



**Progress Report (April-September 2014)
Operation and Maintenance
Remediation Systems for Gasoline Alley and Army Air Force
Exchange Service Station
Fort Drum, New York**



United States Army Environmental Command



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Fort Drum, New York**

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LIST OF ACRONYMS & ABBREVIATIONS

AAFES	Army Air Force Exchange Service
AAS	Aquifer Air Sparge
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
cfm	cubic feet per minute
DO	Dissolved Oxygen
DPE	Dual-phase extraction
ISCO	<i>In-Situ</i> Chemical Oxidation
LIF	Laser-Induced Fluorescence
LNAPL	Light Non-Aqueous Phase Liquid
MIP	Membrane Interface Probe
µg/L	Micrograms per liter
MPE	Multi-phase extraction
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and maintenance
ORP	Oxidation-Reduction Potential
PID	Photoionization Detector
Plexus	Plexus Scientific Corporation
POTW	Publicly-Owned Treatment Works
ppm	parts per million
psi	pounds per square inch
RAWP	Remedial Action Work Plan
SVE	Soil Vapor Extraction
UST	Underground storage tank
UVOST	Ultra-Violet Optical Screening Tool
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

Gasoline Alley is located in the southwest corner of the Fort Drum Military Installation, within the developed portion of the installation known as the Cantonment Area (**Figure 1-1**). The two-mile-long thoroughfare consists of two parallel one-way streets (Oneida and Ontario Avenues) and the associated unpaved median located between the two avenues.

Nine former fuel dispensing areas were located in or near the Gasoline Alley median. The former dispensing areas are referred to as Areas 1195, 1295, 1395, 1495, 1595, 1795, 1895, 1995, and 3805; however, only five of those areas (Areas 1295, 1595, 1795, 1995, and 3805) and the Army Air Force Exchange Services (AAFES) Service Station (Building P-2140) are discussed in this report. The remedial strategies at each of these sites vary, but in general, include proven remediation technologies, specifically:

- *In-Situ* Chemical Oxidation (ISCO) using Ozone;
- Dual-Phase Extraction (DPE);
- Multi-Phase Extraction (MPE);
- Aquifer Air Sparge (AAS);
- Soil Vapor Extraction (SVE); and
- *In-Situ* Augmented Bioremediation.

Under Delivery Order 0004, Plexus Scientific Corporation (Plexus) provided operation and maintenance (O&M) services at the previously mentioned Gasoline Alley sites through 30 September 2014. This report provides a summary of the O&M activities completed at each of the areas, including results of operations, system run time, equivalent hydrocarbon mass recovered, and recommendations for future activities.

2.0 GASOLINE ALLEY SITE BACKGROUNDS

The following table summarizes the history of each site, providing site identification, source of contamination, historical corrective actions and results, and current corrective actions and results:

Site ID	Source	Historical Investigative and Corrective Actions	Current Corrective Actions
1295	Release discovered in 1994 associated with leaking underground storage tank (UST) system.	<p>2006-2007: ISCO performed and results indicated that ISCO did not reduce concentrations effectively.</p> <p>2009, April: Membrane Interface Probe (MIP) and Laser Induced Fluorescence (LIF) Ultraviolet Optical Screening Tool (UVOST) investigations shows area of impacted soil potentially contributing to groundwater impact.</p> <p>2010-2013: Ozone introduced through 12 injection points. Temporarily shut down to perform trial application of nutrients. Restarted ozone application. Results indicated that bioremediation was feasible.</p>	<p>2014, January: Plexus received approval for Remedial Action Work Plan (RAWP) proposing a pilot study of enhanced aerobic metabolic bioremediation of benzene, toluene, ethylbenzene, and total xylenes (BTEX).</p> <p>2014, February-July: Plexus conducted augmented aerobic bioremediation pilot study.</p> <p>2014, August: Plexus presented pilot study results, conclusions, and recommendations in Draft Extended Bioaugmentation Pilot Study Completion Report.</p>
1595	Removal and replacement of USTs in 1970s. Fuel dispensing discontinued and equipment removed in 1994.	<p>1980s: Construction of collection pond and earthen dike at discharge point of spring for light non-aqueous phase liquid (LNAPL) collection. Estimated 7,000 gallons of LNAPL collected from impoundment.</p> <p>1991-2005: Construction and operation of groundwater pumping and treatment facility. Recovery system deactivated after removing approximately 8,000 gallons LNAPL. SVE/AAS systems installed to address persistent contamination.</p> <p>2010: SVE system deactivated due to asymptotic vapor recovery.</p> <p>2012: AAS system deactivated to perform bioaugmentation pilot study.</p>	<p>2013, December: Plexus received approval for extended bioaugmentation pilot study in areas of the site with the highest concentrations of BTEX, as recommended in the Bioaugmentation Pilot Study Results Memorandum, submitted in November 2013 and detailing results of the initial six-month bioaugmentation pilot study.</p> <p>2014, July: Plexus concluded extended augmented anaerobic bioremediation pilot study.</p> <p>2014, August: Plexus presented pilot study results, conclusions, and recommendations in Draft Extended Bioaugmentation Pilot Study Completion Report.</p>

Site ID	Source	Historical Investigative and Corrective Actions	Current Corrective Actions
1795	Fuel storage and dispensing facility with two steel USTs and UST system. System removed in 1994 and 1995. Landfill from World War II with surface debris exists nearby to site.	<p>1986: Earliest report of petroleum contamination.</p> <p>2000: Bioslurping pilot treatment study performed to evaluate LNAPL removal effectiveness.</p> <p>2007: Installation of three MPE/SVE/AAS remediation systems completed. Startup in January 2008.</p> <p>2011: MIP investigation to delineate BTEX plume.</p> <p>2012: Begin six-month bioaugmentation pilot study. SVE/AAS system operational during study.</p>	<p>2013, December: Plexus received approval for extended bioaugmentation pilot study in areas of the site with the highest concentrations of BTEX, as recommended in the Bioaugmentation Pilot Study Results Memorandum, submitted in November 2013 and detailing results of the initial six-month bioaugmentation pilot study.</p> <p>2014, July: Plexus concluded extended augmented aerobic bioremediation pilot study.</p> <p>2014, August: Plexus presented pilot study results, conclusions, and recommendations in Draft Extended Bioaugmentation Pilot Study Completion Report.</p>
1995/3805	Historical release of jet propellant fuel (JP-4) from steel USTs. Tanks removed in 1994.	<p>2003-2004: MPE and AAS systems activated to address source area vadose zone soil, LNAPL, and saturated smear zone soil.</p> <p>2011: Plexus implements five-month nutrient application trial in conjunction with AAS system operations. MIP investigation performed to evaluate horizontal and vertical BTEX extents.</p> <p>2012: Plexus modifies system, converting vertical extraction wells to horizontal extraction wells.</p>	<p>2013, December: Plexus received approval for extended bioaugmentation pilot study in areas of the site with the highest concentrations of BTEX, as recommended in the Bioaugmentation Pilot Study Results Memorandum, submitted in November 2013 and detailing results of the initial six-month bioaugmentation pilot study.</p> <p>2014, July: Plexus concluded extended augmented anaerobic bioremediation pilot study.</p> <p>2014, August: Plexus presented pilot study results, conclusions, and recommendations in Draft Extended Bioaugmentation Pilot Study Completion Report.</p>

Site ID	Source	Historical Investigative and Corrective Actions	Current Corrective Actions
<p>AAFES Building P-2140</p>	<p>Release discovered during tank removal in October 1993. Active petroleum dispensing facility.</p>	<p><u>2002, January:</u> DPE system activated to treat source area separate-phase product and residual soil contamination.</p> <p><u>2006:</u> AAS system installed to address dissolved phase plume below water table.</p> <p><u>2009-2012:</u> Ozone treatment operation with DPE/AAS system offline. Ozone system replaced in March 2012.</p> <p><u>2011:</u> Five-month nutrient application began in conjunction with DPE/AAS system operations. Results indicate that bioremediation is feasible at this site.</p>	<p><u>2014, January:</u> Plexus received approval for RAWP proposing a pilot study of enhanced aerobic metabolic bioremediation of BTEX.</p> <p><u>2014, February-July:</u> Plexus conducted augmented anaerobic bioremediation pilot study.</p> <p><u>2014, August:</u> Plexus presented pilot study results, conclusions, and recommendations in Draft Extended Bioaugmentation Pilot Study Completion Report.</p>

3.0 SYSTEM O&M MONITORING ACTIVITIES

System operation and performance monitoring activities were completed at each site by Plexus during the reporting period. O&M site visits were conducted three times per week during the reporting period to monitor treatment system performance, collect operational data, and make necessary adjustments to the treatment system to optimize system performance. Scheduled maintenance performed during the period included lower explosive limit sensor calibration, vacuum pump and compressor oil changes, filter cleanings, vacuum pump belt adjustments, and static liquid level collection. **Table 3-1** summaries runtime for all systems discussed below.

3.1 Area 1295

3.1.1 Ozone System

Continued elevated concentrations of dissolved petroleum hydrocarbon compounds in groundwater indicated that active remediation was necessary. The results of the MIP and LIF UVOST Investigations, conducted in April 2009, indicated an area of soil contamination potentially contributing to the groundwater impact. Subsequently, the ozone treatment unit was mobilized from Area 1795 and began operation on 22 July 2010 at the site. Ozone application to the subsurface was conducted in the area via 12 injection points (**Figure 3-1**). The ozone system was deactivated on 20 September 2013 to evaluate system performance and develop an alternative remedial strategy. The Area 1295 ozone treatment system did not operate during the reporting period (**Table 3-2**).

3.1.2 Bioaugmentation Pilot Study

The bioaugmentation pilot study RAWP for Area 1295 was approved in January 2014. Plexus performed a biological seeding event using a microbe consortium in mid-February 2014, followed by weekly injections of oxygenated water and monthly injections of site-specific nutrients. This process continued through July 2014, during which Plexus collected periodic volatile organic compound (VOC) and microbial samples to monitor the effect of bioremediation. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

3.2 Area 1595

3.2.1 Soil Vapor Extraction System

The SVE system at Area 1595 (**Figure 3-2**) was deactivated for the 2013 Bioaugmentation Pilot Study and did not operate during the reporting period.

3.2.2 Aquifer Air Sparge System

The AAS system at Area 1595 (**Figure 3-2**) did not operate during the reporting period.

3.2.3 Bioaugmentation Pilot Study

The extended bioaugmentation pilot study was approved in December 2013. In January 2014, Plexus began a biweekly gravity feeding of microbes, a process which lasted through July 2014. Samples were regularly collected and analyzed for VOCs and microbial colony size. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

3.3 Area 1795

3.3.1 Multi-Phase Extraction Systems

3.3.1.1 Area 1795 - System A/B Operation

The design configuration for the MPE system designated that Area 1795 System A/B (**Figure 3-3**) runs on extraction Legs 2, 3, 4, and 5 with a single extraction blower configuration. The Area 1795 System A/B operated for 170 days during the reporting period, as derived from the system's operation hour meter. Based on the 176 days of potential operating time (excludes scheduled downtime), the system achieved 96.6% uptime during this reporting period. Unscheduled downtime was due to power outages. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.3.1.2 Performance Monitoring

Scheduled performance monitoring and O&M activities performed on the MPE systems at Area 1795 during this period included inspection and service of system components and adjustment of vacuum extraction rates from the recovery wells to maximize system performance and effectiveness.

Extraction vacuum and flow rates of the MPE system and select well heads were recorded during the daily site visits, or as weather conditions permitted. If the flow rate required adjustment, the new flow rate was recorded. Additionally, extracted soil vapor concentrations and airflow rates were collected after the vacuum pump. Performance monitoring data is included in **Table 3-3**.

3.3.2 Aquifer Air Sparge Systems

3.3.2.1 Area 1795 - System A/B Operation

Area 1795 AAS System A/B (**Figure 3-4**) operated for 170 days during the reporting period, as derived from the system's operation hour meter. Based on the 176 days of potential operating time (excludes scheduled downtime), the system achieved 96.6% uptime during this reporting period, sparging air at an average pressure of 6.4 pounds per square inch (psi). Unscheduled downtime was due to power outages. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.3.2.2 Area 1795 - System C Operation

Area 1795 AAS System C (**Figure 3-4**) runs Lines 7, 8, and 9. The AAS treatment system was started in January 2008 and was in the start-up/shake-out process until Plexus acquired the system on 7 July 2008. The purpose of the system is to keep the area downgradient of the plume oxygen enriched to promote bioremediation. Area 1795 AAS System C operated for 170 days during the reporting period, as derived from the system's operation hour meter. Based on the 176 days of potential operating time (excludes scheduled downtime), the system achieved 96.6% uptime during this reporting period, sparging air at an average pressure of 7.0 psi. Unscheduled downtime was due to power outages. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.3.2.3 Performance Monitoring

Scheduled performance monitoring and O&M activities performed on the Area 1795 AAS systems during this period included inspection and service of system components and adjustment of airflow

rates to sparge wells to maximize system performance and effectiveness. Performance monitoring data is included in **Table 3-3**.

Air injection pressure and flow rates were recorded during the site visits. Since the primary objective of the AAS technology is the air stripping of dissolved contaminants within the groundwater, all the air sparge wells were activated to maximize stripping and increase the potential for elevating the dissolved oxygen (DO) levels. The injection pressure was monitored to stay within the design specifications.

In addition, DO, oxidation-reduction potential (ORP), and photoionization detector (PID) readings were collected on a monthly basis from select wells, beginning in December 2008, to help analyze treatment effectiveness.

3.3.3 Bioaugmentation Pilot Study

The extended bioaugmentation pilot study was approved in December 2013. In January 2014, Plexus began a biweekly gravity feeding of microbes, a process which lasted through July 2014. Samples were regularly collected and analyzed for VOCs and microbial colony size. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

3.4 Area 3805

3.4.1 Multi-Phase Extraction Systems

3.4.1.1 Area 3805 - System A

The MPE system designated Area 3805 System A (**Figure 3-5**) operates on Lines 3, 4, and 5 when active. The system operated continuously from 15 April 2008 until it was deactivated following the system evaluation and optimization activities conducted in April 2009. During most of the reporting period, the MPE portion of System 3805 B operated all extraction wells, modified to horizontal extraction points, with the MPE portion of System 3805 A remaining as a back-up unit. On 25 August 2014, the MPE blower of System 3805 A was activated in place of the down MPE blower of System 3805 B, to keep the system operating. MPE System 3805 A continues to operate while MPE System 3805 B is not operational.

Area 3805 MPE System A operated for 22.8 days during the reporting period, as derived from the system's operation hour meter. Based on the 36 days of potential operating time (excludes scheduled downtime), the system achieved 63.3% uptime during this reporting period. Unscheduled downtime was due to a faulty hour meter. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.4.1.2 Area 3805 - System B

The MPE system designated Area 3805 System B (**Figure 3-6**) operates on Lines 6, 7, 8, 9. Although connected to Lines 10 and 11, these lines were deactivated when it was determined that they were likely damaged and subsequently pulling too much water into the system. The system remained in operation from 15 April 2008 to 29 July 2010 to address the persistent LNAPL detected in areas of the site. With the exception of operations for discharge permit sampling, the system remained off until selected vertical extraction wells were modified to horizontal extraction points in March 2012 and the MPE treatment system was activated. On 25 August 2014, because of a faulty blower unit, the MPE blower of System 3805 A was activated in place of the down MPE blower of System 3805 B, to keep the system operating. MPE System 3805 A continues to operate while MPE System 3805 B is not operational.

The MPE treatment system operated for 119.2 days during the reporting period as derived from the system's operation hour meter. Based on the 140 days of potential operating time (excludes scheduled downtime), the system achieved 81.1% uptime during this reporting period. Unscheduled downtime was due to a faulty OWS pump, failed starter relay, and power outages. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.4.1.3 Area 3805 - System C

The MPE system designated Area 3805 System C (**Figure 3-7**) runs Lines 1 and 2. The MPE treatment system operated for 55.2 days during the reporting period as derived from the system's operation hour meter. Based on the 176 days of potential operating time (excludes scheduled downtime), the system achieved 31.4% uptime during this reporting period. Unscheduled downtime was due to blower repairs and power outages. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.4.1.4 Performance Monitoring

Scheduled performance monitoring and O&M activities on the MPE systems at Areas 3805 and 1995 performed during this period included inspection and service of system components and adjustment of vacuum extraction rates from the recovery wells to maximize system performance and effectiveness.

Extraction vacuum and flow rates on the MPE system and select well heads were recorded during the weekly site visits, or as weather conditions permitted. If the flow rate required adjustment, the new flow rate was recorded. In addition, extracted soil vapor concentrations and airflow rates after the vacuum pump were monitored and recorded daily. Performance monitoring data is included in **Table 3-4**.

3.4.2 Soil Vapor Extraction System

3.4.2.1 Area 3805 - System D

Area 3805 System D (**Figure 3-8**) is comprised of Lines 12 and 13. The SVE system was deactivated on 6 August 2008 due to low organic vapor recovery and an internal leak in the SVE blower and has not been reactivated.

3.4.3 Aquifer Air Sparge Systems

3.4.3.1 Area 3805 - System A/B

The Area 3805 System A/B (**Figures 3-5** and **3-6**) AAS equipment did not operate during this reporting period, due to the implementation and evaluation of the bioaugmentation pilot study.

3.4.3.2 Area 3805 - System C

Area 3805 System C (**Figure 3-7**) AAS system operated for 145.3 days during the reporting period as derived from the system's operation hour meter. Based on the 176 days of potential operating time (excludes scheduled downtime), the system achieved 82.6% uptime during this reporting period, sparging air at an average pressure of 6.3 psi. Unscheduled downtime was due to power outages. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.4.3.3 Area 3805 - System D

The Area 3805 System D (**Figure 3-8**) AAS treatment system did not operate during the reporting period, due to the implementation and evaluation of the bioaugmentation pilot study.

3.4.3.4 Performance Monitoring

Scheduled performance monitoring and O&M activities performed at the Area 3805 C AAS system during this period included inspection and service of system components and adjustment of airflow rates to sparge wells to maximize system performance and effectiveness. Performance monitoring data is included in **Table 3-4**.

Air injection pressure and flow rates were recorded during the site visits. In addition, DO, ORP, and PID readings were collected on a monthly basis from select wells, beginning in December 2008, to help analyze treatment effectiveness.

3.4.4 Bioaugmentation Pilot Study

The extended bioaugmentation pilot study was approved in December 2013. In January 2014, Plexus began a biweekly gravity feeding of microbes, a process which lasted through July 2014. Samples were regularly collected and analyzed for VOCs and microbial colony size. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

3.5 Army Air Force Exchange Service Station (Building P-2140)

3.5.1 Dual-Phase Extraction System

The AAFES Station (Building P-2140) DPE system (**Figure 3-9**) did not operate during the reporting period, due to the implementation and evaluation of the bioaugmentation pilot study.

3.5.2 Aquifer Air Sparge System

The AAFES Station (Building P-2140) AAS system (**Figure 3-9**) did not operate during the reporting period, due to the implementation and evaluation of the bioaugmentation pilot study.

3.5.3 Mobile Ozone Aquifer Air Sparge System

3.5.3.1 System Operation

Elevated dissolved petroleum hydrocarbon concentrations within the groundwater indicated that additional active remedial treatment was necessary upgradient of the former USTs. A trailer mounted ozone treatment unit was mobilized and began operation on 22 December 2009, injecting ozone via seven injection points. Mechanical faults and failures with the ozone generator, air compressor, and other associated components resulted in demobilizing the mobile ozone trailer in September 2011. Realizing the benefits of the continuous ozone injection, Plexus acquired a new mobile unit, which became fully operational on 23 March 2012. In August 2013, the injection unit was modified to inject an oxygen rich air to strip dissolved petroleum compounds from the groundwater and enhance indigenous microbe grow. The mobile ozone trailer was deactivated and removed from the site on 19 May 2014.

The AAFES Station (Building P-2140) ozone injection system operated for 49 days during the reporting period as derived from the system's operation hour meter. Based on the 49 days of potential operating time (excludes scheduled downtime), the system achieved 100.0% uptime during this reporting period. A summary of the system runtime for the reporting period is provided in **Table 3-1**.

3.5.3.2 Performance Monitoring

Scheduled performance monitoring and O&M activities performed at AAFES Station (Building P-2140) during this period included inspection and service of system components and adjustment of airflow rates to sparge wells to maximize system performance and effectiveness. Air injection pressure and flow rates were recorded during the site visits. Performance monitoring data is included in **Table 3-5**. In addition, DO, ORP, and PID readings were collected on a monthly basis from select wells to help analyze treatment effectiveness.

3.5.4 Bioaugmentation Pilot Study

The bioaugmentation pilot study RAWP for Building P-2140 was approved in January 2014. In February 2014, Plexus began a biweekly gravity feeding of microbes, a process which lasted through July 2014. Samples were regularly collected and analyzed for VOCs and microbial colony size. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

4.0 RESULTS

4.1 Area 1295

4.1.1 Light Non-Aqueous Phase Liquid

LNAPL has not been observed at this site (**Table 4-1**).

4.1.2 Ozone Treatment System

Ozone treatment of residual hydrocarbon impact within the subsurface at Area 1295 was initiated on 22 July 2010 and continued to 6 December 2010, when the system was deactivated due to weather-related conditions. The system was restarted on April 12, 2011. Ozone sparge pressure and flows were adjusted to the proposed parameters of 12 psi and 5 cubic feet per minute (cfm), but system loading on the portable generator required minor adjustments to both the pressure and flows (5 psi and 3 cfm, respectively) to allow continuous power for the system to operate the daily cycle of the injection points. Pressures and flows were recorded daily to evaluate the effects on the groundwater and determine future application parameters. The system was deactivated in September 2013 to evaluate performance and to develop an alternative remedial strategy. Historical data has been provided in previous quarterly reports.

4.1.3 System Effectiveness Monitoring

Initially, due to the proximity of the monitoring network to the ozone injection wells and the potential to damage field equipment with the ozone, no wells were monitored monthly for DO, ORP, conductivity, or headspace VOC reading, but Plexus implemented a monitoring program at 1295-MW30 beginning in March 2011 to capture the monthly information.

In an effort to further analyze treatment effectiveness, select wells were chosen for monthly monitoring of DO, ORP, and PID readings. In addition, temperature, conductivity and pH readings were collected. Groundwater quality parameter monitoring results are presented in **Table 4-2**.

Total BTEX concentrations in 1295-MW30 have decreased from 14,400 micrograms per liter ($\mu\text{g/L}$) during the Fall 2006 sampling event to 2,309.5 $\mu\text{g/L}$ during the Fall 2014 sampling event (**Figure 4-1**). This indicates that active remediation at the site has been successful in removing the bulk concentrations, although performance metrics of the ozone treatment system indicated that the system reach asymptotic practicability. Because persisting BTEX concentrations remained at the site, Plexus developed and implemented a bioaugmentation pilot study of enhanced aerobic metabolic pathways for petroleum degradation at the site. Detailed results and conclusions of the extended bioaugmentation pilot study at Area 1295 were provided in a Draft Extended Bioaugmentation Pilot Study Completion Report.

4.2 Area 1595

4.2.1 Light Non-Aqueous Phase Liquid

LNAPL was not observed during the reporting period (**Table 4-1**). If LNAPL is encountered during site visits, removal is conducted by bailer or the extraction system. Approximately 156.10 gallons of LNAPL have historically been recovered from the site (**Table 4-4**).

4.2.2 Soil Vapor Extraction

The system did not operate during the reporting period. Trends of vacuum pump discharge concentration and cumulative contaminant have been reported in previous quarterly O&M reports.

4.2.3 Groundwater Treatment

The system did not operate during the reporting period. The extracted groundwater was historically treated by the air stripper system and discharged to the publicly-owned treatment works (POTW).

4.2.4 System Effectiveness Monitoring

A summary of the groundwater quality data (DO, ORP, pH, temperature, conductivity, and headspace PID reading) is presented in **Table 4-2**. The SVE/AAS system was deactivated 13 December 2011 for a five-month nutrient application trial to evaluate the sole benefit of a mixture of nitrogen: phosphorous: potassium to enhance bacterial growth and stimulate biodegradation in an oxygen-depleted environment. Prior to deactivation, the SVE system recovered a cumulative 325.59 gallons of gas equivalent (vapor phase) from the subsurface.

Historical total BTEX data from Area 1595 monitoring wells that exceed screening criteria (**Figure 4-2**) generally demonstrate decreasing or static constituent concentration trends. Only at monitoring well 1595-MWS7, within the core of the contaminant plume, did total BTEX demonstrate an increasing trend in 2014. This indicates that active remediation at the site has been successful in removing the bulk concentrations, although performance metrics of the treatment systems indicated that they had reached asymptotic practicability. Therefore the SVE/ASS systems were deactivated in March 2013. Because persisting BTEX concentrations remained at the site, Plexus developed and implemented a bioaugmentation pilot study of enhanced anaerobic metabolic pathways for petroleum degradation at the site. Detailed results and conclusions of the extended bioaugmentation pilot study at Area 1595 were provided in a Draft Extended Bioaugmentation Pilot Study Completion Report.

4.3 Area 1795

4.3.1 Light Non-Aqueous Phase Liquid

LNAPL was not observed during the reporting period (**Table 4-1**). If LNAPL is encountered during site visits, removal is conducted by bailer or the extraction system. A total of 0.25 gallons of LNAPL have been recovered from Area 1795 (**Table 4-4**).

4.3.2 Multi-Phase Extraction

4.3.2.1 Area 1795 - System A/B

Combined extraction flow rates (including dilution air) and vacuum pump discharge concentrations averaged 348.8 cfm and 11.7 parts per million (ppm), respectively, during the reporting period (**Table 4-3**). These concentrations equate to the removal of 9.19 gallons of gasoline equivalent from the vapor phase during the reporting period (**Table 4-4**). The trends in vacuum pump discharge concentration and cumulative contaminant recovery for Area 1795 System A/B are represented in **Figure 4-3**. In December 2009, it was determined that one extraction blower had the capacity to efficiently remove vapors from the hot-spot treatment at the site. Therefore, Legs 3 and 4 from 1795 System B were tied into Area 1795 System A, and Area 1795 System B was deactivated and now serves as a back-up unit.

4.3.3 Groundwater Treatment

4.3.3.1 Area 1795 - System A/B

A total of 0.0 gallons of groundwater were extracted through Area 1795 System A/B during the reporting period, excluding the 336.4 gallons of clean water pumped through system during a test

conducted by ARCADIS (**Table 4-5**). Extracted groundwater has been historically treated by the air stripper system and discharged to the POTW.

4.3.4 System Effectiveness Monitoring

During the reporting period, Area 1795 MPE System A/B, as well as Area 1795 AAS Systems A/B and C, operated at 96.6% of the time, excluding scheduled downtime (**Table 3-1**).

A cumulative total of 2,595.79 gallons of gas equivalent (vapor phase) have been removed from the subsurface since operation of the MPE and AAS systems began in July 2008. A summary of the groundwater quality data (DO, ORP, pH, temperature, conductivity, and headspace PID reading) is presented in **Table 4-2**.

With low BTEX levels at monitoring well 1795-MWS11, the plume has bifurcated, showing two distinct hot spots of total BTEX: one hot spot is located around monitoring well 1795-MWS7, and the second hot spot is located around monitoring well 1795-MWS3 (**Figure 4-4**). At all monitoring wells exceeding screening criteria, historical total BTEX data demonstrate decreasing constituent concentration trends. The monitoring well located in the historic source area of the plume, 1795-MWS7, has decreased in total BTEX concentration from 25,785 µg/L in Fall 2008 to 6,148 µg/L in Fall 2014. The monitoring well located at the second hot spot, northeast of the historic source location, 1795-MWS3, has decreased in total BTEX concentration from 9,255 µg/L in Fall 2008 to 445.1 µg/L in Fall 2014.

Hydrocarbon concentrations in the extracted vapor averaged 8.0 ppm during the reporting period, as presented in **Table 3-3**. Vapor and groundwater elevation monitoring at select system and monitoring wells within the treatment area continue to allow for system modifications to effectively address “hot-spots” and mitigate the potential for plume migration. The system operations should continue with the current flexibility.

Concurrent with operation of the remediation systems, Plexus developed and implemented a bioaugmentation pilot study of enhanced aerobic metabolic pathways for petroleum degradation at the site. Detailed results and conclusions of the extended bioaugmentation pilot study at Area 1795 were provided in a Draft Extended Bioaugmentation Pilot Study Completion Report.

4.4 Area 3805

4.4.1 Light Non-Aqueous Phase Liquid

LNAPL was observed during the reporting period in 3805-PZ10 at a thickness of 0.04 feet on both 27 August and 3 September 2014 (**Table 4-1**). There were a total of 0.01 gallons of LNAPL manually recovered during the reporting period. A total of 26.65 gallons of LNAPL have been recovered from Area 3805. When LNAPL is encountered during gauging events, it is removed by bailer or the extraction system.

4.4.2 Soil Vapor Extraction/Multi-Phase Extraction

4.4.2.1 Area 3805 - System A

On 25 August 2014, the MPE blower of System 3805 A was activated in place of the down MPE blower of System 3805 B, to keep the system operating. MPE System 3805 A continues to operate while MPE System 3805 B is not operational. Extraction flow rates (including dilatation air) and vacuum pump discharge concentrations for System 3805 A are presented in combination with those of System 3805 B, and averaged 581.2 cfm and 0.2 ppm, respectively, during the reporting period (**Table 4-3**). There was no removal of measurable gasoline equivalent liquid for this

reporting period. A cumulative total of 2,570.60 gallons of gas equivalent (vapor phase) have been removed from the subsurface since operation of the MPE and AAS systems began (**Table 4-4**). The trends in vacuum pump discharge concentration and cumulative contaminant recovery for Area 3805 System A are represented in **Figure 4-5**.

4.4.2.2 Area 3805 - System B

Extraction flow rates (including dilatation air) and vacuum pump discharge concentrations for System 3805 B are presented in combination with those of System 3805 A, and averaged 581.2 cfm and 0.2 ppm, respectively, during the reporting period (**Table 4-3**). These concentrations equate to the removal of 0.60 gallons of gasoline equivalent from the vapor phase during the reporting period (**Table 4-4**). A cumulative total of 2,762.68 gallons of gas equivalent (vapor phase) have been removed from the subsurface since operation of the MPE and AAS systems began. The trends in vacuum pump discharge concentration and cumulative contaminant recovery for Area 3805 System B are represented in **Figure 4-6**.

4.4.2.3 Area 3805 - System C

Combined extraction flow rates (including dilution air) and vacuum pump discharge concentrations averaged 130.8 cfm and 0.2 ppm, respectively, during the reporting period (**Table 4-3**). These concentrations equate to the removal of 0.05 gallons of gasoline equivalent from the vapor phase during the reporting period (**Table 4-4**). A cumulative total of 93.18 gallons of gas equivalent (vapor phase) have been removed from the subsurface since operation of the MPE and AAS systems began. The trends in vacuum pump discharge concentration and cumulative contaminant recovery for Area 3805 System C are represented in **Figure 4-7**.

4.4.2.4 Area 3805 - System D

With concurrence from New York State Department of Environmental Conservation (NYSDEC), the Area 3805 System D has remained inactive since August 2008 due to historic lack of vapor recovery. As a result, there was no vapor recovery or removal of measurable gasoline equivalent liquid this reporting period. Area 3805 System D has removed a cumulative total of 298.83 gallons of gas equivalent (vapor phase) from the subsurface (**Table 4-4**).

4.4.3 Groundwater Treatment

4.4.3.1 Area 3805 - System A

There was no extracted groundwater treated by Area 3805 System A during the reporting period (**Table 4-5**). Extracted groundwater has been historically treated by the air stripper system and discharged to the POTW.

4.4.3.2 Area 3805 - System B

A total of 11,719.8 gallons of groundwater were extracted through Area 3805 System B at an average flow rate of 0.059 gallons per minute during the reporting period (**Table 4-5**). The extracted groundwater has been historically treated by the air stripper system and discharged to the POTW. In addition, there were 41 gallons of potable water run through Area 3805 System B by ARCADIS in September 2014.

4.4.3.3 Area 3805 - System C

A total of 3,234.0 gallons of groundwater were extracted through Area 3805 System C during the reporting period (**Table 4-5**). The extracted groundwater has been historically treated by the air stripper system and discharged to the POTW.

4.4.3.4 Area 3805 - System D

There was no extracted groundwater treated by Area 3805 System D during the reporting period. The extracted groundwater has been historically treated by the air stripper system and discharged to the POTW.

4.4.4 System Effectiveness Monitoring

A combined total of approximately 0.65 gallons of gasoline equivalent (vapor phase) were recovered from the subsurface during the reporting period. A cumulative total of 5,725.28 gallons of gas equivalent (vapor phase) and 26.65 gallons of LNAPL have been removed from the subsurface since operation of the SVE and AAS systems began in October 2003.

Following the extraction well modifications for the Area 3805 A and B MPE systems in March 2012, the active horizontal extraction wells from both systems were connected to the 3805 System B vacuum blower. On 25 August 2014, because of the 3805 System B vacuum blower failure, all active horizontal extraction wells between the two systems were connected to the 3805 System A vacuum blower. Extracted vapor concentrations ranged from 0.0 ppm to 6.2 ppm and influent vacuum averaged 4.6 inches of mercury (in Hg). In an effort to further analyze treatment effectiveness of the AAS units, select wells were chosen for monthly monitoring of DO, ORP, and PID readings. In addition, temperature, conductivity and pH readings were collected. A summary of the data is presented in **Table 4-2**.

At most Area 3805 monitoring wells exceeding screening criteria, historical total BTEX data (**Figure 4-8**) demonstrate decreasing or static constituent concentration trends, with all exceptions being in the interior plume. All monitoring wells along the fringe of the plume exhibit decreasing to static concentration trends.

The AAS systems designated Area 3805 Systems A, B, and D were deactivated in March 2013, and indigenous anaerobic microbes known to degrade petroleum hydrocarbons were added via the AAS infrastructure as part of a bioaugmentation pilot study developed and implemented by Plexus. Detailed results and conclusions of the extended bioaugmentation pilot study at Area 3805 were provided in a Draft Extended Bioaugmentation Pilot Study Completion Report.

4.5 Army Air Force Exchange Service Station (Building P-2140)

4.5.1 Light Non-Aqueous Phase Liquids

LNAPL was not observed in any of the extraction wells during the reporting period. If LNAPL is encountered during gauging events, it is removed by bailer or the extraction system.

4.5.2 Dual Phase Extraction

The DPE system was offline during the reporting period, therefore vapors were not discharged from the system.

4.5.3 Groundwater Treatment

The DPE system was offline during the reporting period, therefore groundwater was not recovered during the reporting period. The extracted groundwater has been historically treated by the air stripper system and discharged to the POTW.

4.5.4 Source Area Ozone Treatment

Ozone treatment of residual hydrocarbon impact within the subsurface at the AAFES Station (Building P-2140) was deactivated in August 2011. A new mobile ozone treatment system was delivered to the site, and became fully operational on 23 March 2012. The ozone generator was deactivated in Fall 2013 in preparation for bioaugmentation, with the AAS component continuing to operate. However, the decision to test the Building P-2140 subsurface for anaerobic bioremediation prompted discontinuation of the mobile treatment system altogether on 19 May 2014. The mobile system has since been removed from the site.

4.5.5 System Effectiveness Monitoring

The treatment systems did not operate during the reporting period. No gasoline equivalent (vapor phase) volume was recovered from the subsurface during the reporting period (refer to **Table 4-4**). A cumulative total of 2,401.23 gallons of gas equivalent (vapor phase) have been removed from the subsurface through operation of the DPE system. LNAPL was not observed in the extraction wells during gauging events.

At monitoring wells exceeding screening criteria, historical total BTEX data (**Figure 4-9**) generally demonstrate decreasing constituent concentration trends, and no increasing trends were observed at the site. Monitoring well 2140-MW07, located in the source area of the plume, has decreased in total BTEX concentration from 32,106 µg/L in Fall 2008 to 4,097.6 µg/L in Fall 2014.

In an effort to further analyze treatment effectiveness, select wells were chosen for monthly monitoring of DO, ORP and PID readings. In addition, temperature, conductivity, and pH readings were collected. Results illustrate a fluctuation in values from monitoring event to monitoring event, indicating both a delivery of oxygen and an active microbial mass consuming oxygen. A summary of the data is presented in **Table 4-2**.

5.0 SUMMARY AND DISCUSSION

System operation and performance monitoring activities were completed at each site by Plexus during the reporting period (April to September 2014). A list of the additional actions performed during site visits, beyond routine data collection, is presented in **Table 5-1**. The majority of these items included maintenance and repairs to the systems to address changing weather and subsurface conditions.

5.1 Area 1295

Based on the results Plexus has experienced at other sites along Gasoline Alley, Plexus proposed an alternative strategy using aerobic bioremediation in the January 2014 RAWP Addendum for Area 1295. The strategy was considered a pilot test and combined the use of indigenous microbes from Area 1295 identified as petroleum-degraders with nutrients and supplemental oxygen delivery to stimulate growth and yield in the subsurface.

The bioaugmentation work plan for Area 1295 was approved in January 2014. Plexus performed a biological seeding event using a microbe consortium in mid-February 2014, followed by weekly injections of oxygenated water and monthly injections of site-specific nutrients via selected monitoring wells and ozone injection points. This process continued through July 2014, during which Plexus collected periodic VOC and microbial samples to monitor the effectiveness of bioremediation at the site. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

5.2 Area 1595

Based on the diminished effects of the active SVE/AAS remediation systems, a bioaugmentation pilot study was developed to identify, grow, and inoculate indigenous, petroleum-degrading microbes via the AAS infrastructure. Each AAS injection point received a monthly inoculum of microbe and sulfate-enhanced amendment. Plexus recommended extending the bioaugmentation pilot study at Area 1595 to continue growing the population of microbes to an optimal level for remediation. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

5.3 Area 1795

By changing the extraction leg vacuums and connections, thus isolating treatment to the contaminant “hot-spot”, Plexus was able to increase the gasoline equivalent recovery process and reduce the energy requirement. As a result, Plexus will continue to make adjustments to system operation to optimize soil vapor recovery and address “hot-spot” treatment. Removal rates are expected to continue to fluctuate based on the artificial and natural groundwater table elevation changes at the site, as well as contaminant reduction, and changes in extraction leg configuration to maximize vapor recovery. Additionally, Plexus will cycle between the operating systems to reduce mechanical wear and tear, and extend the longevity of the operating potential at the site.

A bioaugmentation pilot study was developed to identify, grow, and inoculate indigenous, petroleum-degrading microbes via the AAS infrastructure. The pilot study evaluated the ability of the subsurface of Area 1795 to sustain biodegradation by increasing the population of the existing microbial strains. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

5.4 Area 3805

Following the March 2012 modification of selected vertical SVE wells to horizontal SVE wells, the SVE system began extracting more organic vapors from the area. Due to the diminished effects of the active SVE/AAS remediation systems, a pilot test was developed to identify, grow and inoculate indigenous, petroleum-degrading microbes via the AAS infrastructure. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

5.5 Army Air Force Exchange Service Station (Building P-2140)

Based on the results Plexus has experienced at sites along Gasoline Alley, Plexus proposed an alternative strategy using anaerobic bioremediation in the October 2013 RAWP for AAFES Building P-2140. This strategy was considered a pilot test and combined the use of an indigenous microbe from Building P-2140 known for its petroleum-degrading capability with a high-sulfate compound to provide a terminal electron acceptor and stimulate growth and yield in the subsurface.

The bioaugmentation work plan for AAFES Building P-2140 was approved in January 2014. Starting in February 2014, Plexus began a monthly gravity feeding of microbes and nutrients wells. A total of 250 gallons of microbes and nutrients were gravity fed each biweekly event from February 2014 through July 2014. Groundwater quality parameters (DO, ORP, pH, etc.) were collected on a monthly basis, along with groundwater microbial and analytical samples to evaluate the effectiveness of the bioremediation. Results and conclusions of the bioaugmentation pilot study were presented in a Draft Extended Bioaugmentation Pilot Study Completion Report.

TABLES

**Table 3-1
System Runtime Summary
April to September 2014
Fort Drum, New York**

Site	System ID	System Type	Days Down (Scheduled)	Days Down (Operational)	Days Down (Unscheduled)	Days in Period	Days Available	Days Operational	Downtime (Unscheduled)	Uptime (Scheduled)	Reason(s) for Downtime
1295	--	Ozone	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
1595	--	SVE	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
	--	AAS	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
1795	A/B	MPE	7	5	6	183	176	170	3.4%	96.6%	Power outages and sampling event
	A	AAS	7	5	6	183	--	--	--	--	Blower repairs, power outage, and sampling event
	B	AAS	7	5	6	183	176	170	3.4%	96.6%	Power outages and sampling event
	C	AAS	7	5	6	183	176	170	3.4%	96.6%	Power outages and sampling event
1995/3805	A	MPE	--	1	--	36	36	22.8	36.7%	63.3%	Faulty hour meter
	B	MPE	7	0	4	147	140	119.2	18.9%	81.1%	Faulty OWS pump, power outages, and failed starter relay
	C	MPE	7	2	120	183	176	55.2	68.6%	31.4%	Blower repairs, power outage, and sampling event
	D	SVE	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
	A/B	AAS	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
	C	AAS	7	2	30.2	183	176	145.3	17.4%	82.6%	Power outages and sampling event
	D	AAS	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
Building P-2140	--	DPE	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
	--	AAS	--	--	--	--	--	--	--	--	Evaluation of alternative remedial strategies
	Mobile	Ozone AAS	0	0	0	49	49	49	0.0%	100.0%	System deactivated and removed from site

Notes:

Days Available excludes scheduled system maintenance.

Uptime calculated as a percentage of operational days from days available.

SVE = Soil Vapor Extraction

AAS = Aquifer Air Sparge

OWS = Oil-Water Separator

MPE = Multi-Phase Extraction

DPE = Dual-Phase Extraction

**Table 3-2
Performance Monitoring Summary
Area 1295
April to September 2014
Fort Drum, New York**

Date	Time	System Condition	Injecting at Point	Air Flow Rate (cfm)	Air Flow Pressure (psi)	Notes
04/02/14	NR	Off	NR	NR	NR	System deactivated
04/04/14	NR	Off	NR	NR	NR	System deactivated
04/07/14	NR	Off	NR	NR	NR	System deactivated
04/09/14	NR	Off	NR	NR	NR	System deactivated
04/11/14	NR	Off	NR	NR	NR	System deactivated
04/14/14	NR	Off	NR	NR	NR	System deactivated
04/18/14	NR	Off	NR	NR	NR	System deactivated
04/21/14	NR	Off	NR	NR	NR	System deactivated
04/23/14	NR	Off	NR	NR	NR	System deactivated
04/28/14	NR	Off	NR	NR	NR	System deactivated
04/30/14	NR	Off	NR	NR	NR	System deactivated
05/02/14	NR	Off	NR	NR	NR	System deactivated
05/05/14	NR	Off	NR	NR	NR	System deactivated
05/07/14	NR	Off	NR	NR	NR	System deactivated
05/09/14	NR	Off	NR	NR	NR	System deactivated
05/12/14	NR	Off	NR	NR	NR	System deactivated
05/14/14	NR	Off	NR	NR	NR	System deactivated
05/19/14	NR	Off	NR	NR	NR	System deactivated
05/21/14	NR	Off	NR	NR	NR	System deactivated
05/22/14	NR	Off	NR	NR	NR	System deactivated
05/27/14	NR	Off	NR	NR	NR	System deactivated
05/28/14	NR	Off	NR	NR	NR	System deactivated
06/02/14	NR	Off	NR	NR	NR	System deactivated
06/04/14	NR	Off	NR	NR	NR	System deactivated
06/09/14	NR	Off	NR	NR	NR	System deactivated
06/11/14	NR	Off	NR	NR	NR	System deactivated
06/23/14	NR	Off	NR	NR	NR	System deactivated
06/25/14	NR	Off	NR	NR	NR	System deactivated
06/30/04	NR	Off	NR	NR	NR	System deactivated
07/02/14	NR	Off	NR	NR	NR	System deactivated
07/07/14	NR	Off	NR	NR	NR	System deactivated
07/09/14	NR	Off	NR	NR	NR	System deactivated
07/11/14	NR	Off	NR	NR	NR	System deactivated
07/14/14	NR	Off	NR	NR	NR	System deactivated
07/16/14	NR	Off	NR	NR	NR	System deactivated
07/23/14	NR	Off	NR	NR	NR	System deactivated
07/25/14	NR	Off	NR	NR	NR	System deactivated
07/28/14	NR	Off	NR	NR	NR	System deactivated

Table 3-2
Performance Monitoring Summary
Area 1295
April to September 2014
Fort Drum, New York

Date	Time	System Condition	Injecting at Point	Air Flow Rate (cfm)	Air Flow Pressure (psi)	Notes
08/04/14	NR	Off	NR	NR	NR	System deactivated
08/06/14	NR	Off	NR	NR	NR	System deactivated
08/08/14	NR	Off	NR	NR	NR	System deactivated
08/11/14	NR	Off	NR	NR	NR	System deactivated
08/13/14	NR	Off	NR	NR	NR	System deactivated
08/15/14	NR	Off	NR	NR	NR	System deactivated
08/18/14	NR	Off	NR	NR	NR	System deactivated
08/20/14	NR	Off	NR	NR	NR	System deactivated
08/22/14	NR	Off	NR	NR	NR	System deactivated
08/25/14	NR	Off	NR	NR	NR	System deactivated
08/27/14	NR	Off	NR	NR	NR	System deactivated
08/28/14	NR	Off	NR	NR	NR	System deactivated
09/03/14	NR	Off	NR	NR	NR	System deactivated
09/05/14	NR	Off	NR	NR	NR	System deactivated
09/08/14	NR	Off	NR	NR	NR	System deactivated
09/10/14	NR	Off	NR	NR	NR	System deactivated
09/12/14	NR	Off	NR	NR	NR	System deactivated
09/16/14	NR	Off	NR	NR	NR	System deactivated
09/17/14	NR	Off	NR	NR	NR	System deactivated
09/22/14	NR	Off	NR	NR	NR	System deactivated
09/24/14	NR	Off	NR	NR	NR	System deactivated
09/26/14	NR	Off	NR	NR	NR	System deactivated
09/29/14	NR	Off	NR	NR	NR	System deactivated

Notes:

System taken out of service on 10/1/2013.

NR = Not Recorded

scfm = Standard Cubic Feet per Minute

psi = Pounds per Square Inch

Table 3-3
Performance Monitoring Summary
Area 1795
April to September 2014
Fort Drum, New York

Date	System A/B Condition Upon Arrival	System C Condition Upon Arrival	Air Sparge Systems																					
			Hour Meter			Hours Operated			Influent Pressure (psi)			Influent Temperature (°F)			Effluent Pressure (psi)			Effluent Temperature (°F)			Differential Pressure (in H ₂ O)			
			System A	System B	System C	System A	System B	System C	System A	System B	System C	System A	System B	System C	System A	System B	System C	System A	System B	System C	System A	System B	System C	
04/02/14	A-MPE/B -AAS ON	ON	43999.9	43691.2	49110.4	0.0	121.1	121.1	0.0	5.0	8.0	0.0	88.0	108.0	0.0	6.5	7.5	0.0	78.0	74.0	0.00	0.45	0.55	
04/04/14	A-MPE/B -AAS ON	ON	43999.9	43739.0	49181.4	0.0	47.8	71.0	0.0	5.0	7.5	0.0	114.0	116.0	0.0	6.5	7.0	0.0	78.0	80.0	0.00	0.30	0.55	
04/07/14	A-MPE/B -AAS ON	ON	43999.9	43810.0	49229.9	0.0	71.0	48.5	0.0	5.0	7.5	0.0	120.0	118.0	0.0	6.5	7.5	0.0	78.0	82.0	0.00	0.30	0.50	
04/09/14	A-MPE/B -AAS ON	ON	43999.9	43858.2	49277.7	0.0	48.2	47.8	0.0	5.2	8.0	0.0	116.0	110.0	0.0	6.8	8.0	0.0	84.0	74.0	0.00	0.30	0.50	
04/11/14	A-MPE/B -AAS ON	ON	43999.9	43905.3	49328.4	0.0	47.1	50.7	0.0	5.3	7.5	0.0	132.0	125.0	0.0	6.6	7.5	0.0	90.0	90.0	0.00	0.30	0.50	
04/14/14	A-MPE/B -AAS ON	ON	43999.9	43978.9	49329.8	0.0	73.6	1.4	0.0	4.6	6.5	0.0	154.0	96.0	0.0	6.0	6.5	0.0	104.0	84.0	0.00	0.30	0.50	
04/18/14	A-MPE/B -AAS ON	ON	43999.9	43982.2	49402.8	0.0	3.3	73.0	0.0	7.2	6.5	0.0	136.0	53.0	0.0	8.8	7.0	0.0	78.0	72.0	0.00	0.20	0.85	
04/21/14	A-MPE/B -AAS ON	ON	43999.9	44055.2	49406.3	0.0	73.0	3.5	0.0	4.6	7.5	0.0	150.0	141.0	0.0	6.2	7.5	0.0	104.0	94.0	0.00	0.30	0.45	
04/23/14	A-MPE/B -AAS ON	ON	43999.9	44101.2	49529.4	0.0	46.0	47.3	0.0	5.4	7.5	0.0	126.0	68.0	0.0	7.0	7.5	0.0	86.0	52.0	0.00	0.30	0.55	
04/28/14	A-MPE/B -AAS ON	ON	43999.9	44224.2	49585.9	0.0	123.0	123.3	0.0	4.8	8.0	0.0	140.0	140.0	0.0	6.2	7.5	0.0	98.0	94.0	0.00	0.30	0.40	
04/30/14	A-MPE/B -AAS ON	ON	43999.9	44270.5	49612.2	0.0	46.6	46.6	0.0	6.0	8.5	0.0	122.0	130.0	0.0	7.4	7.4	0.0	70.0	85.0	0.00	0.30	0.40	
05/02/14	A-MPE/B -AAS ON	ON	43999.9	44317.9	49622.7	0.0	121.1	121.1	0.0	5.4	8.5	0.0	130.0	128.0	0.0	7.0	8.5	0.0	86.0	81.0	0.00	0.30	0.35	
05/05/14	A-MPE/B -AAS ON	ON	43999.9	44389.3	49695.0	0.0	71.4	72.3	0.0	5.4	8.5	0.0	132.0	131.0	0.0	7.0	8.0	0.0	86.0	88.0	0.00	0.30	0.40	
05/07/14	A-MPE/B -AAS ON	ON	43999.9	44437.0	49742.8	0.0	47.7	47.8	0.0	5.4	8.5	0.0	136.0	136.0	0.0	7.2	7.5	0.0	86.0	90.0	0.00	0.30	0.40	
05/09/14	A-MPE/B -AAS ON	ON	43999.9	44483.9	49790.0	0.0	46.9	47.2	0.0	4.4	7.5	0.0	164.0	158.0	0.0	6.0	7.5	0.0	108.0	102.0	0.00	0.30	0.35	
05/12/14	A-MPE/B -AAS ON	ON	43999.9	44556.7	49862.8	0.0	72.8	72.8	0.0	5.0	8.0	0.0	152.0	139.0	0.0	6.6	7.5	0.0	98.0	94.0	0.00	0.30	0.40	
05/14/14	A-MPE/B -AAS ON	ON	43999.9	44603.9	49910.0	0.0	47.2	47.2	0.0	5.0	8.0	0.0	158.0	150.0	0.0	7.0	8.0	0.0	96.0	96.0	0.00	0.30	0.35	
05/19/14	A-MPE/B -AAS ON	ON	43999.9	44723.9	49937.1	0.0	120.0	27.1	0.0	5.6	6.5	0.0	140.0	60.0	0.0	7.4	7.0	0.0	86.0	78.0	0.00	0.35	0.80	
05/21/14	A-MPE/B -AAS ON	ON	43999.9	44774.8	49987.9	0.0	50.9	50.8	0.0	5.0	7.0	0.0	150.0	148.0	0.0	6.4	6.5	0.0	96.0	100.0	0.00	0.30	0.45	
05/22/14	A-MPE/B -AAS ON	ON	43999.9	44797.3	50010.4	0.0	46.0	47.3	0.0	4.6	8.0	0.0	154.0	144.0	0.0	6.6	7.5	0.0	99.0	90.0	0.00	0.30	0.40	
05/27/14	A-MPE/B -AAS ON	ON	43999.9	44916.1	50129.2	0.0	123.0	123.3	0.0	4.4	7.5	0.0	162.0	152.0	0.0	6.0	7.0	0.0	106.0	98.0	0.00	0.25	0.40	
05/28/14	A-MPE/B -AAS ON	ON	43999.9	44942.1	50155.2	0.0	46.6	46.6	0.0	5.4	8.5	0.0	136.0	131.0	0.0	7.2	8.5	0.0	84.0	78.0	0.00	0.30	0.40	
06/02/14	A-MPE/B -AAS ON	ON	43999.9	45060.2	50273.3	0.0	121.1	121.1	0.0	4.4	7.5	103.00	160.0	155.0	3.4	6.0	7.0	96.00	106.0	100.0	0.00	0.30	0.35	
06/04/14	A-MPE/B -AAS ON	ON	43999.9	45109.2	50322.3	0.0	49.0	49.0	0.0	4.6	8.0	99.00	155.0	146.0	3.4	6.4	7.5	92.00	98.0	92.0	0.00	0.30	0.40	
06/09/14	A-MPE/B -AAS ON	ON	43999.9	45203.3	50416.5	0.0	94.1	94.2	0.0	6.6	6.5	82.00	149.0	82.0	4.0	8.2	7.0	78.00	88.0	96.0	0.00	0.25	0.40	
06/11/14	A-MPE/B -AAS ON	ON	43999.9	45203.6	50434.1	0.0	0.3	17.6	0.0	7.4	8.0	73.00	142.0	106.0	5.0	9.0	7.5	68.00	75.0	74.0	0.00	0.25	0.35	
06/23/14	A-MPE/B -AAS ON	ON	43999.9	45415.1	50645.9	0.0	211.5	211.8	0.0	6.2	7.5	84.00	158.0	129.0	4.0	7.0	6.5	80.00	90.0	88.0	0.00	0.24	0.40	
06/25/14	A-MPE/B -AAS ON	ON	43999.9	45460.7	50691.6	0.0	45.6	45.7	0.0	5.0	8.0	96.00	152.0	146.0	3.8	6.6	7.5	88.00	96.0	90.0	0.00	0.30	0.35	
06/30/14	A-MPE/B -AAS ON	ON	43999.9	45583.0	50793.1	0.0	122.3	101.5	0.0	4.4	7.5	105.00	160.0	144.0	3.2	6.0	7.5	96.00	106.0	90.0	0.00	0.30	0.80	
07/02/14	A-MPE/B -AAS ON	OFF	43999.9	45631.1	50819.7	0.0	48.1	26.6	0.0	4.2	7.5	107	164.0	146.0	3.0	6.0	7.0	96.0	108.0	96.0	0.00	0.30	0.40	
07/07/14	A-MPE/B -AAS OFF	OFF	43999.9	45674.5	50862.5	0.0	43.4	42.8	0.0	6.0	7.5	82	156.0	92.0	4.2	8.0	7.5	76.0	86.0	88.0	0.00	0.20	0.55	
07/09/14	A-MPE/B -AAS ON	ON	43999.9	45722.2	50910.6	0.0	47.7	48.1	0.0	5.5	7.5	96	149.0	140.0	3.6	6.6	7.5	88.0	96.0	86.0	0.00	0.30	0.40	
07/11/14	A-MPE/B -AAS ON	ON	43999.9	45768.9	50957.3	0.0	46.7	46.7	0.0	5.5	4.8	8.0	93	146.0	139.0	4.0	6.6	7.5	88.0	96.0	86.0	0.00	0.30	0.40
07/14/14	A-MPE/B -AAS ON	ON	43999.9	45843.1	51031.3	0.0	74.2	74.0	0.0	4.0	7.5	104	136.0	149.0	3.0	5.8	7.0	98.0	106.0	96.0	0.00	0.30	0.40	
07/16/14	A-MPE/B -AAS ON	ON	43999.9	45889.2	51077.5	0.0	46.1	46.2	0.0	5.5	4.4	8.0	96	149.0	144.0	3.5	6.2	7.5	92.0	96.0	90.0	0.00	0.30	0.40
07/23/14	A-MPE/B -AAS ON	OFF	43999.9	46060.1	51228.3	0.0	170.9	150.8	0.0	4.0	7.0	106	159.0	110.0	3.2	5.8	7.0	98.0	106.0	88.0	0.00	0.30	0.50	
07/25/14	A-MPE/B -AAS ON	ON	43999.9	46105.7	51273.7	0.0	45.6	45.4	0.0	5.5	4.4	7.5	96	146.0	142.0	3.6	6.2	7.5	90.0	96.0	88.0	0.00	0.30	0.45
07/28/14	A-MPE/B -AAS ON	ON	43999.9	46178.4	51346.6	0.0	72.7	72.9	0.0	4.5	7.5	92	146.0	140.0	3.8	6.2	7.5	86.0	92.0	84.0	0.00	0.30	0.40	
08/04/14	A-MPE/B -AAS ON	OFF	43999.9	46178.4	51346.6	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.00	0.00	0.00	
08/06/14	A-MPE/B -AAS OFF	OFF	43999.9	46179.8	51347.6	0.0	1.4	1.0	0.0	5.5	4.2	6.5	96	158.0	136.0	3.6	6.4	6.0	86	98.0	92.0	0.00	0.30	0.60
08/08/14	A-MPE/B -AAS ON	ON	43999.9	46226.3	51393.9	0.0	46.5	46.3	0.0	4.4	7.5	99	148.0	141.0	3.6	6.0	7.5	92	96.0	88.0	0.00	0.30	0.45	
08/11/14	A-MPE/B -AAS ON	ON	43999.9	46299.1	51467.0	0.0	72.8	73.1	0.0	5.5	3.6	6.5	106	158.0	148.0	3.4	5.4	6.0	96	104.0	104.0	0.00	0.30	0.50
08/13/14	A-MPE/B -AAS ON	ON	43999.9	46346.3	51514.0	0.0	47.2	47.0	0.0	5.5	4.2	6.5	86	144.0	136.0	3.6	6.0	6.5	87	94.0	88.0	0.00	0.30	0.50
08/15/14	A-MPE/B -AAS ON	ON	43999.9	46394.6	51562.4	0.0	48.3	48.4	0.0	4.8	7.0	90	136.0	122.0	4.0	6.4	7.0	84	86.0	78.0	0.00	0.30	0.55	
08/18/14	A-MPE/B -AAS OFF	OFF	43999.9	46431.9	51598.9	0.0	37.3	36.5	0.0	4.5	6.0	91	152.0	122.0	3.8	6.8	5.5	84	94.0	86.0	0.00	0.25	0.75	
08/20/14	A-MPE/B -AAS ON	ON	43999.9	46476.2	51644.1	0.0	177.1	177.1	0.0	3.8	6.5	104	156.0	148.0	3.4	5.4	6.0	94	104.0	100.0	0.00	0.30	0.50	
08/22/14	A-MPE/B -AAS ON	OFF	43999.9	46480.9	51648.9	0.0	4.7	4.8	0.0	6.0	5.0	84	154.0	112.0	4.0	7.8	5.0	81	89.0	90.0	0.00	0.25	1.00	
08/25/14	A-MPE/B -AAS ON	ON	43999.9	46552.7	51720.3	0.0	71.8	71.4	0.0	5.5	4.0	6.5	110	162.0	147.0	3.0	5.6	6.0	102	110.0	102.0	0.00	0.30	0.55
08/27/14	A-MPE/B -AAS ON	ON	43999.9	46600.7	51767.5	0.0	48.0	47.2	0.0	5.5	4.4	7.0	108	160.0	147.0	3.3	5.8	6.5	98	106.0	100.0	0.00	0.30	0.50
08/28/14	A-MPE/B -AAS ON	ON	43999.9	46624.0	51792.0	0.0	23.3	24.5	0.0	5.5	4.6	7.5	98	150.0	139.0	3.8	6.2	7.0	90	98.0	88.0	0.00	0.30	0.50
09/03/14	A-MPE/B -AAS ON	ON	43999.9	46767.7	51935.5	0.0	143.7	143.5	0.0	4.4	7.0	105	156.0	146.0	3.2	6.0	6.5	98	104.0	96.0	0.00	0.30	0.45	
09/05/14	A-MPE/B -AAS ON	ON	43999.9	46814.3	51982.2	0.0	46.6	46.7	0.0	3.8	6.5	108	164.0	154.0	3.2	5.6	6.5	100	108.0	104.0	0.00	0.30	0.45	
09/08/14																								

**Table 3-3
Performance Monitoring Summary
Area 1795
April to September 2014
Fort Drum, New York**

Date	System A/B Condition Upon Arrival	System C Condition Upon Arrival	Multi-Phase Extraction System												Notes	
			Hour Meter	Hours Operated	Influent Vacuum (in Hg)	Influent Temperature (°F)	Barometric Pressure (in Hg)	Effluent Pressure (psi)	Effluent Temperature (°F)	Differential Pressure (in H ₂ O)	Air Flow (cfm)	SVE Effluent* (ppm)	OWS Cumulative Flow** (gallons)	Total Mass Recovered (lbs)		Total Recovery Rate (lbs/hr)
04/02/14	A-MPE/B -AAS ON	ON	41596.3	120.6	5.0	92	30.06	0.2	84	1.4	381	62.4	304078.8	17.21	0.14	
04/04/14	A-MPE/B -AAS ON	ON	41644.2	47.9	5.0	94	29.69	0.0	80	1.5	391	66.0	304078.8	7.43	0.16	
04/07/14	A-MPE/B -AAS ON	ON	41715.3	71.1	5.0	90	29.87	1.0	74	1.6	407	23.5	304078.8	4.08	0.06	
04/09/14	A-MPE/B -AAS ON	ON	41763.3	48.0	5.0	111	29.80	0.5	80	1.5	386	17.5	304078.8	1.95	0.04	
04/11/14	A-MPE/B -AAS ON	ON	41788.9	25.6	5.0	92	29.94	0.6	80	1.4	380	31.1	304078.8	1.82	0.07	
04/14/14	A-MPE/B -AAS ON	ON	41790.8	1.9	5.0	102	29.66	0.2	92	1.4	375	22.1	304078.8	0.09	0.05	
04/18/14	A-MPE/B -AAS ON	ON	41791.2	0.4	5.0	94	30.27	1.0	80	1.6	408	19.5	304078.8	0.02	0.05	
04/21/14	A-MPE/B -AAS ON	ON	41840.3	49.1	5.0	94	29.97	0.4	84	1.2	352	16.7	304078.8	1.73	0.04	
04/23/14	A-MPE/B -AAS ON	ON	41840.8	0.5	5.0	88	29.67	0.8	78	1.3	366	17.3	304078.8	0.02	0.04	
04/28/14	A-MPE/B -AAS ON	ON	41963.6	122.8	5.0	100	30.12	0.4	88	1.5	392	0.0	304078.8	0.00	0.00	
04/30/14	A-MPE/B -AAS ON	ON	41963.9	23.8	5.0	80	30.06	1.6	66	1.2	357	8.2	304078.8	0.42	0.02	
05/02/14	A-MPE/B -AAS ON	ON	42011.1	120.6	5.0	94	29.73	0.6	83	1.4	378	0.6	304078.8	0.16	0.00	
05/05/14	A-MPE/B -AAS ON	ON	42035.0	23.9	5.0	95	29.95	0.2	82	1.6	406	1.6	304078.8	0.09	0.00	
05/07/14	A-MPE/B -AAS ON	ON	42082.6	47.6	5.0	98	30.21	0.4	89	1.6	406	0.5	304078.8	0.06	0.00	
05/09/14	A-MPE/B -AAS ON	ON	42129.5	46.9	5.0	110	29.92	0.4	102	1.3	361	0.4	304078.8	0.04	0.00	
05/12/14	A-MPE/B -AAS ON	ON	42202.4	72.9	5.0	108	30.07	0.4	97	1.3	362	0.4	304078.8	0.06	0.00	
05/14/14	A-MPE/B -AAS ON	ON	42249.6	47.2	5.0	106	30.09	0.4	97	1.3	363	0.4	304078.8	0.04	0.00	
05/19/14	A-MPE/B -AAS ON	ON	42369.6	120.0	5.0	98	30.17	0.6	87	1.3	366	0.1	304078.8	0.03	0.00	
05/21/14	A-MPE/B -AAS ON	ON	42420.4	50.8	5.0	107	29.91	0.6	94	1.3	362	0.3	304078.8	0.03	0.00	
05/22/14	A-MPE/B -AAS ON	ON	42442.9	0.5	5.0	106	29.81	0.4	96	1.3	361	0.4	304078.8	0.00	0.00	
05/27/14	A-MPE/B -AAS ON	ON	42561.7	122.8	5.0	110	29.79	0.4	102	1.3	360	0.4	304078.8	0.11	0.00	
05/28/14	A-MPE/B -AAS ON	ON	42587.7	23.8	5.0	98	29.97	0.8	84	1.3	365	0.4	304078.8	0.02	0.00	
06/02/14	A-MPE/B -AAS ON	ON	42705.8	120.6	5.0	112.00	30.00	0.4	103.00	1.3	361	0.2	304078.8	0.05	0.00	
06/04/14	A-MPE/B -AAS ON	ON	42754.8	49.0	5.0	108.00	29.81	0.4	99.00	1.3	361	0.2	304078.8	0.02	0.00	
06/09/14	A-MPE/B -AAS ON	ON	42848.9	94.1	5.0	96.00	29.94	0.4	84.00	1.3	365	0.4	304078.8	0.08	0.00	
06/11/14	A-MPE/B -AAS ON	ON	42866.4	17.5	5.0	88.00	29.98	1.4	74.00	1.4	382	1.4	304078.8	0.06	0.00	
06/23/14	A-MPE/B -AAS ON	ON	43077.7	211.3	5.0	102.00	30.03	0.4	92.00	1.3	364	1.7	304078.8	0.78	0.00	
06/25/14	A-MPE/B -AAS ON	ON	43123.3	45.6	5.0	106.00	29.89	0.4	94.00	1.3	362	0.6	304078.8	0.06	0.00	
06/30/14	A-MPE/B -AAS ON	ON	43245.6	122.3	5.0	103.00	29.93	0.4	104.00	1.3	363	0.6	304078.8	0.16	0.00	
07/02/14	A-MPE/B -AAS ON	OFF	43293.7	48.1	5.0	114	29.79	0.4	106	1.3	359	0.5	304078.8	0.05	0.00	
07/07/14	A-MPE/B -AAS OFF	OFF	43337.0	43.3	5.0	100	29.67	0.6	87	1.3	362	3.0	304078.8	0.28	0.01	
07/09/14	A-MPE/B -AAS ON	ON	43384.8	47.8	5.0	106	29.79	0.4	94	1.3	361	0.9	304078.8	0.09	0.00	
07/11/14	A-MPE/B -AAS ON	ON	43431.5	46.7	5.0	104	30.23	0.4	94	1.3	364	0.7	304078.8	0.07	0.00	
07/14/14	A-MPE/B -AAS ON	ON	43505.7	74.2	5.0	102	29.86	0.4	104	1.3	363	0.9	304078.8	0.15	0.00	
07/16/14	A-MPE/B -AAS ON	ON	43551.8	46.1	5.0	108	29.83	0.4	98	1.3	361	0.9	304078.8	0.09	0.00	
07/23/14	A-MPE/B -AAS ON	OFF	43722.7	170.9	5.0	114	29.84	0.4	106	1.6	398	1.6	304078.8	0.65	0.00	
07/25/14	A-MPE/B -AAS ON	ON	43768.3	45.6	5.0	108	29.99	0.4	98	1.3	362	1.9	304078.8	0.19	0.00	
07/28/14	A-MPE/B -AAS ON	ON	43841.0	72.7	5.0	105	29.64	0.2	88	1.5	387	1.6	304078.8	0.27	0.00	
08/04/14	A-MPE/B -AAS ON	OFF	43841.0	0.0	0.0	0	30.03	0.0	0	0.0	0	0.0	304078.8	0.00	0.00	
08/06/14	A-MPE/B -AAS OFF	OFF	43842.5	1.5	5.0	106	29.94	0.4	95	1.3	362	6.6	304078.8	0.02	0.01	
08/08/14	A-MPE/B -AAS ON	ON	43889.1	46.6	5.0	108	30.09	0.4	98	1.3	362	7.3	304078.8	0.74	0.02	
08/11/14	A-MPE/B -AAS ON	ON	43961.8	72.7	5.0	103	30.06	0.4	102	1.3	364	5.9	304078.8	0.94	0.01	
08/13/14	A-MPE/B -AAS ON	ON	44009.1	47.3	5.0	106	29.74	0.4	90	1.3	361	8.2	304078.8	0.84	0.02	
08/15/14	A-MPE/B -AAS ON	ON	44057.4	48.3	5.0	101	29.85	0.4	89	1.3	363	7.3	304078.8	0.77	0.02	
08/18/14	A-MPE/B -AAS OFF	OFF	44093.7	36.3	5.0	104	29.94	0.4	92	1.3	363	9.6	304078.8	0.76	0.02	
08/20/14	A-MPE/B -AAS ON	ON	44138.9	177.1	5.0	103	29.94	0.4	103	1.3	363	8.6	304078.8	3.32	0.02	
08/22/14	A-MPE/B -AAS ON	OFF	44143.6	4.7	5.0	104	30.00	0.4	89	1.3	363	12.6	304078.8	0.13	0.03	
08/25/14	A-MPE/B -AAS ON	ON	44215.4	71.8	5.0	116	30.18	0.4	106	1.3	360	3.7	304078.8	0.57	0.01	
08/27/14	A-MPE/B -AAS ON	ON	44262.5	47.1	5.0	114	29.97	0.4	103	1.3	360	2.7	304078.8	0.27	0.01	
08/28/14	A-MPE/B -AAS ON	ON	44286.7	24.2	5.0	108	30.00	0.4	96	1.3	362	3.2	304078.8	0.17	0.01	
09/03/14	A-MPE/B -AAS ON	ON	44430.4	143.7	5.0	114	29.97	0.0	105	1.3	360	2.3	304078.8	0.71	0.00	
09/05/14	A-MPE/B -AAS ON	ON	44477.0	46.6	5.0	116	29.97	0.4	106	1.3	359	2.3	304078.8	0.23	0.00	
09/08/14	A-MPE/B -AAS ON	OFF	44550.3	73.3	5.0	110	30.27	0.4	98	1.3	363	2.4	304078.8	0.38	0.01	
09/10/14	A-MPE/B -AAS ON	ON	44597.2	46.9	5.0	110	29.97	0.4	94	1.3	361	2.2	304078.8	0.22	0.00	
09/12/14	A-MPE/B -AAS ON	ON	44644.1	46.9	5.0	100	30.24	0.4	84	1.3	366	2.7	304078.8	0.28	0.01	
09/16/14	A-MPE/B -AAS OFF	ON	44644.1	0.0	-	-	30.00	-	-	-	0	-	-	0.00	0.00	
09/17/14	A-MPE/B -AAS OFF	ON	44644.1	0.0	-	-	29.97	-	-	-	0	-	-	0.00	0.00	
09/22/14	A-MPE/B -AAS ON	ON	44849.3	205.2	12.5	180	29.83	0.0	100	0.1	84	20.4	304158.4	2.12	0.01	
09/24/14	A-MPE/B -AAS ON	ON	44896.1	46.8	5.0	114	30.47	0.0	98	1.3	363	19.1	304225.1	1.95	0.04	
09/26/14	A-MPE/B -AAS ON	ON	44943.4	47.3	5.0	110	30.27	0.0	98	1.3	363	20.4	304225.1	2.10	0.04	
09/29/14	A-MPE/B -AAS ON	ON	45018.1	74.7	5.0	120	29.94	0.0	108	1.3	358	17.3	304479.8	2.77	0.04	

Notes:
SVE System A was tied in with SVE System B. Data shown is from SVE System B. Air sparge data separated.
System A/B Air Stripper operating, but no flow through during reporting period.
Total Mass Recovered (lbs) = Air Flow (cfm) * SVE Effluent (ppm) * Hours Operated (hrs) * 0.000006
Total Recovery Rate (lb/hr) = Total Mass Recovered (lbs) / Hours Operated (hrs)
* = Flowmeter may have been replaced for repairs during the duration of the system activation
SVE = Soil Vapor Extraction
in Hg = inches Mercury
°F = degrees Fahrenheit
cfm = Cubic Feet per Minute
ppm = Parts Per Million
OWS = Oil Water Separator
lbs = Pounds
lbs/hr = Pounds per Hour
NR = Not Recorded.

Table 3-4
Performance Monitoring Summary
Area 3805
April to September 2014
Fort Drum, New York

Date	System A/B Condition Upon Arrival	System C Condition Upon Arrival	Air Sparge												Air Stripper								
			Hour Meter		Hours Operated		Influent Pressure (psi)		Influent Temperature (°F)		Effluent Pressure (psi)		Effluent Temperature (°F)		Differential Pressure (in H ₂ O)					Flow (gallons)		Statis Pressure (in H ₂ O)	
			System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C (2-15)	System C (2-16)	System C (2-23)	System C (2-24)	System A/B	System C	System A/B	System C
04/02/14	ON	ON	NR	26183.5	NR	119.1	NR	7.0	NR	140.0	NR	6.0	NR	70.0	NR	0.00	0.005	0.12	0.02	1244903.4	519309.1	0.0	0.0
04/04/14	ON	ON	NR	26232.2	NR	48.7	NR	6.5	NR	142.0	NR	5.5	NR	86.0	NR	0.00	0.001	0.11	0.01	1246333.7	519309.1	0.0	0.0
04/07/14	ON	ON	NR	26303.3	NR	71.1	NR	7.0	NR	142.0	NR	5.5	NR	88.0	NR	0.00	0.001	0.11	0.01	1250319.2	519309.1	0.0	0.0
04/09/14	ON	ON	NR	26351.8	NR	48.5	NR	7.5	NR	142.0	NR	7.0	NR	75.0	NR	0.00	0.005	0.12	0.02	1251004.7	519309.1	0.0	0.0
04/11/14	ON	ON	NR	26395.7	NR	43.9	NR	7.0	NR	159.0	NR	6.0	NR	83.0	NR	0.00	0.005	0.90	0.02	1251359.0	519309.1	0.0	0.0
04/14/14	ON	ON	NR	26468.6	NR	72.9	NR	6.5	NR	179.0	NR	5.0	NR	106.0	NR	0.00	0.015	0.90	0.02	1251416.4	519309.1	0.0	0.0
04/18/14	ON	ON	NR	26473.6	NR	5.0	NR	10.5	NR	110.0	NR	9.0	NR	61.0	NR	0.00	0.005	0.00	0.00	1251416.4	519309.1	0.0	0.0
04/21/14	ON	ON	NR	26546.5	NR	72.9	NR	7.0	NR	166.0	NR	6.0	NR	102.0	NR	0.00	0.010	0.08	0.02	1251416.4	519309.1	0.0	0.0
04/23/14	ON	ON	NR	26592.9	NR	46.4	NR	7.5	NR	160.0	NR	7.0	NR	86.0	NR	0.00	0.005	0.07	0.02	1251416.4	519309.1	0.0	0.0
04/28/14	ON	ON	NR	26714.9	NR	241.3	NR	8.0	NR	149.0	NR	6.0	NR	96.0	NR	0.00	0.010	0.09	0.02	1251416.4	519309.1	0.0	0.0
04/30/14	ON	ON	NR	26761.1	NR	46.2	NR	8.0	NR	148.0	NR	7.0	NR	82.0	NR	0.00	0.010	0.09	0.02	1251416.4	519309.1	0.0	0.0
05/02/14	ON	ON	NR	26808.1	NR	119.1	NR	8.0	NR	146.0	NR	6.5	NR	85.0	NR	0.00	0.010	0.09	0.02	1251416.4	519309.1	0.0	0.0
05/05/14	ON	ON	NR	26880.7	NR	72.6	NR	8.0	NR	147.0	NR	6.5	NR	88.0	NR	0.00	0.010	0.09	0.02	1251454.5	519309.1	0.0	0.0
05/07/14	ON	ON	NR	26928.0	NR	47.3	NR	7.0	NR	138.0	NR	6.5	NR	82.0	NR	0.00	0.010	0.09	0.02	1251522.4	519309.1	0.0	0.0
05/09/14	ON	ON	NR	26975.8	NR	47.8	NR	7.0	NR	176.0	NR	5.0	NR	116.0	NR	0.00	0.015	0.09	0.02	1251554.7	519309.1	0.0	0.0
05/12/14	ON	ON	NR	27048.3	NR	72.5	NR	8.0	NR	164.0	NR	6.5	NR	90.0	NR	0.00	0.010	0.08	0.02	1251656.7	519309.1	0.0	0.0
05/14/14	ON	ON	NR	27095.6	NR	47.3	NR	7.5	NR	174.0	NR	6.0	NR	102.0	NR	0.00	0.015	0.08	0.02	1251724.5	519309.1	0.0	0.0
05/19/14	ON	ON	NR	27215.6	NR	120.0	NR	8.5	NR	158.0	NR	7.0	NR	78.0	NR	0.00	0.015	0.07	0.02	1252063.4	519309.1	0.0	0.0
05/21/14	ON	ON	NR	27263.0	NR	72.9	NR	9.0	NR	168.0	NR	9.5	NR	88.0	NR	0.00	0.015	0.07	0.02	1252209.4	519309.1	0.0	0.0
05/22/14	ON	ON	NR	27285.3	NR	46.4	NR	8.5	NR	164.0	NR	7.0	NR	88.0	NR	0.00	0.015	0.09	0.02	1252266.7	519309.1	0.0	0.0
05/27/14	ON	ON	NR	27404.9	NR	189.3	NR	8.0	NR	179.0	NR	6.0	NR	96.0	NR	0.00	0.015	0.07	0.02	1252584.2	519309.1	0.0	0.0
05/28/14	ON	ON	NR	27431.3	NR	26.4	NR	8.0	NR	168.0	NR	7.0	NR	86.0	NR	0.00	0.015	0.07	0.02	1252661.6	519309.1	0.0	0.0
06/02/14	ON	ON	NR	27548.2	NR	119.1	NR	8.0	NR	146.0	NR	6.0	NR	102.0	NR	0.00	0.015	0.07	0.02	1252792.7	519309.1	0.0	0.0
06/04/14	ON	ON	NR	27598.2	NR	50.0	NR	8.0	NR	147.0	NR	6.0	NR	94.0	NR	0.00	0.010	0.08	0.02	1252792.7	519309.1	0.0	0.0
06/09/14	ON	ON	NR	27693.0	NR	94.8	NR	11.0	NR	138.0	NR	9.0	NR	80.0	NR	0.00	0.010	0.05	0.02	1252824.9	519309.1	0.0	0.0
06/11/14	ON	ON	NR	27740.0	NR	47.0	NR	7.5	NR	176.0	NR	6.0	NR	105.0	NR	0.00	0.015	0.07	0.02	1252824.9	519309.1	0.0	0.0
06/23/14	ON	ON	NR	27953.2	NR	213.2	NR	11.0	NR	164.0	NR	9.0	NR	76.0	NR	0.00	0.010	0.04	0.02	1252824.9	519309.1	0.0	0.0
06/25/14	ON	ON	NR	27999.9	NR	46.7	NR	7.0	NR	174.0	NR	5.5	NR	102.0	NR	0.00	0.015	0.06	0.02	1252824.9	519309.1	0.0	0.0
06/30/04	ON	ON	NR	28121.0	NR	121.1	NR	7.0	NR	158.0	NR	5.0	NR	111.0	NR	0.00	0.015	0.08	0.02	1252824.9	519309.1	0.0	0.0
07/02/14	ON	OFF	NR	28149.2	NR	28.2	NR	10.0	NR	178.0	NR	8.5	NR	89.0	NR	0.00	0.015	0.40	0.02	1252824.9	519309.1	0.0	0.0
07/07/14	OFF	OFF	NR	28194.5	NR	45.3	NR	10.0	NR	189.0	NR	7.5	NR	84.0	NR	0.00	0.010	0.40	0.00	1252824.9	519309.1	0.0	0.0
07/09/14	ON	ON	NR	28242.2	NR	47.7	NR	7.5	NR	182.0	NR	6.0	NR	95.0	NR	0.00	0.015	0.07	0.02	1252824.9	519309.1	0.0	0.0
07/11/14	ON	ON	NR	28289.5	NR	47.3	NR	8.0	NR	179.0	NR	6.0	NR	97.0	NR	0.00	0.015	0.08	0.02	1252824.9	519309.1	0.0	0.0
07/14/14	ON	ON	NR	28363.2	NR	73.7	NR	7.5	NR	183.0	NR	5.5	NR	106.0	NR	0.00	0.015	0.08	0.02	1252824.9	519309.1	0.0	0.0
07/16/14	ON	ON	NR	28409.6	NR	46.4	NR	7.5	NR	186.0	NR	5.5	NR	101.0	NR	0.00	0.015	0.08	0.02	1252824.9	519309.1	0.0	0.0
07/23/14	ON	AS OFF	NR	28556.8	NR	147.2	NR	10.5	NR	162.0	NR	8.0	NR	90.0	NR	0.00	0.010	0.04	0.02	1252824.9	519309.1	0.0	0.0
07/25/14	ON	ON	NR	28603.3	NR	46.5	NR	7.5	NR	186.0	NR	5.5	NR	102.0	NR	0.00	0.035	0.06	0.02	1252824.9	519309.1	0.0	0.0
07/28/14	ON	ON	NR	28675.9	NR	72.6	NR	7.0	NR	204.0	NR	5.0	NR	100.0	NR	0.00	0.030	0.1	0.01	1252824.9	519309.1	0.0	0.0
08/04/14	OFF	OFF	NR	28675.9	NR	0.0	NR	0.0	NR	0.0	NR	0.0	NR	0.0	NR	0.00	0.00	0.00	0.00	1252824.9	519309.1	0.0	0.0
08/06/14	OFF	OFF	NR	28676.2	NR	0.3	NR	10.5	NR	165.0	NR	8.0	NR	86.0	NR	0.00	0.030	0.04	0.02	1252824.9	519309.1	0.0	0.0
08/08/14	ON	ON	NR	28722.4	NR	46.2	NR	7.5	NR	180.0	NR	5.5	NR	99.0	NR	0.00	0.030	0.07	0.02	1252824.9	519309.1	0.0	0.0
08/11/14	ON	ON	NR	28795.3	NR	72.9	NR	7.0	NR	190.0	NR	4.5	NR	112.0	NR	0.00	0.030	0.07	0.02	1252824.9	519309.1	0.0	0.0
08/13/14	ON	AS OFF	NR	28799.1	NR	3.8	NR	10.5	NR	162.0	NR	8.0	NR	80.0	NR	0.00	0.030	0.02	0.02	1252824.9	519309.1	0.0	0.0
08/15/14	ON	ON	NR	28847.6	NR	171.4	NR	7.5	NR	164.0	NR	6.0	NR	90.0	NR	0.00	0.025	0.06	0.02	1252824.9	519309.1	0.0	0.0
08/18/14	OFF	OFF	NR	28884.1	NR	36.5	NR	10.0	NR	174.0	NR	8.0	NR	78.0	NR	0.00	0.025	0.40	0.02	1252824.9	519309.1	0.0	0.0
08/20/14	ON	ON	NR	28931.9	NR	47.8	NR	7.0	NR	190.0	NR	5.0	NR	114.0	NR	0.00	0.030	0.06	0.02	1252824.9	519309.1	0.0	0.0
08/22/14	OFF	OFF	NR	28937.0	NR	5.1	NR	10.0	NR	182.0	NR	7.5	NR	92.0	NR	0.00	0.030	0.40	0.02	1252824.9	519309.1	0.0	0.0
08/25/14	OFF	ON	NR	29005.8	NR	68.8	NR	7.0	NR	188.0	NR	5.0	NR	104.0	NR	0.00	0.030	0.07	0.02	1252824.9	519309.1	0.0	0.0
08/27/14	ON	ON	NR	29055.6	NR	49.8	NR	7.0	NR	192.0	NR	5.0	NR	111.0	NR	0.00	0.030	0.07	0.02	1252824.9	519309.1	0.0	0.0
08/28/14	ON	ON	NR	29080.3	NR	24.7	NR	7.5	NR	184.0	NR	5.5	NR	101.0	NR	0.00	0.025	0.07	0.02	1252824.9	519309.1	0.0	0.0
09/03/14	ON	AS OFF	NR	29133.9	NR	53.6	NR	11.0	NR	152.0	NR	8.5	NR	88.0	NR	0.00	0.030	0.04	0.02	1252824.9	519309.1	0.0	0.0
09/05/14	ON	ON	NR	29178.9	NR	45.0	NR	7.0	NR	196.0	NR	4.5	NR	116.0	NR	0.00	0.030	0.07	0.02	1252824.9	519309.1	0.0	0.0
09/08/14	ON	AS OFF	NR	29183.3	NR	4.4	NR	11.0	NR	164.0	NR	8.5	NR	82.0	NR	0.00	0.025	0.04	0.00	1252824.9	519309.1	0.0	0.0
09/10/14	ON	ON	NR	29230.4	NR	47.1	NR	7.0	NR	188.0	NR	5.0	NR	116.0	NR	0.00	0.030	0.07	0.02	1252824.9	519309.1	0.0	0.0
09/12/14	ON	ON	NR	29278.2	NR	47.8	NR	8.5	NR	167.0	NR	6.5	NR	80.0	NR	0.00	0.020	0.07	0.02	1252824.9	519309.1	0.0	0.0
09/16/14	ON	ON	NR	29377.4	NR	99.2	NR	8.0	NR	179.0	NR	6.0	NR	92.0	NR	0.00	0.025	0.07	0.02	1252824.9	519309.1	0.0	0.0
09/17/14	OFF	ON	NR	29402.3	NR	24.9	NR	8.0	NR	176.0	NR	6.0	NR	88.0	NR	0.00	0.025	0.07	0.02				

Table 3-4
Performance Monitoring Summary
Area 3805
April to September 2014
Fort Drum, New York

Date	System AB Condition Upon Arrival	System C Condition Upon Arrival	Multi-Phase Extraction																								Notes		
			Hour Meter		Hours Operated		Influent Vacuum (in Hg)		Influent Temperature (°F)		Barometric Pressure (in Hg)		Effluent Pressure (psi)		Effluent Temperature (°F)		Differential Pressure (in H ₂ O)		Air Flow (cfm)		SVE Effluent (ppm)		OWS Cumulative Flow* (gallons)		Total Mass Recovered (lbs)			Total Recovery Rate (lbs/hr)	
			System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C	System A/B	System C		System A/B	System C
04/02/14	ON	ON	19810.0	22800.8	130.0	50.4	7.0	1.0	52	40.0	30.06	30.06	0.0	4.20	108	78.0	3.0	2.4	579.5	524.5	3.8	0.2	1442738.5	672914.5	1.718	0.032	0.013	0.001	
04/04/14	ON	ON	19848.6	22848.6	38.6	47.8	6.5	2.0	74	72.0	29.69	29.69	0.0	1.00	110	86.0	3.2	3.0	582.4	565.0	6.2	0.8	1443949.6	672939.8	0.836	0.130	0.022	0.003	
04/07/14	ON	ON	19919.7	22919.7	71.1	71.1	7.0	2.0	52	78.0	29.87	29.87	0.0	1.00	110	88.0	3.0	2.6	577.6	524.6	2.0	0.4	1447269.2	672939.8	0.493	0.090	0.007	0.001	
04/09/14	ON	ON	19968.1	22929.4	48.4	9.7	7.0	NR	54	NR	29.80	29.80	0.0	NR	112	NR	3.0	NR	575.8	NR	0.8	NR	1447878.6	672953.2	0.134	NR	0.003	NR	
04/11/14	ON	ON	20012.9	NR	44.8	NR	7.0	NR	60	NR	29.94	29.94	0.0	NR	121	NR	3.0	NR	573.8	NR	0.8	NR	1448144.3	672953.2	0.123	NR	0.003	NR	
04/14/14	ON	ON	20085.6	NR	72.7	NR	7.0	NR	74	NR	29.66	29.66	0.0	NR	136	NR	2.9	NR	554.1	NR	0.0	NR	1448202.7	672953.2	0.000	NR	0.000	NR	
04/18/14	ON	ON	20090.3	NR	4.7	NR	6.5	NR	50	NR	30.27	30.27	0.0	NR	98	NR	3.0	NR	582.6	NR	0.0	NR	1448222.1	672953.2	0.000	NR	0.000	NR	
04/21/14	ON	ON	20163.0	NR	72.7	NR	7.0	NR	69	NR	29.97	29.97	0.0	NR	128	NR	3.0	NR	569.2	NR	0.0	NR	1448222.1	672953.2	0.000	NR	0.000	NR	
04/23/14	ON	ON	20209.5	NR	46.5	NR	7.0	NR	58	NR	29.67	29.67	0.0	NR	116	NR	3.0	NR	572.4	NR	0.0	NR	1448222.1	672953.2	0.000	NR	0.000	NR	
04/28/14	ON	ON	20331.7	NR	241.4	NR	7.0	NR	68	NR	30.12	30.12	0.0	NR	126	NR	3.0	NR	571.2	NR	0.0	NR	1448222.1	672953.2	0.000	NR	0.000	NR	
04/30/14	ON	ON	20377.9	NR	46.2	NR	7.0	NR	58	NR	30.06	30.06	0.0	NR	117	NR	3.1	NR	585.6	NR	0.0	NR	1448222.0	672953.2	0.000	NR	0.000	NR	
05/02/14	ON	ON	20425.0	NR	130.0	NR	7.0	NR	58	NR	29.73	29.73	0.0	NR	118	NR	3.0	NR	572.9	NR	0.0	NR	1448222.0	672953.2	0.000	NR	0.000	NR	
05/05/14	ON	ON	20497.6	NR	72.6	NR	7.0	NR	60	NR	29.95	29.95	0.0	NR	120	NR	3.0	NR	573.9	NR	0.0	NR	1448261.1	672953.2	0.000	NR	0.000	NR	
05/07/14	ON	ON	20545.4	NR	47.8	NR	7.0	NR	64	NR	30.21	30.21	0.0	NR	124	NR	3.0	NR	574.2	NR	0.0	NR	1448300.1	672953.2	0.000	NR	0.000	NR	
05/09/14	ON	ON	20592.6	NR	47.2	NR	7.0	NR	79	NR	29.92	29.92	0.0	NR	142	NR	3.0	NR	563.5	NR	0.0	NR	1448338.9	672953.2	0.000	NR	0.000	NR	
05/12/14	ON	ON	20665.1	NR	72.5	NR	7.0	NR	65	NR	30.07	30.07	0.0	NR	136	NR	3.0	NR	572.3	NR	0.0	NR	1448435.5	672953.2	0.000	NR	0.000	NR	
05/14/14	ON	ON	20712.6	NR	47.5	NR	7.0	NR	76	NR	30.09	30.09	0.0	NR	138	NR	3.0	NR	566.6	NR	0.0	NR	1448494.5	672953.2	0.000	NR	0.000	NR	
05/19/14	ON	ON	20832.7	NR	120.1	NR	7.0	NR	68	NR	30.17	30.17	0.0	NR	128	NR	2.8	NR	552.3	NR	0.0	NR	1448785.8	672953.2	0.000	NR	0.000	NR	
05/21/14	ON	ON	20883.4	NR	72.7	NR	7.0	NR	77	NR	29.91	29.91	0.0	NR	140	NR	3.0	NR	564.4	NR	0.0	NR	1448902.5	672953.2	0.000	NR	0.000	NR	
05/22/14	ON	ON	20905.5	NR	46.5	NR	7.0	NR	76	NR	29.81	29.81	0.0	NR	138	NR	2.9	NR	554.5	NR	0.0	NR	1448961.1	672953.2	0.000	NR	0.000	NR	
05/27/14	ON	ON	21024.8	NR	192.1	NR	7.0	NR	80	NR	29.79	29.79	0.0	NR	144	NR	3.0	NR	561.7	NR	0.0	NR	1449225.5	672953.2	0.000	NR	0.000	NR	
05/28/14	ON	ON	21050.8	NR	26.0	NR	7.0	NR	66	NR	29.97	29.97	0.0	NR	118	NR	2.9	NR	561.3	NR	0.0	NR	1449283.5	672953.2	0.000	NR	0.000	NR	
06/02/14	ON	ON	21168.5	NR	130.0	NR	7.0	NR	81.00	NR	30.00	30.00	0.0	NR	144	NR	2.9	NR	553.7	NR	0.0	NR	1449400.1	672953.2	0.000	NR	0.000	NR	
06/04/14	ON	ON	21217.8	NR	49.3	NR	7.0	NR	77.00	NR	29.81	29.81	0.0	NR	139	NR	2.9	NR	554.0	NR	0.0	NR	1449419.5	672953.2	0.000	NR	0.000	NR	
06/09/14	ON	ON	21312.3	NR	94.5	NR	7.0	NR	71.00	NR	29.94	29.94	0.0	NR	126	NR	2.8	NR	548.6	NR	0.0	NR	1449444.3	672953.2	0.000	NR	0.000	NR	
06/11/14	ON	ON	21360.3	NR	48.0	NR	7.0	NR	76.00	NR	29.98	29.98	0.0	NR	138	NR	2.8	NR	546.4	NR	0.0	NR	1449444.3	672953.2	0.000	NR	0.000	NR	
06/23/14	ON	ON	21572.3	NR	212.0	NR	5.5	NR	73.00	NR	30.03	30.03	0.0	NR	130	NR	3.0	NR	567.7	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
06/25/14	ON	ON	21618.3	NR	46.0	NR	5.5	NR	74.00	NR	29.89	29.89	0.0	NR	136	NR	3.0	NR	565.8	NR	0.2	NR	1449444.8	672953.2	0.031	NR	0.001	NR	
06/30/14	ON	ON	21739.6	NR	121.3	NR	5.0	NR	80.00	NR	29.93	29.93	0.0	NR	142	NR	3.2	NR	581.5	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
07/02/14	ON	OFF	21788.5	NR	48.9	NR	5.0	NR	84	NR	29.79	29.79	0.0	NR	146	NR	3.2	NR	578.0	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
07/07/14	OFF	OFF	21832.0	NR	43.5	NR	5.0	NR	74	NR	29.67	29.67	0.0	NR	116	NR	3.0	NR	563.7	NR	0.1	NR	1449444.8	672953.2	0.015	NR	0.000	NR	
07/09/14	ON	ON	21880.1	NR	48.1	NR	5.0	NR	72	NR	29.79	29.79	0.0	NR	134	NR	3.0	NR	565.9	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
07/11/14	ON	ON	21926.8	NR	46.7	NR	5.5	NR	70	NR	30.23	30.23	0.0	NR	129	NR	3.4	NR	608.0	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
07/14/14	ON	ON	22000.4	NR	73.6	NR	5.0	NR	79	NR	29.86	29.86	0.0	NR	138	NR	3.2	NR	581.3	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
07/16/14	ON	ON	22047.1	NR	46.7	NR	5.0	NR	74	NR	29.83	29.83	0.0	NR	135	NR	3.2	NR	583.8	NR	0.0	NR	1449444.8	672953.2	0.000	NR	0.000	NR	
07/23/14	ON	AS OFF	22217.8	22974.5	170.7	45.1	5.0	3.0	83	85.0	29.84	29.84	0.0	1.20	144	114.0	3.0	0.2	560.6	144.5	0.0	0.0	1449444.8	672953.2	0.000	0.000	0.000	0.000	
07/25/14	ON	ON	22263.2	23021.0	45.4	46.5	5.0	3.5	73	92.0	29.99	29.99	0.0	1.00	134	106.0	3.2	0.2	585.9	143.9	0.0	0.0	1449444.8	672953.2	0.000	0.000	0.000	0.000	
07/28/14	ON	ON	22335.9	23093.5	72.7	72.5	5.0	3.5	71	98.0	29.64	29.64	0.0	1.00	132	106.0	3.2	0.2	583.6	142.3	0.0	0.0	1449444.8	672953.2	0.000	0.000	0.000	0.000	
08/04/14	OFF	OFF	22335.9	23093.4	0.0	-0.1	0.0	0.00	-	0.00	30.03	30.03	0.0	0.00	-	0.00	-	0.00	0.0	0.0	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/06/14	OFF	OFF	22336.7	23093.4	0.8	0.0	5.0	2.5	73	76.0	29.94	29.94	0.0	1.40	134	103.0	3.2	0.1	585.4	103.2	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/08/14	ON	ON	22383.0	23139.4	46.3	46.0	5.0	3.5	73	92.0	30.09	30.09	0.0	1.00	134	104.0	3.2	0.0	586.9	32.2	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/11/14	ON	ON	22456.1	23212.3	73.1	72.9	5.0	5.0	80	106.0	30.06	30.06	0.0	0.40	143	119.0	3.2	0.0	582.8	31.8	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/13/14	ON	AS OFF	22503.2	23259.4	47.1	47.1	5.0	2.5	73	93.0	29.74	29.74	0.0	1.40	135	108.0	3.2	0.0	583.4	32.0	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/15/14	ON	ON	22551.5	23307.8	48.3	214.4	5.0	2.5	66	85.0	29.85	29.85	0.0	1.20	127	96.0	3.0	0.0	569.7	32.3	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/18/14	OFF	OFF	22589.3	23344.3	37.8	250.9	5.0	3.0	72	66.0	29.94	29.94	0.0	2.20	134	101.0	3.2	0.0	585.9	46.6	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/20/14	ON	ON	22635.2	23392.1	45.9	47.8	5.0	5.0	79	104.0	29.94	29.94	0.0	0.00	140	116.0	3.2	0.0	582.1	45.0	0.0	0.0	1449444.8	672953.1	0.000	0.000	0.000	0.000	
08/22/14	OFF	OFF	22640.1	23397.3	4.9	89.5	0.0	3.0	-	82.0	30.00	30.00	0.0																

**Table 3-5
Performance Monitoring Summary
AAFES Building P-2140
April to September 2014
Fort Drum, New York**

Date	Time	System Condition	Injecting at Point	Air Flow Rate (cfm)	Air Flow Pressure (psi)	Notes
04/02/14	850	ON	K, L,M	1.5,1.2,1.5	2,1,3	
04/04/14	935	ON	J,N	2.5,2.2	3,3	
04/07/14	835	ON	J,K,L	1.5,1.5,1.5	2,2,1	
04/09/14	919	ON	M,N	2,1.6	6,5	
04/11/14	914	ON	M,N	2,1.6	6,5	
04/14/14	1002	ON	J,K,L	1.2,1.2,1	4,4,3	
04/18/14	951	ON	M,N	2.1,1.8	6,5	
04/21/14	1039	ON	J,K,L	1,1.2,1.2	4,4,3	
04/23/14	908	ON	J,K,L	1.1,1.2,1.2	5,4,3	
04/28/14	1208	ON	J,K,L	1,1.1,1.1	5,4,3	
04/30/14	1020	ON	J,K	1.3,1.3	6,6	
05/02/14	850	ON	K,L,M	1.1,1.2,1.8	4,3,5	
05/05/14	935	ON	J,N	2,2.1	7,7	
05/07/14	835	ON	K,L,M	1.1,1.2,1.8	5,4,5	
05/09/14	919	ON	J,K,L	1.1,.9,1.3	5,5,4	
05/12/14	914	ON	L,M,N	1.1,1.7,1.2	3,5,4	
05/14/14	1002	ON	J,K	2.5,.8	6,6	
05/19/14	951	Off	NR	NR	NR	System deactivated
05/21/14	1039	Off	NR	NR	NR	System deactivated
05/22/14	908	Off	NR	NR	NR	System deactivated
05/27/14	1208	Off	NR	NR	NR	System deactivated
05/28/14	1020	Off	NR	NR	NR	System deactivated
06/02/14	850	ON	NR	NR	NR	System deactivated
06/04/14	935	ON	NR	NR	NR	System deactivated
06/09/14	835	ON	NR	NR	NR	System deactivated
06/11/14	919	ON	NR	NR	NR	System deactivated
06/23/14	914	ON	NR	NR	NR	System deactivated
06/25/14	1002	ON	NR	NR	NR	System deactivated
06/30/04	951	Off	NR	NR	NR	System deactivated
07/02/14	-	OFF	NR	NR	NR	System deactivated
07/07/14	-	OFF	NR	NR	NR	System deactivated
07/09/14	-	OFF	NR	NR	NR	System deactivated
07/11/14	-	OFF	NR	NR	NR	System deactivated
07/14/14	-	OFF	NR	NR	NR	System deactivated
07/16/14	-	OFF	NR	NR	NR	System deactivated
07/23/14	-	OFF	NR	NR	NR	System deactivated
07/25/14	-	OFF	NR	NR	NR	System deactivated
07/28/14	-	OFF	NR	NR	NR	System deactivated

Table 3-5
Performance Monitoring Summary
AAFES Building P-2140
April to September 2014
Fort Drum, New York

Date	Time	System Condition	Injecting at Point	Air Flow Rate (cfm)	Air Flow Pressure (psi)	Notes
08/04/14	-	OFF	NR	NR	NR	System deactivated
08/06/14	-	OFF	NR	NR	NR	System deactivated
08/08/14	-	OFF	NR	NR	NR	System deactivated
08/11/14	-	OFF	NR	NR	NR	System deactivated
08/13/14	-	OFF	NR	NR	NR	System deactivated
08/15/14	-	OFF	NR	NR	NR	System deactivated
08/18/14	-	OFF	NR	NR	NR	System deactivated
08/20/14	-	OFF	NR	NR	NR	System deactivated
08/22/14	-	OFF	NR	NR	NR	System deactivated
08/25/14	-	OFF	NR	NR	NR	System deactivated
08/27/14	-	OFF	NR	NR	NR	System deactivated
08/28/14	-	OFF	NR	NR	NR	System deactivated
09/03/14	-	OFF	NR	NR	NR	System deactivated
09/05/14	-	OFF	NR	NR	NR	System deactivated
09/08/14	-	OFF	NR	NR	NR	System deactivated
09/10/14	-	OFF	NR	NR	NR	System deactivated
09/12/14	-	OFF	NR	NR	NR	System deactivated
09/16/14	-	OFF	NR	NR	NR	System deactivated
09/17/14	-	OFF	NR	NR	NR	System deactivated
09/22/14	-	OFF	NR	NR	NR	System deactivated
09/24/14	-	OFF	NR	NR	NR	System deactivated
09/26/14	-	OFF	NR	NR	NR	System deactivated
09/29/14	-	OFF	NR	NR	NR	System deactivated

Notes:

NR = Not Recorded.

scfm = Standard Cubic Feet per Minute

psi = Pressure per Square Inch

**Table 4-1
Groundwater Gauging Data Summary
Areas 1595, 1795, and 3805
April to September 2014
Fort Drum, NY**

Site	Well ID	Date	Top of Casing (ft)	Depth to Water (ft)	GWE (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected GWE (ft)	Comments
1595	1595-4-4S	4/11/2014	636.59	8.20	628.39	ND	0.00	628.39	
		4/14/2014	636.59	8.05	628.54	ND	0.00	628.54	
		4/21/2014	636.59	7.73	628.86	ND	0.00	628.86	
		4/30/2014	636.59	8.26	628.33	ND	0.00	628.33	
		5/12/2014	636.59	7.41	629.18	ND	0.00	629.18	
		5/22/2014	636.59	7.52	629.07	ND	0.00	629.07	
		6/2/2014	636.59	8.04	628.55	ND	0.00	628.55	
		6/9/2014	636.59	8.36	628.23	ND	0.00	628.23	
		6/25/2014	636.59	8.76	627.83	ND	0.00	627.83	
		7/2/2014	636.59	8.93	627.66	ND	0.00	627.66	
		7/9/2014	636.59	9.09	627.50	ND	0.00	627.50	
		7/14/2014	636.59	9.20	627.39	ND	0.00	627.39	
		7/25/2014	636.59	9.71	626.88	ND	0.00	626.88	
		7/30/2014	636.59	9.92	614.39	ND	0.00	614.39	
		8/4/2014	636.59	9.69	626.90	ND	0.00	626.90	
		8/11/2014	636.59	9.84	626.75	ND	0.00	626.75	
		8/18/2014	636.59	9.94	626.65	ND	0.00	626.65	
		8/27/2014	636.59	9.22	627.37	ND	0.00	627.37	
		9/3/2014	636.59	9.36	627.23	ND	0.00	627.23	
	9/8/2014	636.59	9.51	627.08	ND	0.00	627.08		
	9/26/2014	636.59	9.98	626.61	ND	0.00	626.61		
	1595-4-5S	4/11/2014	636.83	8.48	628.35	ND	0.00	628.35	
		4/14/2014	636.83	8.28	628.55	ND	0.00	628.55	
		4/21/2014	636.83	8.13	628.70	ND	0.00	628.70	
		4/30/2014	636.83	8.44	628.39	ND	0.00	628.39	
		5/12/2014	636.83	8.01	628.82	ND	0.00	628.82	
		5/22/2014	636.83	8.01	628.82	ND	0.00	628.82	
		6/2/2014	636.83	8.31	628.52	ND	0.00	628.52	
		6/9/2014	636.83	8.57	628.26	ND	0.00	628.26	
		6/25/2014	636.83	9.02	627.81	ND	0.00	627.81	
		7/2/2014	636.83	9.20	627.63	ND	0.00	627.63	
		7/9/2014	636.83	9.42	627.41	ND	0.00	627.41	
		7/14/2014	636.83	9.42	627.41	ND	0.00	627.41	
		7/25/2014	636.83	9.94	626.89	ND	0.00	626.89	
		7/30/2014	636.83	10.10	626.73	ND	0.00	626.73	
		8/4/2014	636.83	9.91	626.92	ND	0.00	626.92	
		8/11/2014	636.83	10.08	626.75	ND	0.00	626.75	
		8/18/2014	636.83	10.15	626.68	ND	0.00	626.68	
		8/27/2014	636.83	9.45	627.38	ND	0.00	627.38	
		9/3/2014	636.83	9.62	627.21	ND	0.00	627.21	
	9/8/2014	636.83	9.74	627.09	ND	0.00	627.09		
	9/26/2014	636.83	10.29	626.54	ND	0.00	626.54		
	1595-MWS8	4/11/2014	630.80	6.26	624.54	ND	0.00	624.54	
		4/14/2014	630.80	6.43	624.37	ND	0.00	624.37	
		4/21/2014	630.80	6.73	624.07	ND	0.00	624.07	
4/30/2014		630.80	7.03	623.77	ND	0.00	623.77		
5/12/2014		630.80	6.68	624.12	ND	0.00	624.12		
5/22/2014		630.80	6.82	623.98	ND	0.00	623.98		
6/2/2014		630.80	7.08	623.72	ND	0.00	623.72		
6/9/2014		630.80	7.29	623.51	ND	0.00	623.51		
6/25/2014		630.80	7.51	623.29	ND	0.00	623.29		
7/2/2014		630.80	7.64	623.16	ND	0.00	623.16		
7/9/2014		630.80	7.76	623.04	ND	0.00	623.04		
7/14/2014		630.80	7.84	622.96	ND	0.00	622.96		
7/25/2014		630.80	8.30	622.50	ND	0.00	622.50		
7/30/2014		630.80	8.10	622.70	ND	0.00	622.70		
8/4/2014		630.80	8.21	622.59	ND	0.00	622.59		
8/11/2014		630.80	8.34	622.46	ND	0.00	622.46		
8/18/2014		630.80	8.31	622.49	ND	0.00	622.49		
8/27/2014	630.80	7.79	623.01	ND	0.00	623.01			
9/3/2014	630.80	7.96	622.84	ND	0.00	622.84			
9/8/2014	630.80	8.07	622.73	ND	0.00	622.73			
9/26/2014	630.80	8.40	622.40	ND	0.00	622.40			
1795	1795-5-4M	4/11/2014	653.93	7.34	646.59	ND	0.00	646.59	
		4/14/2014	653.93	7.63	646.30	ND	0.00	646.30	
		4/21/2014	653.93	6.56	647.37	ND	0.00	647.37	
		4/30/2014	653.93	6.79	647.14	ND	0.00	647.14	
		5/12/2014	653.93	6.95	646.98	ND	0.00	646.98	
		5/22/2014	653.93	6.21	647.72	ND	0.00	647.72	
		6/2/2014	653.93	6.61	647.32	ND	0.00	647.32	
		6/9/2014	653.93	7.22	646.71	ND	0.00	646.71	
		6/25/2014	653.93	7.42	646.51	ND	0.00	646.51	
		7/2/2014	653.93	7.72	646.21	ND	0.00	646.21	
		7/9/2014	653.93	7.81	646.12	ND	0.00	646.12	
		7/14/2014	653.93	8.05	645.88	ND	0.00	645.88	
		7/25/2014	653.93	8.35	645.58	ND	0.00	645.58	
		7/30/2014	653.93	9.64	644.29	ND	0.00	644.29	
		8/4/2014	653.93	9.55	644.38	ND	0.00	644.38	
		8/11/2014	653.93	9.76	644.17	ND	0.00	644.17	
		8/18/2014	653.93	9.87	644.06	ND	0.00	644.06	
8/27/2014	653.93	8.29	645.64	ND	0.00	645.64			
9/3/2014	653.93	8.40	645.53	ND	0.00	645.53			
9/8/2014	653.93	8.58	645.35	ND	0.00	645.35			
9/26/2014	653.93	9.36	644.57	ND	0.00	644.57			

**Table 4-1
Groundwater Gauging Data Summary
Areas 1595, 1795, and 3805
April to September 2014
Fort Drum, NY**

Site	Well ID	Date	Top of Casing (ft)	Depth to Water (ft)	GWE (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected GWE (ft)	Comments
1795	1795-5-5M	4/11/2014	654.68	13.28	641.40	ND	0.00	641.40	
		4/14/2014	654.68	13.04	641.64	ND	0.00	641.64	
		4/21/2014	654.68	12.00	642.68	ND	0.00	642.68	
		4/30/2014	654.68	12.30	642.38	ND	0.00	642.38	
		5/12/2014	654.68	10.81	643.87	ND	0.00	643.87	
		5/22/2014	654.68	11.03	643.65	ND	0.00	643.65	
		6/2/2014	654.68	11.60	643.08	ND	0.00	643.08	
		6/9/2014	654.68	13.44	641.24	ND	0.00	641.24	
		6/25/2014	654.68	12.36	642.32	ND	0.00	642.32	
		7/2/2014	654.68	12.76	641.92	ND	0.00	641.92	
		7/9/2014	654.68	12.67	642.01	ND	0.00	642.01	
		7/14/2014	654.68	13.06	641.62	ND	0.00	641.62	
		7/25/2014	654.68	13.41	641.27	ND	0.00	641.27	
		7/30/2014	654.68	14.86	639.82	ND	0.00	639.82	
		8/4/2014	654.68	14.67	640.01	ND	0.00	640.01	
		8/11/2014	654.68	14.87	639.81	ND	0.00	639.81	
		8/18/2014	654.68	15.06	639.62	ND	0.00	639.62	
		8/27/2014	654.68	14.25	640.43	ND	0.00	640.43	
		9/3/2014	654.68	13.42	641.26	ND	0.00	641.26	
	9/8/2014	654.68	13.52	641.16	ND	0.00	641.16		
	9/26/2014	654.68	14.12	640.56	ND	0.00	640.56		
	1795-PZ6	4/11/2014	651.58	12.15	639.43	ND	0.00	639.43	
		4/14/2014	651.58	11.99	639.59	ND	0.00	639.59	
		4/21/2014	651.58	11.38	640.20	ND	0.00	640.20	
		4/30/2014	651.58	11.81	639.77	ND	0.00	639.77	
		5/12/2014	651.58	12.15	639.43	ND	0.00	639.43	
		5/22/2014	651.58	11.99	639.59	ND	0.00	639.59	
		6/2/2014	651.58	11.99	639.59	ND	0.00	639.59	
		6/9/2014	651.58	12.51	639.07	ND	0.00	639.07	
		6/25/2014	651.58	12.54	639.04	ND	0.00	639.04	
		7/2/2014	651.58	12.89	638.69	ND	0.00	638.69	
		7/9/2014	651.58	12.87	638.71	ND	0.00	638.71	
		7/14/2014	651.58	13.17	638.41	ND	0.00	638.41	
		7/25/2014	651.58	13.85	637.73	ND	0.00	637.73	
		7/30/2014	651.58	13.92	637.66	ND	0.00	637.66	
		8/4/2014	651.58	13.96	637.62	ND	0.00	637.62	
		8/11/2014	651.58	14.11	637.47	ND	0.00	637.47	
		8/18/2014	651.58	13.87	637.71	ND	0.00	637.71	
		8/27/2014	651.58	13.16	638.42	ND	0.00	638.42	
		9/3/2014	651.58	13.31	638.27	ND	0.00	638.27	
	9/8/2014	651.58	13.45	638.13	ND	0.00	638.13		
	9/26/2014	651.58	13.85	637.73	ND	0.00	637.73		
	1795-PZ17	4/11/2014	648.42	11.28	637.14	ND	0.00	637.14	
		4/14/2014	648.42	10.77	637.65	ND	0.00	637.65	
		4/21/2014	648.42	10.21	638.21	ND	0.00	638.21	
4/30/2014		648.42	10.36	638.06	ND	0.00	638.06		
5/12/2014		648.42	9.63	638.79	ND	0.00	638.79		
5/22/2014		648.42	9.88	638.54	ND	0.00	638.54		
6/2/2014		648.42	10.33	638.09	ND	0.00	638.09		
6/9/2014		648.42	10.86	637.56	ND	0.00	637.56		
6/25/2014		648.42	11.03	637.39	ND	0.00	637.39		
7/2/2014		648.42	11.39	637.03	ND	0.00	637.03		
7/9/2014		648.42	11.44	636.98	ND	0.00	636.98		
7/14/2014		648.42	11.74	636.68	ND	0.00	636.68		
7/25/2014		648.42	12.16	636.26	ND	0.00	636.26		
7/30/2014		648.42	12.42	636.00	ND	0.00	636.00		
8/4/2014		648.42	12.58	635.84	ND	0.00	635.84		
8/11/2014		648.42	12.71	635.71	ND	0.00	635.71		
8/18/2014		648.42	12.98	635.44	ND	0.00	635.44		
8/27/2014		648.42	12.20	636.22	ND	0.00	636.22		
9/3/2014		648.42	12.21	636.21	ND	0.00	636.21		
9/8/2014	648.42	12.37	636.05	ND	0.00	636.05			
9/26/2014	648.42	12.81	635.61	ND	0.00	635.61			
1795-MWS6	4/11/2014	651.67	11.64	640.03	ND	0.00	640.03		
	4/14/2014	651.67	11.43	640.24	ND	0.00	640.24		
	4/21/2014	651.67	11.12	640.55	ND	0.00	640.55		
	4/30/2014	651.67	11.60	640.07	ND	0.00	640.07		
	5/12/2014	651.67	11.10	640.57	ND	0.00	640.57		
	5/22/2014	651.67	11.46	640.21	ND	0.00	640.21		
	6/2/2014	651.67	11.77	639.90	ND	0.00	639.90		
	6/9/2014	651.67	12.14	639.53	ND	0.00	639.53		
	6/25/2014	651.67	12.29	639.38	ND	0.00	639.38		
	7/2/2014	651.67	12.57	639.10	ND	0.00	639.10		
	7/9/2014	651.67	12.59	639.08	ND	0.00	639.08		
	7/14/2014	651.67	12.81	638.86	ND	0.00	638.86		
	7/25/2014	651.67	12.99	638.68	ND	0.00	638.68		
	7/30/2014	651.67	13.36	638.31	ND	0.00	638.31		
	8/4/2014	651.67	13.50	638.17	ND	0.00	638.17		
	8/11/2014	651.67	13.69	637.98	ND	0.00	637.98		
	8/18/2014	651.67	13.50	638.17	ND	0.00	638.17		
8/27/2014	651.67	12.58	639.09	ND	0.00	639.09			
9/3/2014	651.67	12.77	638.90	ND	0.00	638.90			
9/8/2014	651.67	12.95	638.72	ND	0.00	638.72			
9/26/2014	651.67	13.41	638.26	ND	0.00	638.26			

**Table 4-1
Groundwater Gauging Data Summary
Areas 1595, 1795, and 3805
April to September 2014
Fort Drum, NY**

Site	Well ID	Date	Top of Casing (ft)	Depth to Water (ft)	GWE (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected GWE (ft)	Comments
3805	3805-PZ10-2	4/11/2014	NSVD	14.35	NSVD	ND	0.00	NSVD	
		4/14/2014	NSVD	13.96	NSVD	ND	0.00	NSVD	
		4/21/2014	NSVD	13.41	NSVD	ND	0.00	NSVD	
		4/30/2014	NSVD	13.16	NSVD	ND	0.00	NSVD	
		5/12/2014	NSVD	12.13	NSVD	ND	0.00	NSVD	
		5/22/2014	NSVD	12.48	NSVD	ND	0.00	NSVD	
		6/2/2014	NSVD	13.01	NSVD	ND	0.00	NSVD	
		6/9/2014	NSVD	13.28	NSVD	ND	0.00	NSVD	
		6/25/2014	NSVD	13.44	NSVD	ND	0.00	NSVD	
		7/2/2014	NSVD	13.58	NSVD	ND	0.00	NSVD	
		7/9/2014	NSVD	13.75	NSVD	ND	0.00	NSVD	
		7/14/2014	NSVD	13.81	NSVD	ND	0.00	NSVD	
		7/25/2014	NSVD	14.06	NSVD	ND	0.00	NSVD	
		7/30/2014	NSVD	14.32	NSVD	ND	0.00	NSVD	
		8/4/2014	NSVD	14.30	NSVD	ND	0.00	NSVD	
		8/11/2014	NSVD	14.57	NSVD	ND	0.00	NSVD	
		8/18/2014	NSVD	14.91	NSVD	ND	0.00	NSVD	
		8/27/2014	NSVD	13.09	NSVD	13.05	0.04	NSVD	LNAPL confirmed and removed
		9/3/2014	NSVD	13.30	NSVD	13.26	0.04	NSVD	LNAPL confirmed and removed
	9/8/2014	NSVD	13.40	NSVD	ND	0.00	NSVD		
	9/26/2014	NSVD	14.05	NSVD	ND	0.00	NSVD		
	3805-5-5M	4/11/2014	NSVD	13.91	NSVD	ND	0.00	NSVD	
		4/14/2014	NSVD	13.75	NSVD	ND	0.00	NSVD	
		4/21/2014	NSVD	13.50	NSVD	ND	0.00	NSVD	
		4/30/2014	NSVD	13.24	NSVD	ND	0.00	NSVD	
		5/12/2014	NSVD	12.71	NSVD	ND	0.00	NSVD	
		5/22/2014	NSVD	12.41	NSVD	ND	0.00	NSVD	
		6/2/2014	NSVD	12.59	NSVD	ND	0.00	NSVD	
		6/9/2014	NSVD	12.84	NSVD	ND	0.00	NSVD	
		6/25/2014	NSVD	13.31	NSVD	ND	0.00	NSVD	
		7/2/2014	NSVD	13.44	NSVD	ND	0.00	NSVD	
		7/9/2014	NSVD	13.60	NSVD	ND	0.00	NSVD	
		7/14/2014	NSVD	13.69	NSVD	ND	0.00	NSVD	
		7/25/2014	NSVD	13.85	NSVD	ND	0.00	NSVD	
		7/30/2014	NSVD	14.02	NSVD	ND	0.00	NSVD	
		8/4/2014	NSVD	14.13	NSVD	ND	0.00	NSVD	
		8/11/2014	NSVD	14.40	NSVD	ND	0.00	NSVD	
		8/18/2014	NSVD	14.41	NSVD	ND	0.00	NSVD	
		8/27/2014	NSVD	13.52	NSVD	ND	0.00	NSVD	
		9/3/2014	NSVD	13.24	NSVD	ND	0.00	NSVD	
	9/8/2014	NSVD	13.29	NSVD	ND	0.00	NSVD		
	9/26/2014	NSVD	13.85	NSVD	ND	0.00	NSVD		
	3805-5-8M	4/11/2014	655.66	14.84	640.82	ND	0.00	640.82	
		4/14/2014	655.66	14.73	640.93	ND	0.00	640.93	
		4/21/2014	655.66	14.49	641.17	ND	0.00	641.17	
		4/30/2014	655.66	14.22	641.44	ND	0.00	641.44	
		5/12/2014	655.66	13.69	641.97	ND	0.00	641.97	
		5/22/2014	655.66	13.31	642.35	ND	0.00	642.35	
6/2/2014		655.66	13.45	642.21	ND	0.00	642.21		
6/9/2014		655.66	13.66	642.00	ND	0.00	642.00		
6/25/2014		655.66	14.10	641.56	ND	0.00	641.56		
7/2/2014		655.66	14.23	641.43	ND	0.00	641.43		
7/9/2014		655.66	14.41	641.25	ND	0.00	641.25		
7/14/2014		655.66	14.48	641.18	ND	0.00	641.18		
7/25/2014		655.66	14.72	640.94	ND	0.00	640.94		
7/30/2014		655.66	14.80	640.86	ND	0.00	640.86		
8/4/2014		655.66	14.92	640.74	ND	0.00	640.74		
8/11/2014		655.66	15.07	640.59	ND	0.00	640.59		
8/18/2014		655.66	15.19	640.47	ND	0.00	640.47		
8/27/2014		655.66	14.50	641.16	ND	0.00	641.16		
9/3/2014		655.66	14.10	641.56	ND	0.00	641.56		
9/8/2014	655.66	14.10	641.56	ND	0.00	641.56			
9/26/2014	655.66	14.60	641.06	ND	0.00	641.06			
3805-6-2M	4/11/2014	653.65	12.66	640.99	ND	0.00	640.99		
	4/14/2014	653.65	12.44	641.21	ND	0.00	641.21		
	4/21/2014	653.65	12.16	641.49	ND	0.00	641.49		
	4/30/2014	653.65	12.05	641.60	ND	0.00	641.60		
	5/12/2014	653.65	11.46	642.19	ND	0.00	642.19		
	5/22/2014	653.65	11.28	642.37	ND	0.00	642.37		
	6/2/2014	653.65	11.61	642.04	ND	0.00	642.04		
	6/9/2014	653.65	11.79	641.86	ND	0.00	641.86		
	6/25/2014	653.65	12.29	641.36	ND	0.00	641.36		
	7/2/2014	653.65	12.39	641.26	ND	0.00	641.26		
	7/9/2014	653.65	12.56	641.09	ND	0.00	641.09		
	7/14/2014	653.65	12.63	641.02	ND	0.00	641.02		
	7/25/2014	653.65	12.82	640.83	ND	0.00	640.83		
	7/30/2014	653.65	13.02	640.63	ND	0.00	640.63		
	8/4/2014	653.65	13.12	640.53	ND	0.00	640.53		
	8/11/2014	653.65	13.33	640.32	ND	0.00	640.32		
	8/18/2014	653.65	13.43	640.22	ND	0.00	640.22		
	8/27/2014	653.65	12.31	641.34	ND	0.00	641.34		
	9/3/2014	653.65	12.21	641.44	ND	0.00	641.44		
9/8/2014	653.65	12.31	641.34	ND	0.00	641.34			
9/26/2014	653.65	12.92	640.73	ND	0.00	640.73			

**Table 4-1
Groundwater Gauging Data Summary
Areas 1595, 1795, and 3805
April to September 2014
Fort Drum, NY**

Site	Well ID	Date	Top of Casing (ft)	Depth to Water (ft)	GWE (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected GWE (ft)	Comments
3805	3805-6-10M	4/11/2014	657.60	15.17	642.43	ND	0.00	642.43	
		4/14/2014	657.60	15.01	642.59	ND	0.00	642.59	
		4/21/2014	657.60	14.62	642.98	ND	0.00	642.98	
		4/30/2014	657.60	14.23	643.37	ND	0.00	643.37	
		5/12/2014	657.60	13.59	644.01	ND	0.00	644.01	
		5/22/2014	657.60	13.19	644.41	ND	0.00	644.41	
		6/2/2014	657.60	13.33	644.27	ND	0.00	644.27	
		6/9/2014	657.60	13.58	644.02	ND	0.00	644.02	
		6/25/2014	657.60	13.99	643.61	ND	0.00	643.61	
		7/2/2014	657.60	14.11	643.49	ND	0.00	643.49	
		7/9/2014	657.60	14.27	643.33	ND	0.00	643.33	
		7/14/2014	657.60	14.35	643.25	ND	0.00	643.25	
		7/25/2014	657.60	14.49	643.11	ND	0.00	643.11	
		7/30/2014	657.60	14.70	642.90	ND	0.00	642.90	
		8/4/2014	657.60	14.79	642.81	ND	0.00	642.81	
		8/11/2014	657.60	14.91	642.69	ND	0.00	642.69	
		8/18/2014	657.60	15.09	642.51	ND	0.00	642.51	
		8/27/2014	657.60	14.29	643.31	ND	0.00	643.31	
		9/3/2014	657.60	13.89	643.71	ND	0.00	643.71	
	9/8/2014	657.60	13.89	643.71	ND	0.00	643.71		
	9/26/2014	657.60	14.43	643.17	ND	0.00	643.17		
	3805-9-1M	4/11/2014	NSVD	11.48	NSVD	ND	0.00	NSVD	
		4/14/2014	NSVD	11.19	NSVD	ND	0.00	NSVD	
		4/21/2014	NSVD	10.46	NSVD	ND	0.00	NSVD	
		4/30/2014	NSVD	10.41	NSVD	ND	0.00	NSVD	
		5/12/2014	NSVD	9.48	NSVD	ND	0.00	NSVD	
		5/22/2014	NSVD	9.70	NSVD	ND	0.00	NSVD	
		6/2/2014	NSVD	10.19	NSVD	ND	0.00	NSVD	
		6/9/2014	NSVD	10.50	NSVD	ND	0.00	NSVD	
		6/25/2014	NSVD	9.81	NSVD	ND	0.00	NSVD	
		7/2/2014	NSVD	10.92	NSVD	ND	0.00	NSVD	
		7/9/2014	NSVD	11.11	NSVD	ND	0.00	NSVD	
		7/14/2014	NSVD	11.19	NSVD	ND	0.00	NSVD	
		7/25/2014	NSVD	11.31	NSVD	ND	0.00	NSVD	
7/30/2014		NSVD	11.64	NSVD	ND	0.00	NSVD		
8/4/2014		NSVD	11.76	NSVD	ND	0.00	NSVD		
8/11/2014	NSVD	12.02	NSVD	ND	0.00	NSVD			
8/18/2014	NSVD	11.90	NSVD	ND	0.00	NSVD			
8/27/2014	NSVD	10.08	NSVD	ND	0.00	NSVD			
9/3/2014	NSVD	10.25	NSVD	ND	0.00	NSVD			
9/8/2014	NSVD	10.48	NSVD	ND	0.00	NSVD			
9/26/2014	NSVD	11.42	NSVD	ND	0.00	NSVD			

Notes:

- ft = Feet
- GWE = Groundwater Elevation
- LNAPL = Light Non-Aqueous Phase Liquid
- ND = Not Detected
- NSVD = Not Surveyed to Vertical Datum

**Table 4-2
Groundwater Quality Parameter Monitoring Data Summary
April to September 2014
Fort Drum, New York**

Site	Monitoring Well	Date	Start Time	End Time	DTW (feet)	Temp. (°C)	pH	Cond. (mS)	ORP (mV)	DO (mg/L)	PID (ppm)
1295	1295-MW25	4/16/2014	1210	1215	8.81	7.63	6.55	0.757	40	0.00	NR
		5/6/2014	1000	1005	8.15	9.15	6.37	1.010	155	2.51	NR
		7/8/2014	1430	1435	NR	12.73	6.73	4.68	72	0.000	NR
		7/30/2014	1505	1510	10.26	14.62	6.34	5.530	84	0.560	NR
	1295-MWS27	4/16/2014	1210	1215	5.51	6.59	7.65	0.958	-86	1.980	NR
		5/6/2014	1030	1035	5.39	10.91	7.56	0.641	52	2.110	NR
		7/8/2014	1500	1505	NR	14.23	7.21	1.260	-64	0.00	NR
		7/30/2014	1200	1205	7.03	13.53	6.88	3.650	-56	0.870	NR
	1295-MW30	4/16/2014	1200	1205	8.82	8.36	6.69	0.710	-88	0.000	NR
		5/6/2014	900	905	NR	8.37	6.31	0.929	-22	0.000	NR
		6/4/2014	1340	1345	8.33	17.66	7.10	0.531	-86	0.000	NR
		7/8/2014	1330	1335	NR	14.90	6.96	2.640	-113	0.000	NR
		7/30/2014	1545	1550	9.6	16.35	6.24	6.460	-134	0.650	NR
1295-OZ6	5/6/2014	930	935	NR	9.33	6.64	1.320	-42	0.000	NR	
	7/8/2014	1400	1405	NR	15.55	6.86	3.15	-101	0.000	NR	
	7/30/2014	1625	1630	8.41	14.16	6.25	6.870	-118	0.490	NR	
1595	1595-MWS7	4/17/2014	840	845	6.75	8.34	6.17	0.637	-80	0.000	NR
		7/8/2014	1300	1305	NR	14.66	7.24	0.69	-27	0.000	NR
		7/31/2014	1100	1105	8.16	11.91	6.27	0.627	-136	1.270	NR
	1595-PZ12	8/1/2014	920	925	12.82	12.02	6.58	1.83	-45	4.360	NR
	1595-PZ13	4/16/2014	1620	1625	7.86	8.34	6.85	1.420	-68	0.000	NR
		7/8/2014	1230	1235	NR	13.36	6.96	4.18	-97	0.000	NR
		8/1/2014	1005	1010	8.94	13.46	6.69	3.880	-137	2.180	NR
	1595-PZ9	7/8/2014	1200	1205	NR	22.79	6.71	0.186	-58	0.000	NR
8/4/2014		1430	1435	8.02	13.25	6.23	0.323	-73	1.360	NR	
1795	1795-MWS7	4/16/2014	1455	1460	11.13	8.33	6.67	1.57	-88	0.000	NR
		6/4/2014	1305	1310	11.71	15.09	6.71	0.914	-127	0.000	NR
		7/8/2014	1130	1135	NR	15.03	6.87	0.61	-114	0.000	NR
		7/31/2014	1140	1145	13.16	14.31	6.65	0.828	-111	4.680	NR
	1795-PZ5	7/8/2014	1100	1105	NR	13.99	6.53	0.385	-75	0.000	NR
		8/5/2014	855	900	13.40	12.65	6.14	0.314	-86	3.140	NR
	1795-MWS3	4/16/2014	1400	1405	13.19	8.1	6.64	0.152	-86	0.000	NR
		7/8/2014	1030	1035	NR	13.6	6.67	0.08	-45	0.000	NR
7/31/2014		1410	1415	13.93	10.75	6.49	0.138	-93	3.730	NR	

Table 4-2
Groundwater Quality Parameter Monitoring Data Summary
April to September 2014
Fort Drum, New York

Site	Monitoring Well	Date	Start Time	End Time	DTW (feet)	Temp. (°C)	pH	Cond. (mS)	ORP (mV)	DO (mg/L)	PID (ppm)
3805	3805-PZ14	7/8/2014	900	905	NR	15.46	6.93	0.128	-103	0.000	NR
		7/30/2014	1035	1040	18.29	10.54	5.50	0.774	-137	0.340	NR
	3805-002	7/8/2014	930	935	NR	12.82	6.83	0.193	-82	0.000	NR
		8/5/2014	1340	1345	17.79	12.51	6.67	0.281	-123	0.230	NR
	3805-PZ10	7/8/2014	1000	1005	NR	16	6.19	0.751	-55	0.000	NR
Building P-2140	2140-MW02	4/16/2014	900	905	24.92	11.8	6.78	2.82	-118	0.000	NR
		5/6/2014	1110	1115	23.24	12.68	6.57	5.510	-98	0.350	NR
		6/4/2014	1430	1435	23.08	12.49	6.74	10.900	-55	7.220	NR
		7/8/2014	1530	1535	NR	12.72	6.74	14.8	-61	0.000	NR
		7/30/2014	835	840	24.99	12.42	6.50	18.800	-148	7.480	NR
	2140-MW06	4/16/2014	905	910	29.95	12.54	6.57	5.48	-151	0.000	NR
		5/6/2014	1140	1145	NR	12.73	6.94	3.390	-154	3.400	NR
		6/4/2014	1530	1535	27.64	12.47	7.03	2.980	-94	1.220	NR
		7/8/2014	1600	1605	NR	13.66	6.96	3.23	-131	0.000	NR
		7/31/2014	1550	1555	29.09	13.75	6.78	3.700	-192	6.34	NR

Notes:

- DTW (ft) = Depth to Water (feet)
- Temp. (°C) = Temperature (degrees Celsius)
- Cond. (mS) = Conductivity (millisiemens)
- ORP (mV) = Oxidation Reduction Potential (millivolts)
- DO (mg/L) = Dissolved Oxygen (milligrams per liter)
- PID (ppm) = Photoionization Detector (parts per million)
- NR = Not Recorded

Table 4-3
System Extraction Flows and Concentrations Summary
April to September 2014
Fort Drum, New York

Site	1795		3805			
System ID	A/B		B		C	
System Type	MPE		MPE		MPE	
Monitoring Date	Average Effluent Flow (cfm)	Average Effluent Concentration (ppm)	Average Effluent Flow (cfm)	Average Effluent Concentration (ppm)	Average Effluent Flow (cfm)	Average Effluent Concentration (ppm)
April 2014	381.4	29.6	578.8	1.4	538.0	0.5
May 2014	372.4	6.4	569.9	0.0	0.0	0.0
June 2014	367.1	9.5	567.4	0.0	0.0	0.0
July 2014	369.7	8.3	583.2	0.0	143.6	0.0
August 2014	331.9	6.3	556.6	0.0	70.3	0.0
September 2014	270.5	9.9	631.4	0.0	33.0	0.9
Average	348.8	11.7	581.2	0.2	130.8	0.2

Notes:

Vapor extraction systems Area 1595 and Area 3805 Systems A and D were offline during the reporting period.

MPE = Multi-Phase Extraction

cfm = Cubic Feet per Minute

ppm = Parts per Million

Table 4-4
Estimated Contaminant Removal Summary
April to September 2014
Fort Drum, New York

Site	1595			1795			Building P-2140		
System ID	--			A/B			--		
System Type	SVE			MPE			DPE		
Monitoring Date	Vapor Recovery		LNAPL Recovery	Vapor Recovery		LNAPL Recovery	Vapor Recovery		LNAPL Recovery
	lb	gal	gal	lb	gal	gal	lb	gal	gal
April 2014	0.00	0.00	0.00	34.80	5.54	0.00	0.00	0.00	0.00
May 2014	0.00	0.00	0.00	0.60	0.10	0.00	0.00	0.00	0.00
June 2014	0.00	0.00	0.00	1.20	0.19	0.00	0.00	0.00	0.00
July 2014	0.00	0.00	0.00	1.80	0.29	0.00	0.00	0.00	0.00
August 2014	0.00	0.00	0.00	8.50	1.35	0.00	0.00	0.00	0.00
September 2014	0.00	0.00	0.00	10.80	1.72	0.00	0.00	0.00	0.00
Period Total	0.00	0.00	0.00	57.70	9.19	0.00	0.00	0.00	0.00
Cumulative Total	2,044.69	325.59	156.10	16,301.53	2,595.79	0.25	15,079.73	2,401.23	0.00

Site	3805											
System ID	A			B			C			D		
System Type	MPE			MPE			MPE			SVE		
Monitoring Date	Vapor Recovery		LNAPL Recovery	Vapor Recovery		LNAPL Recovery	Vapor Recovery		LNAPL Recovery	Vapor Recovery		LNAPL Recovery
	lb	gal	gal	lb	gal	gal	lb	gal	gal	lb	gal	gal
April 2014	0.00	0.00	0.00	3.30	0.53	0.00	0.30	0.05	0.00	0.00	0.00	0.00
May 2014	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
June 2014	0.00	0.00	0.00	0.31	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
July 2014	0.00	0.00	0.00	0.15	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
August 2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
September 2014	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Period Total	0.00	0.00	0.00	3.76	0.60	0.01	0.34	0.05	0.00	0.00	0.00	0.00
Cumulative Total	16,143.35	2,570.60	<1	17,349.60	2,762.68	24.65	585.17	93.18	2.00	1,876.63	298.83	<1

Notes:

- Area 1595 SVE System deactivated on 3/25/13 for Bioaugmentation Pilot Study. System remains offline.
- Area 1795 System B SVE system legs connected to Area 1795 System A on 12/1/2009.
- Area 3805 System A deactivated on 4/8/2009, but reactivated on 8/25/2014
- Area 3805 System D deactivated on 8/6/2008.
- Building P-2140 Cumulative Total includes contaminant removed during operation of the dual-phase extraction system only. An additional 1,426 gallons of gasoline equivalent was removed during operation of the pump and treat system (March 1996-December 2001).
- Building P-2140 DPE System deactivated on 3/26/2011 in order to operate ozone treatment system. System remains offline.
- Vapor Recovery is reported as a gasoline equivalent, both in pounds (lbs) and gallons (gal).
- LNAPL manually bailed out during the reporting period from monitoring wells 3805-PZ10 (each are 2-inch diameter wells).
- LNAPL Recovery (gal) = $\pi * (\text{Radius of Well (ft)})^2 * \text{Product Thickness (ft)} * 7.48 \text{ gal/ft}^3$
- SVE = Soil Vapor Extraction
- MPE = Multi-Phase Extraction
- LNAPL = Light Non-Aqueous Phase Liquid
- lb = Pound
- gal = Gallon

**Table 4-5
Cumulative Volume of Treated Groundwater
April to September 2014
Fort Drum, New York**

Site	1795			3805					
System ID	A/B			B			C		
System Type	MPE			MPE			MPE		
Monitoring Date	Volume	Runtime	Flow Rate	Volume	Runtime	Flow Rate	Volume	Runtime	Flow Rate
	gal	hr	gpm	gal	hr	gpm	gal	hr	gpm
April 2014	0.0	415.6	0.000	10,311.9	615.9	0.279	0.0	179.0	0.000
May 2014	0.0	624.6	0.000	1,244.6	673.8	0.031	0.0	0.0	0.000
June 2014	0.0	587.8	0.000	163.3	619.1	0.004	0.0	0.0	0.000
July 2014	0.0	595.4	0.000	0.0	596.3	0.000	0.0	164.1	0.000
August 2014	0.0	577.6	0.000	0.0	376.4	0.000	0.0	447.1	0.000
September 2014	336.4*	647.7	0.000	41*	404.2	0.000	3,234.0	456.0	0.118
Total/Average	0.0	3,448.7	0.000	11,719.8	3,285.7	0.059	1,018.9	1,246.2	0.014

Notes:

MPE = Multi-Phase Extraction

gal = Gallon

hr = Hour

gpm = Gallons per Minute

Flow Rate (gpm) = Volume (gal) / [Runtime (hr) * 60 minutes/hr]

* indicates clean water pumped through system by ARCADIS

**Table 5-1
Remedial System Action List
April to September 2014
Fort Drum, New York**

Date	Summary of O&M Actions
05/12/14	The following systems were operational on arrival Ozone trailer at 2140, 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL well gauging, updating collected data into electronic formats and other project related tasks.
05/14/14	The following systems were operational on arrival Ozone trailer at 2140, 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Install of meters with Nytric electric, Lock out and start removal of 3805C SVE Blower, Shutdown of 2140 Ozone trailer, Trace of 2140 injection points, filling tanks for 1295 injection, updating collected data into electronic formats and other project related tasks.
05/19/14	The following systems were operational on arrival Ozone trailer at 2140, 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, 1295 Injection, updating collected data into electronic formats and other project related tasks.
05/21/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, 3805C SVE blower removal, updating collected data into electronic formats and other project related tasks.
05/22/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Shipping of 3805C SVE blower, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
05/27/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Prep for 1295 injections, updating collected data into electronic formats and other project related tasks.
05/28/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Removal of 2140 Ozone trailer, Prep for 1295 injections, updating collected data into electronic formats and other project related tasks.
06/02/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Prep. for 1295 injections, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
06/04/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks,Bio. Aug. assistance, updating collected data into electronic formats and other project related tasks.
06/09/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Prep. for 1295 injections, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
06/11/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, prep. for 1295 injections, piping measurements, updating collected data into electronic formats and other project related tasks.
06/23/14	Reset the following systems on arrival due to power outage. 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, demob of landfill piping repair project, weed whacking around buildings, updating collected data into electronic formats and other project related tasks.
06/25/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Prep. for 1295 injections, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
06/30/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS and Stripper. Reset 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, weed whacking, updating collected data into electronic formats and other project related tasks.

**Table 5-1
Remedial System Action List
April to September 2014
Fort Drum, New York**

Date	Summary of O&M Actions
07/02/14	The following systems were operational on arrival 3805B SVE, Stripper, 1795A SVE/AS,1795B AS, and Stripper. Reset 3805C AS and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, Prep. for 1295 injections, LNAPL Well Gauging, weed whacking, updating collected data into electronic formats and other project related tasks.
07/07/14	Reset the following systems on arrival due to power outage. 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripperand 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, prep for 1295 injections, updating collected data into electronic formats and other project related tasks.
07/09/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
07/11/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, landscaping, updating collected data into electronic formats and other project related tasks.
07/14/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, filling tanks for 1295 injections, updating collected data into electronic formats and other project related tasks.
7/16/14	The following systems were operational on arrival 3805C AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, filling tanks, removing 2140s wiring, updating collected data into electronic formats and other project related tasks.
07/23/14	The following systems were operational on arrival 3805C SVE, Stripper, 1795A SVE/AS,1795B AS, and Stripper. Reset 3805C AS and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, repair of 3805C, updating collected data into electronic formats and other project related tasks.
07/25/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, tagging wells for Martin, updating collected data into electronic formats and other project related tasks.
07/28/14	take systems readings and shut down all systems
07/30/14	all systems off .LNAPL well gauging
08/04/14	The following normally operational systems remain shut down due to a sampling event 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
08/06/14	The following systems were restarted after the completed sampling event 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: Mowing oversite, updating collected data into electronic formats and other project related tasks.
08/08/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, landscaping, mowing oversite, updating collected data into electronic formats and other project related tasks.
08/11/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
08/13/14	The following systems were operational on arrival 3805C SVE, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. Restarted 3805C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, filing paperwork, updating collected data into electronic formats and other project related tasks.
08/15/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, housekeeping, updating collected data into electronic formats and other project related tasks.
08/18/14	The following systems were restarted due to power outage 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.

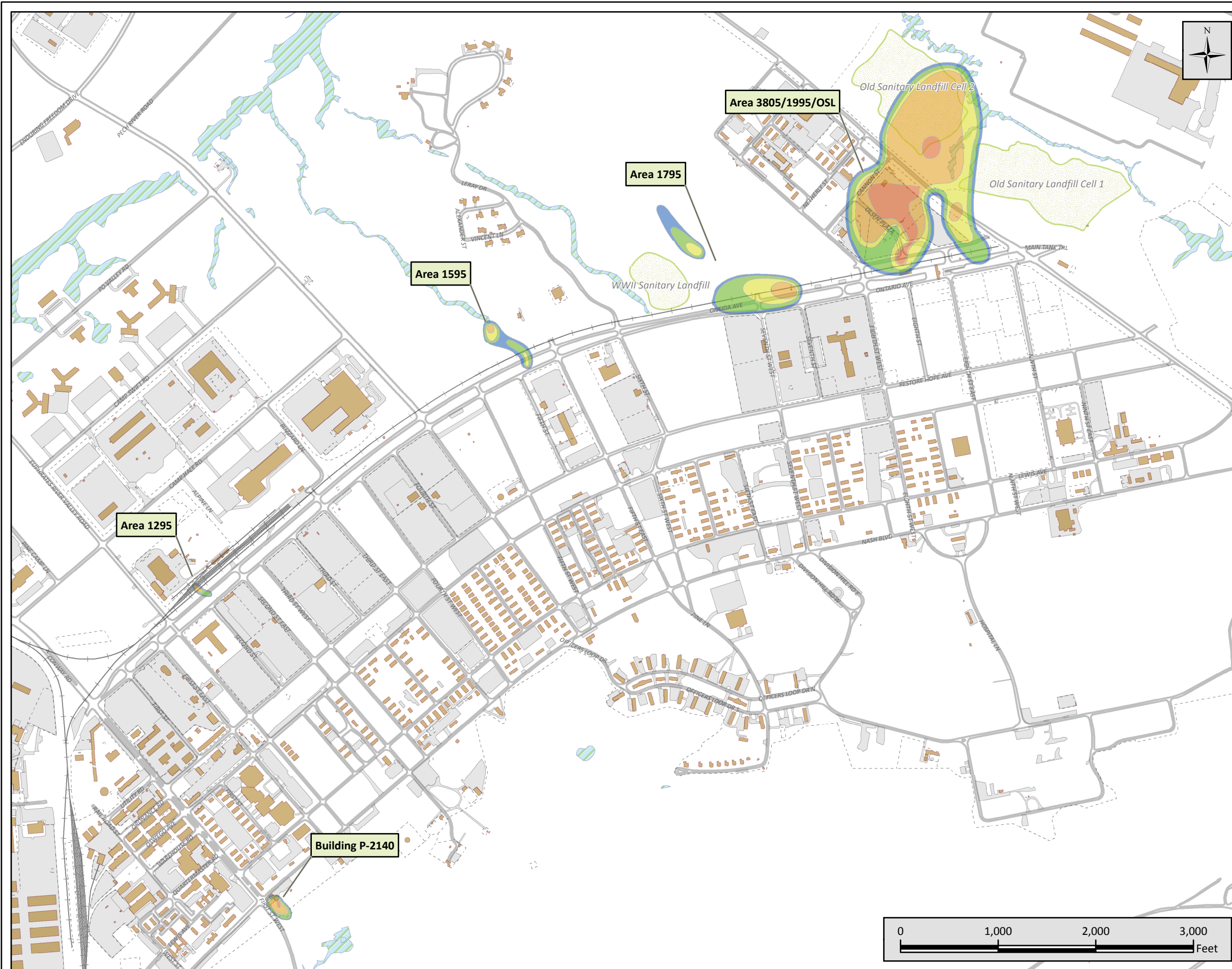
**Table 5-1
Remedial System Action List
April to September 2014
Fort Drum, New York**

Date	Summary of O&M Actions
08/20/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, updating collected data into electronic formats and other project related tasks.
08/22/14	The following systems were restarted due to power outage 3805C SVE/AS, Stripper,3805B SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks,weed whacking, updating collected data into electronic formats and other project related tasks.
08/25/14	The following systems were operational on arrival 3805C SVE/AS, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 3805B SVE piping switched to 3805A SVE system. Started 3805A SVE and Stripper. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, PM done on 3805A SVE before restart, updating collected data into electronic formats and other project related tasks.
08/27/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
08/28/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, weed whacking, updating collected data into electronic formats and other project related tasks.
09/03/14	The following systems were operational on arrival 3805C SVE, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. I reset the 3805C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, updating collected data into electronic formats and other project related tasks.
09/05/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, weed whacking, updating collected data into electronic formats and other project related tasks.
09/08/14	The following systems were operational on arrival 3805C SVE, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper. I reset the 3805C AS and the 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, LNAPL Well Gauging, cleaning of all operational systems buildings and 1595 buildnngs, updating collected data into electronic formats and other project related tasks.
09/10/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, cleaning up system trailers, updating collected data into electronic formats and other project related tasks.
09/12/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, cleaning up system trailers, draining tanks, updating collected data into electronic formats and other project related tasks.
09/16/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper and 1795C AS. 1795A SVE/AS off due to Arcadis walkthrough, 1795B AS off due to Arcadis walkthrough. 1795A/B stripper off due to Arcadis walkthrough.1295 Ozone,1595 SVE/ AS, 3805 A SVE/AS, 3805B AS, 3805C SVE, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, assisting with Arcadis walkthrough, updating collected data into electronic formats and other project related tasks.
09/17/14	The following systems were operational on arrival 3805C SVE/AS, Stripper and 1795C AS. 1795A/B SVE/AS, stripper,3805A SVE and stripper off due to Arcadis walkthrough.1295 Ozone,1595 SVE/ AS, 3805 A AS, 3805B SVE/AS, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, assisting with Arcadis walkthrough, updating collected data into electronic formats and other project related tasks.
09/22/14	The following systems were operational on arrival 3805C AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. Reset 3805C SVE. 1295 Ozone,1595 SVE/ AS, 3805 A AS, 3805B SVE/AS,3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, cleaning up system trailers, piping repairs, prep. for sampling, updating collected data into electronic formats and other project related tasks.
09/24/14	The following systems were operational on arrival 3805C AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. Reset 3805C SVE. 1295 Ozone,1595 SVE/ AS, 3805 A AS, 3805B SVE/AS,3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks, cleaning up system trailers, system modifications, 3805C sampling, winterization, updating collected data into electronic formats and other project related tasks.

**Table 5-1
Remedial System Action List
April to September 2014
Fort Drum, New York**

Date	Summary of O&M Actions
09/26/14	The following systems were operational on arrival 3805C SVE/AS, Stripper,3805A SVE, Stripper, 1795A SVE/AS,1795B AS, Stripper and 1795C AS. 1295 Ozone,1595 SVE/ AS, 3805 B SVE/AS, 3805A AS, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks,winterization, LNAPL well gauging, updating collected data into electronic formats and other project related tasks.
09/29/14	The following systems were operational on arrival 1795A SVE/AS,1795B AS, Stripper and 1795C AS. Reset 3805C systems. 1295 Ozone,1595 SVE/ AS, 3805 B SVE/AS, 3805A AS, 3805D SVE/AS,1795B SVE, 2140 Ozone trailer and 2140 SVE/AS remain off. Scheduled activities for the day include but are not limited to: performing daily system checks,winterization, Preventive maintenance, updating collected data into electronic formats and other project related tasks.

FIGURES




Legend

- Fence Line
- + Rail Road
- Paved Roadline
- Landfill Site
- Wetlands
- Building
- Paved Area

Fall 2014 BTEX Plume

- 1 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

Abbreviation Key:
 µg/L = micrograms per liter
 BTEX = Benzene, Toluene, Ethylbenzene & Total Xylenes
 OSL = Old Sanitary Landfill

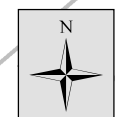
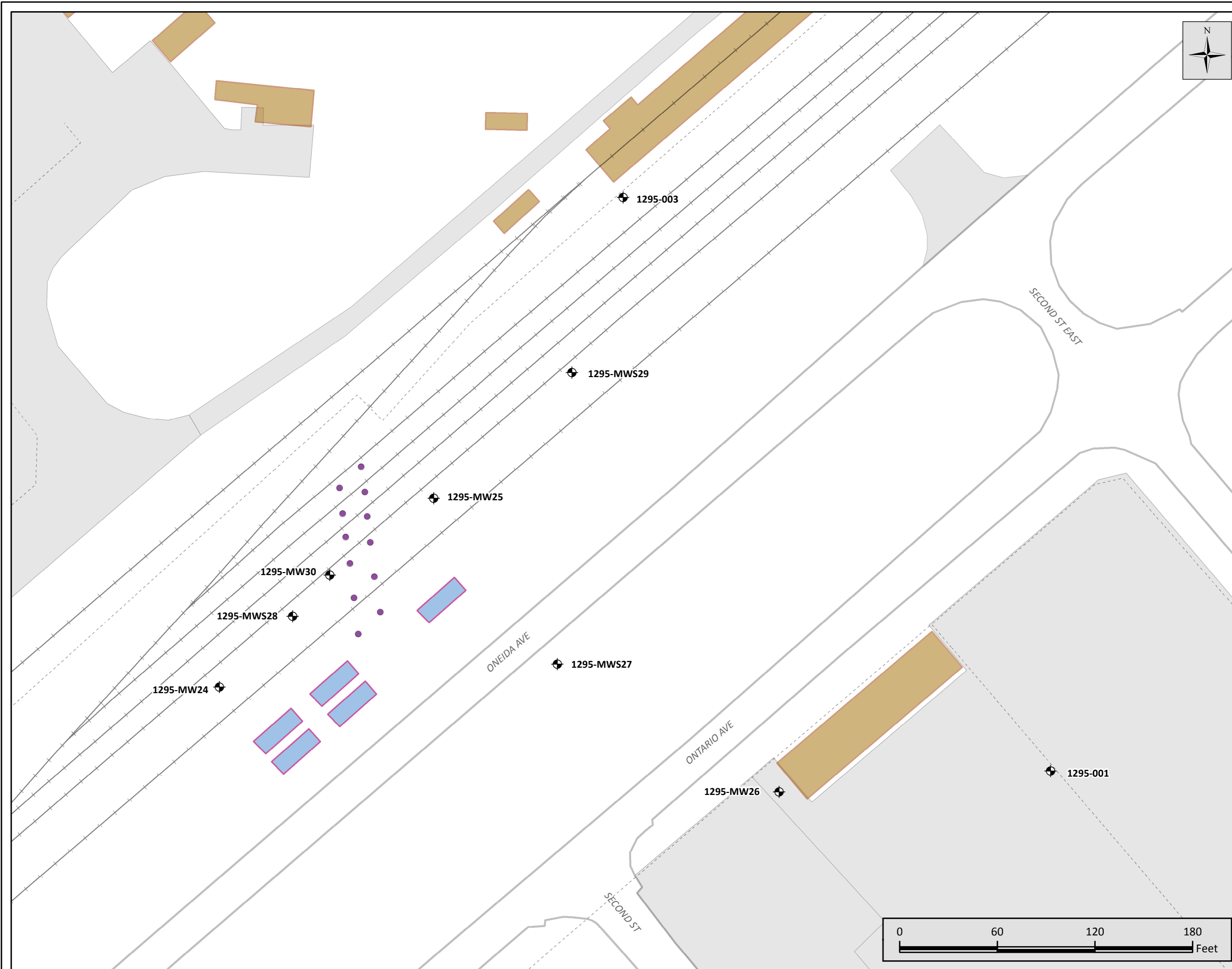

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FIGURE 1-1

Site Location Map

Progress Report (April 2014 - Sept 2014)
 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York



Legend

- ⊕ Monitoring Wells
- Ozone Injection Points
- ▭ Former UST
- - - Fence Line
- ⊕ Rail Road
- Paved Road
- Building
- Paved Area

Abbreviation Key:
UST = Underground Storage Tank

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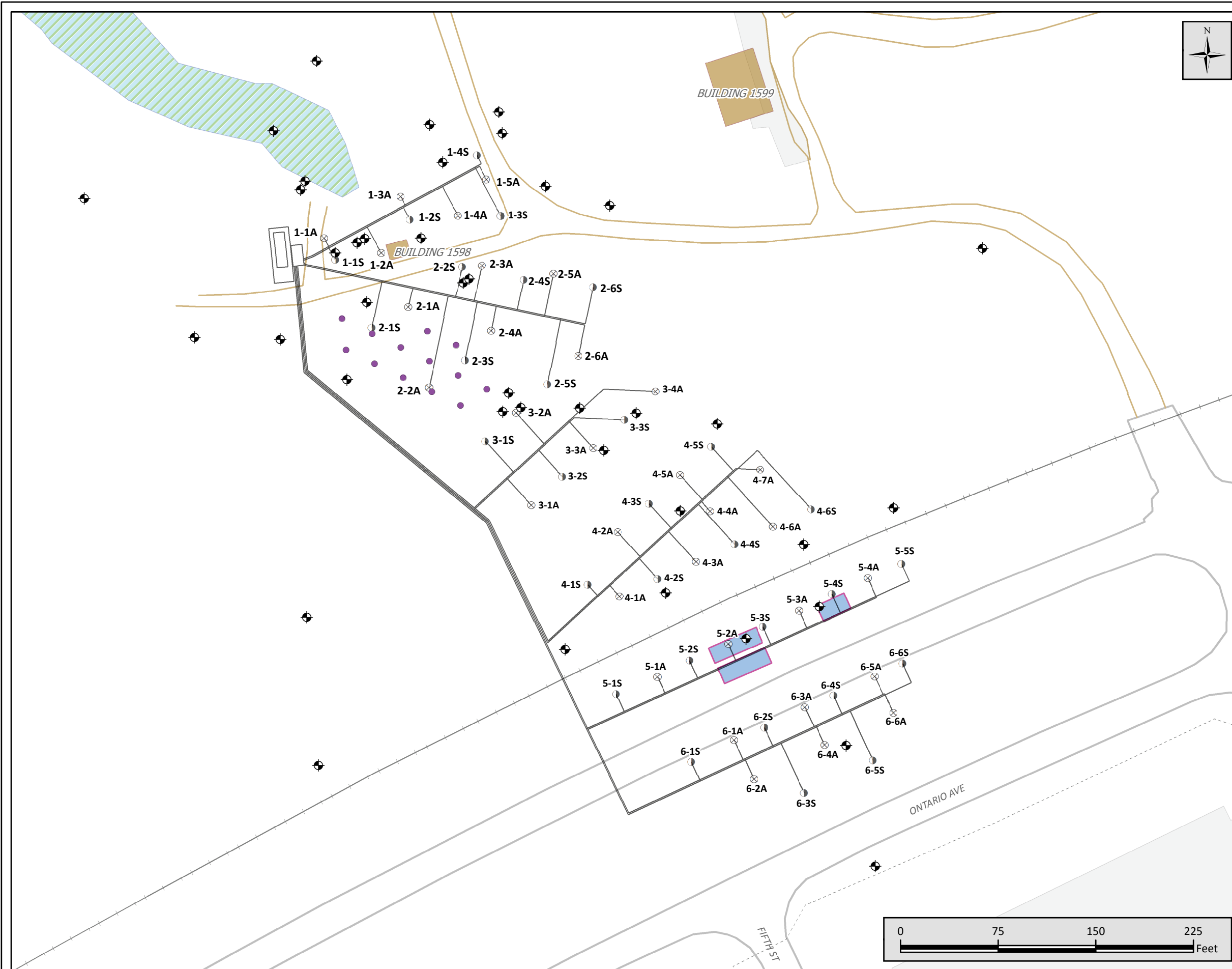
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FIGURE 3-1

**Area 1295
System Layout**

Progress Report (April 2014 - Sept 2014)
Operations and Maintenance
Remediation Systems for Gasoline Alley
and Army Air Force Exchange Service Station
Fort Drum, New York



Legend

- ◆ Monitoring Wells
- Ozone Injection Points
- ⊗ Air Sparge Wells
- Soil-Vapor Extraction Wells
- System Pipes
- Former UST
- - - Fence Line
- +— Rail Road
- Paved Road
- Unpaved Road
- ▨ Wetlands
- Building
- Paved Area

Abbreviation Key:
UST = Underground Storage Tank

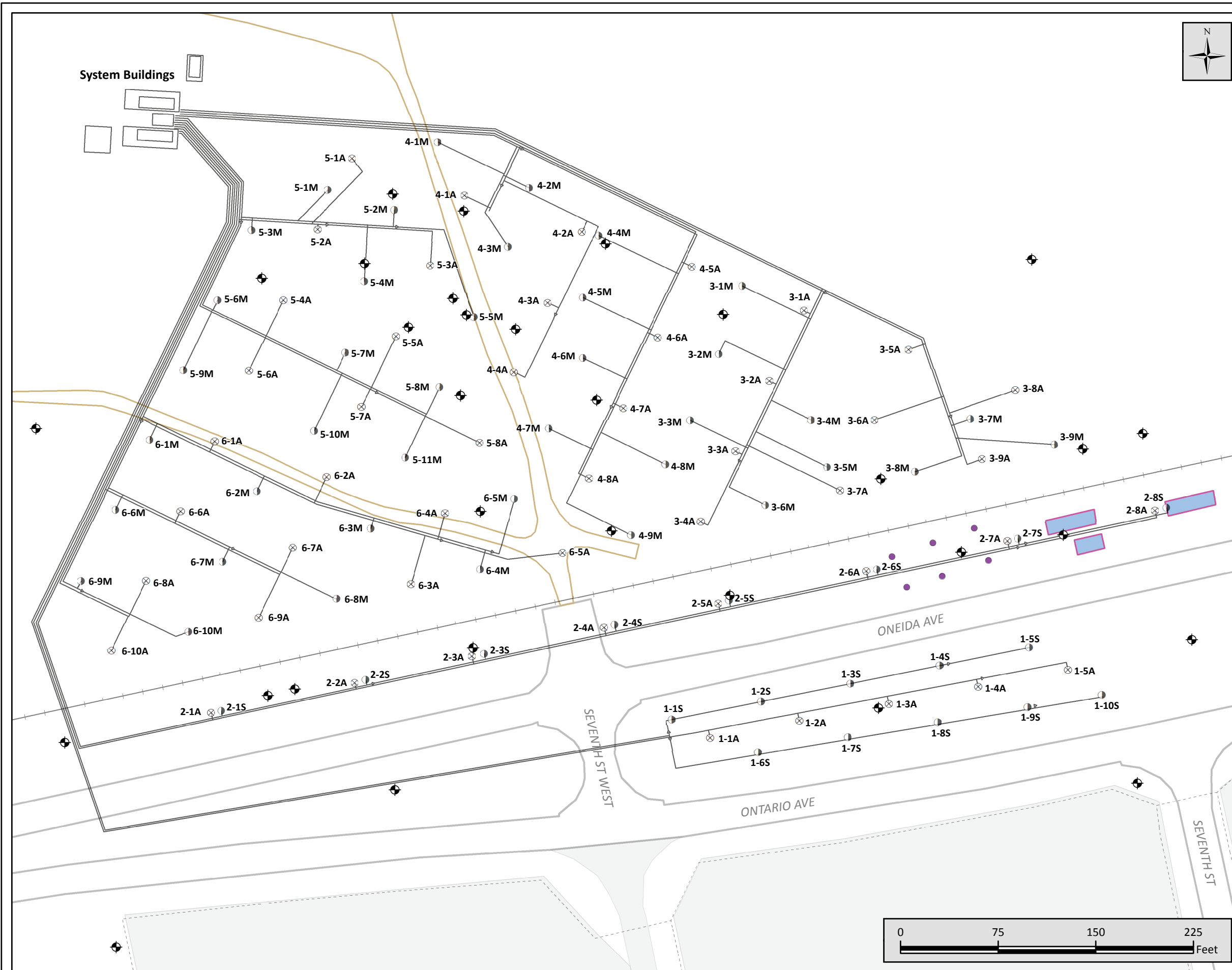

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FIGURE 3-2

**Area 1595
System Layout**


Progress Report (April 2014 - Sept 2014)
Operations and Maintenance
Remediation Systems for Gasoline Alley
and Army Air Force Exchange Service Station
Fort Drum, New York



Legend

- ⊕ Monitoring Wells
- Ozone Injection Points
- ⊗ Air Sparge Wells
- ⊙ Soil-Vapor Extraction Wells
- System Pipes
- Former UST
- - - Fence Line
- +— Rail Road
- Paved Road
- Unpaved Road
- ▨ Wetlands
- Building
- Paved Area

Abbreviation Key:
 AAS = Aquifer Air Sparge
 MPE = Multi Phase Extraction
 SVE = Soil Vapor Extraction
 UST = Underground Storage Tank

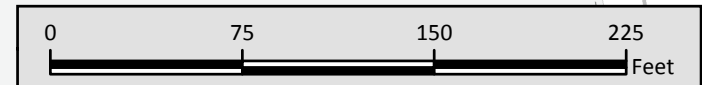

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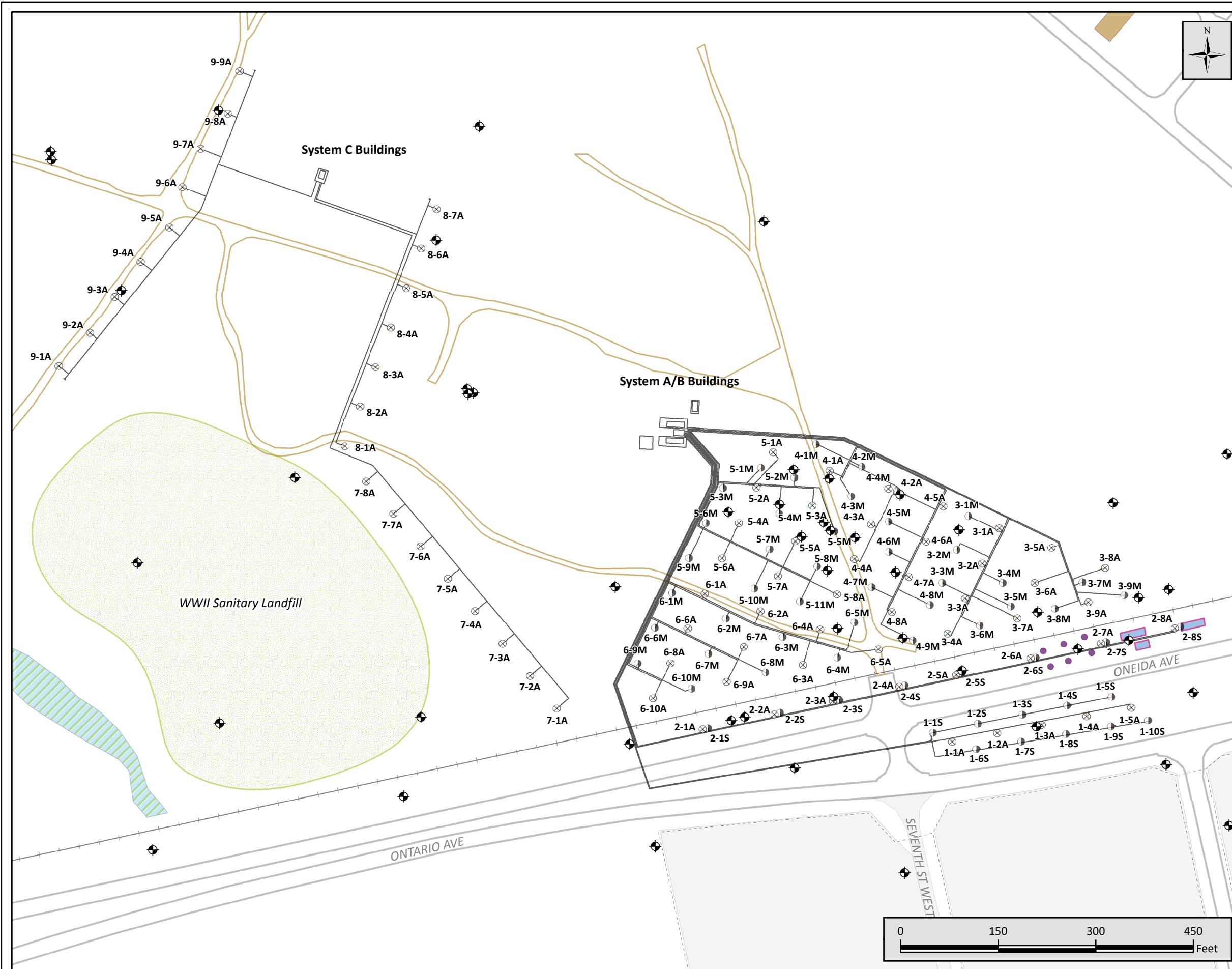
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FIGURE 3-3

**Area 1795
 System Layout
 (MPE/SVE/AAS)**

Progress Report (April 2014 - Sept 2014)
 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York





- Legend**
- ◆ Monitoring Wells
 - Ozone Injection Points
 - ⊗ Air Sparge Wells
 - Soil-Vapor Extraction Wells
 - System Pipes
 - Former UST
 - - - Fence Line
 - Rail Road
 - Paved Road
 - Unpaved Road
 - Landfill Site
 - Wetlands
 - Building
 - Paved Area

Abbreviation Key:
 AAS = Aquifer Air Sparge
 UST = Underground Storage Tank



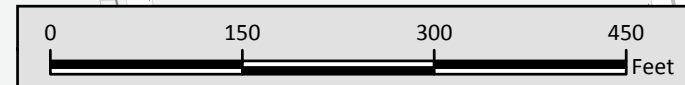
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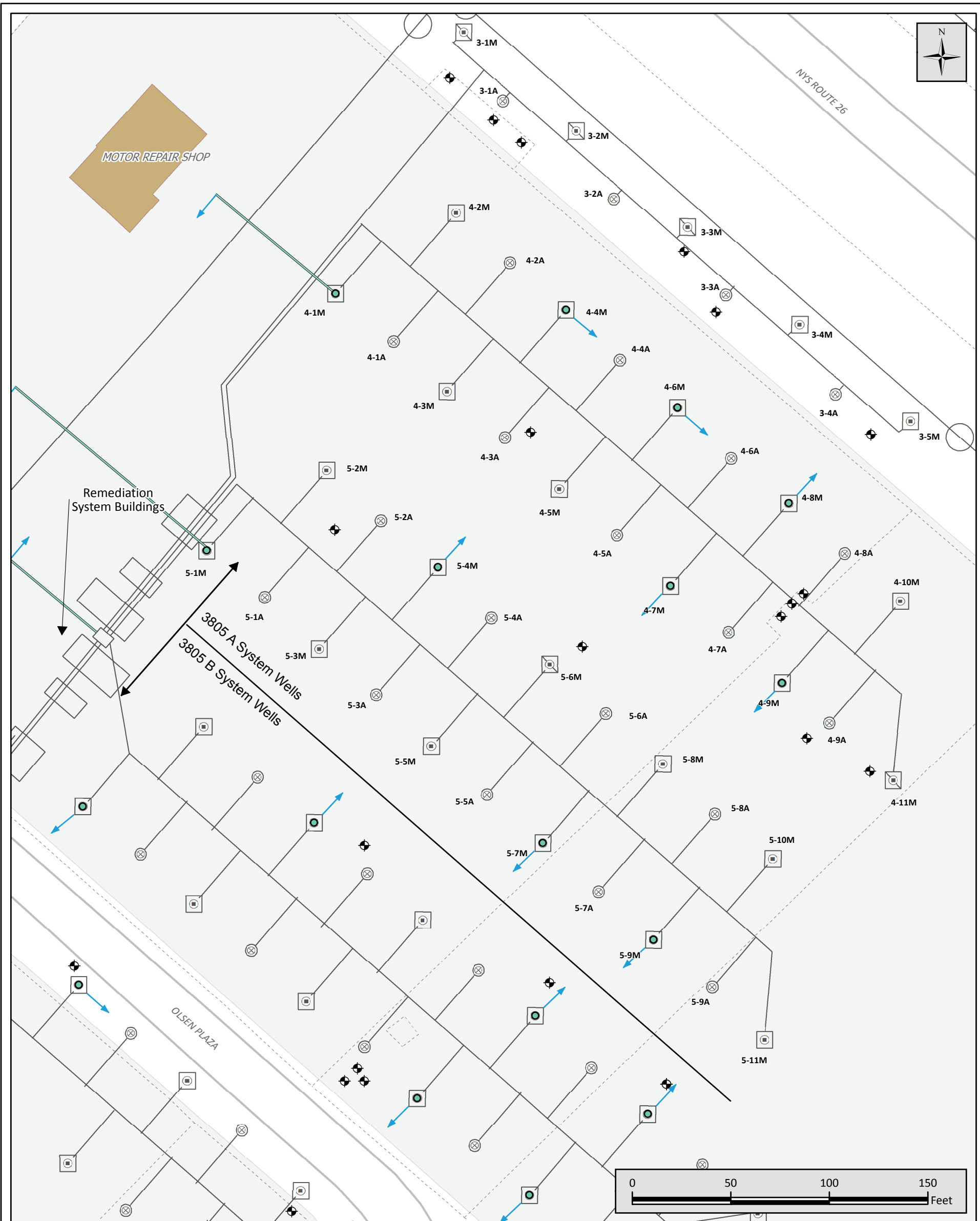
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FIGURE 3-4

**Area 1795
 System Layout
 (AAS Systems A, B, and C)**

Progress Report (April 2014 - Sept 2014)
 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York






Legend

- ⊕ Monitoring Wells
- ⊗ Air Sparge Wells
- ⊙ Multi-Phase Extraction Wells
- Soil-Vapor Extraction Wells
- System Pipes
- Horizontal SVE Well Modification Locations
- ➔ Horizontal SVE Screens
- Horizontal SVE Laterals
- Former UST
- - - Fence Line
- + Rail Road
- Paved Road
- Building
- Paved Area

Abbreviation Key:
 SVE = Soil Vapor Extraction
 UST = Underground Storage Tank



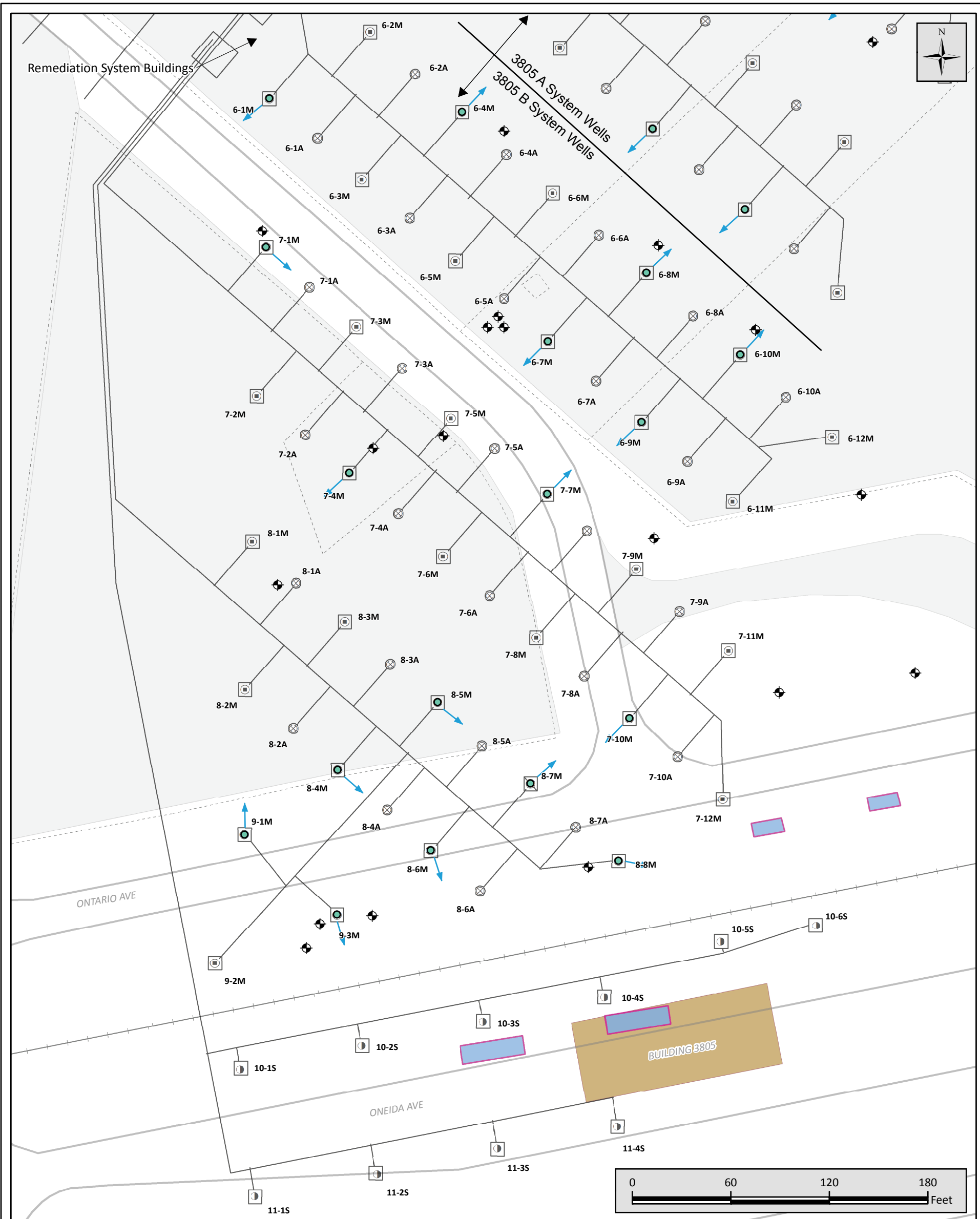
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FIGURE 3-5

**Area 3805
 System A Layout**


Progress Report (April 2014 - Sept 2014)
 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York



Legend

- ⊕ Monitoring Wells
- ⊗ Air Sparge Wells
- ⊙ Multi-Phase Extraction Wells
- Soil-Vapor Extraction Wells
- System Pipes
- Horizontal SVE Well Modification Locations
- ➔ Horizontal SVE Screens
- Horizontal SVE Laterals
- Former UST
- - - Fence Line
- Rail Road
- Paved Road
- Building
- Paved Area

Abbreviation Key:
 SVE = Soil Vapor Extraction
 UST = Underground Storage Tank

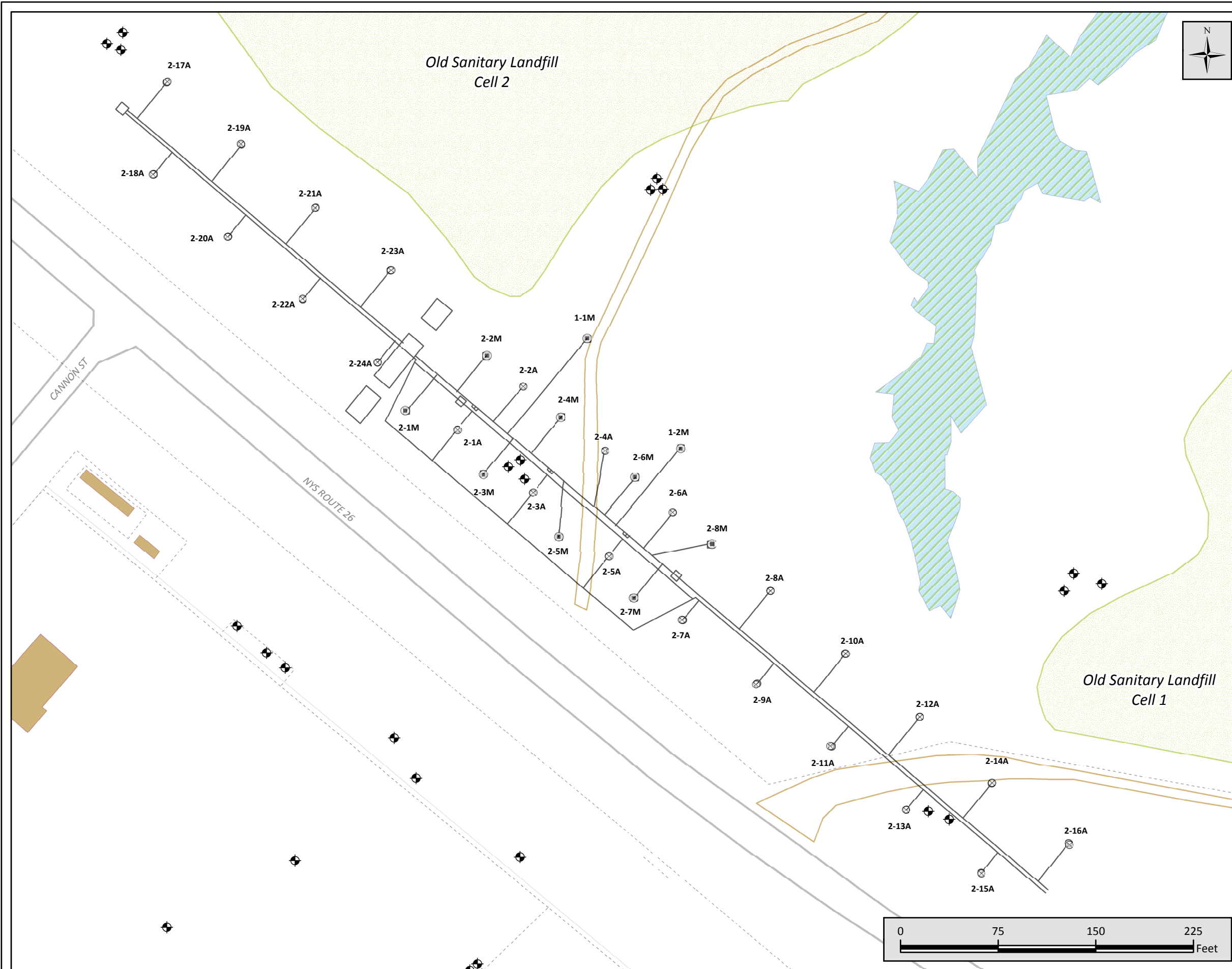

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FIGURE 3-6

**Area 3805
 System B Layout**

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 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York



- Legend**
- ◆ Monitoring Wells
 - ⊗ Air-Sparge Wells
 - ⊙ Multi-Phase Extraction Wells
 - System Pipes
 - Former UST
 - - - Fence Line
 - + Rail Road
 - Paved Road
 - Unpaved Road
 - Landfill Site
 - ▨ Wetlands
 - Building
 - Paved Area

Abbreviation Key:
UST = Underground Storage Tank

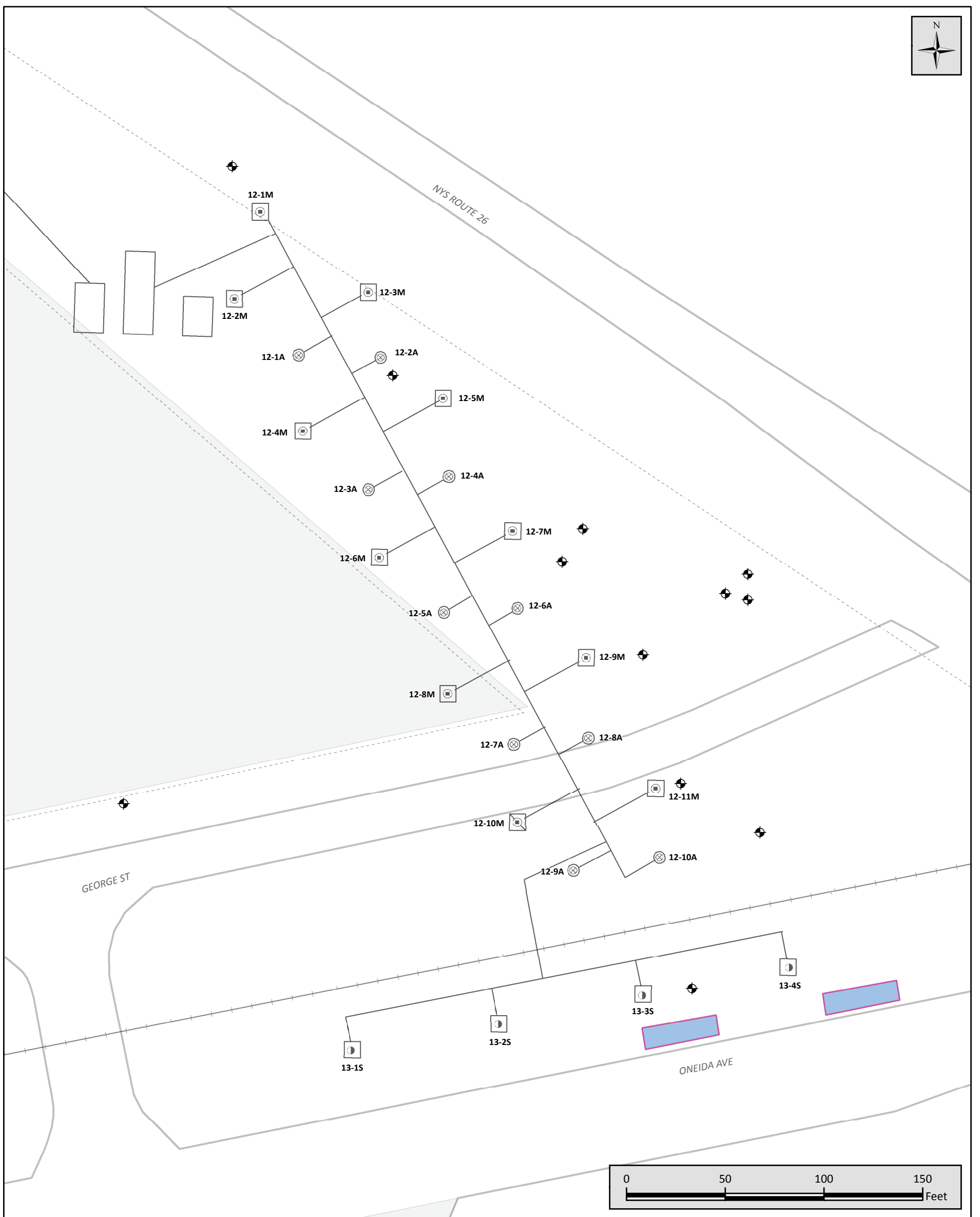

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


FIGURE 3-7

**Area 3805
System C Layout**

Progress Report (April 2014 - Sept 2014)
Operations and Maintenance
Remediation Systems for Gasoline Alley
and Army Air Force Exchange Service Station
Fort Drum, New York



Legend

-  Monitoring Wells
-  Air Sparge Wells
-  Multi-Phase Extraction Wells
-  Soil-Vapor Extraction Wells
-  System Pipes
-  Former UST
-  Fence Line
-  Rail Road
-  Paved Road
-  Paved Area

Abbreviation Key:
UST = Underground Storage Tank



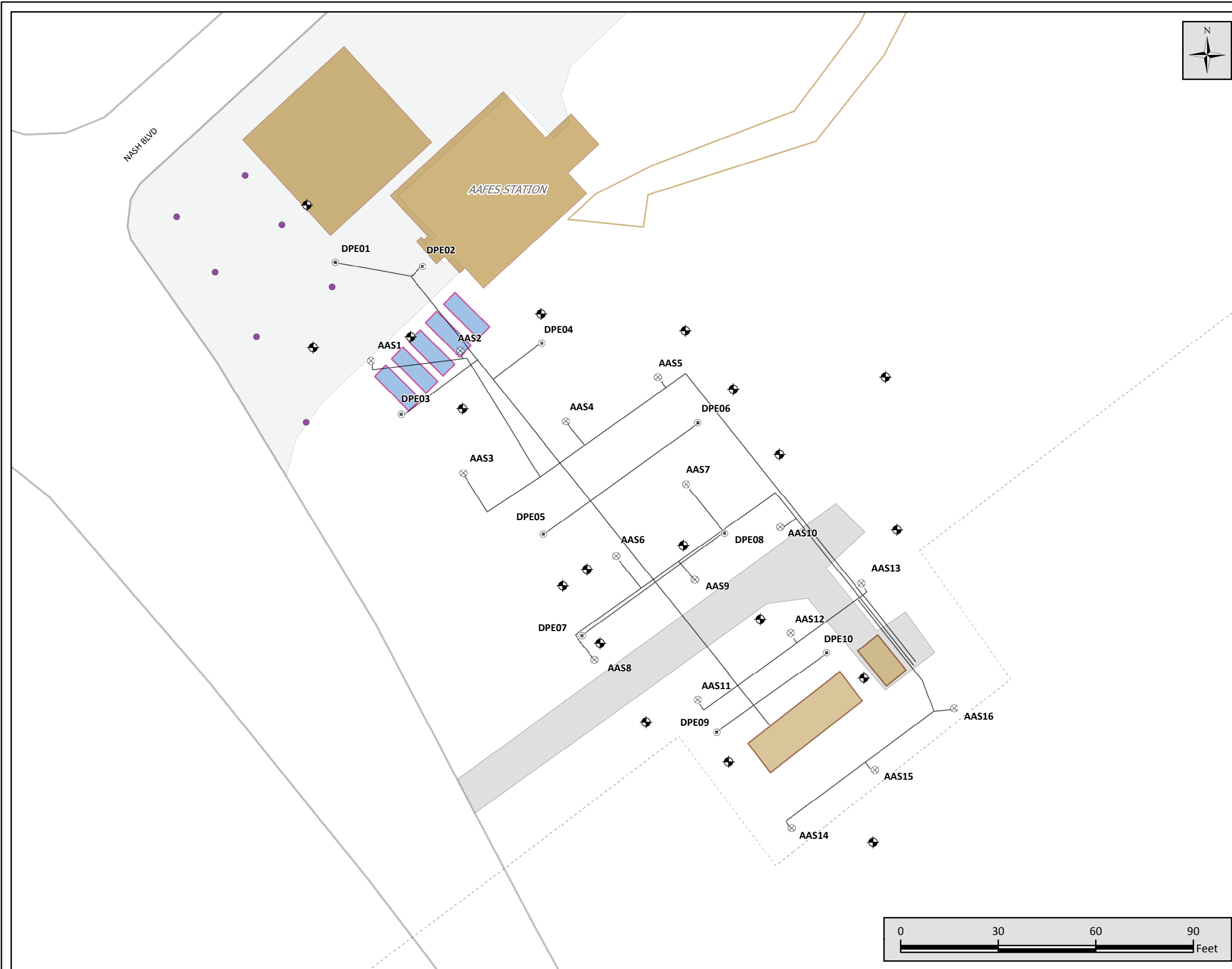
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FIGURE 3-8

**Area 3805
System D Layout**

Progress Report (April 2014 - Sept 2014)
Operations and Maintenance
Remediation Systems for Gasoline Alley
and Army Air Force Exchange Service Station
Fort Drum, New York



- Legend**
- ⊕ Monitoring Wells
 - Ozone Injection Points
 - ⊗ Air Sparge Wells
 - ⊙ Dual-Phase Extraction Wells
 - System Pipes
 - Former UST
 - - - Fence Line
 - ⊕ Rail Road
 - Paved Road
 - Unpaved Road
 - Building
 - Paving

Abbreviation Key:
 UST = Underground Storage Tank



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FIGURE 3-9

**AAFES Building P-2140
 System Layout**

Progress Report (April 2014 - Sept 2014)
 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York



1295-MW30

Q4, 2006	14,400
Q4, 2007	6,385
Q4, 2008	8,440
Q4, 2009	10,981
Q4, 2010	3,820
Q3, 2011	4,801
Q2, 2012	4,439
Q3, 2012	6,576
Q2, 2013	5,349
Q3, 2013	6,799.3
Q2, 2014	2,117.5
Q3, 2014	2,309.5

1295-MW25

Q4, 2004	19.2
Q4, 2005	11
Q4, 2006	0
Q4, 2007	0
Q4, 2008	6.95
Q4, 2009	11.6
Q4, 2010	0
Q3, 2011	22.5
Q2, 2012	36.3
Q3, 2012	27.5
Q2, 2013	7.8
Q3, 2013	1.22
Q2, 2014	3.55
Q3, 2014	0

1295-MWS27

Q4, 2004	4,760.3
Q4, 2005	1,344
Q4, 2006	2,720
Q4, 2007	93
Q4, 2008	76.5
Q4, 2009	167.2
Q4, 2010	11.46
Q3, 2011	0
Q2, 2012	1,079
Q3, 2012	437
Q2, 2013	1,212
Q3, 2013	166.2
Q2, 2014	215.22
Q3, 2014	11.67

1295-MWS28

Q4, 2006	0
Q4, 2007	0
Q4, 2008	0
Q4, 2009	0
Q4, 2010	0
Q3, 2011	0
Q2, 2012	0.4
Q3, 2012	0.26
Q2, 2013	0
Q3, 2013	1.64
Q2, 2014	3.1
Q3, 2014	0.38

Legend

- ◆ Sampled Wells
 - ◇ Other Monitoring Wells
 - Ozone Injection Points
 - Former UST
 - - - Fence Line
 - + + + Rail Road
 - Paved Road
 - Building
 - Paved Area
- Fall 2014 BTEX Plume**
- 1 µg/L
 - 10 µg/L
 - 100 µg/L
 - 1,000 µg/L

Historical Total BTEX Label Key:
BTEX result values are expressed in units of µg/L

Location	Well ID	Quarter, Year - Total BTEX (µg/L)
		Q4, 2008 - 2,000

Abbreviation Key:
µg/L = micrograms per liter
BTEX = Benzene, Toluene, Ethylbenzene & Total Xylenes
NS = Not Sampled
UST = Underground Storage Tank

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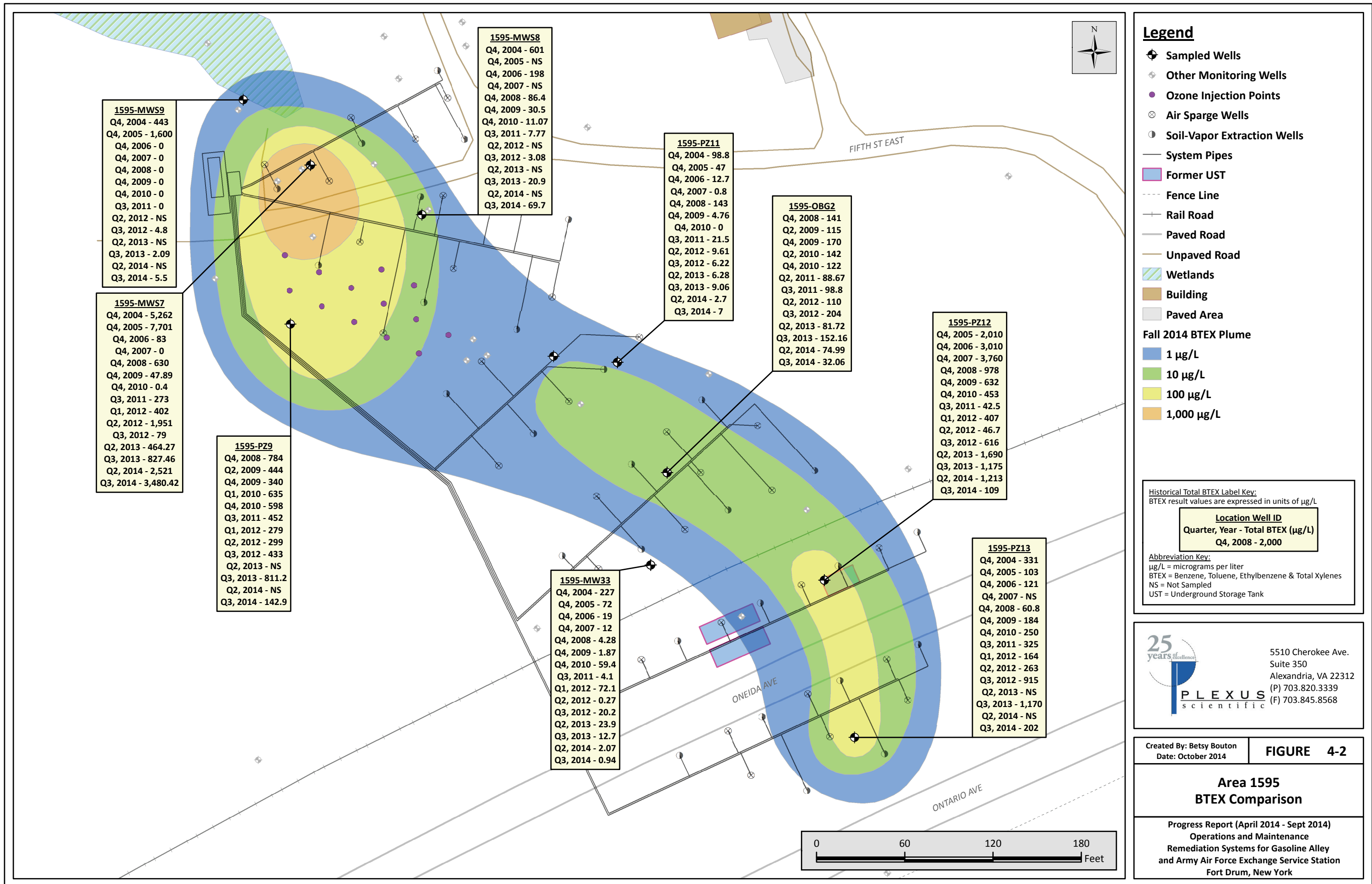
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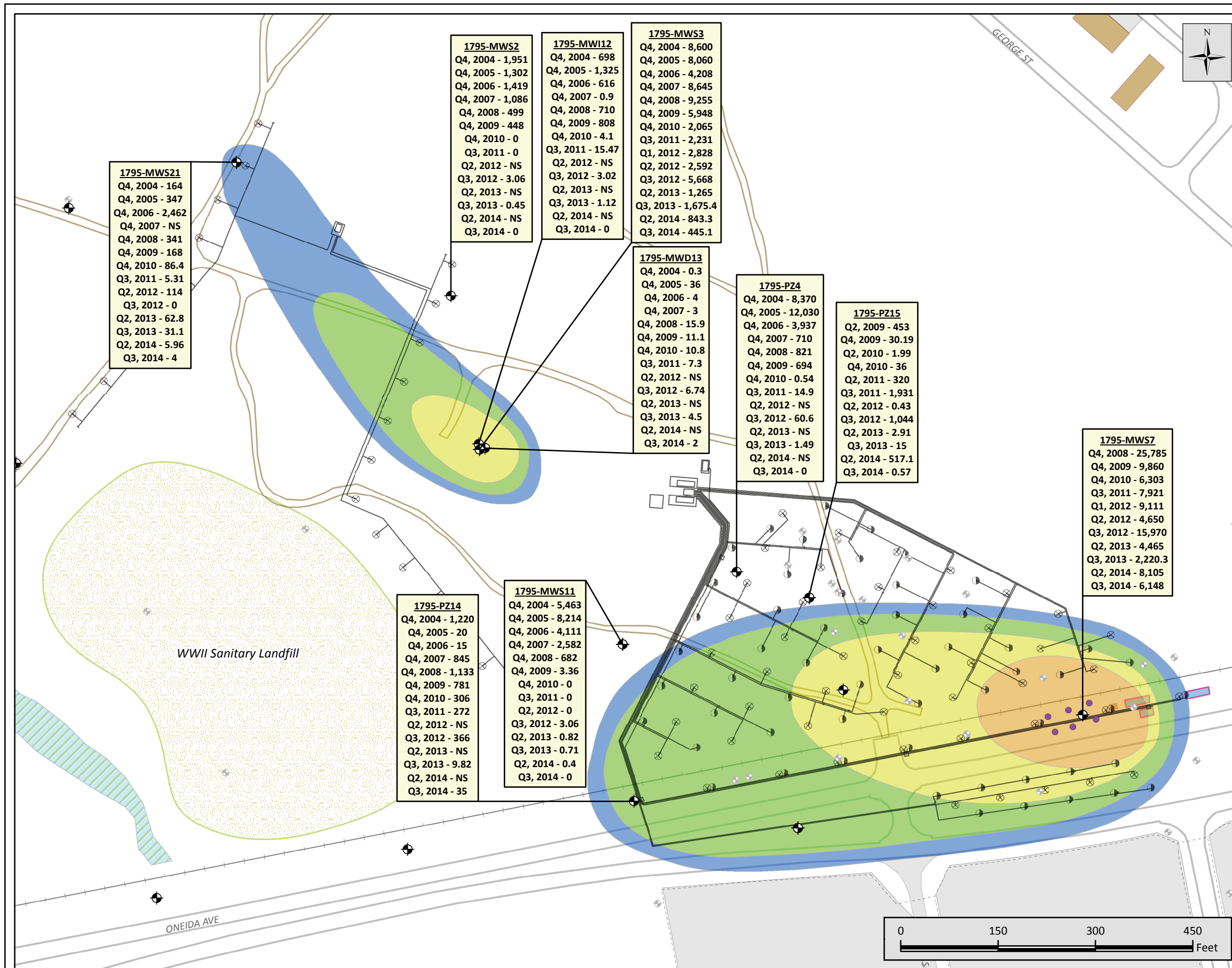
FIGURE 4-1

**Area 1295
BTEX Comparison**

Progress Report (April 2014 - Sept 2014)
Operations and Maintenance
Remediation Systems for Gasoline Alley
and Army Air Force Exchange Service Station
Fort Drum, New York







Legend

- ◆ Sampled Wells
 - ◇ Other Monitoring Wells
 - Ozone Injection Points
 - ⊗ Air Sparge Wells
 - ⊙ Soil-Vapor Extraction Wells
 - System Pipes
 - Former UST
 - - - Fence Line
 - Rail Road
 - Paved Road
 - Unpaved Road
 - Landfill Site
 - Wetlands
 - Building
 - Paved Area
- Fall 2014 BTEX Plume**
- 1 µg/L
 - 10 µg/L
 - 100 µg/L
 - 1,000 µg/L

Historical Total BTEX Label Key:
 BTEX result values are expressed in units of µg/L

Location	Well ID	Quarter	Year	Total BTEX (µg/L)
		Q4	2008	2,000

Abbreviation Key:
 µg/L = micrograms per liter
 BTEX = Benzene, Toluene, Ethylbenzene & Total Xylenes
 NS = Not Sampled
 UST = Underground Storage Tank

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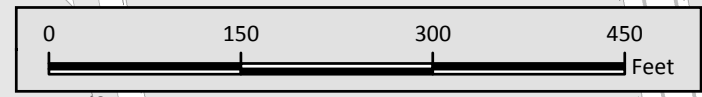
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 Date: October 2014

FIGURE 4-4

**Area 1795
 BTEX Comparison**

Progress Report (April 2014 - Sept 2014)
 Operations and Maintenance
 Remediation Systems for Gasoline Alley
 and Army Air Force Exchange Service Station
 Fort Drum, New York



Legend

- Sampled Wells
 - Other Monitoring Wells
 - ⊙ Air Sparge Wells
 - ⊖ Multi-Phase Extraction Wells
 - ⊕ Soil-Vapor Extraction Wells
 - System Pipes
 - Horizontal SVE Screens
 - Horizontal SVE Laterals
 - Former UST
 - Fence Line
 - Rail Road
 - Paved Road
 - Unpaved Road
 - Landfill Site
 - Wetlands
 - Building
 - Paved Area
- Fall 2014 BTEX Plume**
- 1 µg/L
 - 10 µg/L
 - 100 µg/L
 - 1,000 µg/L
 - 10,000 µg/L

Historical Total BTEX Label Key:
BTEX result values are expressed in units of µg/L

Location Well ID
Quarter, Year - Total BTEX (µg/L)
Q4, 2008 - 2,000

Abbreviation Key:
µg/L = micrograms per liter
BTEX = Benzene, Toluene, Ethylbenzene & Total Xylenes
NS = Not Sampled
UST = Underground Storage Tank

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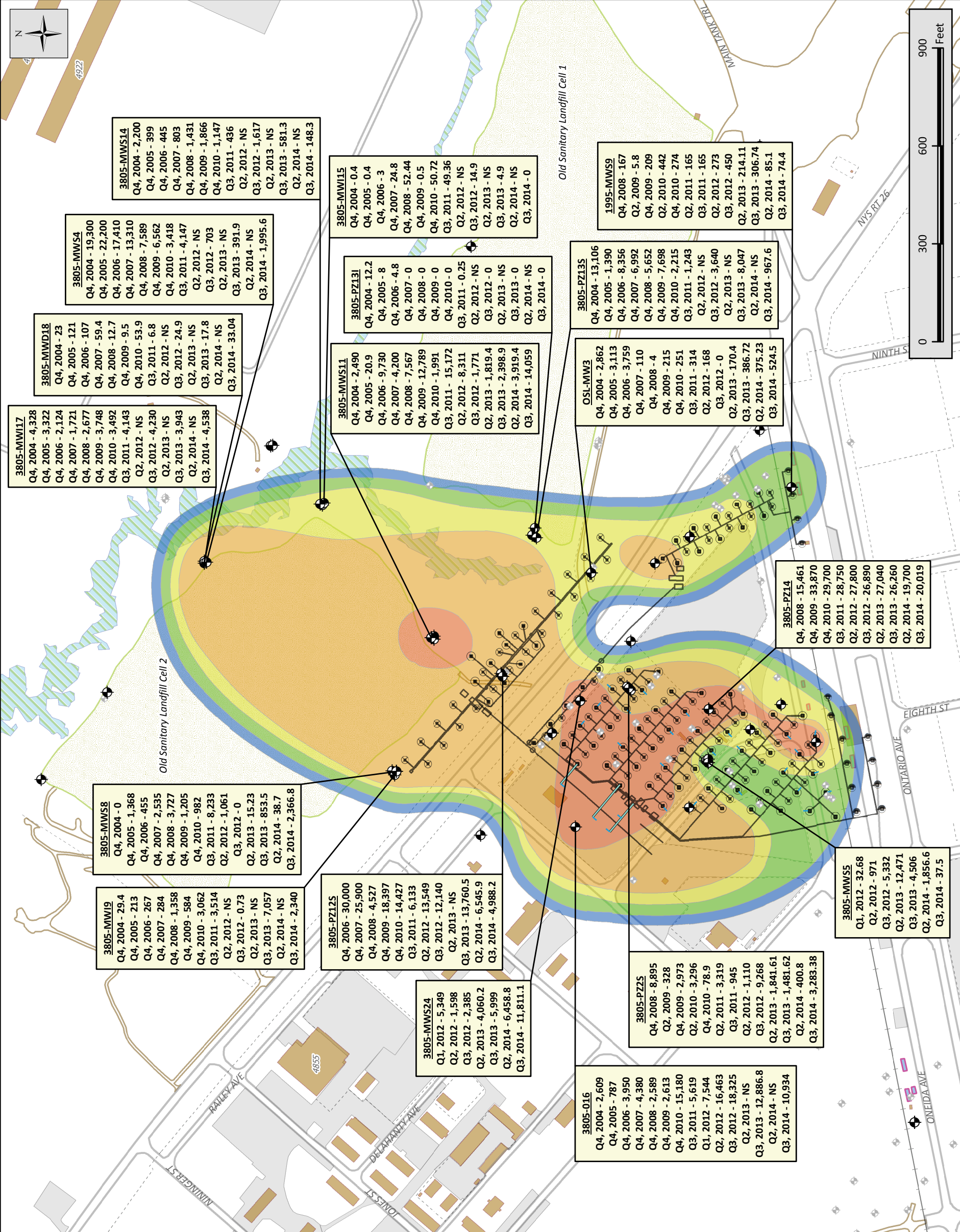
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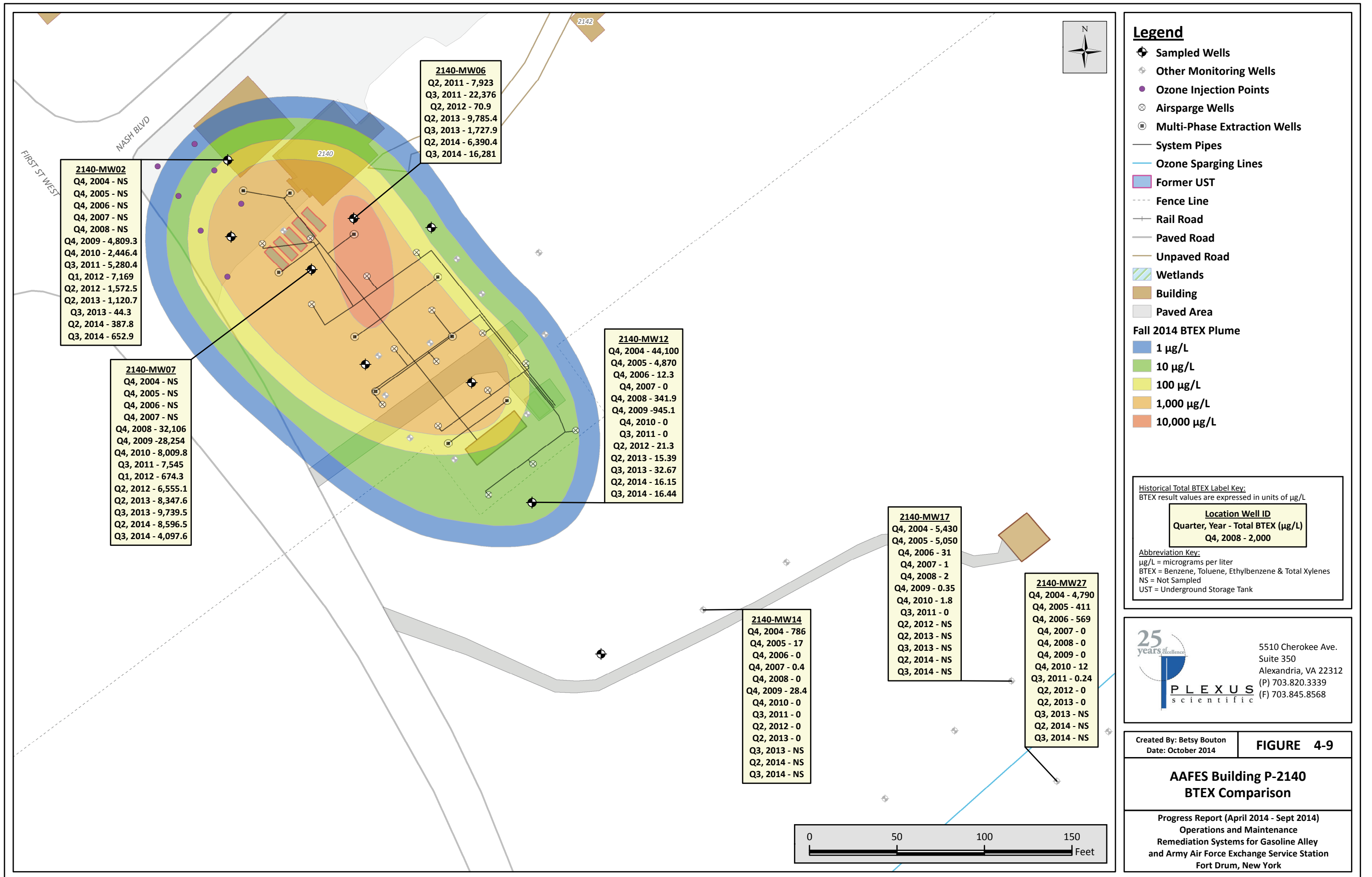
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FIGURE 4-8

Areas 3805/1995
BTEX Comparison

Progress Report (April 2014 - Sept 2014)
Operations and Maintenance
Remediation Systems for Gasoline Alley
and Army Air Force Exchange Service Station
Fort Drum, New York





2140-MW02
 Q4, 2004 - NS
 Q4, 2005 - NS
 Q4, 2006 - NS
 Q4, 2007 - NS
 Q4, 2008 - NS
 Q4, 2009 - 4,809.3
 Q4, 2010 - 2,446.4
 Q3, 2011 - 5,280.4
 Q1, 2012 - 7,169
 Q2, 2012 - 1,572.5
 Q2, 2013 - 1,120.7
 Q3, 2013 - 44.3
 Q2, 2014 - 387.8
 Q3, 2014 - 652.9

2140-MW07
 Q4, 2004 - NS
 Q4, 2005 - NS
 Q4, 2006 - NS
 Q4, 2007 - NS
 Q4, 2008 - 32,106
 Q4, 2009 - 28,254
 Q4, 2010 - 8,009.8
 Q3, 2011 - 7,545
 Q1, 2012 - 674.3
 Q2, 2012 - 6,555.1
 Q2, 2013 - 8,347.6
 Q3, 2013 - 9,739.5
 Q2, 2014 - 8,596.5
 Q3, 2014 - 4,097.6

2140-MW06
 Q2, 2011 - 7,923
 Q3, 2011 - 22,376
 Q2, 2012 - 70.9
 Q2, 2013 - 9,785.4
 Q3, 2013 - 1,727.9
 Q2, 2014 - 6,390.4
 Q3, 2014 - 16,281

2140-MW12
 Q4, 2004 - 44,100
 Q4, 2005 - 4,870
 Q4, 2006 - 12.3
 Q4, 2007 - 0
 Q4, 2008 - 341.9
 Q4, 2009 - 945.1
 Q4, 2010 - 0
 Q3, 2011 - 0
 Q2, 2012 - 21.3
 Q2, 2013 - 15.39
 Q3, 2013 - 32.67
 Q2, 2014 - 16.15
 Q3, 2014 - 16.44

2140-MW14
 Q4, 2004 - 786
 Q4, 2005 - 17
 Q4, 2006 - 0
 Q4, 2007 - 0.4
 Q4, 2008 - 0
 Q4, 2009 - 28.4
 Q4, 2010 - 0
 Q3, 2011 - 0
 Q2, 2012 - 0
 Q2, 2013 - 0
 Q3, 2013 - NS
 Q2, 2014 - NS
 Q3, 2014 - NS

2140-MW17
 Q4, 2004 - 5,430
 Q4, 2005 - 5,050
 Q4, 2006 - 31
 Q4, 2007 - 1
 Q4, 2008 - 2
 Q4, 2009 - 0.35
 Q4, 2010 - 1.8
 Q3, 2011 - 0
 Q2, 2012 - NS
 Q2, 2013 - NS
 Q3, 2013 - NS
 Q2, 2014 - NS
 Q3, 2014 - NS

2140-MW27
 Q4, 2004 - 4,790
 Q4, 2005 - 411
 Q4, 2006 - 569
 Q4, 2007 - 0
 Q4, 2008 - 0
 Q4, 2009 - 0
 Q4, 2010 - 12
 Q3, 2011 - 0.24
 Q2, 2012 - 0
 Q2, 2013 - 0
 Q3, 2013 - NS
 Q2, 2014 - NS
 Q3, 2014 - NS

Legend

- Sampled Wells
- Other Monitoring Wells
- Ozone Injection Points
- Airsparge Wells
- Multi-Phase Extraction Wells
- System Pipes
- Ozone Sparging Lines
- Former UST
- Fence Line
- Rail Road
- Paved Road
- Unpaved Road
- Wetlands
- Building
- Paved Area

Fall 2014 BTEX Plume

- 1 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

Historical Total BTEX Label Key:
 BTEX result values are expressed in units of µg/L

Location	Well ID	Quarter, Year - Total BTEX (µg/L)
		Q4, 2008 - 2,000

Abbreviation Key:
 µg/L = micrograms per liter
 BTEX = Benzene, Toluene, Ethylbenzene & Total Xylenes
 NS = Not Sampled
 UST = Underground Storage Tank

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FIGURE 4-9

**AAFES Building P-2140
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