in Hg)	-8	-8	-9	-7.0	-7.0	-7.0	-7.0	-7.0	NR	-7.0	-7.0
MPE System Blower Flow Rate (CFM)	250	250	250	250	250	250	250	250	NR	250	250
Influent Vapor Concentration (ppm)	43	37	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	4.0
Influent LEL %	0	0	0	0	0	0	0	0	Meter was removed for repairs & calabration.	0	0
Enclosure LEL%	0	0	0	0	0	0	0	0	Meter was removed for repairs & calabration.	0	0
Air Stripper Off Gas Concentration (ppm)	0	0	0	NMT	NMT	NMT	NMT	NMT	NMT	NMT	0.0
Effluent Vapor Concentration (ppm)	0	0	0	NMT	NMT	NMT	NMT	NMT	NMT	NMT	0.3
MPE Wells Operating				MPE2 & MW-5	MPE2 & MW-5	MPE2 & MW-5	MPE2 & MW-5	MPE2 & MW-5	NR	MPE2 & MW-5	MPE2 & MW-5
Blower Discharge Air Temperature (Fahrenheit)	175	182	175	160	162	164	161	161	NR	160	146
Vapor Extraction Blower Hours	20585.58	21745.12	No Record	22691.91	22858.77	23026.79	23104.04	23113.19	23148.75	23148.75	23673.58
Particle Filter Differential Pressure (in wc)	2	2	2	0.6	0.4	0.3	0.3	0.3	NR	0.3	0.1
Blower Pitot Tube Differential Pressure (in wc)	2	2	2	2	2	2	2	2	NR	2	2
OWS Pump Pressure (psi)	38	38	35	35	35	35	35	35	NR	35	35
LNAPL Collected During Period (gallons)	NMT	NMT	NMT	NMT	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.
Air Stripper Blower Pressure (in. wc.)	8	6	5	7	6	5	5.2	5.1	NR	5	4
Air Stripper Blower Hours	19011.96	19011.96	No Record	402.30	569.20	737.20	814.40	823.60	859.1	859.1	1385.9
Air Stripper Discharge Pump Pressure (psi)	2	35	38	34	33	33	34	34	NR	34	28
Bag Filter 1 Pressure 1 (psi)	8	1	2	4	4	5	5	5	NR	5	4
Bag Filter 1 Pressure 2 (psi)	8	1	1	4	3	4	4	4	NR	4	3
Bag Filter 2 Pressure 1 (psi)	8	1	2	4	4	5	5	5	NR	5	4
Bag Filter 2 Pressure 2 (psi)	8	1	1	4	3	4	4	4	NR	4	3
Effluent Water Temperature (degrees C.)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT
Effluent Water pH (s.u.)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT
Effluent Water Meter Discharge Reading	151900	161385	167130	169552	170589	171511	171772	171816	172060	172060	172175
Air Compressor (psi)	60	60	60	59	60	59	60	60	NR	61	48
Technician (s)	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko and Jason Waldron

Notes:
NMT - No Measurement Taken.
NR- Remedial System Not Running.
OWS - Oil Water Separator.
in Hg - Inches of Mercury.
CFM - Cubic Feet per Minute.
ppm - Parts per Million.
LEL - Lower Explosive Limit.
in wc - Inches of water column.

FORT HAMILTON TREATMENT UNIT INFORMATION
Table 4

Description	1/9/2013	1/29/2013	2/3/2013	2/6/2013	2/8/2013	3/5/2013	3/19/2013	3/22/2013	4/4/2013	4/5/2013	4/18/2013	4/30/2013
MPE System Blower Vacuum (in Hg)	-7.0	-7.0	-7.0	-7.0	-7.0	-6.0	-7.0	-5.5	1.0	7.0	7.0	6.5
MPE System Blower Flow Rate (CFM)	250	250	250	250	250	250	250	250	30	250	250	250
Influent Vapor Concentration (ppm)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	40.5	NMT	NMT	NMT	NMT
Influent LEL %	0	0	0	0	0	0	0	0	0	0	0	0
Enclosure LEL%	0	0	0	0	0	0	0	0	0	0	0	0
Air Stripper Off Gas Concentration (ppm)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	0.9	NMT	NMT	NMT	NMT
Effluent Vapor Concentration (ppm)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	24.0	NMT	NMT	NMT	NMT
MPE Wells Operating	MPE2 & MW-5	MPE2 & MW-5	MPE2 & MW-5	MPE2 & MW-5	MPE2 & MW-5	MPE2,MW-5 & MPE 6	MPE2,MW-5 & MPE 6	MPE2,MW-5 & MPE 6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6
Blower Discharge Air Temperature (Fahrenheit)	146	148	148	149	149	149	146	145	145	144	145	143
Vapor Extraction Blower Hours	23982.22	24457.76	24466.59	24547.29	24557.53	25152.83	25487.37	25559.88	25875.15	25875.25	26180.19	26471.70
Particle Filter Differential Pressure (in wc)	0.01	0.01	0.01	0.01	0.01	2.30	2.2	2.2	NMT	2.2	2.0	0.4
Blower Pitot Tube Differential Pressure (in wc)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	NMT	2.0	2.0	2.0
OWS Pump Pressure (psi)	35.0	35.0	35.0	34.0	34.0	34.0	35.0	34.0	NMT	35.0	36.0	33.0
LNAPL Collected During Period (gallons)	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS	Sheen in OWS.	Sheen in OWS.
Air Stripper Blower Pressure (in. wc.)	3.0	3.0	4.0	11.1	13.1	11.0	11.1	11.8	NMT	6.0	12.1	15.2
Air Stripper Blower Hours	1689.8	2165.2	2174.0	2244.2	2255.6	2851.2	3185.7	3258.2	3573.5	3573.6	3878.5	4171.8
Air Stripper Discharge Pump Pressure (psi)	29.0	28.0	28.0	27.0	29.0	28.0	29.0	29.0	NMT	27.0	27.0	25.0
Bag Filter 1 Pressure 1 (psi)	4.0	4.0	4.0	4.0	4.0	5.0	6.0	7.0	NMT	6.0	6.0	7.0
Bag Filter 1 Pressure 2 (psi)	3.0	3.0	3.0	3.0	3.0	4.0	5.0	5.0	NMT	5.0	5.0	4.0
Bag Filter 2 Pressure 1 (psi)	4.0	4.0	4.0	4.0	4.0	5.0	7.0	8.0	NMT	7.0	7.0	7.0
Bag Filter 2 Pressure 2 (psi)	3.0	3.0	3.0	3.0	3.0	4.0	5.0	6.0	NMT	5.0	5.0	4.0
Effluent Water Temperature (degrees C.)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	22.0	NMT
Effluent Water pH (s.u.)	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	NMT	7.23	NMT
Effluent Water Meter Discharge Reading	172202	172202	172230	172924	174925	178131	181975	183384	186632	186632	188791	190458
Air Compressor (psi)	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	50.0	50.0	49.0	48.0
Technician (s)	Paul Boyko and Jason Waldron	Paul Boyko	Paul Boyko	Paul Boyko and Jason Waldron	Paul Boyko	Paul Boyko	Paul Boyko and Jason Waldron	Paul Boyko	Paul Boyko	Paul Boyko and	Paul Boyko	Paul Boyko

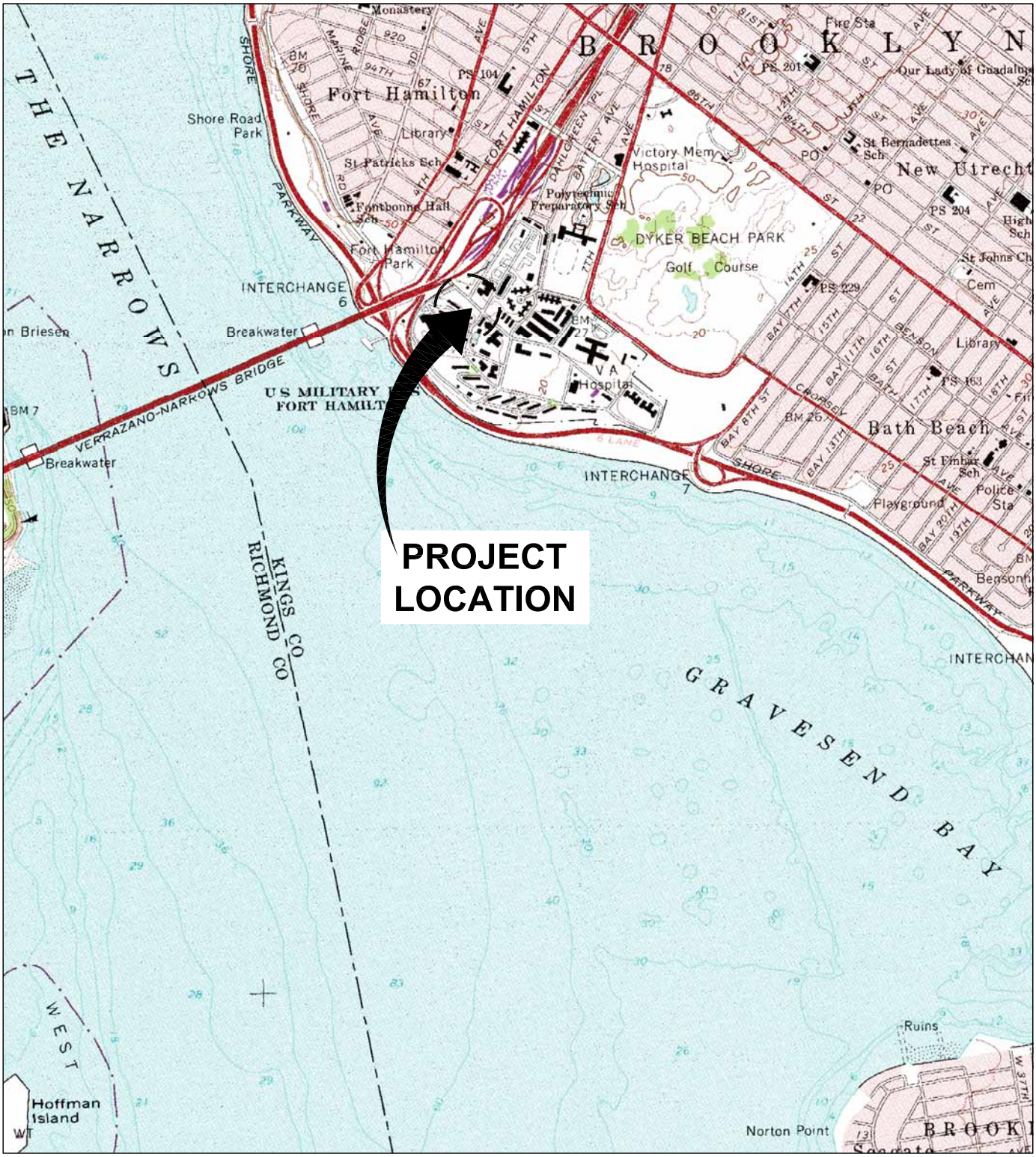
Notes:
NMT - No Measurement Taken.
NR- Remedial System Not Running.
OWS - Oil Water Separator.
in Hg - Inches of Mercury.
CFM - Cubic Feet per Minute.
ppm - Parts per Million.
LEL - Lower Explosive Limit.
in wc - Inches of water column.

FORT HAMILTON TREATMENT UNIT INFORMATION
Table 4

Description	5/8/2013	5/30/2013	6/12/2013	6/13/2013	6/25/2013	6/26/2013	6/28/2013	6/30/2013
MPE System Blower Vacuum (in Hg)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
MPE System Blower Flow Rate (CFM)	250	250	250	250	250	250	250	250
Influent Vapor Concentration (ppm)	NMT	NMT	NMT	NMT	NMT	NMT	32.6	NMT
Influent LEL %	0	0	0	0	0	0	0	0
Enclosure LEL%	0	0	0	0	0	0	0	0
Air Stripper Off Gas Concentration (ppm)	NMT	NMT	NMT	NMT	NMT	NMT	0.0	NMT
Effluent Vapor Concentration (ppm)	NMT	NMT	NMT	NMT	NMT	NMT	16.0	NMT
MPE Wells Operating	MPE-2, MW-5,	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6	MPE-2, MW-5, MPE-6
Blower Discharge Air Temperature (Fahrenheit)	163	164	168	166	167	168	160	162
Vapor Extraction Blower Hours	26662.29	27186.73	27498.50	27500.34	27786.51	27809.24	27857.27	27873.46
Particle Filter Differential Pressure (in wc)	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Blower Pitot Tube Differential Pressure (in wc)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
OWS Pump Pressure (psi)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
LNAPL Collected During Period (gallons)	heen in OW	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.	Sheen in OWS.
Air Stripper Blower Pressure (in. wc.)	16.0	17.8	15.5	15.6	15.6	15.8	13.3	15.0
Air Stripper Blower Hours	4362.4	4886.8	5198.6	5200.5	5486.6	5509.4	5557.4	5573.7
Air Stripper Discharge Pump Pressure (psi)	26.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Bag Filter 1 Pressure 1 (psi)	6.0	7.0	6.0	6.0	6.0	5.0	5.0	6.0
Bag Filter 1 Pressure 2 (psi)	5.0	6.0	5.0	5.0	5.0	4.0	4.0	5.0
Bag Filter 2 Pressure 1 (psi)	7.0	8.0	7.0	7.0	6.0	5.0	5.0	7.0
Bag Filter 2 Pressure 2 (psi)	4.0	6.0	5.0	5.0	5.0	4.0	4.0	5.0
Effluent Water Temperature (degrees C.)	NMT	NMT	NMT	NMT	NMT	NMT	22.6	NMT
Effluent Water pH (s.u.)	NMT	NMT	NMT	NMT	NMT	NMT	7.30	NMT
Effluent Water Meter Discharge Reading	191450	195890	201046	201056	204320	204476	204826	204868
Air Compressor (psi)	48.0	48.0	50.0	50.0	50.0	50.0	50.0	50.0
Technician (s)	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko	Paul Boyko and Greg Szczupak	Paul Boyko	Paul Boyko

Notes:
NMT - No Measurement Taken.
NR- Remedial System Not Running.
OWS - Oil Water Separator.
in Hg - Inches of Mercury.
CFM - Cubic Feet per Minute.
ppm - Parts per Million.
LEL - Lower Explosive Limit.
in wc - Inches of water column.

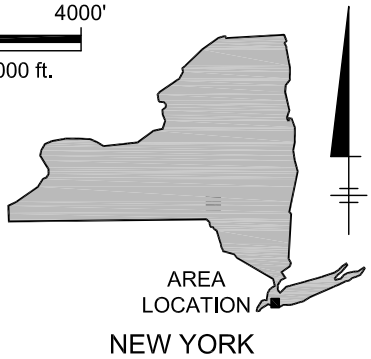
Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., THE NARROWS, N.Y.-N.J., 1966, PHOTOREVISED 1981.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT
AAFES STATION, FT. HAMILTON, N.Y.

SITE LOCATION MAP

PIKA INTERNATIONAL, INC. — MALCOLM PIRNIE

FIGURE 1

CITY:SYRACUSE DIV/GROUP:ENVCAD DB:R. BASSETT LD: PIC:(Opt) PM:(Reqd) TM:A. KORIK LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\06261\024\00001\00001\DWG\06261N01.dwg LAYOUT: 1 SAVED: 2/22/2013 12:04 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/22/2013 12:06 PM BY: BASSETT, RICHARD
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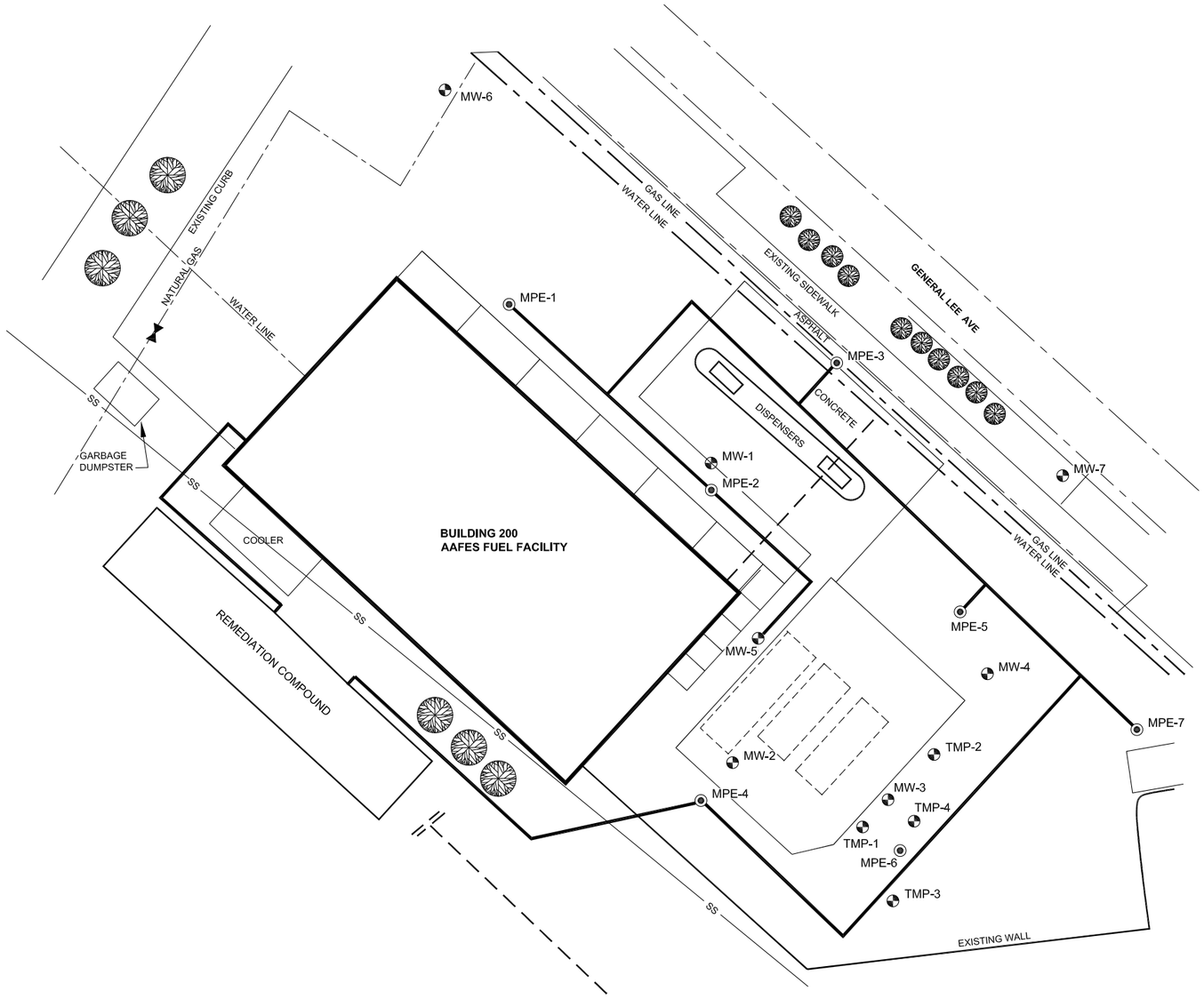

LEGEND:

MW-4	EXISTING MONITORING WELL
MPE-3	MPE EXTRACTION WELL
SS	SANITARY SEWER LINE
	MPE HEADER PIPE
	UNDERGROUND STORAGE TANKS.

NOTE:

1. BASE MAP PROVIDED BY THE U.S.ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT AND PLEXUS SCIENTIFIC.

2. ALL LOCATIONS AND SCALE ARE APPROXIMATE.

0 10' 20'
GRAPHIC SCALE

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT
AAFES STATION, FT. HAMILTON, N.Y.

SITE MAP

PIKA INTERNATIONAL, INC. A JOINT VENTURE
MALCOLM PIRNIE

FIGURE
2

CITY: SYRACUSE, NY DIV/GROUP: ENV/CAD DB: R. BASSETT LD: (Opt) PIC: PM: TM: A. KORIK LYR: ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\06261\02410001\000004\DWG\06261B01.dwg LAYOUT: 2 SAVED: 7/22/2013 6:57 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/22/2013 6:58 PM BY: BASSETT, RICHARD
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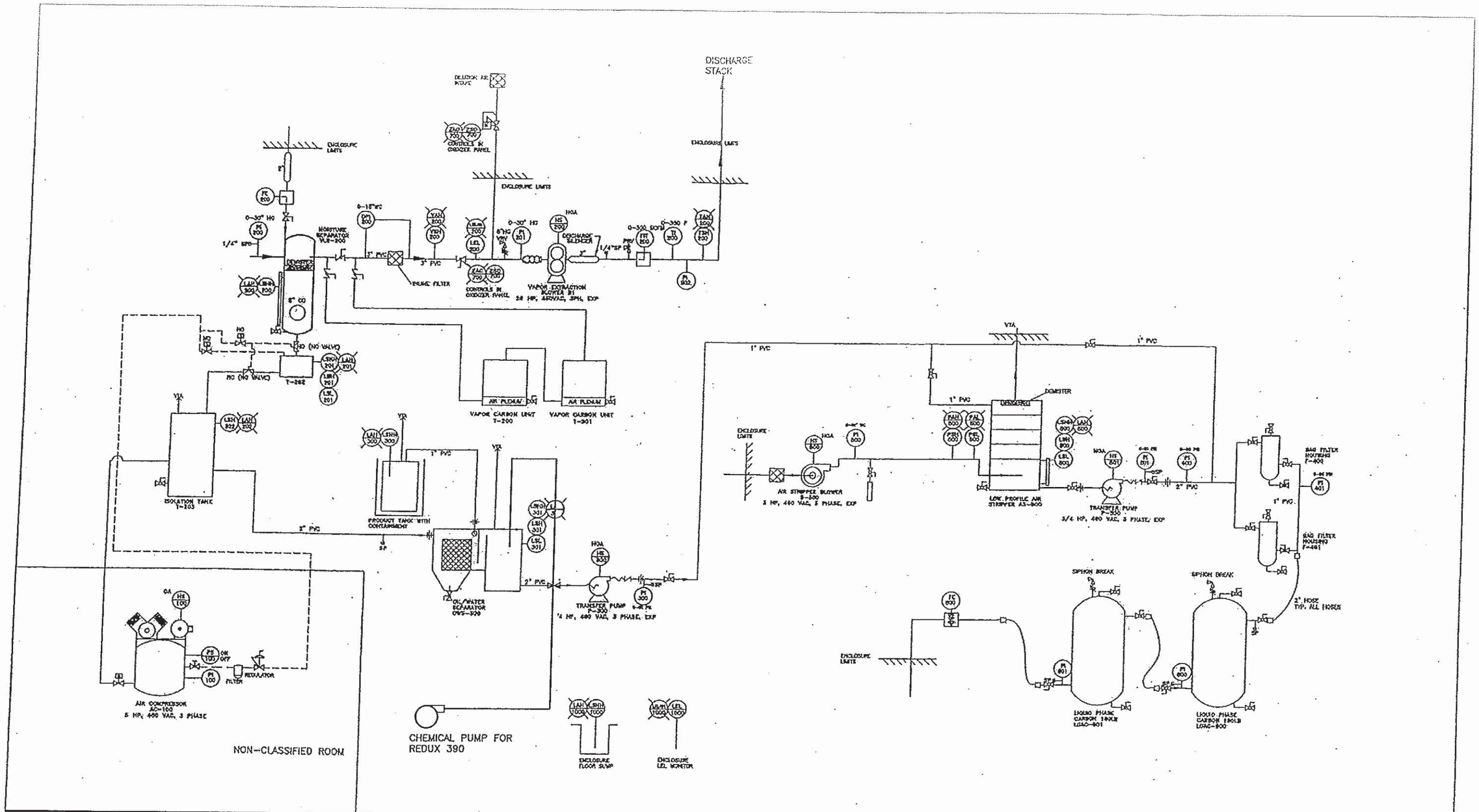


DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
S. Wiafe 08/02/10	T. McHugh 08/02/10	-- --	MPEs-Flow Diagram.dwg

File: N:\cad\CAD
Plot Date/Time: Apr 19\USAEC\Ft-Hamilton\Gw-Figures\MPEs-Flow Dia-3.dwg
Plotted By: stephen.wiafe 2011 - 2:52pm

Shaw Environmental, Inc.

FIGURE 3

P&ID SVE SYSTEM

AAFES STATION, FT. HAMILTON, NEW YORK

Figure 4
COC Concentrations Detected in MW-4 Groundwater Samples vs. Time
Annual Groundwater Monitoring Report – July 1, 2012 through June 30, 2013
Fort Hamilton, New York

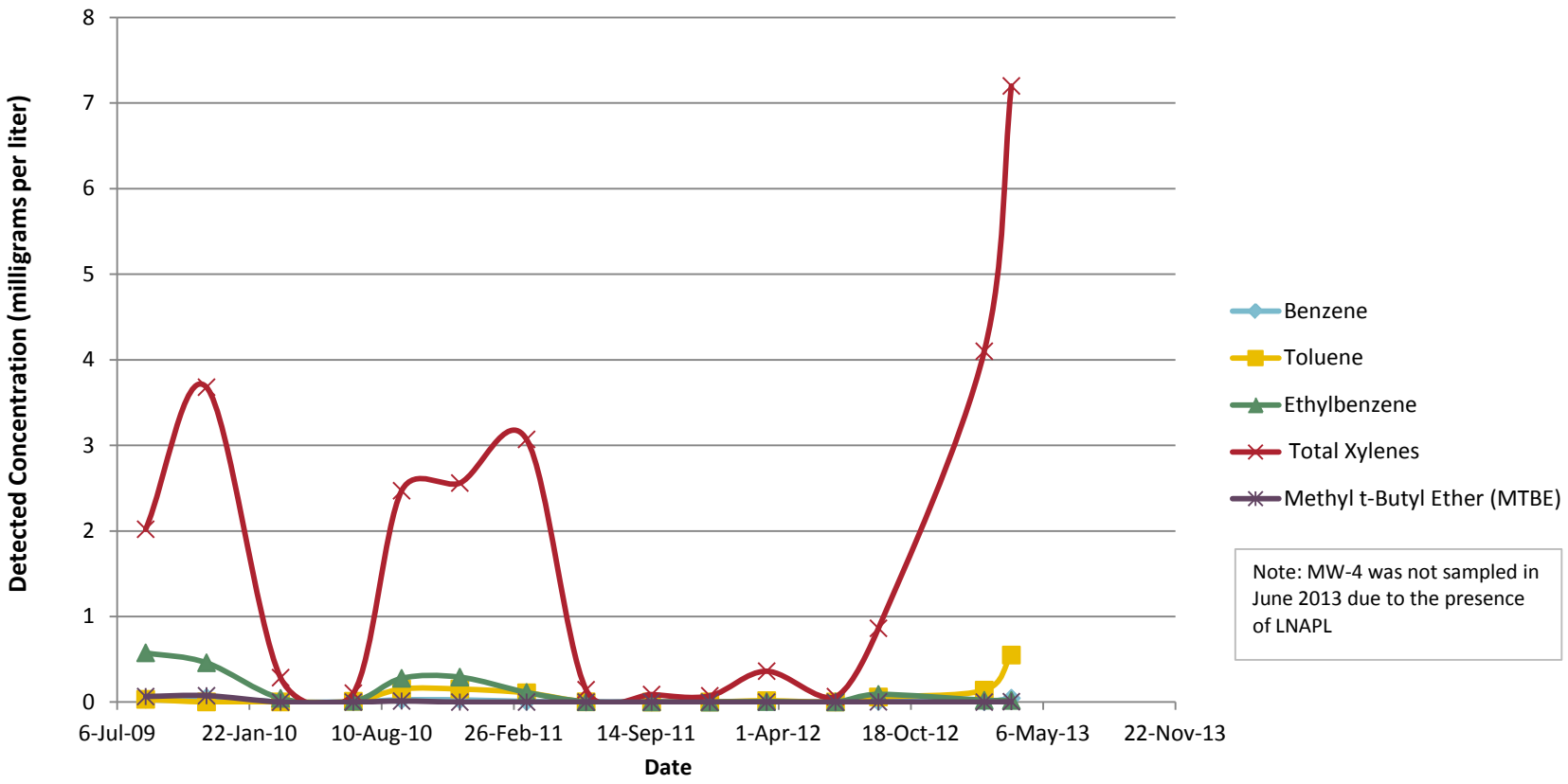
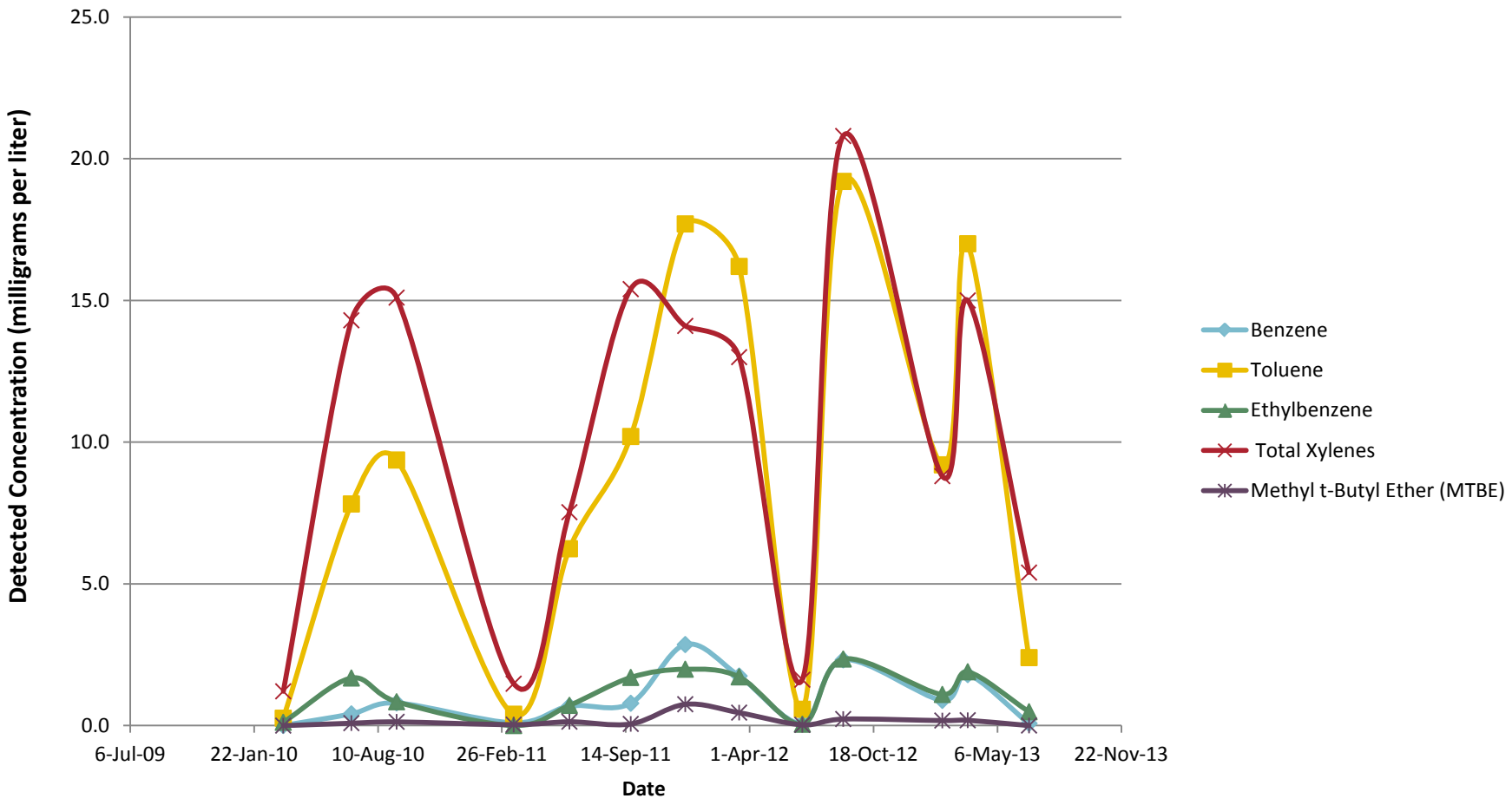


Figure 5
COC Concentrations Detected in MW-5 Groundwater Samples vs. Time
Annual Groundwater Monitoring Report – July 1, 2012 through June 30, 2013
Fort Hamilton, New York



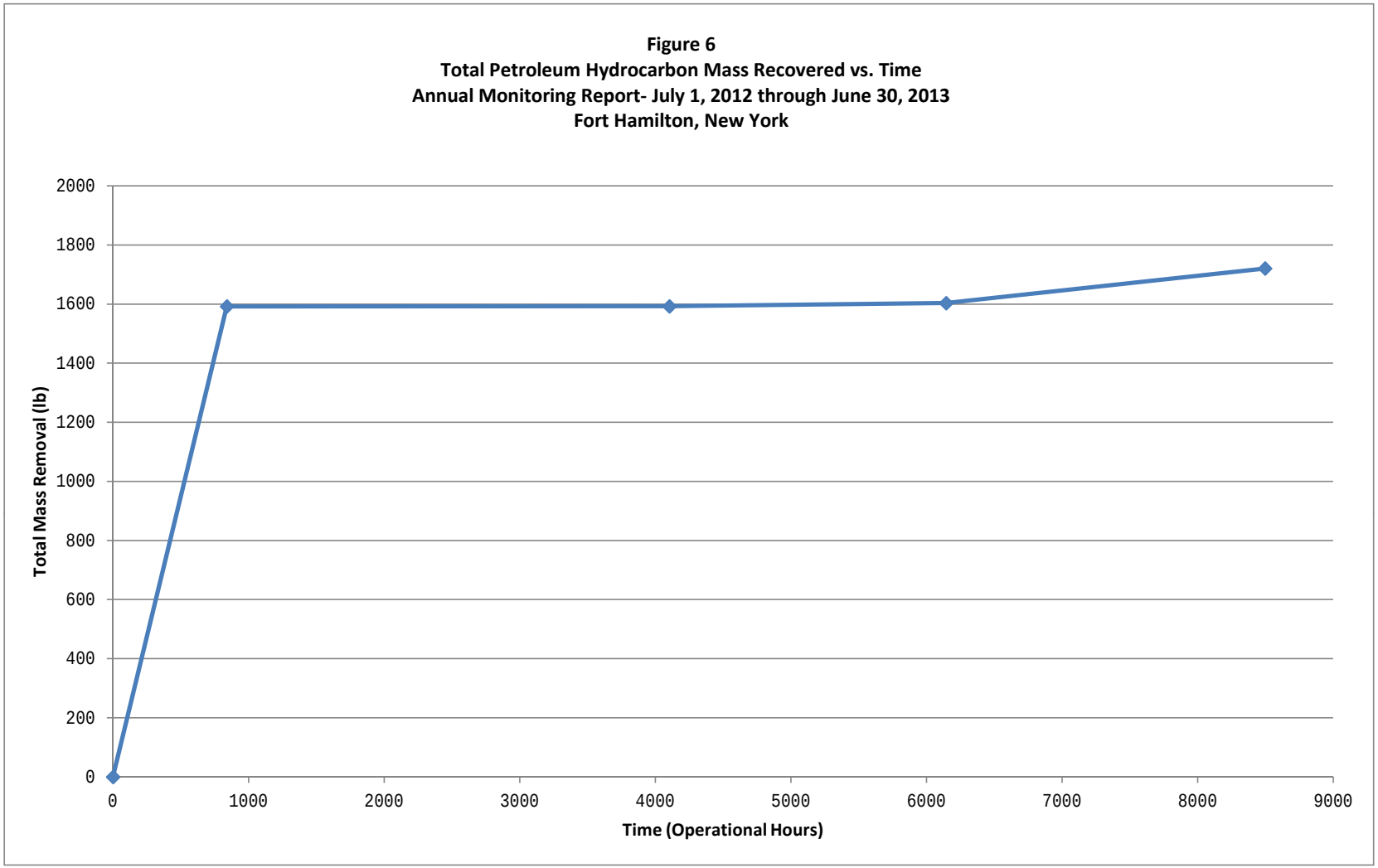


Figure 6
Total Petroleum Hydrocarbon Mass Recovered vs. Time
Annual Monitoring Report- July 1, 2012 through June 30, 2013
Fort Hamilton, New York
Total Mass Removal (lb)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
Time (Operational Hours)

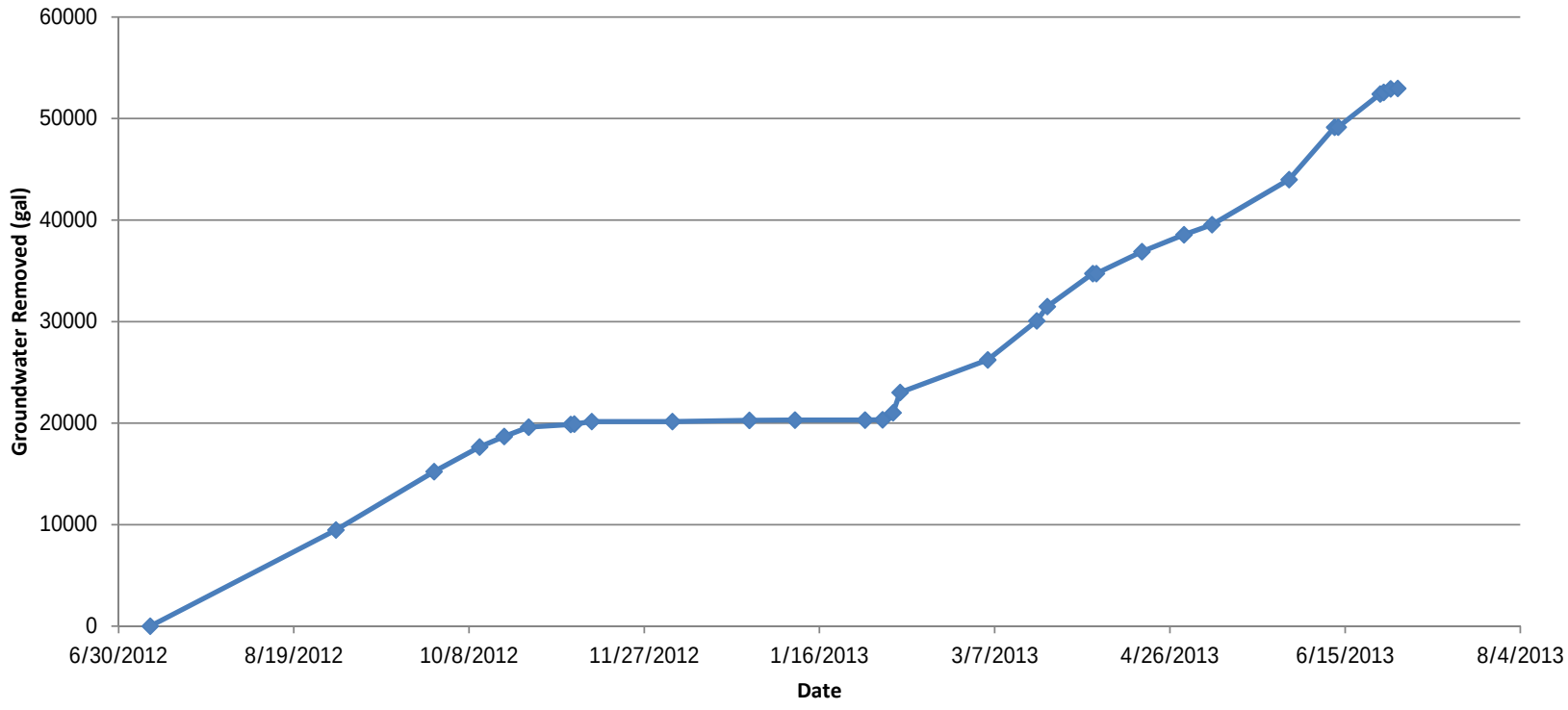



Figure 7
Total Groundwater Recovered vs. Time from July 1, 2012 through June 30, 2013
Annual Monitoring Report- July 1, 2012 through June 30, 2013
Fort Hamilton, New York