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From:
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Date:
March 4, 2011

Subject:
Former Northern Perimeter Ditch
Supplemental Investigation Report

ARCADIS Project No.:
NJ001020.0001

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Former Northern Perimeter Ditch Supplemental Investigation Report

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March 2011

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Former Northern Perimeter Ditch Supplemental Investigation Report

Solvent Dock Area Former
Lockheed Martin French Road
Facility, Utica, New York
Order on Consent
Index No. CO6-20080321-5

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Appendices

Acronyms

1,1,-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCE	1,2-dichloroethene
1,1,1-TCA	1,1,1-trichloroethane
AOC	“Areas of Concern”
ASP	analytical services protocol
BBL	Blasland, Bouck, & Lee, Inc.
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
cis-1,2-DCE	cis-1,2-dichloroethene
CMIP	*Corrective Measures Implementation Plan*
CMS	*Corrective Measures Study*
ConMed	ConMed Corporation
CVOCs	chlorinated volatile organic compounds
DSITMS	direct-sampling ion-trap mass spectrometry
DUSR	data-usability summary reports
EPA	United States Environmental Protection Agency
FNPD	Former Northern Perimeter Ditch
GCTS	groundwater collection and treatment system
GE	General Electric Company
HDPE	high-density polyethylene
ICM	interim corrective measure
MMC	Martin Marietta Corporation
MW	monitoring well
NAD	North American Datum
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OCIDA	Oneida County Industrial Development Agency
PCE	tetrachloroethene
PID	photo-ionization detector
ppm	parts per million
PZ	piezometer
QAPP	*Quality Assurance Project Plan*
QA/QC	quality control/quality assurance
SCO	soil-cleanup objective
SGV	standards and guidance values
SPDES	“State Pollutant Discharge Elimination System”
SSDS	sub-slab depressurization system
TCE	trichloroethene
TICs	tentatively identified compounds
TOGS	*Technical and Operational Guidance Series*
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds

1. Introduction

Lockheed Martin Corporation (Lockheed Martin) has completed a supplemental investigation of the former northern perimeter ditch (FNPD) at the former Lockheed Martin French Road facility in Utica, New York (herein, the site). The FNPD is associated with the Solvent Dock Area at the site. This work was completed as part of the *Corrective Measures Implementation Plan* (CMIP) required by the October 3, 2008 "Order on Consent" (herein, the Order) issued by the New York State Department of Environmental Conservation (NYSDEC) (CO6-20080321-5). The *Corrective Measures Study Report (CMS Report)* (ARCADIS 2009) presents the findings of the corrective measures study (CMS) pursuant to the *CMIP* and recommends a corrective measures alternative for remediation of the facility.

The *Former Northern Perimeter Ditch Work Plan (FNPD Work Plan)* (ARCADIS 2010), approved by NYSDEC in a letter dated May 3, 2010, presents the work scope to further evaluate the following site "Areas of Concern" (AOCs):

- AOC 1—Groundwater
- AOC 2—Soil-Vapor Migration/Indoor Air
- AOC 3—Soil
- AOC 4—Existing Remedial System

The supplemental investigation of these AOCs was completed in accordance with the FNPD Work Plan. Significant findings from the FNPD investigation for each AOC are presented in this report. These findings have been supplemented with findings from the CMS Report, where noted. As such, this report should be considered an addendum to the CMS Report.

2. Site History

In the early 1950s, General Electric Company (GE) acquired approximately 55 acres of undeveloped land on French Road in Utica, New York and built a 500,000-square-foot manufacturing facility. Figure 1 presents a site location map. GE production operations included manufacturing, assembling, and testing electrical components for the defense and aerospace industries. GE operations continued until April 1993, when the facility was acquired by Martin Marietta Corporation (MMC). In March 1995, MMC merged with

Lockheed Corporation to form Lockheed Martin Corporation (Lockheed Martin). In March 1996, Lockheed Martin sold the property to Pinnacle Park, Inc., which subsequently transferred the property to and leased it back from the Oneida County Industrial Development Agency (OCIDA). ConMed Corporation (ConMed), a medical supplies manufacturer and distributor, now occupies the facility under a lease with OCIDA. Although Lockheed Martin no longer owns the property, the corporation retains responsibility for environmental cleanup related to past releases at the Solvent Dock Area.

Groundwater in the northeast portion of the main manufacturing building, an area known as the Solvent Dock and in an area along the former northern-perimeter ditch has been adversely affected by volatile organic compounds (VOCs). The former Solvent Dock and immediate vicinity (referred to as the Solvent Dock Area) once included a 275-gallon fiberglass overflow-retention tank. This tank stored spent-solvents waste, which were periodically sampled, pumped from the tank, and disposed of by waste haulers. The tank was removed in June 1990, at which time the tank was observed to be dented and leaking fluid. The former northern-perimeter ditch (along the northern property boundary) was an open-drainage swale which received storm-water from the area north of the manufacturing building and conveyed the water, along with storm water from the western portion of the property, to a manhole before discharge to the municipal storm sewer.

GE, MMC, and Lockheed Martin have investigated groundwater in these areas since 1991. In November 1994, Blasland, Bouck, & Lee, Inc. (BBL) investigated the facility storm sewer in the Solvent Dock Area. This investigation determined that VOCs detected in the storm sewer were attributable to the discharge of VOC-contaminated groundwater into the former northern-perimeter ditch and infiltration of VOC-contaminated groundwater from the Solvent Dock Area into the storm sewer beneath the building. In May 1995, BBL completed a *Storm Sewer Investigation Report*, which recommended that the contaminated portion of the storm-sewer flow be collected, treated, and discharged to meet proposed “State Pollutant Discharge Elimination System” (SPDES) VOC-effluent limitations.

BBL [in accordance with New York State Department of Environmental Conservation (NYSDEC) recommendations] evaluated remedial design alternatives to address the source of VOCs entering the storm sewer that would remedy the contaminated groundwater. This evaluation was presented in the *Storm Sewer Basis of Design Report* (BBL, 1995). BBL completed the final design of the French Road Facility ground-water collection and treatment system (GCTS) in October 1995 based on the *Storm Sewer Basis of Design Report* (BBL, 1995), and construction of the system was completed in June 1996.

The GCTS collects groundwater from the Solvent Dock Area and the former northern-perimeter ditch area via two under-drains, conveys the collected groundwater to a

treatment building where a low-profile air stripper removes the VOCs, and then discharges the treated effluent to the municipal storm-water system. After the system was installed and the ditch replaced with a 24-inch high-density polyethylene (HDPE) pipe, groundwater no longer discharged into the northern-perimeter ditch. The pipe conveys storm-water that formerly flowed in the ditch. The area of the ditch was filled and contoured to match the existing grade.

A hydraulic- and chemical-oriented groundwater-monitoring program was developed for the Solvent Dock Area to evaluate the effectiveness of the GCTS. This program, as presented in the *Ground-Water Sampling and Analysis Work Plan* (BBL, 1998), has since been modified through monthly and quarterly correspondence with NYSDEC to accommodate changing conditions over the life of the project. Lockheed Martin voluntarily installed and operated the GCTS and began an investigation of soil-vapor and indoor-air quality in response to observed groundwater contamination at the site (as described above).

A sub-slab depressurization system (SSDS) was installed in selected areas of the site as an interim corrective measure (ICM) in July 2008 in response to the results of several soil-vapor and indoor-air quality studies. The SSDS is designed to mitigate elevated chlorinated volatile organic compound (CVOC) vapors detected below the concrete slab of the northeast corner of the main ConMed Corporation (ConMed) manufacturing building. The primary objective of the SSDS is to maintain a negative pressure (i.e., a vacuum) below the building slab relative to the air pressure in the building above the slab, thus reducing the potential migration (intrusion) of vapors into the building. To achieve an effective negative gradient across the concrete slab, soil-vapors are extracted from the subsurface and conveyed through carbon treatment outside the building. This minimizes the potential migration of VOCs from sub-slab soil gas to indoor air.

Lockheed Martin and NYSDEC entered into an Order on Consent, effective October 3, 2008 (CO6-20080321-5). The Order identifies site AOCs, including soil and groundwater quality. Each of these specific AOCs required further investigation and identification of corrective actions. Investigations of these AOCs were completed as part of the CMS and presented in the *CMS Report*. However, Lockheed Martin determined that supplemental investigations of specific areas of the site were warranted to fully characterize the extent of contamination and confirm the effectiveness of the remedial actions recommended in the *CMS Report*. An initial supplemental investigation was completed in late-2009 and its findings summarized in the *Supplemental Investigation Report* (ARCADIS, 2010). This report confirmed the presence of VOC-contaminated groundwater near the FNPD and recommended further investigation into soil, groundwater, and soil-vapor quality, as well as groundwater flow.

3. Objectives

This FNPD supplemental investigation further evaluates groundwater and soil quality at the site. Soil-vapor was also sampled to determine if off-site migration is a pathway of concern. Finally, groundwater elevations near the FNPD were monitored to confirm whether the existing GCTS (specifically the FNPD under-drain) is capturing contaminated groundwater.

4. Technical Overview and Findings

In accordance with the approved *FNPD Work Plan* and as required by the Order, the supplemental investigation further evaluated groundwater quality, soil-vapor migration, soil quality, and the existing remedial system (GCTS), specifically in the FNPD area . A summary of the evaluations for each AOC appears in sections 4.2 through 4.5 below. The investigations methods are provided in the *FNPD Work Plan*, and, in most cases, are identical to those of the CMS.

4.1 Geology and Hydrogeology

This section presents the technical overview and findings of the site geology and hydrogeology at the FNPD area as derived from Lockheed Martin investigations of the site's soil (AOC 3) and groundwater (AOC 1) and an evaluation of the GCTS (AOC 4), pursuant to the *FNPD Work Plan* and the Order. Geologic and hydrogeologic characterization activities (described in the *FNPD Work Plan*) included:

- installation of soil borings and piezometers
- collection of groundwater elevation measurements

The following figures, tables, and appendices describe the site geology and hydrogeology:

- "Facility Map"—Figure 2
- "Investigation Location Plan"—Figure 3
- "Hydrogeologic Cross-Section A-A'—Figure 4
- "Hydrogeologic Cross-Section B-B'—Figure 5
- "Groundwater Elevation Map for the Overburden"—Figure 6

- "Groundwater Elevation Map for Bedrock"—Figure 7
- "Monitoring Well and Piezometer Construction Details"—Table 1
- "Groundwater Elevation Measurements"—Table 2
- "Soil-Boring and Piezometer Construction Logs"—Appendix A

4.1.1 Technical Overview

Data from soil samples, rock cores, drilling information, and grain-size tests from the test-pit and soil-boring programs collected during the CMS was used to define the site's stratigraphy. In addition, groundwater data, including water-level measurements and hydraulic-conductivity testing from the monitoring well and piezometer programs, were used in combination with the site-stratigraphy characterization to define site hydrogeology. These data, supported with information from previous investigations, were previously reported in the *CMS Report*.

Additional soil borings were drilled, piezometers installed, and water-level measurements collected, in accordance with the *FNPD Work Plan*, as part of this FNPD supplemental investigation. These data further define site stratigraphy and hydrogeology near the FNPD. Figure 3 presents an investigation location plan for this FNPD supplemental investigation.

4.1.2 Geologic Findings

Site geology near the FNPD is represented as geologic cross-sections (see Figures 4 and 5). The geology is similar to that previously defined as part of the CMS. Soil-boring logs are provided in Appendix A. The units encountered during the FNPD supplemental investigation are summarized below:

- fill (approximately 3–7 feet (ft) thick)
- till consisting of dark-gray clay and dense gray-brown silty clay with fine sand and gravel (approximately 15–17 ft thick where the bottom of till was determined)

A dark gray clay lens was observed in the till at most locations. Clay thickness varied from 1–5.5 ft, and was observed at 26 of 32 boring locations. The clay lens is believed to be semi-continuous throughout the FNPD area, as it has not been observed in other parts of the Solvent Dock Area. The top of clay, where encountered, ranges from 5–18 ft below

ground surface (bgs). The surface of the clay unit mirrors the ground-surface topography and that of the observed top of the till unit. The absence of clay and variations in surface pattern may be associated with localized erosion. The northern perimeter groundwater-under-drain overlies the clay layer at most boring locations and is predominantly in the till. The shallower storm-water line is also in the fill, at the western portion of the site and intersecting with the till unit toward the eastern portion of the site.

4.1.3 Hydrogeologic Findings

This section discusses groundwater occurrence observed during the FNPD supplemental investigation, water-elevation data, and the influence of the GCTS on groundwater levels.

4.1.3.1 Groundwater Occurrence

The *CMS Report* findings indicate that groundwater occurs in the overburden and bedrock. Groundwater in the overburden is unconfined. The dense till overlying the bedrock acts as a leaky confining layer that allows groundwater to “leak” from the overburden through the till unit into the bedrock. Data collected as part of the FNPD investigation have not revised these findings. Mapping of the clay lens near the FNPD area, coupled with water elevation measurements and water quality data (as further described in this report), indicate that the clay, where present, impedes groundwater migration from the upper to the lower till. Groundwater exhibits a downward gradient at the site based on water-level measurements collected at clustered well locations (till/overburden and bedrock well clusters). Available water-level data indicate that the till provides strong resistance to vertical flow, and that little water moves through the till into bedrock.

4.1.3.2 Water-Elevation Data

Water-elevation data collected during the groundwater-sampling round (see section 4.2.1.1) are presented in Table 2. Water elevation data for the fill, undifferentiated overburden (identified in the southern portion of the site on Figure 4), and till show a complex array of water levels. Consistent with previous data sets, the water-table elevation decreases toward the south and water-table elevations measured near the GCTS (specifically those near the FNPD) are depressed in some wells in response to the continued operation of the system.

The GCTS consists of a horizontal subsurface under-drain installed below the water table. A horizontal subsurface drain (northern perimeter under-drain) is on the northern property boundary at a depth of approximately 6–8 ft bgs. A second east-west trending drain is just north of the manufacturing building at a depth of approximately 15 ft bgs, between monitoring

wells MW-4/MW-5 and MW-1/MW-2/MW-3, beneath the loading dock area. The GCTS (specifically the northern perimeter under-drain) and its effect on groundwater are evaluated more fully in section 4.5.

Groundwater elevations for the overburden and bedrock measured in June 2010 are shown in Figures 6 and 7, respectively. The complexity of the groundwater elevations, due to the presence of the GCTS as well as the facility building, utility corridors, and natural conditions, makes contouring groundwater elevations difficult and inconclusive. The CMS found that the inferred general direction of groundwater flow in both the overburden and bedrock is toward the south. The FNPD investigation confirms this. Near the FNPD under-drain (along the northern perimeter of the property, as shown on Figure 2), groundwater-elevation and groundwater-quality data suggest that contaminated groundwater is being captured (as further discussed in section 4.5). Captured groundwater is processed through the GCTS.

4.2 AOC 1—Groundwater

This section presents the technical overview and findings of the supplemental investigation of AOC 1 conducted by Lockheed Martin, pursuant to the *FNPD Work Plan* and the Order. Information in this section derives from the following scope of work, conducted in May–June 2010:

- piezometers installation and development
- groundwater elevation measurements
- groundwater sampling from piezometers

The figures, tables, and appendices related to the investigation of AOC 1 and groundwater quality are as follows:

- “Facility Map”—Figure 2
- “Investigation Location Plan”—Figure 3
- “Hydrogeologic Cross-Section A-A’”—Figure 4
- “Hydrogeologic Cross-Section B-B’”—Figure 5
- “Groundwater Elevation Map for the Overburden”—Figure 6

- "Groundwater Elevation Map for Bedrock"—Figure 7
- "AOC 1—Groundwater Quality"—Figure 8
- "Monitoring Well and Piezometer Construction Details"—Table 1
- "Groundwater Elevation Measurements"—Table 2
- "Sampling and Analysis Program for Soil and Groundwater"—Table 3
- "AOC 1—Volatile Organic Compound Results for Groundwater Samples"—Table 4
- "Tentatively Identified Compounds Detected in Groundwater Samples"—Table 5
- "Soil-Boring and Piezometer Construction Logs"—Appendix A
- "Laboratory Analytical-Data Packages"—Appendix C

4.2.1 AOC 1—Technical Overview of Groundwater Sampling

Twenty-nine piezometers were installed in May–June 2010 as part of the FNPD supplemental investigation. The piezometers were generally installed in and across the fill and upper till units, except for one piezometer (PZ-23) that was installed in the lower till to evaluate groundwater quality beneath the clay lens. All piezometers constructed in the fill/upper till were designed to straddle the water-table. Table 1 summarizes monitoring well (existing) and piezometer (existing and new) construction. Piezometer-construction logs are provided in Appendix A.

As described in section 4.4.1, direct-sampling ion-trap mass spectrometry (DSITMS) borings were also completed at the site, consisting of continuous real-time monitoring of VOCs in soil samples collected from soil borings as they were introduced into an ion-trap mass-spectrometer. Soil samples were collected at one-foot intervals and analyzed for VOCs using the on-site DSITMS technology. The DSITMS analysis defined the locations and screen intervals for permanent piezometer installations targeting those zones where maximum soil contamination had been identified.

The piezometers were located as follows:

- Six (PZ-22, PZ-23, PZ-24, PZ-25, PZ-26, and PZ-27) were installed north of the northern perimeter under-drain, but on the facility property. These piezometers were used to evaluate possible off-site migration of constituents in groundwater, as well as to evaluate the under-drain's hydraulic control. These wells were located to provide spatial distribution north of the under-drain, from the west end of the Maintenance Building toward the GCTS building. Each included a 10-ft well screen, except for piezometer PZ-23, which included a 2-ft well screen. As identified above, PZ-23 was constructed to monitor groundwater in the till below the clay lens.

- Six piezometers (PZ-28, PZ-29, PZ-30, PZ-31, PZ-32, and PZ-33) were installed south of the under-drain and north of the out-buildings adjacent to borings where earlier DSITMS analyses had been performed. Similarly, two piezometers (A1-PZ1 and A1-PZ2) were installed adjacent to the west end of the Maintenance Building and eight (A2-PZ-1, A2-PZ-2, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7, and A2-PZ-8) were installed in an area northeast of the Storage Building. These piezometers were used to evaluate the presence of constituents in groundwater in areas of potential source material.

- Per the FNPD Work Plan, six piezometers were proposed in three north-south transects (two piezometers per transect) between the south end of the Maintenance and Storage Buildings and the northern-side of the main plant facility. However, utility clearance results prohibited installation of two of the piezometers (PZ-37 and PZ-38). As a result, only four piezometers (PZ-34, PZ-35, PZ-36, and PZ-39) were installed between the Maintenance and Storage Buildings and the main plant facility. The piezometers were designed to provide hydraulic information relating the northern perimeter under-drain to the rest of the Solvent Dock Area. The piezometers were installed with 10-ft well screens, except for PZ-34 that was installed with a 9-ft well screen.

- Two piezometers (PZ-40 and PZ-41) were installed in the Maintenance Building and one (PZ-42) in the Storage Building. These locations were designed to evaluate possible soil and groundwater contamination beneath structures that are in a possibly contaminated area. A piezometer with a 10-foot well screen was installed in the completed test boring at each location.

Piezometers were installed in accordance with the methods identified in the *Revised Work Plan for Soil and Groundwater Investigation (*ARCADIS, 2008). Following installation, each piezometer was developed by pumping and surging to remove fine-grained materials. Piezometers were surveyed to the nearest 0.01-foot horizontally relative to the North American Datum (NAD) 1983. Piezometer measuring-point elevations were surveyed to the nearest 0.01-foot relative to a site vertical benchmark.

Groundwater samples were collected from existing monitoring wells MW-6 and MW-9, existing piezometers PZ-2 and PZ-4, and from each newly installed piezometer (except for piezometer PZ-33) during the June 2010 sampling event. Piezometer PZ-33 was not sampled due to insufficient water in the well. In accordance with the *Quality Assurance Project Plan* (QAPP, ARCADIS 2009), groundwater samples were collected using disposable polyethylene bailers with disposable polypropylene rope. Samples were collected following three purged well volumes or sufficient recharge following well dewatering. Water generated as part of groundwater sampling was collected and processed through the GCTS.

Collected groundwater samples were submitted to an analytical laboratory (TestAmerica of Amherst, New York) for analysis of VOCs by EPA Method 8260. Quality control/quality assurance (QA/QC) samples were collected in accordance with the QAPP. New York State (NYS) analytical services protocol (ASP) Category B/EPA Level IV data deliverables were provided by the laboratory for all samples submitted. In addition to groundwater sampling, the groundwater elevation of all accessible piezometers and monitoring wells at the site were gauged. Groundwater gauging included probing each well for the possible presence of non-aqueous-phase liquids, and was performed concurrent to groundwater sampling so that a synoptic depiction of groundwater elevations in the network could be assembled.

4.2.2 AOC 1—Findings

Groundwater quality was assessed by comparing the analytical results to the *NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values* (SGVs). The predominant constituents detected at concentrations greater than the SGVs include chlorinated volatile organic compounds (CVOCs). In addition, ethylbenzene exceeds the SGV at a single location. Non-aqueous-phase liquids were not detected in any wells during the well-gauging event. The constituents detected in the area of the FNPD are similar to those previously identified at the site. However, the reported concentrations of these constituents (specifically in the area defined as Area #2, or A2) are greater than those reported in the CMS.

Concentrations were generally low to non-detected north of the perimeter under-drain, between the perimeter under-drain and Maintenance Building, and beneath the Maintenance Building. The highest concentrations were detected northeast of the Storage Building. The findings for each area investigated are summarized below.

North of Northern Perimeter Under-Drain

Samples from locations north of the northern perimeter under-drain (PZ-22, PZ-23, PZ-24, PZ-25, PZ-26, and PZ-27) show no VOCs (except for one acetone detection

below the SGV). These data indicate that on-site constituents in groundwater are not migrating off-site at the northern property line.

South of Northern Perimeter Under-Drain and North of Out-Buildings

Sampling results from piezometers south of the northern perimeter under-drain and north of the out-buildings (PZ-28, PZ-29, PZ-30, PZ-31, and PZ-32) document VOCs at concentrations greater than SGVs at three locations: PZ-28, PZ-29, and PZ-32. Constituents exceeding SGVs at one or more of these three locations include tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,2-dichloroethene (1,2-DCE, or total DCE), vinyl chloride, 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethene (1,1-DCE), and 1,1-dichloroethane (1,1-DCA). Results from piezometers PZ-30 and PZ-31 (north of the Maintenance Building) are less than SGVs.

West of Maintenance Building

Sampling results from piezometers west of the Maintenance Building (A1-PZ-1 and A1-PZ-2) show VOCs at concentrations greater than the SGVs at both piezometer locations. Constituents exceeding SGVs at one or more locations include cis-1,2-DCE, 1,2-DCE, and vinyl chloride. Although PZ-34 is south of the Maintenance Building (as described below), the constituents and concentrations detected at this location are similar to those detected in Area #1 (west of the Maintenance Building).

Northeast of Storage Building

Sampling results from piezometers northeast of the Storage Building (A2-PZ-1, A2-PZ-2, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7, and A2-PZ-8) document VOCs at concentrations greater than the SGVs at five locations: A2-PZ-1, A2-PZ-2, A2-PZ-6, A2-PZ-7, and A2-PZ-8. Constituents exceeding SGVs at one or more locations include PCE, TCE, cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), 1,2-DCE, vinyl chloride, 1,1-DCE, 1,1-DCA, 1,2-dichloroethane (1,2-DCA), and ethylbenzene. Results from piezometers A2-PZ-4 and A2-PZ-5 are less than SGVs.

South of Maintenance and Storage Buildings and North of Main Plant

Sampling results from piezometers south of the Maintenance and Storage Buildings and the north of the main plant facility (PZ-34, PZ-35, PZ-36, and PZ-39) document VOCs at concentrations greater than SGVs at all locations. Constituents exceeding SGVs at one or more locations include PCE, TCE, cis-1,2-DCE, 1,2-DCE, vinyl chloride, 1,1,1-TCA, 1,1-DCE and 1,1-DCA. Of these four piezometers, PZ-34 indicates concentrations significantly greater (by an order of magnitude) than other piezometers in this group. Concentrations of VOCs in PZ-34 were greater than those detected at nearby piezometer location PZ-2 (which has been sampled periodically since 1995).

Beneath Maintenance Building

Sampling results from piezometers in the Maintenance Building (PZ-40 and PZ-41) document that VOCs do not exceed SGVs at these locations. Acetone and carbon disulfide are the only constituents detected above laboratory detection limits.

Beneath Storage Building

Sampling results from the piezometer in the Storage Building (PZ-42) document VOCs at concentrations greater than the SGVs. Constituents exceeding SGVs include TCE, cis-1,2-DCE, 1,2-DCE, and 1,1-DCE.

As identified above, the highest concentrations of constituents noted in groundwater are toward the eastern end of the investigation area (the area defined above as “South of Northern Perimeter Under-Drain and North of Out-Buildings”). CVOCs detected in this area, and specifically in piezometers installed in Area #2 (A2), exhibit concentrations of total VOCs greater than one part per million (ppm). Other investigation areas (such as west of the maintenance building and south of the Maintenance and Storage Buildings) also exhibit total VOC concentrations greater than SGVs, but at lesser concentrations (approximately 0.5 ppm total VOCs or lower). The exception is piezometer PZ-34, which (based on the analytical results) suggests that contamination noted at this location is similar to and likely related to that reported for Area #1. These data suggest that Areas #1 (extending south to include the area of piezometer PZ-34) and Area #2 are likely focal areas for any additional remedial activities at the site (to be identified as part of a feasibility study for the FNPD, as discussed further below).

In addition to the analytical results presented above, tentatively identified compounds (TICs) are also reported for groundwater samples collected as part of this investigation. The results of the TIC analysis are provided in Table 5. TICs are reported in six samples, however, these samples also contain target VOCs. Concentrations of target VOCs were greater than NYSDEC guidance values. Therefore, the presence of the TICs does not represent unique impacts to groundwater and does not modify the extent of groundwater contamination, nor will it affect the remediation/site closure approach. As this TIC analysis was being conducted by Lockheed Martin as a screening mechanism for additional compounds, NYS ASP Category B deliverables were not generated.

4.2.3 AOC 1—Exposure Pathway Assessment

Under current conditions, no complete direct-contact exposure-pathways via groundwater exist. Groundwater is not used for potable purposes, or for commercial, agricultural, or industrial purposes at or near the site, nor is such uses planned. The city of Utica and town of New Hartford get their public drinking water from surface water sources (i.e., Hinckley

Reservoir) more than 20 miles north of the site. Local and county agencies require that groundwater used for any purpose be cleared by one or more of these agencies (including the Oneida County Department of Health, Mohawk Valley Water Authority, and local municipal engineering departments).

Indirect contact with groundwater is possible via the vapor-intrusion pathway. Groundwater may be a potential source of contaminants in soil vapor along the northern site perimeter (as discussed in section 4.3). The potential exists for a complete human-exposure pathway (i.e., facility workers), based on measured concentrations of TCE in soil vapor. Soil-vapor migration and indoor air are discussed in further in section 4.3.

Under future exposure scenarios, potential human receptors include on-site construction workers and on-site utility workers. Workers involved in excavations could come in contact with site groundwater due to the depth to groundwater. Complete exposure pathways for construction and utility workers include dermal contact with groundwater, incidental ingestion of groundwater, and inhalation of vapors from groundwater.

4.3 AOC 2—Soil-Vapor Migration and Indoor Air

This section presents the technical overview and findings for the supplemental investigation of AOC 2 conducted by Lockheed Martin pursuant to the *FNPD Work Plan* and the Order. The information in this section derives from the following scope of work, conducted in March–October 2010:

- installation of soil-vapor probes
- sampling of soil-vapor probes
- sampling of indoor air at former guard house

The figures, tables, and appendices associated with the investigation of AOC 2, soil-vapor migration, and indoor-air quality are as follows:

- “Investigation Location Plan”—Figure 3
- “AOC 2—Soil Vapor Quality”—Figure 9
- “AOC 2—Volatile Organic Compound Results for Soil Vapor Samples”—Table 6

- "Summary of Indoor Air, Ambient Air, and Sub-slab Soil Gas Sample Results at the Former Guard House" —Table 7

- "Laboratory Analytical Data Packages"—Appendix C

4.3.1 AOC 2—Technical Overview

4.3.1.1 FNPD Soil-Vapor Monitoring

Soil vapor quality along the FNPD was investigated as part of an ongoing response to NYSDEC and the New York State Department of Health (NYSDOH) concerns regarding the potential for soil-vapor to migrate off-site (specifically, toward the north and east). ARCADIS managed the installation of six permanent soil-vapor probes (SG-22 through SG-27) along the northern property boundary (north of the FNPD collection drain and along the fence line indicating the extent of the former Lockheed Martin facility). An additional location (SG-7) was installed east of the former guardhouse (at the edge of the eastern parking lot). Soil-vapor probe locations are provided in Figure 3.

Soil-vapor probes were installed and completed in accordance with NYSDOH guidance (2006). Each soil-vapor probe was installed to a depth not greater than one foot above the water table. Following installation of the soil-vapor probes and in advance of soil-vapor sampling, helium tracer-gas testing was completed at select locations to confirm that the samples would not be diluted by ambient air. This testing, done in accordance with NYSDOH guidance, confirmed the integrity of the sampling locations. Soil-vapor-probe construction logs are included in Appendix B.

On August 18, 2010, ARCADIS sampled each of the newly installed soil-vapor probes. Soil-vapor samples were collected over a two-hour period using one-liter Summa® canisters. All samples were submitted to Centek Laboratories of East Syracuse and analyzed for VOCs by U.S. Environmental Protection Agency (USEPA) Method TO-15. One ambient (outdoor) air sample was collected at the eastern end of the investigation area, at a point near the former guardhouse. This location was chosen as an area representative of ambient air quality for the investigation based on weather conditions and wind direction noted that day (i.e., upwind).

Following receipt of the analytical data from the August sampling event (as presented in section 4.3.2), Lockheed Martin discussed the results with NYSDEC and NYSDOH and subsequently collected a second round of soil-gas samples to confirm the detections noted in that data set. This second round of sampling occurred on October 7, 2010. Similar to the first round, samples were collected from each of the soil-vapor probes, except for sampling

locations SG-7, SG-23, and SG-25. Probes at these locations were observed to contain water, thus preventing sample collection. The presence of water in the soil-vapor probes (not initially noted during installation nor during the first round of soil-vapor sampling) was attributed to heavy rainfall in late September and early October 2010, which elevated the water table in those areas.

Several subsequent attempts at re-collecting samples from those locations were unsuccessful. One ambient (outdoor) air sample was collected at the western end of the investigation area, at a point adjacent to the Maintenance Building. This location was chosen as an area representative of ambient air quality for the investigation based on weather conditions and wind direction noted that day, (i.e., upwind).

4.3.1.2 Former Guard House Soil-Vapor Monitoring

In addition to the work described above, a single sub-slab soil-vapor probe was installed and sampled in the former guard house on March 17, 2010. This work, which was proposed as part of the *FNPD Work Plan*, was expedited to allow completion of the sampling in advance of the end of the heating season. Sampling of this location was consistent with the methods described above. An indoor air sample and ambient (outdoor) air sample were collected simultaneously to assist in evaluating the data.

4.3.2 AOC 2—Findings

Soil vapor quality was assessed by comparing the analytical results to USEPA target shallow- and deep-soil-gas screening levels, as appropriate. Results of the soil vapor sampling are provided in Table 6, including a comparison to these screening values. As shown in Table 6, selected VOCs are present in soil vapor at concentrations greater than USEPA target shallow- and deep-soil-gas screening levels (which protect residential receptors).

In general, concentrations were observed to decrease between the first and second sampling events at the locations sampled. Although concentrations for some VOCs remain above screening levels, they are limited and very close to the screening levels. Lower concentrations in the second round may be attributable to higher water content in site soils (as supported by several sampling locations observed to contain water). A brief summary of sampling results for each location is provided below:

- SG-7—Concentrations of benzene, chloroform, and PCE were detected above the USEPA target shallow-soil-gas screening levels in the first sample collected at this

location. A second sample could not be collected from this location due to high groundwater table conditions.

- SG-22—Concentrations of benzene, chloroform, PCE and TCE were detected above USEPA target shallow-soil-gas screening levels in the first sample collected at this location. In the second sampling round, only benzene and chloroform were detected at concentrations above screening values, although all concentrations were lower than those noted in the first sampling round. PCE and TCE were detected in the second round samples, but at concentrations lower than in the first round and below screening levels.

- SG-23—Concentrations of 1,2,4-trimethylbenzene and benzene were detected above USEPA target shallow-soil-gas screening levels in the first sample collected at this location. A second sample could not be collected from this location due to high groundwater table conditions.

- SG-24—Concentrations of PCE and TCE were detected above USEPA target deep-soil-gas screening levels in the first sample collected at this location. No constituents were detected above screening levels in the second sampling round.

- SG-25—Concentrations of 1,2,4-trimethylbenzene, benzene, and PCE were detected above USEPA target shallow-soil-gas screening levels in the first sample collected at this location. A second sample could not be collected from this location due to high groundwater table conditions.

- SG-26—No constituents were detected above USEPA target deep-soil-gas screening levels in any samples collected during the first or second round events.

- SG-27—No constituents were detected above USEPA target deep-soil-gas screening levels in any samples collected during the first or second round events.

Results from sub-slab soil-vapor sampling at the former guard house indicate that cis-1,2-DCE exceeds the USEPA Base Background guidance value, and that TCE exceeds the NYSDOH Air GL for indoor air. The sub-slab results from beneath the former guard house, however, indicate that concentrations for these two constituents are non-detect for cis-1,2-DCE and low (0.87 ug/m^3) for TCE, indicating that soil-vapor does not affect indoor air.

4.3.3 AOC 2—Exposure Pathway Assessment

The vapor-intrusion exposure pathway (groundwater to soil-vapor) possibly exists for several constituents, including TCE and PCE. TCE and PCE were detected in soil gas at concentrations above screening levels in a few samples. These results are consistent with

dissolved-phase results, which indicate that TCE and PCE are in groundwater at total VOC concentrations as high as 1 ppm. Although benzene and chloroform were also detected above screening levels in soil-vapor samples, these constituents have not been detected in groundwater and are typical background interferences. As a result, benzene and chloroform do not warrant further consideration with regard to possible exposure scenarios.

A closer evaluation of TCE results for soil vapor indicates that TCE was only detected above screening levels in two out of 11 samples, both in the August sampling event. Resampling these locations in October resulted in much lower soil gas results, all of which were below screening levels. PCE was detected above screening levels in four out of 11 samples; however, only one sample (SG-24 in August) exceeds the PCE indoor air guideline of 100 micrograms per cubic meter. Neither PCE nor TCE exceeded soil vapor screening levels in the October 2010 sampling event.

Overall the data results indicate that very low levels of TCE and PCE are in soil vapor, likely due to the presence of TCE and PCE in groundwater. In addition, all soil vapor concentrations are low and most do not exceed screening levels. Modeling completed by Lilian Abreu on behalf of USEPA confirms that shallow source areas and soil gas results (as observed at the FNPD) will migrate preferentially to ambient air rather then move laterally (and potentially toward and under a building). At the FNPD, the closest off-site building is approximately 100 ft from the detected soil gas results. Therefore, the concentrations of soil-vapor detected as part of the FNPD investigation, although present at or slightly above screening levels set to protect residential receptors, are unlikely to adversely affect off-site structures.

The potential for off-site migration of soil gas from the Solvent Dock area was previously assessed (see *Addendum to the Vapor Intrusion Study Report for the Solvent Dock Area (VI Addendum)*. This assessment included sampling sub-slab soil gas and indoor air in three out-buildings north of the manufacturing building (identified, from east to west, as the Guard House, Pole Barn, and Maintenance Stock Room). Sampling data generated as part of the *VI Addendum* indicates that soil gas at these locations does not require mitigation.

Evaluation of the data collected within the former guard house indicates that vapor intrusion is not occurring, that is, there is no impact to indoor air attributable to migration of impacted soil-vapor into the former guard house. This evaluation is consistent with the data and conclusions related to past sampling associated with the *CMS Report*. This summary was previously provided to NYSDEC and NYSDOH in an e-mail dated May 19, 2010. Data for the former guard house sampling are included in Table 7.

4.4 AOC 3—Soil

This section presents the technical overview and findings for the supplemental investigation of AOC 3 conducted by Lockheed Martin pursuant to the *FNPD Work Plan* and the Order. The information in this section derives from the following scope of work, conducted in May–June 2010:

- Completing soil borings near the FNPD
- Collecting soil samples from test borings for VOC analysis by DSITMS
- Collecting one soil sample from each soil boring for VOC analysis

The figures, tables, and appendices that provide information on the investigation of AOC 3 and soil quality are as follows:

- "Facility Map"—Figure 2
- "Investigation Location Plan"—Figure 3
- "Hydrogeologic Cross-Section A-A'"—Figure 4
- "Hydrogeologic Cross-Section B-B'"—Figure 5
- "AOC 3—Soil Quality"—Figure 10
- "Volatile Organic Compound Results for Soil Samples"—Table 8
- "Soil Boring and Piezometer-Construction Logs"—Appendix A
- "Laboratory Analytical Data Packages"—Appendix C
- "DSITMS Data"—Appendix D

4.4.1 AOC 3—Technical Overview

Test Boring and DSITMS Program

A test-boring program was completed in May–June 2010 to evaluate possible sources of groundwater contamination. This program completed 18 soil borings using direct-push drilling methods. Twelve were located at focus areas west of the Maintenance Building (A1 series borings) and northeast of the Storage Building (A2 series borings). Another six borings were completed between the northern perimeter under-drain and the out-buildings (PZ series borings). Test boring locations are shown in Figure 3.

Continuous soil-cores were collected at each location. Soils were logged and screened for the presence of VOCs using a photo-ionization detector (PID) in accordance with the techniques described in the *Revised Work Plan for Soil and Groundwater Investigation*. Additionally, in accordance with the *FNPD Work Plan*, soil samples were collected at one-foot intervals from these borings and field analyzed for VOCs by means of DSITMS (which uses an ion-trap mass-spectrometer). The results of the DSITMS analysis (as presented below) defined the locations and screen-interval depths for permanent piezometer installations (as presented in section 4.2.1.). Permanent piezometers were subsequently installed at 16 of the 18 DSITMS boring locations.

Piezometer Installation Program

In addition to the test borings and piezometer installations associated with the DSITMS program, soil borings were drilled at additional locations to install 13 additional piezometers by means of direct-push drilling methods. Six of the soil borings were drilled north of the northern perimeter drainage ditch to install piezometers to assess possible off-site migration of constituents in groundwater and evaluate the under-drain's hydraulic control. Four of the soil borings were drilled south of the Maintenance and Storage Buildings and north of the main plant facility to install piezometers to provide additional hydraulic information. The remaining three soil borings were drilled in the Maintenance and Storage Buildings to evaluate possible soil and groundwater contamination beneath the structures. Continuous soil cores were collected at each location. Soils were logged and screened for the presence of VOCs using a PID according to the techniques described in the *Revised Work Plan for Soil and Groundwater Investigation*.

Laboratory Analysis Program

One soil sample from each soil boring was collected and submitted to TestAmerica Laboratories of Amherst, New York for laboratory analysis for VOCs using EPA Method 8260 under a one-week turnaround time. Samples from each boring were biased to those samples showing evidence of contamination, such as odors or elevated PID readings. The selection of soil samples for laboratory analysis also considered the overall distribution

of sampling depths to evaluate different exposure potentials, including possible exposure to near-surface soil. QA/QC samples were collected in accordance with the site-specific QAPP. NYS ASP Category B/EPA Level IV data deliverables were provided by the laboratory for all samples submitted.

4.4.2 AOC 3—Findings

Soil quality was assessed by comparing the analytical results to NYSDEC "Restricted Use—Industrial Soil-Cleanup Objectives" (SCOs) set forth in 6 *New York Codes, Rules, and Regulations* Part 375. Concentrations detected in soil samples at all locations were less than the SCOs. Concentrations were generally low to non-detected at sampling locations north of the perimeter under-drain, between the under-drain and out-buildings, west of the Maintenance Building, in the Maintenance and Storage Buildings, and between the out-buildings and main plant facility. The highest concentrations, which were still less than SCOs, were detected in the area northeast of the Storage Building. The predominant constituents detected in this area include CVOCs and low detections of BTEX- (benzene, toluene, ethylbenzene and xylenes) related compounds.

DSITMS analysis indicates distinct zones or intervals of higher VOC concentrations in soils at several borings. Although analytical samples collected as part of this investigation are below SCOs, DSITMS analysis provides data supporting the presence of actual or residual soil contamination at depth that may contribute to persistent concentrations of CVOCs in groundwater along the FNPD. These zones are typically at or below the water table, although concentrations of CVOCs in shallower intervals have also been noted. The raw DSITMS data are in Appendix D. A brief summary of locations indicating relatively higher concentration of CVOCs is provided below:

- PZ-29 5-7'
- PZ-32 3-4'
- A1-B1 4-5'
- A2-B1 7-11'
- A2-B2 11-14'
- A2-B7 0-5'

- A2-B8 4-10'
- A2-B9 8-13'

As indicated, the DSITMS data (in conjunction with visual observations and PID readings) defined the screen intervals for the installed piezometers.

4.4.3 AOC 3—Exposure-Pathway Assessment

None of the soils tested during this subsurface investigation exceed the applicable standards. Under current conditions, no potential human receptors exist, as no complete exposure pathway associated with site subsurface-soils has been identified. The area of potential concern is primarily covered by the out-buildings, asphalt paving or grass. Under these conditions, site workers will not be exposed to any subsurface soils. In the future, however, construction and/or utility workers could contact surface and sub-surface soils during excavation activities. Complete exposure pathways for construction and utility workers include dermal contact with soil, incidental ingestion of soil, and inhalation of vapors and particulates from soil.

4.5 AOC 4—Existing Remedial System (GCTS)

This section presents the technical overview and findings for the investigation of AOC 4 conducted by Lockheed Martin pursuant to the *FNPD Work Plan* and the Order. The information in this section derives from the following scope of work, conducted in July 2010:

- shut-down testing of the GCTS
- continuous logging of the water table at six piezometer locations during the shut-down and restart periods
- manual measurements of the water table at 27 piezometer locations during the shut-down period

The figures, tables, and appendices that provide information on the investigation of AOC 4 and the GCTS include:

- “Facility Map”—Figure 2
- “Investigation Location Plan”—Figure 3

- "Hydrogeologic Cross-Section A-A'"—Figure 4
- "Hydrogeologic Cross-Section B-B'"—Figure 5
- "Groundwater Elevation Map for the Overburden"—Figure 6
- "Groundwater Elevation Map for Bedrock"—Figure 7
- "AOC 4—Continuous Water-Level Monitoring Graph for the GCTS"—Figure 11
- AOC 4—Manual Water-Level Monitoring Graph for the GCTS"—Figure 12
- "Soil Boring and Piezometer Construction Logs"—Appendix A

4.5.1 AOC 4—Technical Overview

The GCTS, which has been operated as an ICM since 1996, was further evaluated to confirm that the northern perimeter under-drain is capturing contaminated groundwater. The evaluation consisted of an initial round of groundwater elevation measurements from piezometers and monitoring wells near the under-drain to establish the groundwater configuration during system operation. After these data were collected, manhole MH-1 of the GCTS was shut down to evaluate groundwater recovery during equilibration of the water table.

Continuous groundwater elevation measurements were collected at six monitoring locations using installed data loggers over a pre-determined recovery period of 96 hours. Four rounds of manual groundwater elevation monitoring were conducted during the first 36 hours of the test (in addition to continuous data-logger monitoring). After 96 hours (i.e., four days) of continuous data-logger monitoring, a fifth round of manual groundwater elevation monitoring was conducted, after which time the system was restarted.

The system was restarted following the 96-hour shutdown period. The data-logger monitoring continued for a period of 24 hours following system restart. The evaluation continued for five days (120 hours).

4.5.2 AOC 4—Findings

Evaluation of water-table elevations during the GCTS shut-down restart periods shows that the northern perimeter under-drain hydraulically captures groundwater near piezometers

A2-PZ-7, PZ-24, PZ-27, and PZ-30. This is confirmed by a rising water-table elevation (rebound) during the shut-down period followed by a decreasing water-table elevation (drawdown) after system restart. The piezometers are along the under-drain near the central and eastern portions of the under-drain. An influence on water-table elevations was not observed at piezometers A1-PZ-2 and PZ-28 during the evaluation. These two piezometers are along the under-drain at the far western side of the investigation area.

Manual water-level measurements were collected only during the shut-down period; therefore, results are less conclusive without the benefit of observing elevations during system restart. However, several trends were identified that show an increasing water-level elevation following system shut-down. In general, the greatest influence observed by operation of the GCTS is along the under-drain near the central and eastern portions of the investigation area. Relatively little influence was observed near the western end of the under-drain, except at piezometer PZ-2. Hydraulic influence from shut-down of the system was not observed at any locations south of the Maintenance and Storage Buildings.

As presented in section 4.1.2, the northern perimeter groundwater under-drain is in the till unit, below the shallower storm-water line. A trench was excavated to facilitate installation of the under-drain, and subsequently backfilled with gravel. Under these conditions, groundwater in the permeable material above the till will be captured by the under-drain. Some groundwater in the till will infiltrate into the trench/under-drain and thus be captured, but at a significantly slower rate as compared to groundwater in the permeable material above the till. This limits the amount of drawdown observed, since a minimal amount of groundwater infiltrates the trench from the till unit. Thus, contaminated groundwater is being captured, as indicated by the measured concentrations of VOCs in influent samples to the GCTS from this under-drain.

4.5.3 AOC 4—Exposure Pathway Assessment

Pathways specifically mapped to AOC 4 that warrant corrective measures include the infiltration of groundwater through the storm drain and discharge to surface water. Pathways potentially mapped to AOC 4 are addressed under AOCs 1, 2, and 3 (“Groundwater, Soil-Vapor Migration and Indoor Air, and Soil”). These pathways are discussed in previous sections.

The primary exposure pathway potentially related to this AOC (“Existing Remedial System—Groundwater Collection and Treatment System”) is the potential for discharge to surface water. This would occur by means of contaminated storm-water (via contaminants in site groundwater) flowing through the storm-water system and downstream to Nail Creek. Utility workers could be exposed to water associated with the GCTS while working in, or

repairing, the storm drainage system, or working on components of the GCTS itself. The routes of entry and contact include dermal and ingestion, with consideration that works in a catch basin is classified as confined-space work.

4.6 Data Validation

Analyses were performed according to USEPA SW-846 Method 8260B. Data were reviewed in accordance with USEPA *National Functional Guidelines* of October 1999 and January 2005. Data packages were provided by a New York State-certified laboratory and prepared as NYS ASP Category B deliverables (with the exception of the TIC analyses, as indicated above). The review was conducted as a Tier III evaluation and included a review of data-package completeness. Field documentation was not included in this review, but the validation-annotated sampling-result sheets and chain of custody documentation were. Data-usability summary reports (DUSRs) were completed in accordance with NYSDEC DER-10 (*Technical Guidance for Site Investigation and Remediation* [May 2010]).

Data review evaluates data technically rather than simply determining contract compliance. As such, the standards against which the data are weighed may differ from those specified in the contractually-stipulated analytical method. The data package is thus presumed to represent the best efforts of the laboratory, and the data are likewise presumed to have been subjected to adequate and sufficient quality review before submission. During data review, laboratory-qualified and -unqualified data are verified against the supporting documentation. The data reviewer may add, delete, or modify qualifier codes. The NYSDEC ASP Category-B-deliverable data review includes checks of:

- chain-of-custody forms
- holding times
- GC/MS instrument performance-checks
- instrument calibration
- trip and/or laboratory (method) blank-detected constituents
- surrogate-spike recoveries
- matrix-spike/-spike-duplicate precision and accuracy

- internal standards
- checking for transcriptions between quantitation reports and Form “I”s
- blind-duplicate precision

The data validator performed final validation of data obtained during field sampling and analysis. Laboratory deliverables were reviewed for accuracy, precision, completeness, and overall data quality. All laboratory data were reviewed for adherence to method-specific QA/QC guidelines and to the data-validation guidelines described above.

Data Usability

The review classified the data as valid, usable, or unusable. Valid data are data for which all QA/QC review criteria have been met and that are acceptable (as per details outlined in the preceding section). Data were characterized as usable when QA/QC parameters were marginally outside acceptable limits (example: sample holding times had been slightly exceeded), such that the data may be questionable, but still usable with limitations. Unusable data are data observed to have gross errors or analytical interference that would render them invalid for any purpose. DUSRs are prepared in accordance with NYSDEC guidance and are included as Appendix E. Data qualifications resulting from validation are included in the data tables. All data reviewed are considered usable based on the validation as described above.

5. Conclusions and Recommendations

The conclusions and recommendations for groundwater, soil-vapor, soil quality, and the GCTS, based on the FNPD supplemental investigation findings, are provided in the following sections.

5.1 Groundwater

The supplemental investigation findings lead to the following conclusions regarding groundwater at the FNPD:

- Off-site migration of constituents in groundwater toward the northern property boundary is not occurring. Piezometers north of the under-drain show that groundwater concentrations are either non-detected or less than the SGVs. Water-elevation data, which infer that the local groundwater flow is toward the south/southeast, support the observed contaminant distribution in groundwater. Furthermore, the under-drain is capturing groundwater near the FNPD, which mitigates the potential for groundwater flow to the north of the under-drain.

- Residual source material may be present northeast of the Storage Building based on elevated concentrations of CVOCs detected in groundwater samples and in soil samples collected as part of the DSITMS analysis. Laboratory-submitted soil-sample analytical results from this area are also elevated (but below SCOs), which support the possible presence of residual source material.

- Elevated concentrations in groundwater were found west and southwest of the Maintenance Building. However, constituents detected in soil samples were reported at relatively low concentrations and do not indicate residual source material at these locations.

- Concentrations at the remaining locations are comparable to the findings in the CMS Report.

The following recommendations regarding groundwater are based on these conclusions:

- A focused corrective-measures alternatives-analysis should be conducted to develop an appropriate remedial response to the groundwater quality conditions identified in the FNPD supplemental investigation. This analysis would be part of a feasibility study to evaluate the technical feasibility of remedial alternatives selected to remedy CVOC-contaminated groundwater in the FNPD area.

- The GCTS should continue its operations, with possible modifications (pending the results of an FNPD feasibility study).

5.2 Soil-Vapor Migration and Indoor Air

The supplemental investigation findings lead to the following conclusions regarding soil-vapor migration and indoor air at the FNPD site:

- Soil-vapor concentrations at or slightly greater than screening levels were detected during the FNPD supplemental investigation.

- Vapor intrusion is not occurring at the former guard shack.

The following recommendations are based on these conclusions:

- We suggest further evaluation of soil-vapor along the northern perimeter of the site based on preliminary discussions with NYSDEC and NYSDOH, based on the soil-vapor data developed as part of this investigation. A summary of proposed ongoing activities is as follows:

- Lockheed Martin (with NYSDOH assistance) will contact the owner of property north of the former Lockheed Martin facility (Indium Corporation) and try to gain access to the property solely to install and sample soil-vapor probes north of the current investigation limits. Lockheed Martin will also provide Indium Corporation with a copy of this report and a synopsis of potential concerns or issues related to the migration of soil-gas toward that facility.
- Should Indium Corporation and Lockheed Martin agree to an access agreement, Lockheed Martin will install soil-vapor probes on Indium property and collect soil-vapor samples.
- Should Indium Corporation and Lockheed Martin not agree on an access agreement, or should Indium Corporation indicate that it understands the potential concerns or issues and declines Lockheed Martin's request to test soil-vapor on its property, Lockheed Martin will develop a monitoring program to periodically evaluate soil-vapor quality on-site, as appropriate.
- Following contact and negotiation with Indium Corporation, Lockheed Martin will communicate these efforts to NYSDEC and NYSDOH and develop an appropriately scoped work plan for further evaluation, pending the results of these negotiations.

5.3 Soil

- The supplemental investigation findings lead to the following conclusions regarding soil at the FNPD site:

- Soil concentrations greater than SCOs were not detected during the FNPD supplemental investigation.

- Elevated concentrations of VOCs in soil are present northeast of the Storage Building. Although they do not exceed SCOs, groundwater in this area is also contaminated, suggesting the possible presence of residual source material.

- VOC concentrations are either low or non-detected at all other locations.

These conclusions lead to the recommendation that a focused corrective-measures alternatives-analysis be conducted to develop an appropriate remedial response to address site soil-quality conditions in conjunction with addressing groundwater contamination identified during the FNPD supplemental investigation.

5.4 Existing Remedial System (GCTS)

The supplemental investigation findings lead to the following conclusions regarding the GCTS at the FNPD site:

- Off-site migration of constituents is not occurring at the northern property boundary. The under-drain at the northern perimeter is capturing contaminated groundwater from the permeable material above the till as well as from groundwater in the till (though at a

significantly slower rate). Analytical results and evaluation of water-table elevations near contaminated areas along the under-drain support this conclusion.

- Hydraulic control decreases at the western extent of the under-drain, based on the water-table elevation data from the GCTS evaluation. Hydraulic control from the under-drain also decreases south of the Maintenance and Storage Buildings, indicating that the under-drains' limited radius of influence on groundwater control in this area. These conclusions lead to the recommendation that operation of the GCTS continue (subject to the findings of the feasibility study).

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ARCADIS

Tables

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Table 1. Monitoring Well and Piezometer Construction Details, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

Monitoring Well	Diameter/Material	Screen Length	Ground Surface Elevation	Top of PVC Riser Elevation	Well Depth (ft bgs)	Screen Depth (ft bgs)		Screen/Borehole Elevation		Hydrogeologic Unit Monitored	Date Installed	Consultant Name
						From (Top)	To (Bottom)	Top	Bottom			
MW - 1	4" PVC	10	507.53	506.80	17.20	7.00	17.00	500.5	490.5	Fill/Till	1991	O'Brien & Gere
MW - 2	4" PVC	15	504.98	504.69	16.50	1.50	16.50	503.5	488.5	Fill/Till	1991	O'Brien & Gere
MW - 3	2" PVC	10	506.90	509.30	13.00	3.00	13.00	503.9	493.9	Fill/Till	1991	O'Brien & Gere
MW - 4	2" PVC	10	506.98	506.73	14.00	4.00	14.00	503.0	493.0	Fill/Till	1991	O'Brien & Gere
MW - 5	2" PVC	10	504.56	504.46	14.00	4.00	14.00	500.6	490.6	Fill/Till	1991	O'Brien & Gere
MW - 6	2" PVC	10	505.95	508.58	15.00	5.00	15.00	501.0	491.0	Fill/Till	--	O'Brien & Gere
MW - 7	2" PVC	15	507.44	506.94	21.00	6.00	21.00	501.4	486.4	Fill/Till	1993	O'Brien & Gere
MW - 8	2" PVC	10	505.76	505.76	14.50	4.50	14.50	501.3	491.3	Fill/Till	1993	O'Brien & Gere
MW - 9	2" PVC	10	505.26	505.15	13.50	3.50	13.50	501.8	491.8	Fill/Till	1993	O'Brien & Gere
MW - 10	2" PVC	10	504.83	504.48	14.00	4.00	14.00	500.8	490.8	Fill/Till	1993	O'Brien & Gere
MW - 11	2" PVC	20	507.26	507.03	25.00	5.00	25.00	502.3	482.3	Fill/Till	1993	O'Brien & Gere
MW - 12	2" PVC	10	508.59	508.34	23.36	13.00	23.00	495.6	485.6	Fill/Till	--	--
MW - 13S	2" PVC	5	506.27	506.03	7.00	2.00	7.00	504.3	499.3	Fill	2008	ARCADIS
MW - 13T	2" PVC	10	506.11	505.68	20.00	10.00	20.00	496.1	486.1	Till	2008	ARCADIS
MW - 13BR	2" PVC	10	506.48	506.28	45.00	35.00	45.00	471.5	461.5	Bedrock	2008	ARCADIS
MW - 14S	2" PVC	10	508.22	507.85	16.00	6.00	16.00	502.2	492.2	Undifferentiated Overburden	2008	ARCADIS
MW - 14BR	2" PVC	10	508.20	507.95	67.20	57.20	67.20	451.0	441.0	Bedrock	2008	ARCADIS
MW - 15S	2" PVC	10	507.66	507.46	20.00	10.00	20.00	497.7	487.7	Undifferentiated Overburden	2008	ARCADIS
MW - 15BR	2" PVC	10	507.54	507.29	67.60	57.60	67.60	449.9	439.9	Bedrock	2008	ARCADIS
PZ - 2	1.5" PVC	5	509.19	508.95	10.25	5.00	10.00	504.2	499.2	Fill/Till	--	--
PZ - 4	1.5" PVC	5	505.50	505.51	14.29	9.00	14.00	496.5	491.5	Fill/Till	--	--
PZ - 5	1.5" PVC	5	508.44	508.29	10.72	5.70	10.70	502.7	497.7	Till	--	--
PZ - 6	1.5" PVC	5	508.52	508.37	10.35	5.40	10.40	503.1	498.1	Till	--	--
PZ - 7	1.5" PVC	5	508.51	508.36	10.20	5.00	10.00	503.5	498.5	Till	--	--
PZ - 8	1.5" PVC	10	508.43	508.23	16.00	6.00	16.00	502.4	492.4	Till	2008	ARCADIS
PZ - 9	1.5" PVC	5	508.55	508.08	10.00	5.00	10.00	503.6	498.6	Till	2008	ARCADIS
PZ - 10	1.5" PVC	5	508.44	508.14	12.00	7.00	12.00	501.4	496.4	Fill	2008	ARCADIS
PZ - 11	1.5" PVC	2	505.93	505.82	8.50	6.50	8.50	499.4	497.4	Fill	2008	ARCADIS
PZ - 12	1.5" PVC	5	505.94	505.84	10.50	5.50	10.50	500.4	495.4	Fill	2008	ARCADIS
PZ - 13	1.5" PVC	2	504.08	503.85	8.50	6.50	8.50	497.6	495.6	Fill	2008	ARCADIS
PZ - 14	1.5" PVC	5	504.13	504.05	9.00	4.00	9.00	500.1	495.1	Fill	2008	ARCADIS
PZ - 15	1.5" PVC	2	504.72	504.43	8.50	6.50	8.50	498.2	496.2	Fill	2008	ARCADIS
PZ - 16	1.5" PVC	5	504.74	504.53	9.50	4.50	9.50	500.2	495.2	Fill	2009	ARCADIS
PZ - 17	1.5" PVC	5	504.35	504.05	8.50	3.50	8.50	500.9	495.9	Fill	2009	ARCADIS
PZ - 18	1.5" PVC	5	504.15	504.85	9.00	4.00	9.00	500.2	495.2	Fill	2009	ARCADIS
PZ - 19	1.5" PVC	5	504.90	504.60	8.50	3.50	8.50	501.4	496.4	Fill	2009	ARCADIS
PZ - 20	1.5" PVC	5	504.10	503.85	8.00	3.00	8.00	501.1	496.1	Fill	2009	ARCADIS
PZ - 21	1.5" PVC	5	506.00	505.70	9.50	3.00	9.50	503.0	496.5	Fill	2009	ARCADIS

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Table 1. Monitoring Well and Piezometer Construction Details, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

Monitoring Well	Diameter/Material	Screen Length	Ground Surface Elevation	Top of PVC Riser Elevation	Well Depth (ft bgs)	Screen Depth (ft bgs)		Screen/Borehole Elevation		Hydrogeologic Unit Monitored	Date Installed	Consultant Name
						From (Top)	To (Bottom)	Top	Bottom			
PZ - 22	1" PVC	10	505.54	508.57	11.9	1.5	11.5	504.1	494.1	Fill/Till	2010	ARCADIS
PZ - 23	1" PVC	2	507.05	510.07	20.5	18.1	20.1	489.0	487.0	Till	2010	ARCADIS
PZ - 24	1" PVC	10	504.77	507.83	14.5	4.1	14.1	500.7	490.7	Fill/Till	2010	ARCADIS
PZ - 25	1" PVC	10	507.54	510.62	20.1	9.7	19.7	497.9	487.9	Fill/Till	2010	ARCADIS
PZ - 26	1" PVC	10	507.80	510.95	19.8	9.4	19.4	498.4	488.4	Fill/Till	2010	ARCADIS
PZ - 27	1" PVC	10	507.08	510.13	15.5	5.1	15.1	502.0	492.0	Fill/Till	2010	ARCADIS
PZ - 28	1" PVC	10	504.39	504.12	12.5	2.1	12.1	502.3	492.3	Fill/Till	2010	ARCADIS
PZ - 29	1" PVC	10	504.06	503.84	12.7	2.3	12.3	501.8	491.8	Fill/Till	2010	ARCADIS
PZ - 30	1" PVC	8	505.08	504.72	10.4	2.0	10.0	503.1	495.1	Fill/Till	2010	ARCADIS
PZ - 31	1" PVC	8	505.56	505.17	10.5	2.1	10.1	503.5	495.5	Fill/Till	2010	ARCADIS
PZ - 32	1" PVC	9	505.29	504.90	11.4	2.0	11.0	503.3	494.3	Fill/Till	2010	ARCADIS
PZ - 33	1" PVC	4.3	510.27	510.00	6.6	2.0	6.3	508.3	504.0	Fill/Till	2010	ARCADIS
PZ - 34	1" PVC	9	504.12	503.88	11.4	2.0	11.0	502.1	493.1	Fill/Till	2010	ARCADIS
PZ - 35	1" PVC	10	504.18	503.98	12.7	2.3	12.3	501.9	491.9	Fill/Till	2010	ARCADIS
PZ - 36	1" PVC	10	504.23	504.04	12.1	1.7	11.7	502.5	492.5	Fill/Till	2010	ARCADIS
PZ - 39	1" PVC	10	504.71	504.51	11.9	1.5	11.5	503.2	493.2	Fill/Till	2010	ARCADIS
PZ - 40	1" PVC	10	506.68	506.46	11.7	1.3	11.3	505.4	495.4	Fill/Till	2010	ARCADIS
PZ - 41	1" PVC	10	506.55	506.27	11.8	1.4	11.4	505.2	495.2	Fill/Till	2010	ARCADIS
PZ - 42	1" PVC	10	505.45	505.18	11.5	1.1	11.1	504.4	494.4	Fill/Till	2010	ARCADIS
A1-PZ1	1" PVC	10	503.96	503.77	12.6	2.4	12.4	501.5	491.5	Fill/Till	2010	ARCADIS
A1-PZ2	1" PVC	10	503.25	503.00	12.5	2.1	12.1	501.2	491.2	Fill/Till	2010	ARCADIS
A2-PZ1	1" PVC	10	510.04	509.74	15.2	4.8	14.8	505.3	495.3	Fill/Till	2010	ARCADIS
A2-PZ2	1" PVC	10	509.90	509.46	15.3	4.9	14.9	505.0	495.0	Fill/Till	2010	ARCADIS
A2-PZ3	1" PVC	10	509.67	509.46	12.3	1.9	11.9	507.8	497.8	Fill/Till	2010	ARCADIS
A2-PZ4	1" PVC	12	509.56	509.40	15.0	2.6	14.6	507.0	495.0	Fill/Till	2010	ARCADIS
A2-PZ5	1" PVC	10	510.24	510.03	12.6	2.2	12.2	508.1	498.1	Fill/Till	2010	ARCADIS
A2-PZ6	1" PVC	12	509.92	509.74	14.3	1.9	13.9	508.0	496.0	Fill/Till	2010	ARCADIS
A2-PZ7	1" PVC	12.4	509.74	509.59	15.0	2.6	15.0	507.2	494.8	Fill/Till	2010	ARCADIS
A2-PZ8	1" PVC	12	509.91	509.70	15.0	2.6	14.6	507.3	495.3	Fill/Till	2010	ARCADIS

All elevations are reported as feet mean sea level (ft msl)
Construction details for MW-1, MW-6, PZ-2, and PZ-4 through PZ-7 estimated based on field measurements
-- = Unknown detail
Top of PVC pipe elevations for PZ-11 through PZ-16 are applicable to groundwater levels collected in December 2008.
Survey data is referenced horizontally to the NAD83 and projected on the New York State Plane Coordinate System (Central Zone)
The reference vertical benchmark is the finished floor elevation of the southeasterly corner of the Boiler House Building (Elevation 506.50 feet)

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Table 2. Groundwater Elevation Measurements, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

Monitoring Well	Hydrogeologic Unit Monitored	Top of PVC Riser Elevation	Depth to water (from top of PVC riser)	Groundwater Elevation (ft)
			6/23/2010	
MW - 1	Fill/Till	506.80	7.67	499.1
MW - 2	Fill/Till	504.69	5.52	499.2
MW - 3	Fill/Till	509.30	10.58	498.7
MW - 4	Fill/Till	506.73	10.90	495.8
MW - 5	Fill/Till	504.46	3.50	501.0
MW - 6	Fill/Till	508.58	6.63	502.0
MW - 7	Fill/Till	506.94	7.77	499.2
MW - 8	Fill/Till	505.76	7.27	498.5
MW - 9	Fill/Till	505.15	2.66	502.5
MW - 10	Fill/Till	504.48	4.61	499.9
MW - 11	Fill/Till	507.03	7.80	499.2
MW - 12	Fill/Till	508.34	12.10	496.2
MW - 13S	Fill	506.03	6.91	499.1
MW - 13T	Till	505.68	6.49	499.2
MW - 13BR	Bedrock	506.28	9.54	496.7
MW - 14S	Undifferentiated Overburden	507.85	10.61	497.2
MW - 14BR	Bedrock	507.95	36.91	471.0
MW - 15S	Undifferentiated Overburden	507.46	9.74	497.7
MW - 15BR	Bedrock	507.29	38.49	468.8
PZ - 2	Fill	508.95	1.93	507.0
PZ - 4	Fill	505.51	1.83	503.7
PZ - 5	Till	508.29	9.10	499.2
PZ - 6	Till	508.37	9.34	499.0
PZ - 7	Till	508.36	9.12	499.2
PZ - 8	Till	508.23	8.92	499.3
PZ - 9	Till	508.08	8.21	499.9
PZ - 10	Fill	508.14	9.04	499.1
PZ - 11	Fill	505.82	6.92	498.9
PZ - 12	Fill	505.84	6.81	499.0
PZ - 13	Fill	503.85	6.92	496.9
PZ - 14	Fill	504.05	6.83	497.2
PZ - 15	Fill	504.43	6.95	497.5
PZ - 16	Fill	504.53	6.94	497.6
PZ - 17	Fill	504.05	5.97	498.1
PZ - 18	Fill	504.85	6.49	498.4
PZ - 19	Fill	504.60	6.87	497.7
PZ - 20	Fill	503.85	6.52	497.3
PZ - 21	Fill	505.70	DRY	--
PZ - 22	Fill/Till	508.57	7.91	500.7
PZ - 23	Till	510.07	6.88	503.2
PZ - 24	Fill/Till	507.83	10.98	496.9
PZ - 25	Fill/Till	510.62	6.75	503.9
PZ - 26	Fill/Till	510.95	9.21	501.7
PZ - 27	Fill/Till	510.13	11.03	499.1
PZ - 28	Fill/Till	504.12	3.81	500.3
PZ - 29	Fill/Till	503.84	2.23	501.6
PZ - 30	Fill/Till	504.72	4.25	500.5
PZ - 31	Fill/Till	505.17	0.68	504.5
PZ - 32	Fill/Till	504.90	1.77	503.1
PZ - 33	Fill/Till	510.00	DRY	--
PZ - 34	Fill/Till	503.88	2.71	501.2
PZ - 35	Fill/Till	503.98	1.83	502.2

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Table 2. Groundwater Elevation Measurements, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

Monitoring Well	Hydrogeologic Unit Monitored	Top of PVC Riser Elevation	Depth to water (from top of PVC riser)	Groundwater Elevation (ft)
			6/23/2010	
PZ - 36	Fill/Till	504.04	1.15	502.9
PZ - 39	Fill/Till	504.51	2.76	501.8
PZ - 40	Fill/Till	506.46	4.82	501.6
PZ - 41	Fill/Till	506.27	6.20	500.1
PZ - 42	Fill/Till	505.18	0.36	504.8
A1-PZ1	Fill/Till	503.77	2.27	501.5
A1-PZ2	Fill/Till	503.00	2.12	500.9
A2-PZ1	Fill/Till	509.74	4.92	504.8
A2-PZ2	Fill/Till	509.46	6.67	502.8
A2-PZ3	Fill/Till	509.46	2.93	506.5
A2-PZ4	Fill/Till	509.40	1.89	507.5
A2-PZ5	Fill/Till	510.03	8.07	502.0
A2-PZ6	Fill/Till	509.74	2.45	507.3
A2-PZ7	Fill/Till	509.59	6.61	503.0
A2-PZ8	Fill/Till	509.70	5.61	504.1

All elevations are reported as feet mean sea level (ft msl)

Survey data is referenced horizontally to the NAD83 and projected on the New York State Plane Coordinate System (Central Zone)

The reference vertical benchmark is the finished floor elevation of the southeasterly corner of the Boiler House Building (Elevation 506.50 feet)

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Table 3. Sampling and Analysis Program for Soils and Groundwater, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

INVESTIGATION PROGRAM					
			TEST BORING AND DSITMS		PIEZOMETER / MONITORING WELL SAMPLING
			Soil Analysis		Groundwater Analysis
Boring / Location	Sample Type	Soil Sample / Well Screen Interval (ft bgs)	VOCs - DSITMS (Field Screening)	VOCs - Laboratory (EPA Method 8260)	VOCs - Laboratory (EPA Method 8260)
Location: South of the Under-Drain and North of the Out Buildings					
PZ-28	DSITMS	5 - 22	X		
PZ-28	S	15 - 16		X	
PZ-28	GW	2.1 - 12.1			X
PZ-29	DSITMS	5 - 21	X		
PZ-29	S	6 - 7		X	
PZ-29	GW	2.3 - 12.3			X
PZ-30	DSITMS	5 - 21	X		
PZ-30	S	10 - 11		X	
PZ-30	GW	2 - 10			X
PZ-31	DSITMS	5 - 20	X		
PZ-31	S	17.5 - 18.5		X	
PZ-31	GW	2.1 - 10.1			X
PZ-32	DSITMS	3 - 21	X		
PZ-32	S	13 - 14		X	
PZ-32	GW	2 - 11			X
PZ-33	DSITMS	5 - 15	X		
PZ-33	S	10 - 11		X	
PZ-33	GW	2 - 6.3			NS
Location: West End of the Maintenance Building					
A1-PZ1/A1-B1	DSITMS	3 - 26	X		
A1-PZ1/A1-B1	S	5 - 6		X	
A1-PZ1	GW	2.4 - 12.4			X
A1-PZ2/A1-B2	DSITMS	5 - 22	X		
A1-PZ2/A1-B2	S	18 - 19		X	
A1-PZ2	GW	2.1 - 12.1			X
A1-B3	DSITMS	5 - 20	X		
A1-B3	S	5 - 6		X	
Location: Northeast of the Storage Building					
A2-PZ1/A2-B1	DSITIMS	5 - 21	X		
A2-PZ1/A2-B1	S	7 - 8		X	
A2-PZ1	GW	4.8 - 14.8			X
A2-PZ2/A2-B2	DSITIMS	5 - 20	X		
A2-PZ2/A2-B2	S	11 - 12		X	
A2-PZ2	GW	4.9 - 14.9			X
A2-PZ3/A2-B3	DSITIMS	3 - 15	X		
A2-PZ3/A2-B3	S	6 - 7		X	
A2-PZ3	GW	1.9 - 11.9			X
A2-B4	DSITIMS	0 - 6	X		
A2-B4	S	5 - 6		X	
A2-PZ4/A2-B5	DSITIMS	4 - 16	X		
A2-PZ4/A2-B5	S	8 - 9		X	
A2-PZ4	GW	2.6 - 14.6			X
A2-PZ5/A2-B6	DSITIMS	3 - 14	X		
A2-PZ5/A2-B6	S	7 - 8		X	
A2-PZ5	GW	2.2 - 12.2			X
A2-PZ6/A2-B8	DSITIMS	4 - 18	X		
A2-PZ6/A2-B8	S	9 - 10		X	
A2-PZ6	GW	1.9 - 13.9			X
A2-PZ7/A2-B9	DSITIMS	3 - 20	X		
A2-PZ7/A2-B9	S	10 - 11		X	
A2-PZ7	GW	2.6 - 15			X
A2-PZ8/A2-B10	DSITIMS	4 - 15	X		
A2-PZ8/A2-B10	S	9 - 10		X	
A2-PZ8	GW	2.6 - 14.6			X

Table 3. Sampling and Analysis Program for Soils and Groundwater, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

INVESTIGATION PROGRAM					
			TEST BORING AND DSITMS		PIEZOMETER / MONITORING WELL SAMPLING
			Soil Analysis		Groundwater Analysis
Boring / Location	Sample Type	Soil Sample / Well Screen Interval (ft bgs)	VOCs - DSITMS (Field Screening)	VOCs - Laboratory (EPA Method 8260)	VOCs - Laboratory (EPA Method 8260)
Location: North of Northern Perimeter Under-Drain					
PZ-22	S	19 - 20		X	
PZ-22	GW	1.5 - 11.5			X
PZ-23	S	6 - 7		X	
PZ-23	GW	19.1 - 20.1			X
PZ-24	S	10 - 11		X	
PZ-24	GW	4.1 - 14.1			X
PZ-25	S	7 - 8		X	
PZ-25	GW	9.7 - 19.7			X
PZ-26	S	8 - 9		X	
PZ-26	GW	9.4 - 19.4			X
PZ-27	S	9 - 10		X	
PZ-27	GW	5.1 - 15.1			X
Location: South End of Maintenance Building and Storage Area					
PZ-34	S	6 - 7		X	
PZ-34	GW	2 - 11			X
PZ-35	S	5 - 6		X	
PZ-35	GW	2.3 - 12.3			X
PZ-36	S	11 - 12		X	
PZ-36	GW	1.7 - 11.7			X
PZ-39	S	15 - 16		X	
PZ-39	GW	1.5 - 11.5			X
Location: Within the Maintenance Building					
PZ-40	S	10 - 10.5		X	X
PZ-40	GW	1.3 - 11.3			
PZ-41	S	5 - 6		X	X
PZ-41	GW	1.4 - 11.4			
Location: Within the Storage Building					
PZ-42	S	6 - 7		X	X
PZ-42	GW	1.1 - 11.1			
Location: Various - Groundwater Sample Collection at Previously Installed Piezometers / Monitoring Wells					
PZ-2	GW	5 - 10			X
PZ-4	GW	9 - 14			X
MW-6	GW	5 - 15			X
MW-7	GW	6 - 21			X

ft bgs - Feet below ground surface
VOC - Volatile Organic Compounds
DSITMS - Direct Sampling Ion Trap Mass Spectrometry
S - Soil
GW - Groundwater
PZ - Piezometer
MW - Monitoring Well
X - Sample Collected
NS - Not sampled, insufficient water in well for sample collection.

Notes:
DSITMS analyses were continuous at 1-foot intervals
PZ-37 and PW-38 were not installed.

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Table 4. AOC 1 - Volatile Organic Compounds for Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

CONSTITUENT	NYSDEC GW STANDARDS	A1-PZ1 6/28/2010	A1-PZ2 6/28/2010	A2-PZ1 6/25/2010	A2-PZ2 6/25/2010	A2-PZ3 6/25/2010
1,1,2-Trichlorotrifluoroethane	NS	ND J	ND J	740 DJ	ND	ND
Bromodichloromethane	50	ND J	ND J	ND	ND J	ND
Bromoform	50	ND J	ND J	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND
Carbon disulfide	NS	ND J	ND J	0.6 J	ND	ND
Carbon Tetrachloride	5	ND J	ND J	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	ND J	ND J	ND	ND	ND
Chloroethane	5	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	**820 D**	**9.5 J**	ND
Chloromethane	NS	ND J	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	**32**	**140**	**7900 D**	**140**	0.89 J
cis-1,3-Dichloropropene	0.4	ND J	ND J	ND	ND	ND
Cyclohexane	NS	ND J	ND J	ND	ND	ND
Dichlorodifluoromethane	5	ND J	ND	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	**14**	ND	ND
Ethylbenzene	5	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND
Methyl Acetate	NS	ND J	ND J	ND J	ND	ND
Methyl tert-Butyl Ether	NS	ND J	ND J	ND	ND	ND
Methylcyclohexane	NS	ND J	ND J	ND	ND	ND
Methylene Chloride	5	ND	ND	4.6	ND	ND
Styrene	5	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	0.69 J	**740**	1.1
Toluene	5	ND J	ND J	0.89 J	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	**7.5**	ND	ND
trans-1,3-Dichloropropene	0.4	ND J	ND J	ND	ND	ND
Trichloroethene	5	ND	ND	**1100 D**	**300**	1.7
Trichlorofluoromethane	5	ND J	ND J	ND	ND	ND
Vinyl chloride	2	ND	**21**	**590 D**	**12**	ND
Xylenes, total	5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND J	ND J	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ND J	ND J	ND J	ND	ND
1,2-Dibromoethane (EDB)	NS	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	**1.8**	ND	ND
1,2-Dichloroethene, Total	5	**32**	**140**	**7900 D**	**140**	0.89 J
1,1,1-Trichloroethane	5	ND J	ND J	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
2-Butanone (MEK)	50	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	0.78 J	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND	3.9 J	ND	ND
Acetone	50	ND J	ND J	7.5 J	ND	ND
Benzene	1	ND	ND	ND	ND	ND

Notes:
Data compared to TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values
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D -Diluted Value

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Table 4. AOC 1 - Volatile Organic Compounds for Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

CONSTITUENT	NYSDEC GW STANDARDS	A2-PZ4 6/25/2010	A2-PZ5 6/25/2010	A2-PZ6 6/25/2010	A2-PZ7 6/25/2010	A2-PZ8 6/25/2010
1,1,2-Trichlorotrifluoroethane	NS	ND	ND	6.0 J	ND	ND
Bromodichloromethane	50	ND	ND	ND	ND	ND
Bromoform	50	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND
Carbon disulfide	NS	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	ND	ND	ND	ND	ND
Chloroethane	5	ND	ND	0.64 J	ND	ND
Chloroform	7	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	**88**	**66**	ND
Chloromethane	NS	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	**670 D**	**870 D**	6.6
cis-1,3-Dichloropropene	0.4	ND	ND	ND	ND	ND
Cyclohexane	NS	ND	ND	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	ND	**6.5**	ND
Ethylbenzene	5	ND	ND	ND	**7.1**	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND
Methyl Acetate	NS	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	NS	ND	ND	ND	ND	ND
Methylcyclohexane	NS	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	2.2	ND	ND
Styrene	5	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	2.1	**2400 D**	ND
Toluene	5	ND	ND	ND	2.2	ND
trans-1,2-Dichloroethene	5	ND	ND	1.1	**5.4**	ND
trans-1,3-Dichloropropene	0.4	ND	ND	ND	ND	ND
Trichloroethene	5	ND	ND	**79**	**2700 D**	ND
Trichlorofluoromethane	5	ND	ND	ND	ND	ND
Vinyl chloride	2	ND	ND	**37**	**42**	ND
Xylenes, total	5	ND	ND	ND	2.5	ND
1,2,4-Trichlorobenzene	5	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ND J	ND J	ND J	ND J	ND J
1,2-Dibromoethane (EDB)	NS	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5	ND	ND	**670 D**	**870 D**	6.6
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
2-Butanone (MEK)	50	ND	ND	7.0 J	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND	2.7 J	ND	ND
Acetone	50	3.2 J	ND J	26 J	ND J	ND J
Benzene	1	ND	ND	ND	ND	ND

Notes:
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Table 4. AOC 1 - Volatile Organic Compounds for Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

CONSTITUENT	NYSDEC GW STANDARDS	PZ-2 6/24/2010	PZ-4 6/28/2010	PZ-22 6/28/2010	PZ-23 6/28/2010	PZ-24 6/25/410
1,1,2-Trichlorotrifluoroethane	NS	ND	ND J	ND J	ND J	ND
Bromodichloromethane	50	ND	ND J	ND J	ND J	ND
Bromoform	50	ND	ND J	ND J	ND J	ND
Bromomethane	5	ND	ND	ND	ND	ND
Carbon disulfide	NS	ND	ND J	ND J	ND J	ND
Carbon Tetrachloride	5	ND	ND J	ND J	ND J	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	ND	ND J	ND J	ND J	ND
Chloroethane	5	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND
Chloromethane	NS	ND	ND J	ND J	ND J	ND
cis-1,2-Dichloroethene	5	1.7	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.4	ND	ND J	ND J	ND J	ND
Cyclohexane	NS	ND	ND J	ND J	ND J	ND
Dichlorodifluoromethane	5	ND	ND J	ND J	ND J	ND
1,1-Dichloroethene	0.7	ND	ND	ND	ND	ND
Ethylbenzene	5	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND
Methyl Acetate	NS	ND J	ND J	ND J	ND J	ND
Methyl tert-Butyl Ether	NS	ND	ND J	ND J	ND J	ND
Methylcyclohexane	NS	ND	ND J	ND J	ND J	ND
Methylene Chloride	5	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND	ND	ND
Toluene	5	ND	ND J	ND J	ND J	ND
trans-1,2-Dichloroethene	5	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ND	ND J	ND J	ND J	ND
Trichloroethene	5	ND	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND J	ND J	ND J	ND
Vinyl chloride	2	1.1	ND	ND	ND	ND
Xylenes, total	5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND	ND J	ND J	ND J	ND
1,2-Dibromo-3-chloropropane	0.04	ND J	ND J	ND J	ND J	ND J
1,2-Dibromoethane (EDB)	NS	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	0.87 J	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5	1.7 J	ND	ND	ND	ND
1,1,1-Trichloroethane	5	ND	ND J	ND J	ND J	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
2-Butanone (MEK)	50	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND	ND	ND	ND
Acetone	50	5.1 J	ND J	8.5 J	ND J	ND J
Benzene	1	ND	ND	ND	ND	ND

Notes:
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Table 4. AOC 1 - Volatile Organic Compounds for Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

CONSTITUENT	NYSDEC GW STANDARDS	PZ-25 6/25/2010	PZ-26 6/25/2010	PZ-27 6/25/2010	PZ-28 6/25/2010	PZ-29 6/28/2010
1,1,2-Trichlorotrifluoroethane	NS	ND	ND J	ND J	ND	ND J
Bromodichloromethane	50	ND	ND J	ND J	ND	ND J
Bromoform	50	ND	ND J	ND J	ND	ND J
Bromomethane	5	ND	ND	ND	ND	ND
Carbon disulfide	NS	ND	ND J	ND J	ND	ND J
Carbon Tetrachloride	5	ND	ND J	ND J	ND	ND J
Chlorobenzene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	ND	ND J	ND J	ND	ND J
Chloroethane	5	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND
Chloromethane	NS	ND	ND J	ND J	ND	ND J
cis-1,2-Dichloroethene	5	ND	ND	ND	**6.6**	4.8
cis-1,3-Dichloropropene	0.4	ND	ND J	ND J	ND	ND J
Cyclohexane	NS	ND	ND J	ND J	ND	ND J
Dichlorodifluoromethane	5	ND	ND J	ND J	ND	ND J
1,1-Dichloroethene	0.7	ND	ND	ND	ND	ND
Ethylbenzene	5	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND
Methyl Acetate	NS	ND	ND J	ND J	ND	ND J
Methyl tert-Butyl Ether	NS	ND	ND J	ND J	ND	ND J
Methylcyclohexane	NS	ND	ND J	ND J	ND	ND J
Methylene Chloride	5	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND	ND	**5.8**
Toluene	5	ND	ND J	ND J	ND	ND J
trans-1,2-Dichloroethene	5	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ND	ND J	ND J	ND	ND J
Trichloroethene	5	ND	ND	ND	ND	0.84 J
Trichlorofluoromethane	5	ND	ND J	ND J	ND	ND J
Vinyl chloride	2	ND	ND	ND	ND	**12 J**
Xylenes, total	5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND	ND	ND	ND	ND J
1,2-Dibromo-3-chloropropane	0.04	ND J	ND J	ND J	ND J	ND J
1,2-Dibromoethane (EDB)	NS	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5	ND	ND	ND	**6.6**	4.8
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND J
1,2-Dichloropropane	1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
2-Butanone (MEK)	50	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND	ND	ND	ND
Acetone	50	ND J	ND J	ND J	ND J	ND J
Benzene	1	ND	ND	ND	ND	ND

Notes:
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Table 4. AOC 1 - Volatile Organic Compounds for Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

CONSTITUENT	NYSDEC GW STANDARDS	PZ-30 6/25/2010	PZ-31 6/25/2010	PZ-32 6/25/2010	PZ-34 6/24/2010	PZ-35 6/24/2010
1,1,2-Trichlorotrifluoroethane	NS	ND	ND J	34 J	ND	ND
Bromodichloromethane	50	ND	ND J	ND	ND	ND
Bromoform	50	ND	ND J	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND
Carbon disulfide	NS	ND	ND J	ND	ND	ND
Carbon Tetrachloride	5	ND	ND J	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	ND	ND J	ND	ND	ND
Chloroethane	5	ND	3.8	ND	ND	ND
Chloroform	7	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	2.8	**16**	ND	2.0 J
Chloromethane	NS	ND	ND J	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	**8.5**	**370**	**10 J**
cis-1,3-Dichloropropene	0.4	ND	ND J	ND	ND	ND
Cyclohexane	NS	ND	ND J	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND J	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	**6.9**	ND	0.73 J
Ethylbenzene	5	ND	ND	ND	ND	ND J
Isopropylbenzene	5	ND	ND	ND	ND	ND
Methyl Acetate	NS	ND	ND J	ND	ND J	ND J
Methyl tert-Butyl Ether	NS	ND	ND J	1.4	ND	ND
Methylcyclohexane	NS	ND	ND J	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	**43**	ND	0.77
Toluene	5	ND	ND J	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ND	ND J	ND	ND	ND
Trichloroethene	5	ND	ND	**49**	**12**	**7.1 J**
Trichlorofluoromethane	5	ND	ND J	ND	ND	ND
Vinyl chloride	2	ND	ND	ND	**130**	**2.9**
Xylenes, total	5	ND	ND	ND	ND	ND J
1,2,4-Trichlorobenzene	5	ND	ND J	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ND J	ND J	ND J	ND J	ND J
1,2-Dibromoethane (EDB)	NS	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5	ND	ND	**8.5**	**370**	**11**
1,1,1-Trichloroethane	5	ND	ND J	**11**	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
2-Butanone (MEK)	50	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND	ND	ND	ND
Acetone	50	ND J	ND J	ND J	ND	ND
Benzene	1	ND	ND	ND	ND	ND J

Notes:
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CONSTITUENT	NYSDEC GW STANDARDS	PZ-36 6/24/2010	PZ-39 6/24/2010	PZ-40 6/24/2010	PZ-41 6/24/2010	PZ-42 6/24/2010
1,1,2-Trichlorotrifluoroethane	NS	ND	ND	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND	ND	ND
Bromoform	50	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND	ND
Carbon disulfide	NS	ND	ND	0.62 J	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	NS	ND	ND	ND	ND	ND
Chloroethane	5	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	1.9	1.0	ND	ND	**21**
Chloromethane	NS	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	**6.3**	3.0	ND	ND	**31**
cis-1,3-Dichloropropene	0.4	ND	ND	ND	ND	ND
Cyclohexane	NS	ND	ND	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	ND	ND	ND
Ethylbenzene	5	ND	ND	ND	ND	ND
Isopropylbenzene	5	ND	ND	ND	ND	ND
Methyl Acetate	NS	ND J	ND J	ND J	ND J	ND J
Methyl tert-Butyl Ether	NS	ND	ND	ND	ND	ND
Methylcyclohexane	NS	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND
Styrene	5	ND	ND	ND	ND	ND
Tetrachloroethene	5	ND	**7.4**	ND	ND	ND
Toluene	5	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ND	ND	ND	ND	ND
Trichloroethene	5	1.2	**6.5**	ND	ND	**18**
Trichlorofluoromethane	5	ND	ND	ND	ND	ND
Vinyl chloride	2	ND	**3.6**	ND	ND	ND
Xylenes, total	5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	5	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.04	ND J	ND J	ND J	ND J	ND J
1,2-Dibromoethane (EDB)	NS	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	5	**6.3**	3.0	ND	ND	**31**
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
2-Butanone (MEK)	50	ND	ND	ND	ND	ND
2-Hexanone	50	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND	ND	ND	ND
Acetone	50	4.2 J	3.3 J	7.5 J	ND	ND
Benzene	1	ND	ND	ND	ND	ND

Notes:
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Table 4. AOC 1 - Volatile Organic Compounds for Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

CONSTITUENT	NYSDEC GW STANDARDS	MW-6 6/30/2010	MW-9 6/24/2010
1,1,2-Trichlorotrifluoroethane	NS	ND J	ND J
Bromodichloromethane	50	ND J	ND
Bromoform	50	ND J	ND
Bromomethane	5	ND	ND
Carbon disulfide	NS	ND J	ND
Carbon Tetrachloride	5	ND J	ND
Chlorobenzene	5	ND	ND
Chlorodibromomethane	NS	ND J	ND
Chloroethane	5	ND	ND
Chloroform	7	ND	ND
1,1-Dichloroethane	5	ND	0.62
Chloromethane	NS	ND J	ND
cis-1,2-Dichloroethene	5	ND	ND
cis-1,3-Dichloropropene	0.4	ND J	ND
Cyclohexane	NS	ND J	ND
Dichlorodifluoromethane	5	ND J	ND
1,1-Dichloroethene	0.7	ND	ND
Ethylbenzene	5	ND	ND
Isopropylbenzene	5	ND	ND
Methyl Acetate	NS	ND J	ND J
Methyl tert-Butyl Ether	NS	ND J	ND J
Methylcyclohexane	NS	ND J	ND
Methylene Chloride	5	ND	ND
Styrene	5	ND	ND
Tetrachloroethene	5	ND	ND
Toluene	5	ND J	ND
trans-1,2-Dichloroethene	5	ND	ND
trans-1,3-Dichloropropene	0.4	ND J	ND
Trichloroethene	5	ND	ND
Trichlorofluoromethane	5	ND J	ND
Vinyl chloride	2	ND	ND
Xylenes, total	5	ND	ND
1,2,4-Trichlorobenzene	5	ND J	ND
1,2-Dibromo-3-chloropropane	0.04	ND J	ND
1,2-Dibromoethane (EDB)	NS	ND	ND
1,2-Dichlorobenzene	3	ND	ND
1,2-Dichloroethane	0.6	ND	ND
1,2-Dichloroethene, Total	5	ND	ND
1,1,1-Trichloroethane	5	ND J	ND
1,2-Dichloropropane	1	ND	ND
1,3-Dichlorobenzene	3	ND	ND
1,4-Dichlorobenzene	3	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
2-Butanone (MEK)	50	3.2 J	ND
2-Hexanone	50	ND	ND
1,1,2-Trichloroethane	1	ND	ND
4-Methyl-2-pentanone (MIBK)	NS	ND	ND
Acetone	50	5.5 J	26
Benzene	1	ND	ND

Notes:
Data compared to TOGS 1.1.1 Ambient Water Quality
NS - No Standard
All units are ug/L unless otherwise noted
bgs - below ground surface
Exceedences noted in **bold** and highlighted.
J - Estimated Value
D -Diluted Value

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Table 5. Tentatively Indentified Compounds Detected in Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

						Sample ID	A1-PZ1	A1-PZ2 [DUP 2]	A2-PZ1	A2-PZ2	A2-PZ3	A2-PZ4	A2-PZ5	A2-PZ6	A2-PZ7	A2-PZ8
						Sample Date	6/28/2010	6/28/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010
Tentatively Identified Compound (TIC)	**CAS No.**	**Synonyms**	**USEPA Tapwater RSL (ug/L)**	**NYSDEC Part 703 Standard (ug/L)**	**NYSDEC Ambient Water Quality Standard (ug/L)**	**Notes**			(1)					(2)	(2)	
Cyclopentane	287-92-3		NA	NS	NS											
1,2-Dichloro-1,1,2-trifluoroethane	354-23-4	CFC 123a	NA	NS	See note (3)				1400 D08					20	200 D08	
cis-1,3-Dimethylcyclohexane	638-04-0		NA	NS	NS											
1,4-Dimethylcyclohexane	589-90-2		NA	NS	See note (4)											
Hexane	110-54-3	n-Hexane	880	NS	See note (5)											
2-Methylbutane	78-78-4	Isopentane	NA	NS	NS											
Methylcyclopentane	96-37-7		NA	NS	See note (5)											
2-Methylpentane	107-83-5	Isohexane	NA	NS	NS											
3-Methylpentane	96-14-0		NA	NS	NS											
Pentane	109-66-0	n-Pentane	2100	NS	NS											
1,2,4-Trimethylbenzene	95-63-6		15	5	5											
Unknown Compound														25 D08		
No TICs Found							X	X		X D08	X	X	X		X	X

Notes:
All values in micrograms per liter (ug/L).
NA = value not available
NS = no standard
RSL = Regional Screening Level
USEPA = US Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
D08 = Dilution required due to high concentration of target analyte(s)
D03 = Dilution required due to excessive foaming
T11 = This compound is a calibrated analyte and therefore is qualitatively and quantitatively reported compared to a known standard that is in control
(1) An analyte or analytes were reported twice, with and without dilution. Only the dilution result is given.
(2) Two or more results were reported, one or more without dilution and one with dilution. All results are given and the dilution result is qualified. If a qualifier was not provided in the laboratory data output, ARCADIS has added an asterisk (*) where necessary to denote the dilution.
(3) This compound falls under Principal Organic Contaminant (POC) Class 1 for groundwater, halogenated alkanes. The applicable standard is 5 ug/L (NYSDEC 1998).
(4) Trans- isomer listed in Table 3 of NYSDEC (1998); not subject to POC groundwater standard.
(5) Listed in Table 3 of NYSDEC (1998); not subject to POC groundwater standard.

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Table 5. Tentatively Indentified Compounds Detected in Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

						MW-6	MW-9	PZ-2	PZ-22	PZ-23	PZ-24	PZ-25	PZ-26	PZ-27	PZ-28
						6/28/2010	6/25/2010	6/24/2010	6/28/2010	6/28/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010	6/25/2010
Tentatively Identified Compound (TIC)	**CAS No.**	**Synonyms**	**USEPA Tapwater RSL (ug/L)**	**NYSDEC Part 703 Standard (ug/L)**	**NYSDEC Ambient Water Quality Standard (ug/L)**										
Cyclopentane	287-92-3		NA	NS	NS										
1,2-Dichloro-1,1,2-trifluoroethane	354-23-4	CFC 123a	NA	NS	See note (3)										
cis-1,3-Dimethylcyclohexane	638-04-0		NA	NS	NS										
1,4-Dimethylcyclohexane	589-90-2		NA	NS	See note (4)										
Hexane	110-54-3	n-Hexane	880	NS	See note (5)										
2-Methylbutane	78-78-4	Isopentane	NA	NS	NS										
Methylcyclopentane	96-37-7		NA	NS	See note (5)										
2-Methylpentane	107-83-5	Isohexane	NA	NS	NS										
3-Methylpentane	96-14-0		NA	NS	NS										
Pentane	109-66-0	n-Pentane	2100	NS	NS										
1,2,4-Trimethylbenzene	95-63-6		15	5	5										
Unknown Compound								3.4							
No TICs Found						X	X		X	X	X	X	X	X	X

Notes:
All values in micrograms per liter (ug/L).
NA = value not available
NS = no standard
RSL = Regional Screening Level
USEPA = US Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
D08 = Dilution required due to high concentration of target analyte(s)
D03 = Dilution required due to excessive foaming
T11 = This compound is a calibrated analyte and therefore is qualitatively and quantitatively reported compared to a known standard that is in control
(1) An analyte or analytes were reported twice, with and without dilution. Only the dilution result is given.
(2) Two or more results were reported, one or more without dilution and one with dilution. All results are given and the dilution result is qualified. If a qualifier was not provided in the laboratory data output, ARCADIS has added an asterisk (*) where necessary to denote the dilution.
(3) This compound falls under Principal Organic Contaminant (POC) Class 1 for groundwater, halogenated alkanes. The applicable standard is 5 ug/L (NYSDEC 1998).
(4) Trans- isomer listed in Table 3 of NYSDEC (1998); not subject to POC groundwater standard.
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Table 5. Tentatively Indentified Compounds Detected in Groundwater Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

						PZ-29	PZ-30	PZ-31	PZ-32	PZ-34	PZ-35	PZ-36	PZ-39 [DUP]	PZ-4	PZ-40	PZ-41	PZ-42
						6/28/2010	6/25/2010	6/25/2010	6/25/2010	6/24/2010	6/24/2010	6/24/2010	6/24/2010	6/28/2010	6/24/2010	6/24/2010	6/24/2010
Tentatively Identified Compound (TIC)	**CAS No.**	**Synonyms**	**USEPA Tapwater RSL (ug/L)**	**NYSDEC Part 703 Standard (ug/L)**	**NYSDEC Ambient Water Quality Standard (ug/L)**												
Cyclopentane	287-92-3		NA	NS	NS												
1,2-Dichloro-1,1,2-trifluoroethane	354-23-4	CFC 123a	NA	NS	See note (3)				14		17						
cis-1,3-Dimethylcyclohexane	638-04-0		NA	NS	NS												
1,4-Dimethylcyclohexane	589-90-2		NA	NS	See note (4)												
Hexane	110-54-3	n-Hexane	880	NS	See note (5)												
2-Methylbutane	78-78-4	Isopentane	NA	NS	NS												
Methylcyclopentane	96-37-7		NA	NS	See note (5)												
2-Methylpentane	107-83-5	Isohexane	NA	NS	NS												
3-Methylpentane	96-14-0		NA	NS	NS												
Pentane	109-66-0	n-Pentane	2100	NS	NS												
1,2,4-Trimethylbenzene	95-63-6		15	5	5												
Unknown Compound																	
No TICs Found						X	X	X		X D03		X	X	X	X	X	X D03

Notes:
All values in micrograms per liter (ug/L).
NA = value not available
NS = no standard
RSL = Regional Screening Level
USEPA = US Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
D08 = Dilution required due to high concentration of target analyte(s)
D03 = Dilution required due to excessive foaming
T11 = This compound is a calibrated analyte and therefore is qualitatively and quantitatively reported compared to a known standard that is in control
(1) An analyte or analytes were reported twice, with and without dilution. Only the dilution result is given.
(2) Two or more results were reported, one or more without dilution and one with dilution. All results are given and the dilution result is qualified. If a qualifier was not provided in the laboratory data output, ARCADIS has added an asterisk (*) where necessary to denote the dilution.
(3) This compound falls under Principal Organic Contaminant (POC) Class 1 for groundwater, halogenated alkanes. The applicable standard is 5 ug/L (NYSDEC 1998).
(4) Trans- isomer listed in Table 3 of NYSDEC (1998); not subject to POC groundwater standard.
(5) Listed in Table 3 of NYSDEC (1998); not subject to POC groundwater standard.

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Table 6. AOC 2 - Volatile Organic Compound Results for Soil Vapor Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

CAS #	Constituent	NYSDOH VI Guidance (Indoor Air) µg/m³	USEPA Target Shallow Soil Gas < 5' bgs 1x10⁻⁶ Risk Level µg/m³	USEPA Target Deep Soil Gas > 5' bgs 1x10⁻⁶ Risk Level µg/m³	Sample ID: / Lab ID: / Sample Date: / Sample Depth: / Units:	AMB-081810 / C1008052-001A / 08/18/10 / 3' ags µg/m³	AMB-100710 / C1010020-006A / 10/07/10 / 3' ags µg/m³	SG-7 / C1008052-003A / 08/18/10 / 3 - 3.5' bgs µg/m³	SG-22 / C1008052-004A / 08/18/10 / 3.5 - 4' bgs µg/m³
71-55-6	1,1,1-Trichloroethane	--	22,000	220,000		0.83 U	0.83 U	0.83 U	3.5
79-34-5	1,1,2,2-Tetrachloroethane	--	0.4	4		1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	--	1.5	15		0.83 U	0.83 U	0.83 U	0.83 U
75-34-3	1,1-Dichloroethane	--	5,000	50,000		0.62 U	0.62 U	0.62 U	12
75-35-4	1,1-Dichloroethene	--	2,000	20,000		0.6 U	0.6 U	0.6 U	0.6 U
120-82-1	1,2,4-Trichlorobenzene	--	2,000	20,000		1.1 U	1.1 U	1.1 U	1.1 U
95-63-6	1,2,4-Trimethylbenzene	--	60	600		5.5 J	1.4	25 J	57
106-93-4	1,2-Dibromoethane	--	0.1	1		1.2 U	1.2 U	1.2 U	1.2 U
95-50-1	1,2-Dichlorobenzene	--	2,000	20,000		0.92 U	0.92 U	0.92 U	0.92 U
107-06-2	1,2-Dichloroethane	--	0.9	9		0.62 U	0.62 U	0.62 U	0.62 U
78-87-5	1,2-Dichloropropane	--	40	400		0.7 U	0.7 U	0.7 U	0.7 U
108-67-8	1,3,5-Trimethylbenzene	--	60	600		3	0.55 J	11 J	14
106-99-0	1,3-butadiene	--	0.1	1		0.34 U	0.34 U	0.34 U	0.34 U
541-73-1	1,3-Dichlorobenzene	--	1,100	11,000		0.92 U	0.92 U	18 J	12
106-46-7	1,4-Dichlorobenzene	--	8,000	80,000		1.2	0.92 U	0.92 U	0.92 U
123-91-1	1,4-Dioxane	--	--	--		1.1 U	1.1 U	1.1 U	1.1 U
540-84-1	2,2,4-trimethylpentane	--	--	--		0.71 U	0.71 U	20 J	6.5
622-96-8	4-ethyltoluene	--	--	--		2.2	0.75 U	5.5 J	16
67-64-1	Acetone	--	3,500	35,000		54	24 J	660 J	180
107-05-1	Allyl chloride	--	--	--		0.48 U	0.48 U	0.48 U	0.48 U
71-43-2	Benzene	--	3.1	31		0.78	0.49 U	9.1 J	7.1
100-44-7	Benzyl chloride	--	0.5	5		0.88 U	0.88 U	0.88 U	0.88 U
75-27-4	Bromodichloromethane	--	1.4	14		1 U	1 U	1 U	1 U
75-25-2	Bromoform	--	22	220		1.6 U	1.6 U	1.6 U	1.6 U
74-83-9	Bromomethane	--	50	500		0.59 U	0.59 U	0.59 U	0.59 U
75-15-0	Carbon disulfide	--	7,000	70,000		0.6	0.44 J	11 J	5.3
56-23-5	Carbon tetrachloride	--	1.6	16		0.7 J	0.45 J	0.96 U	0.96 U
108-90-7	Chlorobenzene	--	600	6,000		0.7 U	0.7 U	0.47 J	0.7 U
75-00-3	Chloroethane	--	100,000	1,000,000		0.4 U	0.4 U	0.4 U	0.4 U
67-66-3	Chloroform	--	1.1	11		0.6 J	0.74 U	5 J	19
74-87-3	Chloromethane	--	24	240		1.6	0.59	0.31 U	0.31 U
156-59-2	cis-1,2-Dichloroethene	--	350	3,500		4.3	0.6 U	0.6 U	20
10061-01-5	cis-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U	0.69 U	0.69 U
110-82-7	Cyclohexane	--	--	--		0.52 UJ	0.52 U	19 J	0.52 UJ
124-48-1	Dibromochloromethane	--	1.0	10		1.3 U	1.3 U	1.3 U	1.3 U
141-78-6	Ethyl acetate	--	32,000	320,000		9.1	0.92 U	23 J	10
100-41-4	Ethylbenzene	--	22	220		1.2	0.66 UJ	8 J	15
75-69-4	Freon 11	--	7,000	70,000		1.9	1.2	2.1 J	7.5
76-13-1	Freon 113	--	300,000	3,000,000		1.2 U	1.2 U	1.2 U	400
76-14-2	Freon 114	--	--	--		1.1 U	1.1 U	1.1 U	1.1 U
75-71-8	Freon 12	--	2,000	20,000		2.8	2.4	0.75 U	0.75 U
142-82-5	Heptane	--	--	--		2.3	0.42 J	8.7 J	6.2
87-68-3	Hexachloro-1,3-butadiene	--	1.1	11		1.6 U	1.6 U	1.6 U	1.6 U
110-54-3	Hexane	--	2,000	20,000		0.54 U	0.54 U	15 J	0.54 U
67-63-0	Isopropyl alcohol	--	--	--		26 J	0.37 U	200 J	130
179601-23	m&p-Xylene	--	70,000	700,000		2.6 J	1.2 J	15 J	45
591-78-6	Methyl Butyl Ketone	--	--	--		1.2 U	1.2 U	2.7 J	1.2 U
78-93-3	Methyl Ethyl Ketone	--	10,000	100,000		3.3	0.9 U	24 J	5.7 J
108-10-1	Methyl Isobutyl Ketone	--	800	8,000		2.2 J	1.2 U	44 J	37
1634-04-4	Methyl tert-butyl ether	--	30,000	300,000		0.55 U	0.55 U	49 J	2.6
75-09-2	Methylene chloride	60	52	520		1.7	0.53 U	0.53 U	0.53 U
95-47-6	o-Xylene	--	70,000	700,000		1.8 J	0.57 J	9.7 J	28
115-07-1	Propylene	--	--	--		0.26 U	0.26 U	0.26 U	0.26 U
100-42-5	Styrene	--	10,000	100,000		1.6	0.65 UJ	0.65 U	0.65 U
127-18-4	Tetrachloroethylene	100	8.1	81		1.7	1 U	8.5 J	14
109-99-9	Tetrahydrofuran	--	--	--		0.45 U	0.45 U	0.45 U	0.45 U
108-88-3	Toluene	--	4,000	40,000		8	1.5	16 J	52
156-60-5	trans-1,2-Dichloroethene	--	700	7,000		0.6 U	0.6 U	0.6 U	6.2
10061-02-6	trans-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U	0.69 U	0.69 U
79-01-6	Trichloroethene	5	12 (b)	120 (b)		9.8	0.27 J	2.2 J	36
108-05-4	Vinyl acetate	--	2,000	20,000		0.54 U	0.54 U	0.54 U	0.54 U
593-60-02	Vinyl Bromide	--	--	--		0.67 U	0.67 U	0.67 U	0.67 U
75-01-4	Vinyl chloride	--	2.8	28		0.42	0.39 U	0.39 U	0.39 U

Notes:
µg/m³ - Micrograms per cubic meter
USEPA - United States Environmental Protection Agency
NYSDOH - New York State Department of Health
SG - Soil Gas
AMB - Ambient Air
(a) 1,3-Dichloropropene used as a surrogate
(b) Calculated from Regional Screening Level for resident air using an attenuation factor of 0.1 and 0.01, respectively.
-- - Value not available
U - Constituent not detected at reporting limit
J - Constituent concentration estimated
All screening values protective of a residential receptor.
Samples collected < 5' bgs were compared to shallow soil gas screening levels
Samples collected > 5' bgs were compared to deep soil gas screening levels
Exceedances of a USEPA screening value were shaded
ags - above ground surface
bgs - below ground surface

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Table 6. AOC 2 - Volatile Organic Compound Results for Soil Vapor Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

CAS #	Constituent	NYSDOH VI Guidance (Indoor Air) µg/m³	USEPA Target Shallow Soil Gas < 5' bgs 1x10⁻⁶ Risk Level µg/m³	USEPA Target Deep Soil Gas > 5' bgs 1x10⁻⁶ Risk Level µg/m³	Sample ID: / Lab ID: / Sample Date: / Sample Depth: / Units:	SG-22 C1010020-001A 10/07/10 3.5 - 4' bgs µg/m³	SG-23 C1008052-005A 08/18/10 1.8 - 2.4' bgs µg/m³	SG-24 C1008052-006A 08/18/10 6.5 - 7' bgs µg/m³	SG-24 C1010020-002A 10/07/10 6.5 - 7' bgs µg/m³
71-55-6	1,1,1-Trichloroethane	--	22,000	220,000		1.4	0.61 J	4.4	1.1
79-34-5	1,1,2,2-Tetrachloroethane	--	0.4	4		1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	--	1.5	15		0.83 U	0.83 U	0.83 U	0.83 U
75-34-3	1,1-Dichloroethane	--	5,000	50,000		4	0.62 U	30	8.3
75-35-4	1,1-Dichloroethene	--	2,000	20,000		0.6 U	0.6 U	0.6 U	0.6 U
120-82-1	1,2,4-Trichlorobenzene	--	2,000	20,000		1.1 U	1.1 U	1.1 U	1.1 U
95-63-6	1,2,4-Trimethylbenzene	--	60	600		12	110 J	67	9.5
106-93-4	1,2-Dibromoethane	--	0.1	1		1.2 U	1.2 U	1.2 U	1.2 U
95-50-1	1,2-Dichlorobenzene	--	2,000	20,000		0.92 U	0.92 U	0.92 U	0.92 U
107-06-2	1,2-Dichloroethane	--	0.9	9		0.62 U	0.62 U	0.62 U	0.62 U
78-87-5	1,2-Dichloropropane	--	40	400		0.7 U	0.7 U	0.7 U	0.7 U
108-67-8	1,3,5-Trimethylbenzene	--	60	600		6 J	25 J	15	4.5 J
106-99-0	1,3-butadiene	--	0.1	1		0.34 U	0.34 U	0.34 U	0.34 U
541-73-1	1,3-Dichlorobenzene	--	1,100	11,000		17	17 J	19	11
106-46-7	1,4-Dichlorobenzene	--	8,000	80,000		0.79 J	0.92 U	0.92 U	0.67 J
123-91-1	1,4-Dioxane	--	--	--		1.1 U	1.1 U	1.1 U	1.1 U
540-84-1	2,2,4-trimethylpentane	--	--	--		4	3.6 J	3.6	2.8
622-96-8	4-ethyltoluene	--	--	--		4.6	27 J	15	3.1 J
67-64-1	Acetone	--	3,500	35,000		35 J	420 J	180	110 J
107-05-1	Allyl chloride	--	--	--		0.48 U	0.48 U	0.48 U	0.48 U
71-43-2	Benzene	--	3.1	31		5.7	26 J	9.1	0.49 U
100-44-7	Benzyl chloride	--	0.5	5		0.88 U	0.88 U	0.88 U	0.88 U
75-27-4	Bromodichloromethane	--	1.4	14		1 U	1 U	1 U	1 U
75-25-2	Bromoform	--	22	220		1.6 U	1.6 U	1.6 U	1.6 U
74-83-9	Bromomethane	--	50	500		0.59 U	0.59 U	0.59 U	0.59 U
75-15-0	Carbon disulfide	--	7,000	70,000		0.47 U	2.7 J	11	1.3
56-23-5	Carbon tetrachloride	--	1.6	16		0.38 J	0.96 U	0.96 U	0.45 J
108-90-7	Chlorobenzene	--	600	6,000		0.7 U	0.7 U	0.7 U	0.7 U
75-00-3	Chloroethane	--	100,000	1,000,000		0.4 U	0.4 U	0.4 U	0.4 U
67-66-3	Chloroform	--	1.1	11		7.1	0.74 U	10	2.8
74-87-3	Chloromethane	--	24	240		0.52	0.31 U	0.31 U	0.44
156-59-2	cis-1,2-Dichloroethene	--	350	3,500		3.7	0.6 U	64	14
10061-01-5	cis-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U	0.69 U	0.69 U
110-82-7	Cyclohexane	--	--	--		4.9	0.52 UJ	8.3 J	3.3
124-48-1	Dibromochloromethane	--	1.0	10		1.3 U	1.3 U	1.3 U	1.3 U
141-78-6	Ethyl acetate	--	32,000	320,000		9.5	43 J	16	16
100-41-4	Ethylbenzene	--	22	220		8.8 J	12 J	13	6.9 J
75-69-4	Freon 11	--	7,000	70,000		3.4	1.8 J	8.3	4.8
76-13-1	Freon 113	--	300,000	3,000,000		810	1.5 J	860	360
76-14-2	Freon 114	--	--	--		1.1 U	1.1 U	1.1 U	1.1 U
75-71-8	Freon 12	--	2,000	20,000		0.75 U	0.75 U	0.75 U	1
142-82-5	Heptane	--	--	--		6.6	8.7 J	6.2	3.2
87-68-3	Hexachloro-1,3-butadiene	--	1.1	11		1.6 U	1.6 U	1.6 U	1.6 U
110-54-3	Hexane	--	2,000	20,000		2.3	0.54 U	0.54 U	2.3
67-63-0	Isopropyl alcohol	--	--	--		91 J	450 J	190 J	130
179601-23	m&p-Xylene	--	70,000	700,000		29 J	45 J	41 J	15 J
591-78-6	Methyl Butyl Ketone	--	--	--		1.2 U	1.2 U	1.2 U	1.2 U
78-93-3	Methyl Ethyl Ketone	--	10,000	100,000		4.5	14 J	4.5 J	5.8
108-10-1	Methyl Isobutyl Ketone	--	800	8,000		1.7 J	68 J	42 J	2.5 J
1634-04-4	Methyl tert-butyl ether	--	30,000	300,000		0.55 J	0.55 U	1.8 J	0.55 U
75-09-2	Methylene chloride	60	52	520		0.53 U	0.42 J	0.53 U	0.67
95-47-6	o-Xylene	--	70,000	700,000		8.8 J	31 J	28 J	9 J
115-07-1	Propylene	--	--	--		0.26 U	0.26 U	0.26 U	0.26 U
100-42-5	Styrene	--	10,000	100,000		7.4 J	0.65 U	0.65 U	3.5 J
127-18-4	Tetrachloroethylene	100	8.1	81		2.4	1 U	320	8.3 J
109-99-9	Tetrahydrofuran	--	--	--		0.45 U	0.45 U	0.45 U	0.45 U
108-88-3	Toluene	--	4,000	40,000		69	33 J	32	28
156-60-5	trans-1,2-Dichloroethene	--	700	7,000		1.9	0.6 U	0.6 U	0.93
10061-02-6	trans-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U	0.69 U	0.69 U
79-01-6	Trichloroethene	5	12 (b)	120 (b)		9.1	2 J	200	9.3
108-05-4	Vinyl acetate	--	2,000	20,000		0.54 U	0.54 U	0.54 U	0.54 U
593-60-02	Vinyl Bromide	--	--	--		0.67 U	0.67 U	0.67 U	0.67 U
75-01-4	Vinyl chloride	--	2.8	28		0.39 U	0.39 U	0.39 U	0.39 U

Notes:
µg/m³ - Micrograms per cubic meter
USEPA - United States Environmental Protection Agency
NYSDOH - New York State Department of Health
SG - Soil Gas
AMB - Ambient Air
(a) 1,3-Dichloropropene used as a surrogate
(b) Calculated from Regional Screening Level for resident air using an attenuation factor of 0.1 and 0.01, respect
-- - Value not available
U - Constituent not detected at reporting limit
J - Constituent concentration estimated
All screening values protective of a residential receptor.
Samples collected < 5' bgs were compared to shallow soil gas screening levels
Samples collected > 5' bgs were compared to deep soil gas screening levels
Exceedances of a USEPA screening value were shaded
ags - above ground surface
bgs - below ground surface

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Table 6. AOC 2 - Volatile Organic Compound Results for Soil Vapor Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

CAS #	Constituent	NYSDOH VI Guidance (Indoor Air) µg/m^3	USEPA Target Shallow Soil Gas < 5' bgs 1x10^{-6} Risk Level µg/m^3	USEPA Target Deep Soil Gas > 5' bgs 1x10^{-6} Risk Level µg/m^3	Sample ID: Lab ID: Sample Date: Sample Depth: Units:	SG-25 C1008052-007A 08/18/10 2.3 - 2.9' bgs µg/m^3	SG-26 C1008052-008A 08/18/10 5 - 5.5' bgs µg/m^3	SG-26 C1010020-003A 10/07/10 5 - 5.5' bgs µg/m^3
71-55-6	1,1,1-Trichloroethane	--	22,000	220,000		4	0.83 U	0.83 U
79-34-5	1,1,2,2-Tetrachloroethane	--	0.4	4		1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	--	1.5	15		0.83 U	0.83 U	0.83 U
75-34-3	1,1-Dichloroethane	--	5,000	50,000		0.62 U	0.62 U	0.62 U
75-35-4	1,1-Dichloroethene	--	2,000	20,000		0.6 U	0.6 U	0.6 U
120-82-1	1,2,4-Trichlorobenzene	--	2,000	20,000		1.1 U	1.1 U	1.1 U
95-63-6	1,2,4-Trimethylbenzene	--	60	600		62	48	11
106-93-4	1,2-Dibromoethane	--	0.1	1		1.2 U	1.2 U	1.2 U
95-50-1	1,2-Dichlorobenzene	--	2,000	20,000		0.92 U	0.92 U	0.92 U
107-06-2	1,2-Dichloroethane	--	0.9	9		0.62 U	0.62 U	0.62 U
78-87-5	1,2-Dichloropropane	--	40	400		0.7 U	0.7 U	0.7 U
108-67-8	1,3,5-Trimethylbenzene	--	60	600		16	15	4.8 J
106-99-0	1,3-butadiene	--	0.1	1		0.34 U	0.34 U	0.34 U
541-73-1	1,3-Dichlorobenzene	--	1,100	11,000		25	20	16 J
106-46-7	1,4-Dichlorobenzene	--	8,000	80,000		0.92 U	0.92 U	0.67 J
123-91-1	1,4-Dioxane	--	--	--		1.1 U	1.1 U	1.1 U
540-84-1	2,2,4-trimethylpentane	--	--	--		5.7	38	7
622-96-8	4-ethyltoluene	--	--	--		12	12 J	3.3 J
67-64-1	Acetone	--	3,500	35,000		500	86	83 J
107-05-1	Allyl chloride	--	--	--		0.48 U	0.48 U	0.48 U
71-43-2	Benzene	--	3.1	31		7.8	4.2	0.49 U
100-44-7	Benzyl chloride	--	0.5	5		0.88 U	0.88 U	0.88 U
75-27-4	Bromodichloromethane	--	1.4	14		1 U	1 U	1 U
75-25-2	Bromoform	--	22	220		1.6 U	1.6 U	1.6 U
74-83-9	Bromomethane	--	50	500		0.59 U	0.59 U	0.59 U
75-15-0	Carbon disulfide	--	7,000	70,000		180	150	2.8 J
56-23-5	Carbon tetrachloride	--	1.6	16		0.96 U	0.96 U	0.38 J
108-90-7	Chlorobenzene	--	600	6,000		0.7 U	0.7 U	0.7 U
75-00-3	Chloroethane	--	100,000	1,000,000		0.4 U	0.4 U	0.4 U
67-66-3	Chloroform	--	1.1	11		1.1	2.4	0.5 J
74-87-3	Chloromethane	--	24	240		0.31 U	0.31 U	0.65
156-59-2	cis-1,2-Dichloroethene	--	350	3,500		2.2	0.6	0.44 J
10061-01-5	cis-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U	0.69 U
110-82-7	Cyclohexane	--	--	--		25 J	22 J	6.4 J
124-48-1	Dibromochloromethane	--	1.0	10		1.3 U	1.3 U	1.3 U
141-78-6	Ethyl acetate	--	32,000	320,000		13	8	13
100-41-4	Ethylbenzene	--	22	220		9.7	8.4	8.8 J
75-69-4	Freon 11	--	7,000	70,000		2.2	1.6	0.86 U
76-13-1	Freon 113	--	300,000	3,000,000		16	22 J	4.3
76-14-2	Freon 114	--	--	--		1.1 U	1.1 U	1.1 U
75-71-8	Freon 12	--	2,000	20,000		3.3	0.75 U	0.8
142-82-5	Heptane	--	--	--		9.4	3.7	5.2 J
87-68-3	Hexachloro-1,3-butadiene	--	1.1	11		1.6 U	1.6 U	1.6 U
110-54-3	Hexane	--	2,000	20,000		7.1	9.9	2.7
67-63-0	Isopropyl alcohol	--	--	--		300 J	0.37 U	150 J
179601-23	m&p-Xylene	--	70,000	700,000		31 J	23 J	24 J
591-78-6	Methyl Butyl Ketone	--	--	--		1.2 U	1.2 U	1.2 U
78-93-3	Methyl Ethyl Ketone	--	10,000	100,000		8.4 J	7	9
108-10-1	Methyl Isobutyl Ketone	--	800	8,000		340 J	23 J	3 J
1634-04-4	Methyl tert-butyl ether	--	30,000	300,000		0.55 U	14 J	0.55 U
75-09-2	Methylene chloride	60	52	520		0.6	0.53 U	0.53
95-47-6	o-Xylene	--	70,000	700,000		21 J	15 J	8.4 J
115-07-1	Propylene	--	--	--		0.26 U	0.26 U	0.26 U
100-42-5	Styrene	--	10,000	100,000		0.65 U	0.65 U	4 J
127-18-4	Tetrachloroethylene	100	8.1	81		76	4.6	1 U
109-99-9	Tetrahydrofuran	--	--	--		0.45 U	0.45 U	0.45 U
108-88-3	Toluene	--	4,000	40,000		28	15	51 J
156-60-5	trans-1,2-Dichloroethene	--	700	7,000		0.6 U	0.6 U	0.6 U
10061-02-6	trans-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U	0.69 U
79-01-6	Trichloroethene	5	12 (b)	120 (b)		10	1.8	0.76 J
108-05-4	Vinyl acetate	--	2,000	20,000		0.54 U	0.54 U	0.54 U
593-60-02	Vinyl Bromide	--	--	--		0.67 U	0.67 U	0.67 U
75-01-4	Vinyl chloride	--	2.8	28		0.39 U	0.39 U	0.39 U

Notes:
µg/m^3 - Micrograms per cubic meter
USEPA - United States Environmental Protection Agency
NYSDOH - New York State Department of Health
SG - Soil Gas
AMB - Ambient Air
(a) 1,3-Dichloropropene used as a surrogate
(b) Calculated from Regional Screening Level for resident air using an attenuation factor of 0.1 and 0.01, respect
-- - Value not available
U - Constituent not detected at reporting limit
J - Constituent concentration estimated
All screening values protective of a residential receptor.
Samples collected < 5' bgs were compared to shallow soil gas screening levels
Samples collected > 5' bgs were compared to deep soil gas screening levels
Exceedances of a USEPA screening value were shaded
ags - above ground surface
bgs - below ground surface

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Table 6. AOC 2 - Volatile Organic Compound Results for Soil Vapor Samples, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin Facility, Utica, New York

CAS #	Constituent	NYSDOH VI Guidance (Indoor Air) µg/m^3	USEPA Target Shallow Soil Gas < 5' bgs 1x10^{-6} Risk Level µg/m^3	USEPA Target Deep Soil Gas > 5' bgs 1x10^{-6} Risk Level µg/m^3	Sample ID: Lab ID: Sample Date: Sample Depth: Units:	SG-27 C1008052-009A 08/18/10 6.5 - 7' bgs µg/m^3	SG-27 C1010020-004A 10/07/10 6.5 - 7' bgs µg/m^3
71-55-6	1,1,1-Trichloroethane	--	22,000	220,000		1.1	0.83 U
79-34-5	1,1,2,2-Tetrachloroethane	--	0.4	4		1 U	1 U
79-00-5	1,1,2-Trichloroethane	--	1.5	15		0.83 U	0.83 U
75-34-3	1,1-Dichloroethane	--	5,000	50,000		0.62 U	0.62 U
75-35-4	1,1-Dichloroethene	--	2,000	20,000		0.6 U	0.6 U
120-82-1	1,2,4-Trichlorobenzene	--	2,000	20,000		1.1 U	1.1 U
95-63-6	1,2,4-Trimethylbenzene	--	60	600		120 J	6.5 J
106-93-4	1,2-Dibromoethane	--	0.1	1		1.2 U	1.2 U
95-50-1	1,2-Dichlorobenzene	--	2,000	20,000		0.92 U	0.92 U
107-06-2	1,2-Dichloroethane	--	0.9	9		0.62 U	0.62 U
78-87-5	1,2-Dichloropropane	--	40	400		0.7 U	0.7 U
108-67-8	1,3,5-Trimethylbenzene	--	60	600		22 J	3 J
106-99-0	1,3-butadiene	--	0.1	1		0.34 U	0.34 U
541-73-1	1,3-Dichlorobenzene	--	1,100	11,000		28 J	9.2
106-46-7	1,4-Dichlorobenzene	--	8,000	80,000		0.92 U	0.92 U
123-91-1	1,4-Dioxane	--	--	--		1.1 U	1.1 U
540-84-1	2,2,4-trimethylpentane	--	--	--		4.1	3.9 J
622-96-8	4-ethyltoluene	--	--	--		22 J	1.8 J
67-64-1	Acetone	--	3,500	35,000		180	100 J
107-05-1	Allyl chloride	--	--	--		0.48 U	0.48 U
71-43-2	Benzene	--	3.1	31		4.5	0.49 U
100-44-7	Benzyl chloride	--	0.5	5		0.88 U	0.88 U
75-27-4	Bromodichloromethane	--	1.4	14		1 U	1 U
75-25-2	Bromoform	--	22	220		1.6 U	1.6 U
74-83-9	Bromomethane	--	50	500		0.59 U	0.59 U
75-15-0	Carbon disulfide	--	7,000	70,000		12 J	0.95
56-23-5	Carbon tetrachloride	--	1.6	16		0.96 U	0.32 J
108-90-7	Chlorobenzene	--	600	6,000		0.7 U	0.7 U
75-00-3	Chloroethane	--	100,000	1,000,000		0.4 U	0.4 U
67-66-3	Chloroform	--	1.1	11		0.99	0.65 J
74-87-3	Chloromethane	--	24	240		0.31 U	0.67
156-59-2	cis-1,2-Dichloroethene	--	350	3,500		0.6 U	0.4 J
10061-01-5	cis-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U
110-82-7	Cyclohexane	--	--	--		23 J	3.4 J
124-48-1	Dibromochloromethane	--	1.0	10		1.3 U	1.3 U
141-78-6	Ethyl acetate	--	32,000	320,000		8.4 J	8.4 J
100-41-4	Ethylbenzene	--	22	220		16 J	5.1 J
75-69-4	Freon 11	--	7,000	70,000		2.5	1.4
76-13-1	Freon 113	--	300,000	3,000,000		6.8	3
76-14-2	Freon 114	--	--	--		1.1 U	1.1 U
75-71-8	Freon 12	--	2,000	20,000		3.1	1.7
142-82-5	Heptane	--	--	--		0.62 U	2.7 J
87-68-3	Hexachloro-1,3-butadiene	--	1.1	11		1.6 U	1.6 U
110-54-3	Hexane	--	2,000	20,000		0.54 U	2.4
67-63-0	Isopropyl alcohol	--	--	--		110 J	150
179601-23	m&p-Xylene	--	70,000	700,000		51 J	11 J
591-78-6	Methyl Butyl Ketone	--	--	--		9.6	1.2 U
78-93-3	Methyl Ethyl Ketone	--	10,000	100,000		14 J	5
108-10-1	Methyl Isobutyl Ketone	--	800	8,000		57 J	1.2 J
1634-04-4	Methyl tert-butyl ether	--	30,000	300,000		0.55 U	0.55 U
75-09-2	Methylene chloride	60	52	520		0.53 U	0.49 J
95-47-6	o-Xylene	--	70,000	700,000		37 J	6.2 J
115-07-1	Propylene	--	--	--		0.26 U	0.26 U
100-42-5	Styrene	--	10,000	100,000		0.65 U	2.8 J
127-18-4	Tetrachloroethylene	100	8.1	81		61 J	1 J
109-99-9	Tetrahydrofuran	--	--	--		0.45 U	0.45 U
108-88-3	Toluene	--	4,000	40,000		30 J	27
156-60-5	trans-1,2-Dichloroethene	--	700	7,000		0.6 U	0.6 U
10061-02-6	trans-1,3-Dichloropropene	--	6.1 (a)	61 (a)		0.69 U	0.69 U
79-01-6	Trichloroethene	5	12 (b)	120 (b)		2	0.87 J
108-05-4	Vinyl acetate	--	2,000	20,000		0.54 U	0.54 U
593-60-02	Vinyl Bromide	--	--	--		0.67 U	0.67 U
75-01-4	Vinyl chloride	--	2.8	28		0.39 U	0.39 U

Notes:
µg/m^3 - Micrograms per cubic meter
USEPA - United States Environmental Protection Agency
NYSDOH - New York State Department of Health
SG - Soil Gas
AMB - Ambient Air
(a) 1,3-Dichloropropene used as a surrogate
(b) Calculated from Regional Screening Level for resident air using an attenuation factor of 0.1 and 0.01, respect
-- - Value not available
U - Constituent not detected at reporting limit
J - Constituent concentration estimated
All screening values protective of a residential receptor.
Samples collected < 5' bgs were compared to shallow soil gas screening levels
Samples collected > 5' bgs were compared to deep soil gas screening levels
Exceedances of a USEPA screening value were shaded
ags - above ground surface
bgs - below ground surface

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Table 7. Summary of Indoor Air, Ambient Air, and Sub-slab Soil Gas Sample Results at the Former Guard House, Former Northern Perimeter Ditch Supplemental Investigation Report, Former Lockheed Martin French Road Facility, Utica, New York.

Location ID: Media: Date Collected: Area: Units:	NYSDOH Air Guideline (a) ug/m^3	OSHA PEL (b) ug/m^3	USEPA BASE Background (c) ug/m^3	I-AMB Indoor Air 03/17/10 Fmr Guard House ug/m^3	O-AMB Ambient Air 03/17/10 Fmr Guard House ug/m^3	SG-GH-1 Sub-slab Soil Gas 03/17/10 Fmr Guard House ug/m^3
1,1,1-Trichloroethane	- -	- -	20.6	0.83 U	0.83 U	0.83 U
1,1,2,2-Tetrachloroethane	- -	- -	<1.5	1.0 U	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	3.5	1.2 U	1.2 U	1.2 U
1,1,2-Trichloroethane	- -	45,000	<1.5	0.83 U	0.83 U	0.83 U
1,1-Dichloroethane	- -	400,000	<0.7	0.62 U	0.62 U	0.62 U
1,1-Dichloroethene	- -	- -	<1.4	0.60 U	0.60 U	0.60 U
1,2,4-Trichlorobenzene	- -	- -	<6.8	1.1 U	1.1 U	1.1 U
1,2,4-Trimethylbenzene	- -	- -	9.5	1.2	1.2	0.75
1,2-Dibromoethane	- -	153,800	<1.5	1.2 U	1.2 U	1.2 U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	- -	7,000,000	<6.8	1.1 U	1.1 U	1.1 U
1,2-Dichlorobenzene	- -	300,000	<1.2	0.92 U	0.92 U	0.92 U
1,2-Dichloroethane	- -	202,500	<0.9	0.62 U	0.62 U	0.62 U
1,2-Dichloropropane	- -	350,000	<1.6	0.70 U	0.70 U	0.70 U
1,3,5-Trimethylbenzene	- -	- -	3.7	1.9	0.75 U	0.75 U
1,3-Butadiene	- -	2,210	<3.0	0.34 U	0.34 U	0.34 U
1,3-Dichlorobenzene	- -	- -	<2.4	0.92 U	0.92 U	0.92 U
1,4-Dichlorobenzene	- -	450,000	5.5	0.92 U	0.92 U	0.92 U
1,4-Dioxane	- -	360,000	--	1.1 U	1.1 U	1.1 U
2,2,4-Trimethylpentane	- -	- -	--	0.71 U	0.71 U	0.71 U
2-Butanone	- -	590,000	12	0.90 U	1.4	0.81 J
2-Hexanone	- -	410,000	--	1.2 UJ	1.2 UJ	1.2 UJ
3-Chloropropene	- -	3,000	--	0.48 U	0.48 U	0.48 U
4-Ethyltoluene	- -	- -	3.6	0.50 J	0.75 U	0.75 U
4-Methyl-2-pentanone	- -	410,000	6	1.2 UJ	1.2 UJ	1.2 UJ
Acetone	- -	2,400,000	98.9	31	13	12
Benzene	- -	31,900	9.4	0.58	0.49 U	0.75
Benzyl Chloride	- -	5,000	<6.8	0.88 U	0.88 U	0.88 U
Bromodichloromethane	- -	- -	--	1.0 U	1.0 U	1.0 U
Bromoform	- -	5,000	--	1.6 U	1.6 U	1.6 U
Bromomethane	- -	80,000	<1.7	0.59 U	0.59 U	0.59 U
Carbon Disulfide	- -	62,200	4.2	0.47 U	0.47 U	0.47 U
Carbon Tetrachloride	- -	62,900	<1.3	0.70	0.26 U	0.96 U
Chlorobenzene	- -	350,000	<0.9	0.70 U	0.70 U	0.70 U
Chloroethane	- -	2,600,000	<1.1	0.40 U	0.40 U	0.40 U
Chloroform	- -	240,000	1.1	0.79	0.74 U	0.74 U
Chloromethane	- -	- -	3.7	0.31 U	0.90	0.69
cis-1,2-Dichloroethene	- -	790,000	<1.9	**2.3**	0.60 U	0.60 U
cis-1,3-Dichloropropene	- -	- -	<2.3	0.69 U	0.69 U	0.69 U
Cyclohexane	- -	1,050,000	--	1.1	5.0	4.1
Dibromochloromethane	- -	- -	--	1.3 UJ	1.3 UJ	1.3 UJ
Dichlorodifluoromethane	- -	4,950,000	16.5	0.75 U	2.3	2.4
Ethyl acetate	- -	1,400,000	5.4	0.92 U	0.92 U	0.92 U
Ethylbenzene	- -	435,000	5.7	0.66 U	0.66 U	0.66 U
Heptane	- -	2,000,000	--	0.62 U	0.62 U	0.46 J
Hexachlorobutadiene	- -	- -	<6.8	1.6 U	1.6 U	1.6 U
Isopropyl alcohol	- -	980,000	250	0.37 U	390	18
m&p-Xylene	- -	435,000	22.2	0.66 J	0.71 J	0.79 J
Methyl tert-butyl ether	- -	- -	11.5	0.55 U	0.55 U	0.55 U
Methylene Chloride	60	86,750	N/A	1.6	0.99	0.56
n-Hexane	- -	1,800,000	10.2	0.54 U	0.54 U	0.54 U
o-Xylene	- -	435,000	7.9	0.66 U	0.66 U	0.66 U
Propylene	- -	- -	--	0.26 U	0.26 U	0.26 U
Styrene	- -	426,000	1.9	0.65 U	0.65 U	0.65 U
Tetrachloroethene	100	678,000	N/A	1.6 J	1.0 U	1.9 J
Tetrahydrofuran	- -	590,000	--	0.45 U	1.4	0.45 U
Toluene	- -	754,000	43	1.6	1.4	1.6
trans-1,2-Dichloroethene	- -	790,000	--	0.60 U	0.60 U	0.60 U
trans-1,3-Dichloropropene	- -	- -	<1.3	0.69 U	0.69 U	0.69 U
Trichloroethene	5	537,000	N/A	9.9	0.49	0.87
Trichlorofluoromethane	- -	5,600,000	18.1	1.7	5.3	1.7
Vinyl Acetate	- -	- -	--	0.54 U	0.54 U	0.54 U
Vinyl Bromide	- -	- -	--	0.67 U	0.67 U	0.67 U
Vinyl Chloride	- -	2,560	<1.9	0.10 U	0.10 U	0.39 U

Notes:
(a) New York State Department of Health (NYSDOH) Air Guideline values
(b) Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs)
(c) 90th percentile of U.S. Environmental Protection Agency (USEPA) 2001 Building Assessment and Survey Evaluation (BASE) indoor air concentrations
(d) Sub-slab soil gas and ambient air results for use in comparison to indoor air only; results not compared to guidelines, PELs, or background values
(e) Indoor air results exceeding NYSDOH air guideline are shaded gray
(f) Indoor air results exceeding the USEPA background value are boldfaced
-- - Value not established
J - Result qualified as estimated value due to detection at or below quantitiation limit, or due to results of Data Usability Summary Report
N/A - Not applicable
U - Not detected above the reporting limit
ug/m^3 - Micrograms per cubic meter

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	PZ-22 (19-20)	PZ-23 (6-7)	PZ-24 (10-11)	PZ-25 (7-8)	PZ-26 (8-9)
	Sample Date:	5/19/2010	5/18/2010	5/18/2010	5/17/2010	5/17/2010
	Unit:	SILT	SILT	CLAY	SILT	SILT
	PID Reading:	0.0	0.0	0.0	0.0	0.0
Soil Cleanup Objective						
ANALYTE (ug/kg)						
1,1,2-Trichlorotrifluoroethane	--	ND	ND	ND	ND	ND
Bromodichloromethane	--	ND J	ND J	ND J	ND J	ND J
Bromoform	--	ND J	ND J	ND J	ND J	ND J
Bromomethane	--	ND J	ND J	ND J	ND J	ND J
Carbon disulfide	--	ND J	ND J	ND J	ND J	ND J
Carbon Tetrachloride	44000	ND J	ND J	ND J	ND J	ND J
Chlorobenzene	1000000	ND	ND	ND	ND	ND
Chlorodibromomethane	--	ND J	ND J	ND J	ND J	ND J
Chloroethane	--	ND J	ND J	ND J	ND J	ND J
Chloroform	700000	ND	ND	ND	ND	ND
1,1-Dichloroethane	480000	ND	ND	ND	ND	ND
Chloromethane	--	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1000000	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Cyclohexane	--	ND	5.3 UB	6.0 UB	ND	5.3 UB
Dichlorodifluoromethane	--	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000000	ND	ND	ND	ND	ND
Ethylbenzene	780000	ND	ND	ND	ND	ND
Isopropylbenzene	--	ND	ND	ND	ND	ND
Methyl Acetate	--	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	1000000	ND	ND	ND	ND	ND
Methylcyclohexane	--	ND	ND	ND	ND	ND
Methylene Chloride	1000000	5.4 UBJ	5.3 UB	6.0 UB	5.0 UB	5.6 UBJ
Styrene	--	ND	ND	ND	ND	ND
Tetrachloroethene	300000	ND	ND	ND	ND	ND
Toluene	1000000	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000000	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Trichloroethene	400000	ND	ND	ND	ND	ND
Trichlorofluoromethane	--	ND	ND	ND	ND	ND
Vinyl chloride	27000	ND	ND	ND	ND	ND
Xylenes, total	1000000	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	--	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	--	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	--	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000000	ND	ND	ND	ND	ND
1,2-Dichloroethane	60000	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	1000000	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1000000	ND	ND	ND	ND	ND
1,2-Dichloropropane	--	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	560000	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	--	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	--	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000000	ND	ND	ND	ND	ND
2-Hexanone	--	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	--	ND J	ND J	ND J	ND J	ND J
4-Methyl-2-pentanone (MIBK)	--	ND	ND	ND	ND	ND
Acetone	10000000	ND J	ND J	ND J	ND J	ND J
Benzene	89000	ND	ND	ND	ND	ND

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	PZ-27 (9-10)	PZ-28 (15-16)	PZ-29 (6-7)	PZ-30 (10-11)	PZ-31 (17.5-18.5)
	Sample Date:	5/17/2010	5/25/2010	5/25/2010	5/25/2010	5/26/2010
	Unit:	CLAY	CLAY	SILT	CLAY	SILT
	PID Reading:	0.0	0.1	5.2	0.5	0.4
Soil Cleanup Objective						
ANALYTE (ug/kg)						
1,1,2-Trichlorotrifluoroethane	--	ND	ND	ND	ND	ND
Bromodichloromethane	--	ND J	ND J	ND J	ND J	ND J
Bromoform	--	ND J	ND J	ND J	ND J	ND J
Bromomethane	--	ND J	ND	ND	ND	ND
Carbon disulfide	--	ND J	ND J	ND J	ND J	ND J
Carbon Tetrachloride	44000	ND J	ND J	ND J	ND J	ND J
Chlorobenzene	1000000	ND	ND	ND	ND	ND
Chlorodibromomethane	--	ND J	ND J	ND J	ND J	ND J
Chloroethane	--	ND J	ND	13	ND	ND
Chloroform	700000	ND	ND	ND	ND	ND
1,1-Dichloroethane	480000	ND	ND	ND	ND	ND
Chloromethane	--	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1000000	ND	ND	59	ND	ND
cis-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Cyclohexane	--	5.3 UB	ND	ND	ND	ND
Dichlorodifluoromethane	--	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000000	ND	ND	ND	ND	ND
Ethylbenzene	780000	ND	ND	ND	ND	ND
Isopropylbenzene	--	ND	ND	ND	ND	ND
Methyl Acetate	--	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	1000000	ND	ND	ND	ND	ND
Methylcyclohexane	--	ND	ND	ND	ND	ND
Methylene Chloride	1000000	5.3 UBJ	33 UBJ	44 UBJ	51 UBJ	9.7 UBJ
Styrene	--	ND	ND	ND	ND	ND
Tetrachloroethene	300000	ND	ND	ND	ND	ND
Toluene	1000000	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000000	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Trichloroethene	400000	ND	ND	ND	ND	ND
Trichlorofluoromethane	--	ND	ND	ND	ND	ND
Vinyl chloride	27000	ND	ND	140	ND	ND
Xylenes, total	1000000	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	--	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	--	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	--	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000000	ND	ND	ND	ND	ND
1,2-Dichloroethane	60000	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	1000000	ND	ND	59	ND	ND
1,1,1-Trichloroethane	1000000	ND	ND	ND	ND	ND
1,2-Dichloropropane	--	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	560000	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	--	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	--	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000000	ND	ND	ND	ND	ND
2-Hexanone	--	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	--	ND J	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	--	ND	ND	ND	ND	ND
Acetone	10000000	26 UBJ	3 UB	26 UB	42 UB	26 UB
Benzene	89000	ND	33	ND	ND	ND

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	PZ-32 (13-14)	PZ-33 (10-11)	PZ-34 (6-7)	PZ-35 (5-6)	PZ-36 (11-12)
	Sample Date:	5/26/2010	5/26/2010	5/20/2010	5/20/2010	5/21/2010
	Unit:	CLAY	SAND	SILT	SILT	SILT
	PID Reading:	0.7	0.8	2.6	0.2	0.1
Soil Cleanup Objective						
ANALYTE (ug/kg)						
1,1,2-Trichlorotrifluoroethane	--	ND	ND	ND	ND	ND J
Bromodichloromethane	--	ND J	ND J	ND	ND J	ND J
Bromoform	--	ND J	ND J	ND J	ND J	ND J
Bromomethane	--	ND	ND	ND J	ND J	ND J
Carbon disulfide	--	ND J	ND J	ND J	ND J	ND J
Carbon Tetrachloride	44000	ND J	ND J	ND J	ND J	ND J
Chlorobenzene	1000000	ND	ND	ND	ND	ND J
Chlorodibromomethane	--	ND J	ND J	ND J	ND J	ND J
Chloroethane	--	ND	ND	ND J	ND J	ND J
Chloroform	700000	ND	ND	ND	ND	ND J
1,1-Dichloroethane	480000	ND	ND	ND	ND	ND J
Chloromethane	--	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1000000	ND	ND	2.4 J	ND	ND J
cis-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Cyclohexane	--	ND	ND	ND	5.4 UBJ	5.4 UBJ
Dichlorodifluoromethane	--	ND	ND J	ND	ND	ND
1,1-Dichloroethene	1000000	ND	ND	ND	ND	ND J
Ethylbenzene	780000	ND	ND	ND	ND	ND J
Isopropylbenzene	--	ND	ND	ND	ND	ND J
Methyl Acetate	--	ND	ND	ND	ND	ND J
Methyl tert-Butyl Ether	1000000	ND	ND	ND	ND	ND
Methylcyclohexane	--	ND	ND	ND	ND	ND J
Methylene Chloride	1000000	32 UBJ	14 UBJ	5.2 UBJ	6.9 UBJ	5.4 UBJ
Styrene	--	ND	ND	ND	ND	ND J
Tetrachloroethene	300000	ND	ND	ND	ND	ND J
Toluene	1000000	ND	ND	ND	ND	ND J
trans-1,2-Dichloroethene	1000000	ND	ND	ND	ND	ND J
trans-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Trichloroethene	400000	ND	ND	ND	ND	ND J
Trichlorofluoromethane	--	ND	ND	ND	ND	ND J
Vinyl chloride	27000	ND	ND	ND	ND	ND J
Xylenes, total	1000000	ND	ND	ND	ND	ND J
1,2,4-Trichlorobenzene	--	ND	ND	ND	ND	ND R
1,2-Dibromo-3-chloropropane	--	ND	ND	ND	ND	ND J
1,2-Dibromoethane (EDB)	--	ND	ND	ND	ND	ND J
1,2-Dichlorobenzene	1000000	ND	ND	ND	ND	ND J
1,2-Dichloroethane	60000	ND	ND	ND	ND	ND J
1,2-Dichloroethene, Total	1000000	ND	ND	ND	ND	ND J
1,1,1-Trichloroethane	1000000	ND	ND	ND	ND	ND J
1,2-Dichloropropane	--	ND	ND	ND	ND	ND J
1,3-Dichlorobenzene	560000	ND	ND	ND	ND	ND J
1,4-Dichlorobenzene	--	ND	ND	ND	ND	ND J
1,1,2,2-Tetrachloroethane	--	ND	ND	ND	ND	ND J
2-Butanone (MEK)	1000000	ND	ND	ND	ND	ND J
2-Hexanone	--	ND	ND	ND	ND	ND J
1,1,2-Trichloroethane	--	ND	ND	ND J	ND J	ND J
4-Methyl-2-pentanone (MIBK)	--	ND	ND	ND	ND	ND J
Acetone	10000000	30 UB	25 UB	ND J	27 UBJ	27 UBJ
Benzene	89000	ND	ND	ND	ND	ND J

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	PZ-39 (15-16)	PZ-40 (10-10.5)	PZ-41 (5-6)	PZ-42 (6-7)	A1-B1 (5-6)
	Sample Date:	5/24/2010	5/25/2010	5/25/2010	5/25/2010	5/27/2010
	Unit:	SILT	SILT	SILT	SILT	SILT
	PID Reading:	0.4	0.4	0.5	2.1	1.6
Soil Cleanup Objective						
ANALYTE (ug/kg)						
1,1,2-Trichlorotrifluoroethane	--	ND	ND	ND	ND	ND
Bromodichloromethane	--	ND J	ND J	ND J	ND J	ND J
Bromoform	--	ND J	ND J	ND J	ND J	ND J
Bromomethane	--	ND	ND	ND	ND	ND
Carbon disulfide	--	ND J	ND J	ND J	ND J	ND J
Carbon Tetrachloride	44000	ND J	ND J	ND J	ND J	ND J
Chlorobenzene	1000000	ND	ND	ND	ND	ND
Chlorodibromomethane	--	ND J	ND J	ND J	ND J	ND J
Chloroethane	--	ND	ND	ND	ND	ND
Chloroform	700000	ND	ND	ND	ND	ND
1,1-Dichloroethane	480000	ND	ND	ND	ND	ND
Chloromethane	--	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1000000	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	--	ND J	ND	ND J	ND J	ND J
Cyclohexane	--	ND	ND	ND	ND	ND
Dichlorodifluoromethane	--	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000000	ND	ND	ND	ND	ND
Ethylbenzene	780000	ND	ND	ND	ND	ND
Isopropylbenzene	--	ND	ND	ND	ND	ND
Methyl Acetate	--	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	1000000	ND	ND	ND	ND	ND
Methylcyclohexane	--	ND	ND	ND	ND	ND
Methylene Chloride	1000000	50 UBJ	65 UBJ	44 UBJ	51 UBJ	31 UBJ
Styrene	--	ND	ND	ND	ND	ND
Tetrachloroethene	300000	ND	ND	ND	ND	ND
Toluene	1000000	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	1000000	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Trichloroethene	400000	ND	ND	ND	ND	ND
Trichlorofluoromethane	--	ND	ND	ND	ND	ND
Vinyl chloride	27000	ND	ND	ND	ND	19
Xylenes, total	1000000	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	--	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	--	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	--	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000000	ND	ND	ND	ND	ND
1,2-Dichloroethane	60000	ND	ND	ND	ND	ND
1,2-Dichloroethene, Total	1000000	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1000000	ND	ND	ND	ND	ND
1,2-Dichloropropane	--	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	560000	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	--	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	--	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000000	ND	23 J	3.0 J	ND	ND
2-Hexanone	--	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	--	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	--	ND	ND	ND	ND	ND
Acetone	10000000	26 UB	170	41 UB	31 UB	27 UB
Benzene	89000	ND	ND	ND	ND	ND

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	A1-B2 (18-19)	A1-B3 (5-6)	A2-B1 (7-8)	A2-B2 (11-12)	A2-B3 (6-7)
	Sample Date:	5/27/2010	5/27/2010	5/26/2010	5/26/2010	5/27/2010
	Unit:	SILT	SILT	SILT	CLAY	SILT
	PID Reading:	0.2	1.7	75.2	109.2	0.3
Soil Cleanup Objective						
ANALYTE (ug/kg)						
1,1,2-Trichlorotrifluoroethane	--	ND	ND	29 J	ND	ND
Bromodichloromethane	--	ND J	ND J	ND J	ND J	ND
Bromoform	--	ND J	ND J	ND J	ND J	ND J
Bromomethane	--	ND	ND	ND	ND	ND J
Carbon disulfide	--	ND J	ND J	6.6 J	ND J	ND J
Carbon Tetrachloride	44000	ND J	ND J	ND J	ND J	ND J
Chlorobenzene	1000000	ND	ND	ND	ND	ND
Chlorodibromomethane	--	ND J	ND J	ND J	ND J	ND J
Chloroethane	--	ND	ND	ND	ND	ND
Chloroform	700000	ND	ND	ND	ND	ND
1,1-Dichloroethane	480000	ND	ND	890 D	35	ND
Chloromethane	--	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1000000	ND	ND	6100	3400 D	ND
cis-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Cyclohexane	--	ND	ND	ND	ND	ND
Dichlorodifluoromethane	--	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000000	ND	ND	ND	3.9 J	ND
Ethylbenzene	780000	ND	ND	ND J	12	ND
Isopropylbenzene	--	ND	ND	ND	ND	ND
Methyl Acetate	--	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	1000000	ND	ND	ND	ND	ND
Methylcyclohexane	--	ND	ND	ND	ND	ND
Methylene Chloride	1000000	33 UBJ	31	36 UBJ	29 UBJ	31 UBJ
Styrene	--	ND	ND	ND	ND	ND
Tetrachloroethene	300000	ND	ND	4.8 J	210000 D	ND
Toluene	1000000	ND	ND	ND J	5.1 UB	ND
trans-1,2-Dichloroethene	1000000	ND	ND	ND J	ND	ND
trans-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Trichloroethene	400000	ND	ND	58 J	36000 D	ND
Trichlorofluoromethane	--	ND	ND	ND J	ND	ND
Vinyl chloride	27000	ND	22	9.8	28	ND
Xylenes, total	1000000	ND	ND	ND J	ND	ND
1,2,4-Trichlorobenzene	--	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	--	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	--	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000000	ND	ND	ND J	ND	ND
1,2-Dichloroethane	60000	ND	ND	ND J	ND	ND
1,2-Dichloroethene, Total	1000000	ND	ND	6100 D	390	ND
1,1,1-Trichloroethane	1000000	ND	ND	ND	ND	ND
1,2-Dichloropropane	--	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	560000	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	--	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	--	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000000	ND	ND	ND	ND	ND
2-Hexanone	--	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	--	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	--	ND	ND	ND	ND	ND
Acetone	10000000	26 UB	27 UB	27 UB	25 UB	30 UB
Benzene	89000	ND	ND	ND J	ND	ND

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	A2-B4 (5-6)	A2-B5 (8-9)	A2-B6 (7-8)	A2-B8 (9-10)	A2-B9 (10-11)
	Sample Date:	6/2/2010	6/2/2010	6/2/2010	6/2/2010	6/2/2010
	Unit:	SILT	SILT	CLAY	SILT	SILT
	PID Reading:	1.0	6.3	0.8	346.5	145.2
Soil Cleanup Objective						
ANALYTE (ug/kg)						
1,1,2-Trichlorotrifluoroethane	--	ND	ND	ND	1200	ND
Bromodichloromethane	--	ND J	ND J	ND J	ND J	ND J
Bromoform	--	ND J	ND J	ND J	ND J	ND J
Bromomethane	--	ND J	ND J	ND	ND	ND J
Carbon disulfide	--	ND J	ND J	ND J	ND J	ND J
Carbon Tetrachloride	44000	ND J	ND J	ND J	ND J	ND J
Chlorobenzene	1000000	ND	ND J	ND	ND	ND
Chlorodibromomethane	--	ND J	ND J	ND J	ND J	ND J
Chloroethane	--	ND	ND	ND	ND	ND
Chloroform	700000	ND	ND	ND	ND	ND
1,1-Dichloroethane	480000	ND	ND J	ND	270	12
Chloromethane	--	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1000000	ND	ND J	ND	2600	200
cis-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND
Cyclohexane	--	ND	ND	ND	ND	ND
Dichlorodifluoromethane	--	ND	ND	ND	ND	ND
1,1-Dichloroethene	1000000	ND	ND	ND	ND	ND
Ethylbenzene	780000	ND	ND J	ND	ND	8.5
Isopropylbenzene	--	ND	ND	ND	ND	ND
Methyl Acetate	--	ND	ND	ND	ND J	ND
Methyl tert-Butyl Ether	1000000	ND	ND	ND	ND	ND
Methylcyclohexane	--	ND	ND	ND	ND	ND
Methylene Chloride	1000000	13 UBJ	13 UBJ	8.8 UBJ	110 UBJ	11 UBJ
Styrene	--	ND	ND	ND	ND	ND
Tetrachloroethene	300000	ND	ND J	ND	3300	110000 D
Toluene	1000000	ND	ND J	ND	110 UBJ	5.8
trans-1,2-Dichloroethene	1000000	ND	ND J	ND	ND	ND
trans-1,3-Dichloropropene	--	ND J	ND J	ND J	ND J	ND J
Trichloroethene	400000	ND	ND J	ND	26000 D	19000 D
Trichlorofluoromethane	--	ND	ND	ND	ND	ND
Vinyl chloride	27000	ND	ND	ND	ND	3.3
Xylenes, total	1000000	ND	ND J	ND	ND	2.4
1,2,4-Trichlorobenzene	--	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	--	ND J	ND J	ND J	ND J	ND J
1,2-Dibromoethane (EDB)	--	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1000000	ND	ND J	ND	ND	ND
1,2-Dichloroethane	60000	ND	ND J	ND	ND	ND
1,2-Dichloroethene, Total	1000000	ND	ND	ND	2600	200
1,1,1-Trichloroethane	1000000	ND	ND	ND	ND	ND
1,2-Dichloropropane	--	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	560000	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	--	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	--	ND	ND	ND	ND	ND
2-Butanone (MEK)	1000000	ND	ND	ND	ND J	ND
2-Hexanone	--	ND	ND	ND	ND J	ND
1,1,2-Trichloroethane	--	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	--	ND	ND	ND	ND J	ND
Acetone	10000000	27 UB	27 UBJ	32 UBJ	ND	26 UB
Benzene	89000	ND	ND J	ND	ND	ND

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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Table 8. AOC 3 - Volatile Organic Compound Results for Soil Samples, Former Northern Perimeter Drainage Ditch Supplemental Investigation Report, Solvent Dock Area, Former Lockheed Martin French Road Facility, Utica, New York.

	Sample ID:	A2-B10 (9-10)
	Sample Date:	6/2/2010
	Unit:	SILT
	PID Reading:	3.0
	Soil Cleanup Objective	
ANALYTE (ug/kg)		
1,1,2-Trichlorotrifluoroethane	--	ND
Bromodichloromethane	--	ND J
Bromoform	--	ND J
Bromomethane	--	ND
Carbon disulfide	--	ND J
Carbon Tetrachloride	44000	ND J
Chlorobenzene	1000000	ND
Chlorodibromomethane	--	ND J
Chloroethane	--	ND
Chloroform	700000	ND
1,1-Dichloroethane	480000	ND
Chloromethane	--	ND
cis-1,2-Dichloroethene	1000000	4.3 J
cis-1,3-Dichloropropene	--	ND J
Cyclohexane	--	ND
Dichlorodifluoromethane	--	ND
1,1-Dichloroethene	1000000	ND
Ethylbenzene	780000	ND
Isopropylbenzene	--	ND
Methyl Acetate	--	ND
Methyl tert-Butyl Ether	1000000	ND
Methylcyclohexane	--	ND
Methylene Chloride	1000000	8.1 UBJ
Styrene	--	ND
Tetrachloroethene	300000	33
Toluene	1000000	ND
trans-1,2-Dichloroethene	1000000	ND
trans-1,3-Dichloropropene	--	ND J
Trichloroethene	400000	31
Trichlorofluoromethane	--	ND
Vinyl chloride	27000	ND
Xylenes, total	1000000	ND
1,2,4-Trichlorobenzene	--	ND
1,2-Dibromo-3-chloropropane	--	ND
1,2-Dibromoethane (EDB)	--	ND
1,2-Dichlorobenzene	1000000	ND
1,2-Dichloroethane	60000	ND
1,2-Dichloroethene, Total	1000000	4.3 J
1,1,1-Trichloroethane	1000000	ND
1,2-Dichloropropane	--	ND
1,3-Dichlorobenzene	560000	ND
1,4-Dichlorobenzene	--	ND
1,1,2,2-Tetrachloroethane	--	ND
2-Butanone (MEK)	1000000	ND
2-Hexanone	--	ND
1,1,2-Trichloroethane	--	ND
4-Methyl-2-pentanone (MIBK)	--	ND
Acetone	10000000	ND
Benzene	89000	ND

ug/kg - Micrograms per kilogram
PID - Photo-ionization detector
Note: Samples depths reported in feet below ground surface.
J - estimated value
U - Not Detected above laboratory detection limits
B - Detected in laboratory blank
D-Diluted value

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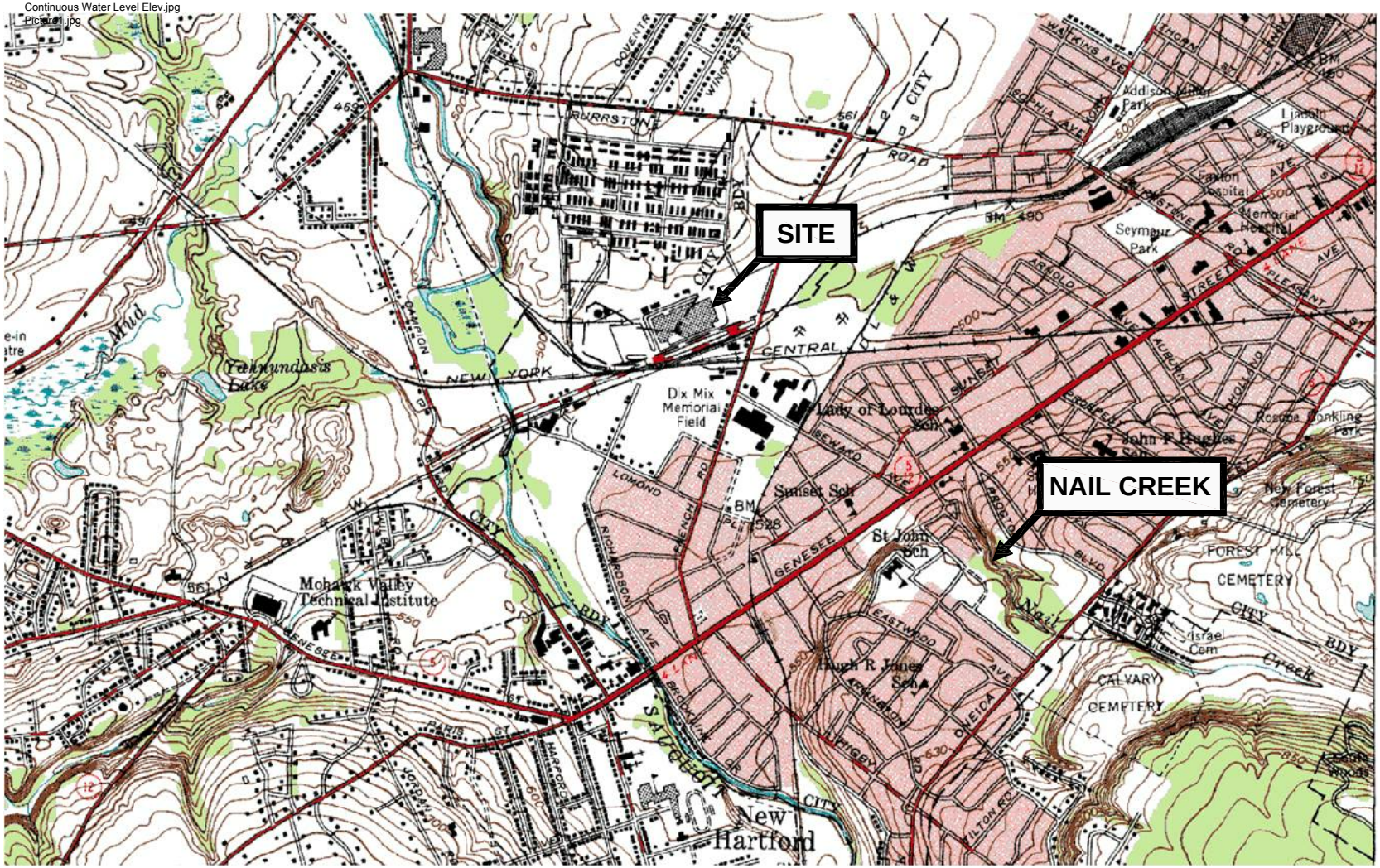
Figures

CITY:(MAHWAH) DIV/GROUP:(ENRI- 1) DB:(JG LD:(Opt) PIC:(Opt) PM:(CM) TM:(BM) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Mahwah\ACT\NJ001000\0001\00003\FNPD INV Report_2010\FIG 1A SITE-LOCATION.dwg LAYOUT: 1 SAVED: 10/4/2010 1:37 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ----PLOTSTYLETABLE: ----PLOTTED: 10/4/2010 1:38 PM BY: GONZALEZ, JAMES

XREFS: IMAGES: PROJECTNAME: ----
Continuous Water Level Elev.jpg
Picture1.jpg



0 12000 24000
SCALE IN FEET

FORMER NORTHERN PERIMETER DITCH
SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

SITE LOCATION MAP

ARCADIS

FIGURE
1

WATER TANK

SUB STATION

BOILER HOUSE

TANK BLDG

GROUNDWATER UNDER DRAIN

MAINT BLDG

STORAGE BLDG

STORAGE BLDG

CB-3

MH-7A

MH-7

MH-1

GROUND WATER TREATMENT BUILDING

FORMER GUARD HOUSE

FORMER

275-G OVERFLOW RETENTION TANK

WASTE WATER TREATMENT BLDG

GROUNDWATER UNDER DRAIN

FORMER SOLVENT STORAGE BLDG

MH-2

42"

FORMER HAZARDOUS WASTE STORAGE BLDG

SOLVENT TANKS (1951 DRAWING)

CB-2

PAVED PARKING AREA

PAVED PARKING AREA

MAIN MANUFACTURING BUILDING

39"

12"

MH-3

36"

12"

6"

MH-4

15"

48"

6"

12"

MH-5

6"

48"

MH-6

12"

12"

12"

12"

48"

M-9

48"

24"

CHENANGO ROAD

NYS Grid

0 60 120 180

SCALE IN FEET

LEGEND:

STORM SEWER LINE

FENCE LINE

MH-2 MAN HOLE

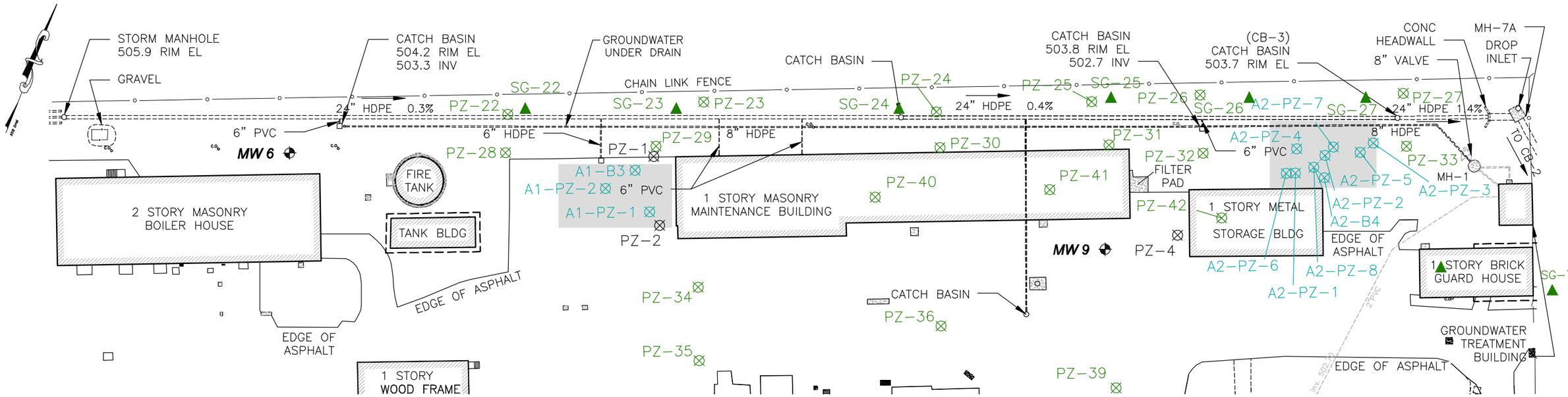
FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

FACILITY MAP

ARCADIS

FIGURE
2

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(On|Off|N*-OFF*=REF*
O:\ENV\CAD\Mahwah\ACTIVE\3001\0050\0010\0003\FNPD INV Report_2010\FIG 2-Facility Map.dwg LAYOUT: 2 SAVED: 9/24/2010 2:32 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 10/4/2010 1:40 PM BY: GONZALEZ, JAMES
XREFS: IMAGES: PROJECTNAME: ----

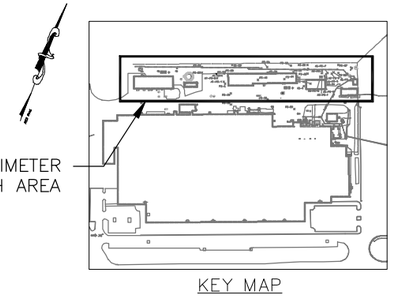


LEGEND:

SV	SEWER VALVE LOCATION
MW 6	MONITORING WELL LOCATION
PZ-1	PIEZOMETER LOCATION (INSTALLED 1995)
A2-PZ-5	SOIL BORING/PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION (FOCUS AREAS A1 AND A2)
PZ-27	PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION
SG-22	SOIL GAS PROBE LOCATION– SUPPLEMENTAL FNPD INVESTIGATION
	GENERAL AREA OF MULTIPLE DSITMS (GRID EVALUATION)

NOTES:

1. PZ-37 AND PZ-38 WERE NOT INSTALLED DUE TO UTILITY CLEARANCE RESULTS.
2. SAMPLE LOCATION A2-B4 WAS NOT SURVEYED, LOCATION IS APPROXIMATE.



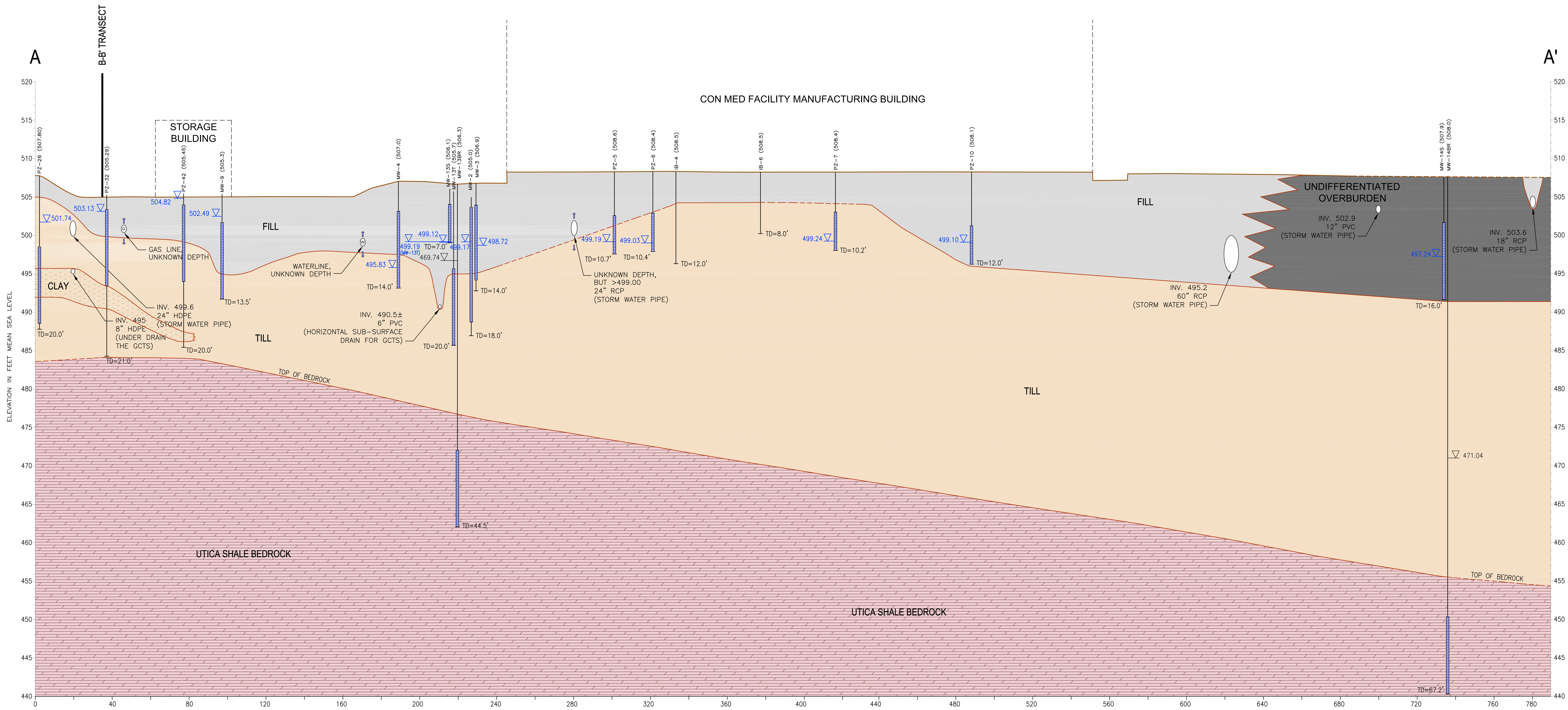
KEY MAP
SCALE: 1"=600'

FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

INVESTIGATION LOCATION PLAN

ARCADIS

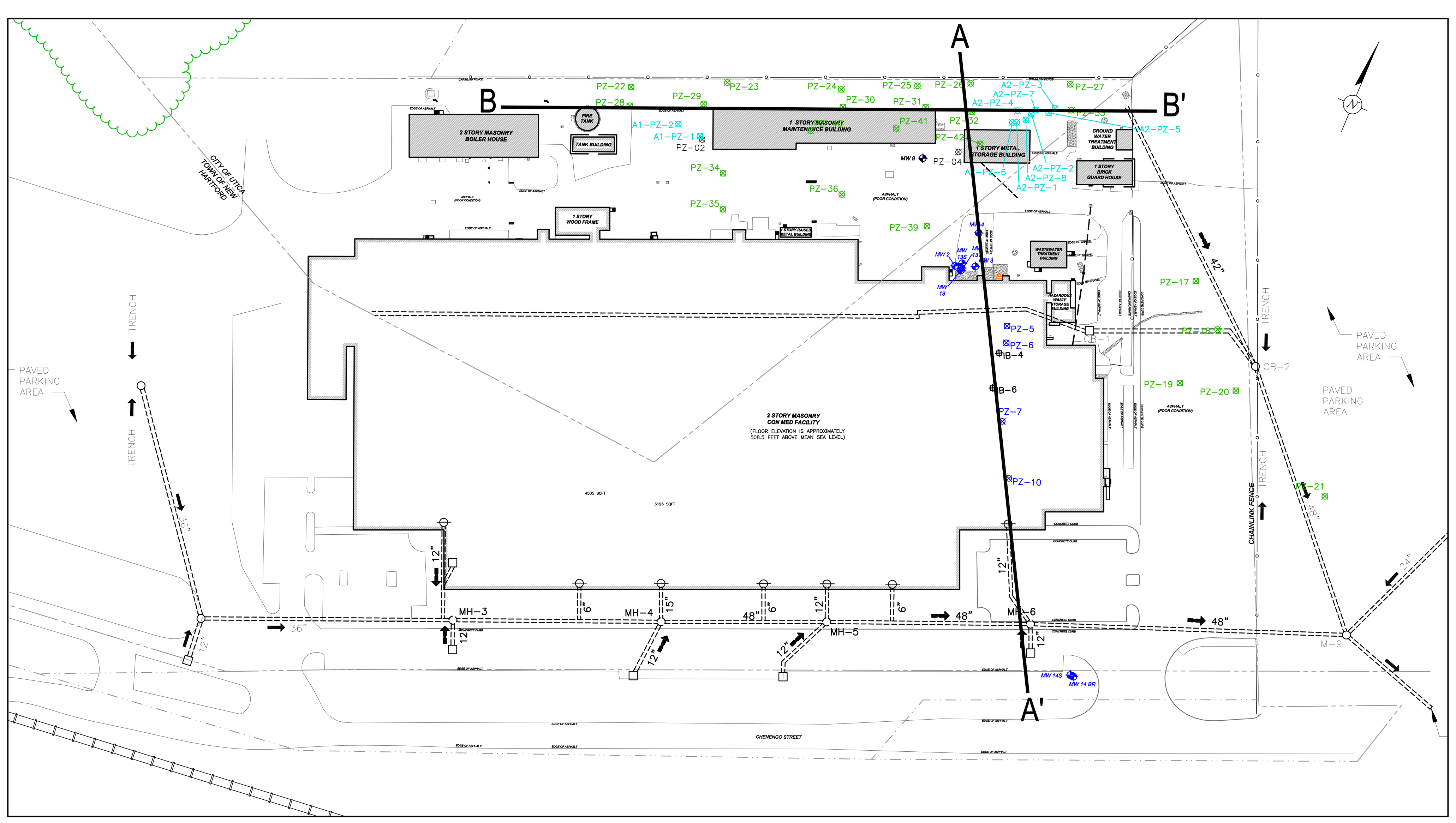
FIGURE 3



CROSS SECTION A-A'

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'



KEY PLAN

SCALE: 1"=100'

LEGEND:

- SOIL SAMPLE DESIGNATION
- WELL DESIGNATION
- EXISTING LAND SURFACE
- BOREHOLE/WELL CASING
- GEOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREENED INTERVAL
- TOTAL DEPTH OF BOREHOLE

MW-4	MONITORING WELL (OVERBURDEN)
MW-13BR	MONITORING WELL (BEDROCK)
IB-4	SOIL BORING
PZ-5	PIEZOMETER

- UNDIFFERENTIATED OVERBURDEN CONSISTING OF SILT, SAND AND GRAVEL
- CLAY WITHIN THE TILL UNIT
- FILL UNIT
- TILL UNIT CONSISTING OF DENSE GRAY-BROWN SILT. FINE SAND, CLAY AND LITTLE GRAVEL
- UTICA SHALE BEDROCK
- GROUNDWATER ELEVATION FOR THE UNCONSOLIDATED UNIT, MEASUREMENT COLLECTED ON JUNE 23, 2010
- GROUNDWATER ELEVATION FOR THE BEDROCK UNIT, MEASUREMENT COLLECTED ON JUNE 23, 2010

NOTE:

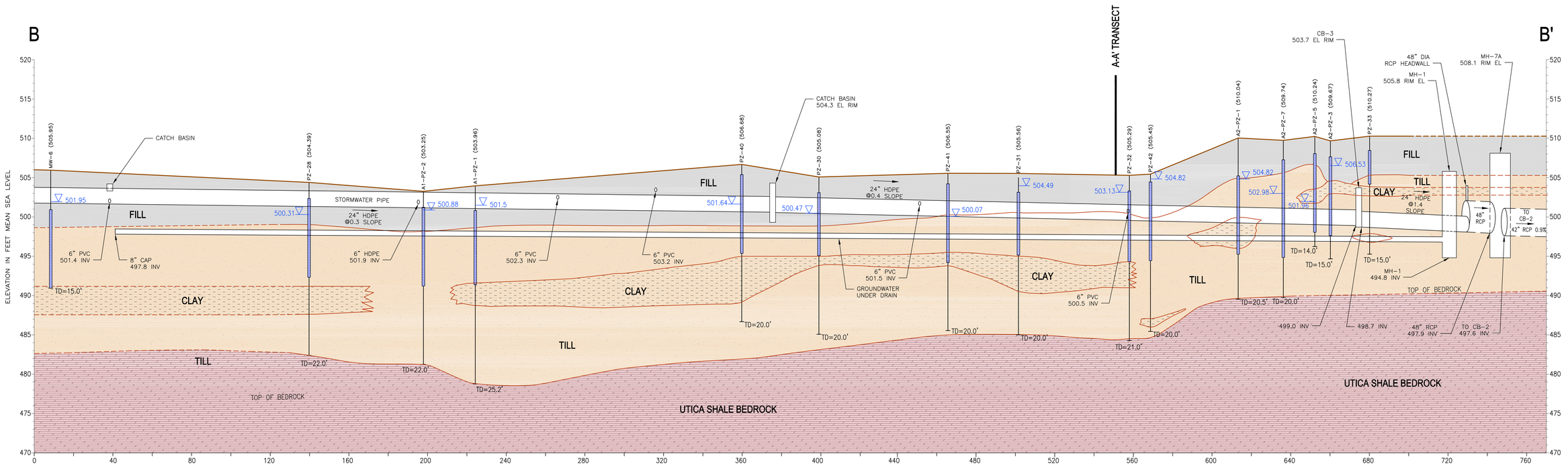
GEOLOGIC LOGS WERE NOT AVAILABLE FOR BORINGS PZ-5, PZ-6 AND PZ-7.

FORMER NORTHERN PERIMETER DITCH
SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

HYDROGEOLOGIC CROSS SECTION A-A'

ARCADIS

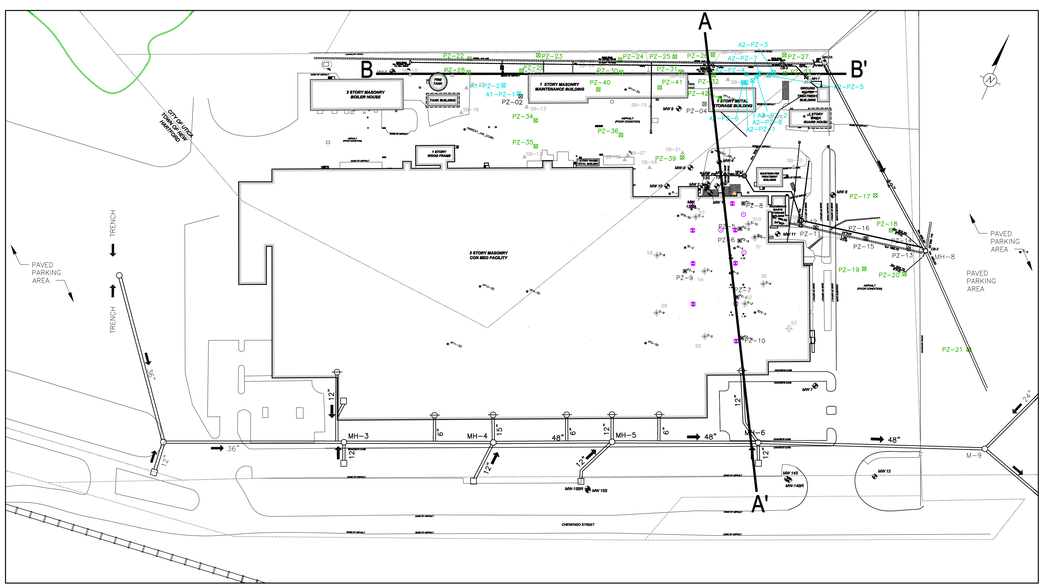
FIGURE 4



CROSS SECTION B-B'

HORIZONTAL SCALE: 1"=20'

VERTICAL SCALE: 1"=5'



KEY PLAN

SCALE: 1"=100'

LEGEND:

- SOIL SAMPLE DESIGNATION
- WELL DESIGNATION
- EXISTING LAND SURFACE
- BOREHOLE/WELL CASING
- GEOLOGIC CONTACT (DASHED WHERE INFERRED)
- SCREENED INTERVAL
- TOTAL DEPTH OF BOREHOLE

MW-4 MONITORING WELL (OVERBURDEN)
MW-13BR MONITORING WELL (BEDROCK)
IB-4 SOIL BORING
PZ-5 PIEZOMETER

- FILL UNIT
- CLAY WITHIN THE TILL UNIT
- TILL UNIT CONSISTING OF DENSE GRAY-BROWN SILT, FINE SAND, CLAY AND LITTLE GRAVEL
- UTICA SHALE BEDROCK
- GROUNDWATER ELEVATION FOR THE UNCONSOLIDATED UNIT, MEASUREMENT COLLECTED ON JUNE 23, 2010
- GROUNDWATER ELEVATION FOR THE BEDROCK UNIT, MEASUREMENT COLLECTED ON JUNE 23, 2010

NOTES:

1. GEOLOGIC LOGS WERE NOT AVAILABLE FOR BORINGS PZ-5, PZ-6 AND PZ-7.
2. 6 INCH PVC LINES ILLUSTRATED ON SECTION ARE BRANCH LINES TO MAIN TRUNK LINE OF STORMWATER SYSTEM.
3. SOME FEATURES ARE PROJECTED INTO PLANE OF SECTION WITH RESULTING VERTICAL DISCREPANCIES.

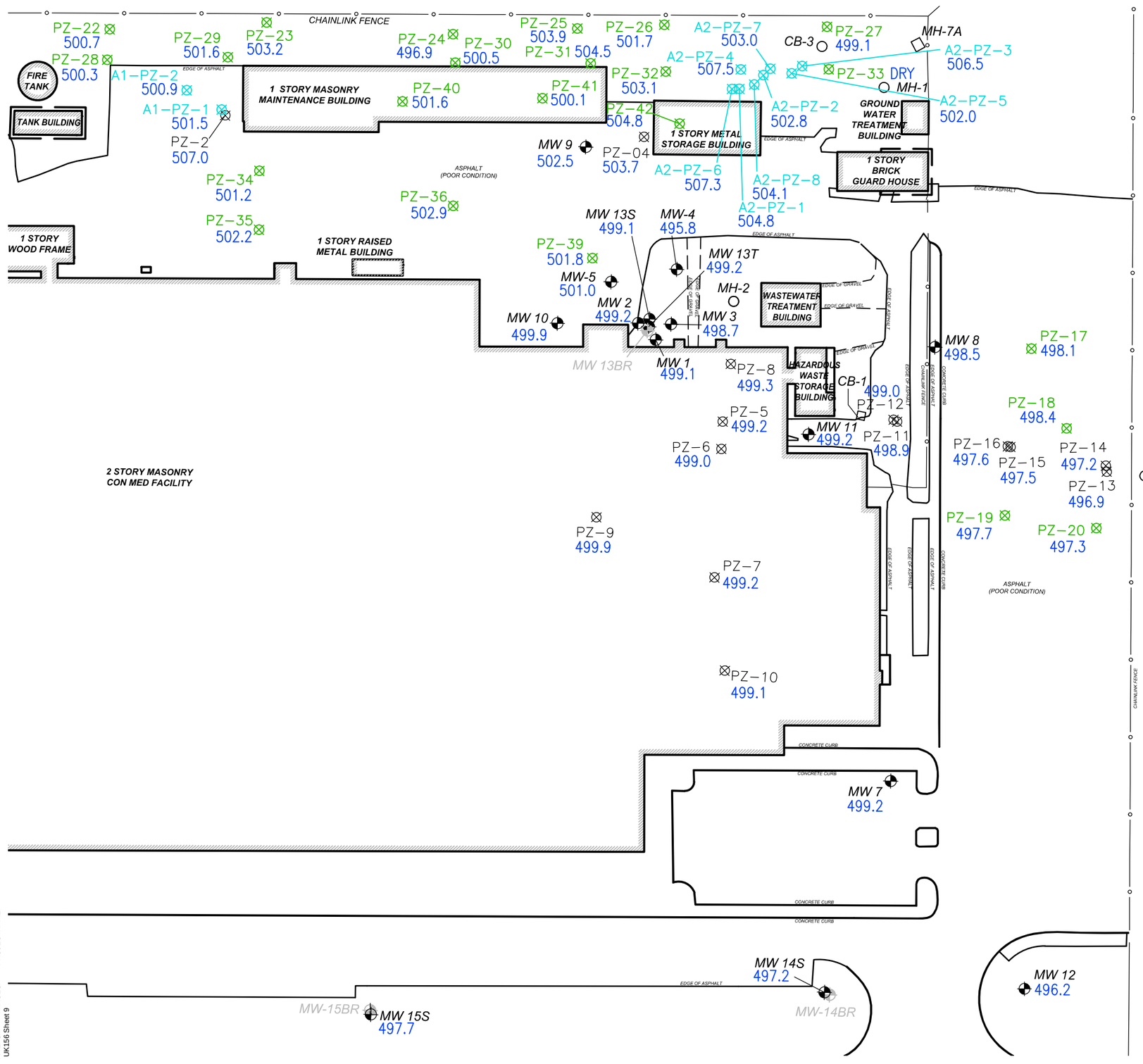
FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

HYDROGEOLOGIC CROSS SECTION B-B'

ARCADIS

FIGURE 5

CITY:MAHWAH DIVGROUP:ENVCAD DB:JC LD:(Opt) PIC:(Opt) PM:(Req'd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\NJ001102\0001\0001\DWG\FIG 5, CROSS SECTION B-B'.dwg LAYOUT: 5 SAVED: 3/2/2011 1:45 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS-MAHWAH.CTB PLOTTED: 3/3/2011 10:32 AM BY: LISTER, PAUL
XREFS:
PROJECTNAME: ----
01020X01



LEGEND:

MW 10	MONITORING WELL LOCATION
PZ-9	PIEZOMETER LOCATION
PZ-27 / A2-PZ-5	PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION
496.9	GROUNDWATER ELEVATION

NOTE:

1. LOCATIONS SURVEYED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83), VERTICAL SURVEY CONTROL IS AN ON–SITE BENCHMARK AT THE SOUTHEAST CORNER OF THE BOILER HOUSE.
2. DEPTH TO WATER MEASUREMENTS COLLECTED ON JUNE 23, 2010.
3. GCTS UNDER OPERATION DURING WELL GAUGING EVENT.

0 80’
GRAPHIC SCALE

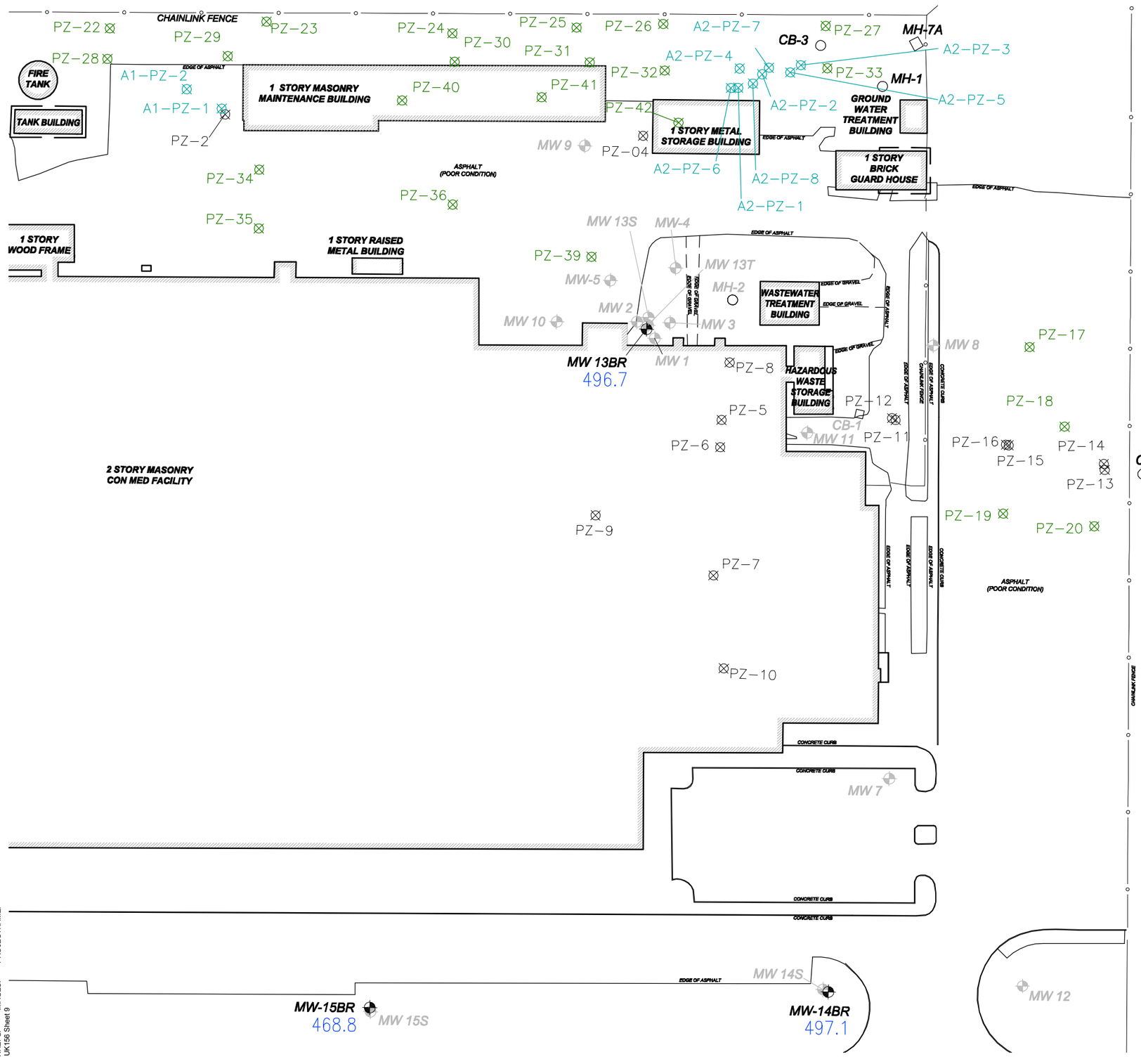
FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

GROUNDWATER ELEVATION MAP FOR THE OVERBURDEN JUNE 23, 2010

ARCADIS

FIGURE 6

CITY:MAHWAH DIV/GROUP:ENVCAD DB:JG LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
\\Arcadis-us\office\data\Mahwah-NJ\ENVCAD\Mahwah\ACTIVE\100100\0010000\100003\FNPD INV Report_2010\FIG 6- GW Elev_Overburden.dwg LAYOUT: 6 SAVED: 12/17/2010 11:43 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS(SIZE A-B).CTB PLOTTED: 12/17/2010 11:45
AM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ----
UK156 Sheet 9



LEGEND:

MW 13BR	MONITORING WELL LOCATION
PZ-9	PIEZOMETER LOCATION
PZ-27 / A2-PZ-5	PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION
496.7	GROUNDWATER ELEVATION

NOTE:

1. LOCATIONS SURVEYED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83), VERTICAL SURVEY CONTROL IS AN ON–SITE BENCHMARK AT THE SOUTHEAST CORNER OF THE BOILER HOUSE.
2. DEPTH TO WATER MEASUREMENTS COLLECTED ON JUNE 23, 2010.
3. GCTS UNDER OPERATION DURING WELL GAUGING EVENT.

0 80'

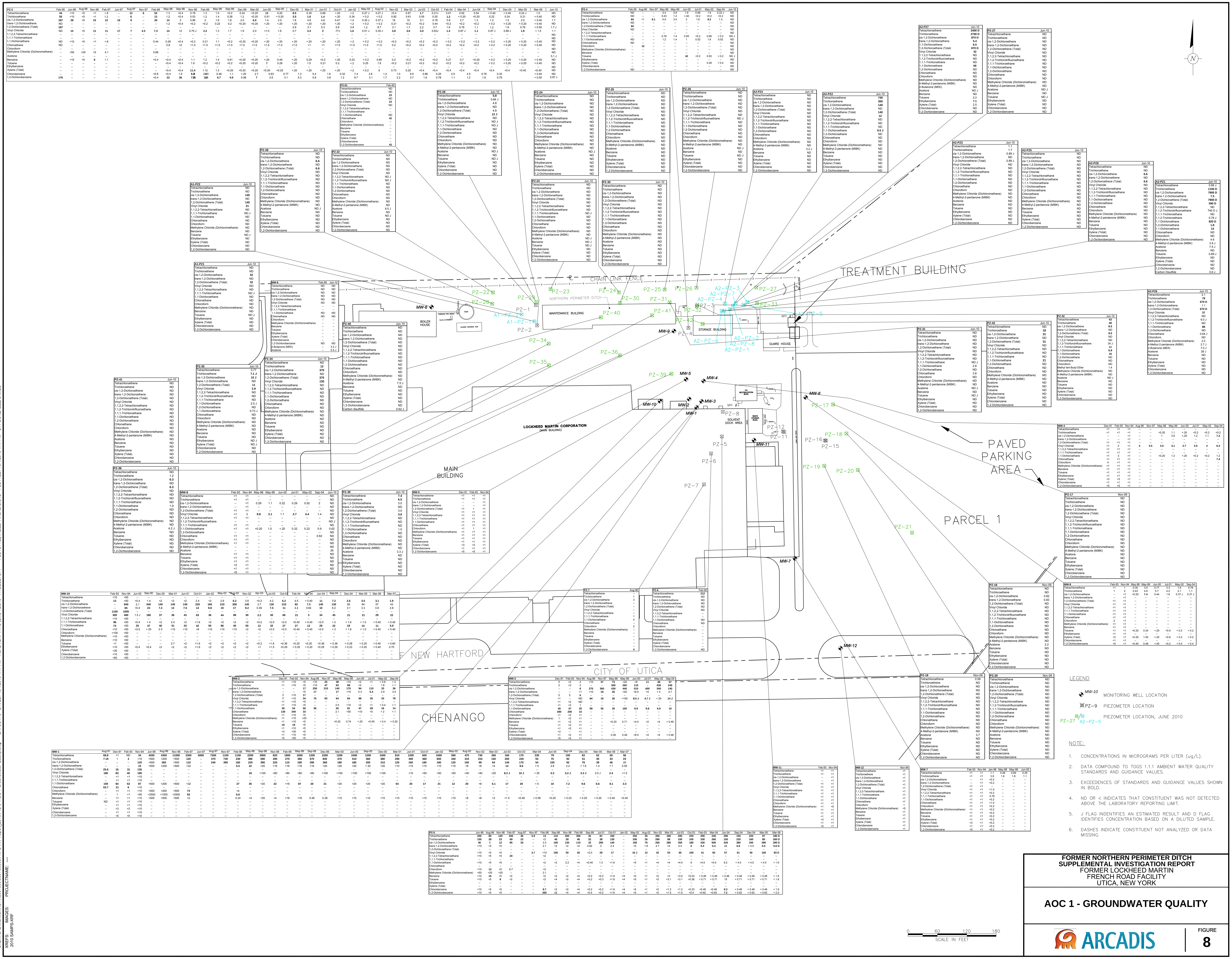
GRAPHIC SCALE

FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

GROUNDWATER ELEVATION MAP FOR BEDROCK JUNE 23, 2010

ARCADIS

FIGURE 7



LEGEND

MW-10 MONITORING WELL LOCATION

PZ-9 PIEZOMETER LOCATION

PZ-27 / A2-PZ-5 PIEZOMETER LOCATION, JUNE 2010

NOTE:

1. CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L).
2. DATA COMPOUND TO TOGS 1.1.1 AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES.
3. EXCEEDENCES OF STANDARDS AND GUIDANCE VALUES SHOWN IN BOLD.
4. ND OR < INDICATES THAT CONSTITUENT WAS NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT.
5. J FLAG INDENTIFIES AN ESTIMATED RESULT AND D FLAG IDENTIFIES CONCENTRATION BASED ON A DILUTED SAMPLE.
6. DASHES INDICATE CONSTITUENT NOT ANALYZED OR DATA MISSING.

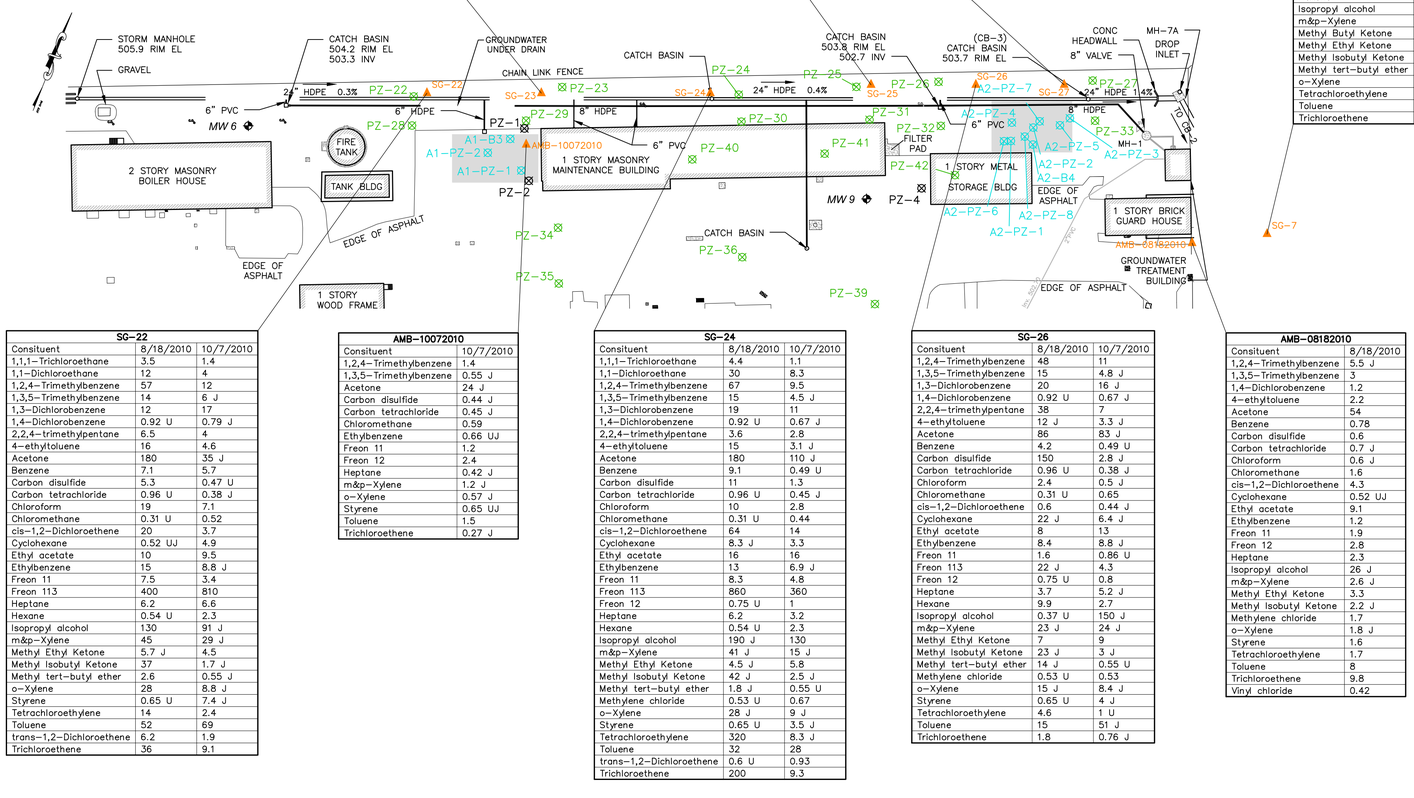
0 60 120 180
SCALE IN FEET

FORMER NORTHERN PERIMETER DITCH
SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

AOC 1 - GROUNDWATER QUALITY

ARCADIS

FIGURE
8



SG-23

Consituent	8/18/2010
1,1,1-Trichloroethane	0.61 J
1,2,4-Trimethylbenzene	110 J
1,3,5-Trimethylbenzene	25 J
1,3-Dichlorobenzene	17 J
2,2,4-trimethylpentane	3.6 J
4-ethyltoluene	27 J
Acetone	420 J
Benzene	26 J
Carbon disulfide	2.7 J
Cyclohexane	0.52 U J
Ethyl acetate	43 J
Ethylbenzene	12 J
Freon 11	1.8 J
Freon 113	1.5 J
Heptane	8.7 J
Isopropyl alcohol	450 J
m&p-Xylene	45 J
Methyl Ethyl Ketone	14 J
Methyl Isobutyl Ketone	68 J
Methylene chloride	0.42 J
o-Xylene	31 J
Toluene	33 J
Trichloroethene	2 J

SG-25

Consituent	8/18/2010
1,1,1-Trichloroethane	4
1,2,4-Trimethylbenzene	62
1,3,5-Trimethylbenzene	16
1,3-Dichlorobenzene	25
2,2,4-trimethylpentane	5.7
4-ethyltoluene	12
Acetone	500
Benzene	7.8
Carbon disulfide	180
Chloroform	1.1
cis-1,2-Dichloroethene	2.2
Cyclohexane	25 J
Ethyl acetate	13
Ethylbenzene	9.7
Freon 11	2.2
Freon 113	16
Freon 12	3.3
Heptane	9.4
Hexane	7.1
Isopropyl alcohol	300 J
m&p-Xylene	31 J
Methyl Ethyl Ketone	8.4 J
Methyl Isobutyl Ketone	340 J
Methylene chloride	0.6
o-Xylene	21 J
Tetrachloroethylene	76
Toluene	28
Trichloroethene	10

SG-27

Consituent	8/18/2010	10/7/2010
1,1,1-Trichloroethane	1.1	0.83 U
1,2,4-Trimethylbenzene	120 J	6.5 J
1,3,5-Trimethylbenzene	22 J	3 J
1,3-Dichlorobenzene	28 J	9.2
2,2,4-trimethylpentane	4.1	3.9 J
4-ethyltoluene	22 J	1.8 J
Acetone	180	100 J
Benzene	4.5	0.49 U
Carbon disulfide	12 J	0.95
Carbon tetrachloride	0.96 U	0.32 J
Chloroform	0.99	0.65 J
Chloromethane	0.31 U	0.67
cis-1,2-Dichloroethene	0.6 U	0.4 J
Cyclohexane	23 J	3.4 J
Ethyl acetate	8.4 J	8.4 J
Ethylbenzene	16 J	5.1 J
Freon 11	2.5	1.4
Freon 113	6.8	3
Freon 12	3.1	1.7
Heptane	0.62 U	2.7 J
Hexane	0.54 U	2.4
Isopropyl alcohol	110 J	150
m&p-Xylene	51 J	11 J
Methyl Butyl Ketone	9.6	1.2 U
Methyl Ethyl Ketone	14 J	5
Methyl Isobutyl Ketone	57 J	1.2 J
Methylene chloride	0.53 U	0.49 J
o-Xylene	37 J	6.2 J
Styrene	0.65 U	2.8 J
Tetrachloroethylene	61 J	1 J
Toluene	30 J	27
Trichloroethene	2	0.87 J

SG-7

Consituent	8/18/2010
1,2,4-Trimethylbenzene	25 J
1,3,5-Trimethylbenzene	11 J
1,3-Dichlorobenzene	18 J
2,2,4-trimethylpentane	20 J
4-ethyltoluene	5.5 J
Acetone	660 J
Benzene	9.1 J
Carbon disulfide	11 J
Chlorobenzene	0.47 J
Chloroform	5 J
Cyclohexane	19 J
Ethyl acetate	23 J
Ethylbenzene	8 J
Freon 11	2.1 J
Heptane	8.7 J
Hexane	15 J
Isopropyl alcohol	200 J
m&p-Xylene	15 J
Methyl Butyl Ketone	2.7 J
Methyl Ethyl Ketone	24 J
Methyl Isobutyl Ketone	44 J
Methyl tert-butyl ether	49 J
o-Xylene	9.7 J
Tetrachloroethylene	8.5 J
Toluene	16 J
Trichloroethene	2.2 J

SG-22

Consituent	8/18/2010	10/7/2010
1,1,1-Trichloroethane	3.5	1.4
1,1-Dichloroethane	12	4
1,2,4-Trimethylbenzene	57	12
1,3,5-Trimethylbenzene	14	6 J
1,3-Dichlorobenzene	12	17
1,4-Dichlorobenzene	0.92 U	0.79 J
2,2,4-trimethylpentane	6.5	4
4-ethyltoluene	16	4.6
Acetone	180	35 J
Benzene	7.1	5.7
Carbon disulfide	5.3	0.47 U
Carbon tetrachloride	0.96 U	0.38 J
Chloroform	19	7.1
Chloromethane	0.31 U	0.52
cis-1,2-Dichloroethene	20	3.7
Cyclohexane	0.52 UJ	4.9
Ethyl acetate	10	9.5
Ethylbenzene	15	8.8 J
Freon 11	7.5	3.4
Freon 113	400	810
Heptane	6.2	6.6
Hexane	0.54 U	2.3
Isopropyl alcohol	130	91 J
m&p-Xylene	45	29 J
Methyl Ethyl Ketone	5.7 J	4.5
Methyl Isobutyl Ketone	37	1.7 J
Methyl tert-butyl ether	2.6	0.55 J
o-Xylene	28	8.8 J
Styrene	0.65 U	7.4 J
Tetrachloroethylene	14	2.4
Toluene	52	69
trans-1,2-Dichloroethene	6.2	1.9
Trichloroethene	36	9.1

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Consituent	10/7/2010
1,2,4-Trimethylbenzene	1.4
1,3,5-Trimethylbenzene	0.55 J
Acetone	24 J
Carbon disulfide	0.44 J
Carbon tetrachloride	0.45 J
Chloromethane	0.59
Ethylbenzene	0.66 UJ
Freon 11	1.2
Freon 12	2.4
Heptane	0.42 J
m&p-Xylene	1.2 J
o-Xylene	0.57 J
Styrene	0.65 UJ
Toluene	1.5
Trichloroethene	0.27 J

SG-24

Consituent	8/18/2010	10/7/2010
1,1,1-Trichloroethane	4.4	1.1
1,1-Dichloroethane	30	8.3
1,2,4-Trimethylbenzene	67	9.5
1,3,5-Trimethylbenzene	15	4.5 J
1,3-Dichlorobenzene	19	11
1,4-Dichlorobenzene	0.92 U	0.67 J
2,2,4-trimethylpentane	3.6	2.8
4-ethyltoluene	15	3.1 J
Acetone	180	110 J
Benzene	9.1	0.49 U
Carbon disulfide	11	1.3
Carbon tetrachloride	0.96 U	0.45 J
Chloroform	10	2.8
Chloromethane	0.31 U	0.44
cis-1,2-Dichloroethene	64	14
Cyclohexane	8.3 J	3.3
Ethyl acetate	16	16
Ethylbenzene	13	6.9 J
Freon 11	8.3	4.8
Freon 113	860	360
Freon 12	0.75 U	1
Heptane	6.2	3.2
Hexane	0.54 U	2.3
Isopropyl alcohol	190 J	130
m&p-Xylene	41 J	15 J
Methyl Ethyl Ketone	4.5 J	5.8
Methyl Isobutyl Ketone	42 J	2.5 J
Methyl tert-butyl ether	1.8 J	0.55 U
Methylene chloride	0.53 U	0.67
o-Xylene	28 J	9 J
Styrene	0.65 U	3.5 J
Tetrachloroethylene	320	8.3 J
Toluene	32	28
trans-1,2-Dichloroethene	0.6 U	0.93
Trichloroethene	200	9.3

SG-26

Consituent	8/18/2010	10/7/2010
1,2,4-Trimethylbenzene	48	11
1,3,5-Trimethylbenzene	15	4.8 J
1,3-Dichlorobenzene	20	16 J
1,4-Dichlorobenzene	0.92 U	0.67 J
2,2,4-trimethylpentane	38	7
4-ethyltoluene	12 J	3.3 J
Acetone	86	83 J
Benzene	4.2	0.49 U
Carbon disulfide	150	2.8 J
Carbon tetrachloride	0.96 U	0.38 J
Chloroform	2.4	0.5 J
Chloromethane	0.31 U	0.65
cis-1,2-Dichloroethene	0.6	0.44 J
Cyclohexane	22 J	6.4 J
Ethyl acetate	8	13
Ethylbenzene	8.4	8.8 J
Freon 11	1.6	0.86 U
Freon 113	22 J	4.3
Freon 12	0.75 U	0.8
Heptane	3.7	5.2 J
Hexane	9.9	2.7
Isopropyl alcohol	0.37 U	150 J
m&p-Xylene	23 J	24 J
Methyl Ethyl Ketone	7	9
Methyl Isobutyl Ketone	23 J	3 J
Methyl tert-butyl ether	14 J	0.55 U
Methylene chloride	0.53 U	0.53
o-Xylene	15 J	8.4 J
Styrene	0.65 U	4 J
Tetrachloroethylene	4.6	1 U
Toluene	15	51 J
Trichloroethene	1.8	0.76 J

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Consituent	8/18/2010
1,2,4-Trimethylbenzene	5.5 J
1,3,5-Trimethylbenzene	3
1,4-Dichlorobenzene	1.2
4-ethyltoluene	2.2
Acetone	54
Benzene	0.78
Carbon disulfide	0.6
Carbon tetrachloride	0.7 J
Chloroform	0.6 J
Chloromethane	1.6
cis-1,2-Dichloroethene	4.3
Cyclohexane	0.52 UJ
Ethyl acetate	9.1
Ethylbenzene	1.2
Freon 11	1.9
Freon 12	2.8
Heptane	2.3
Isopropyl alcohol	26 J
m&p-Xylene	2.6 J
Methyl Ethyl Ketone	3.3
Methyl Isobutyl Ketone	2.2 J
Methylene chloride	1.7
o-Xylene	1.8 J
Styrene	1.6
Tetrachloroethylene	1.7
Toluene	8
Trichloroethene	9.8
Vinyl chloride	0.42

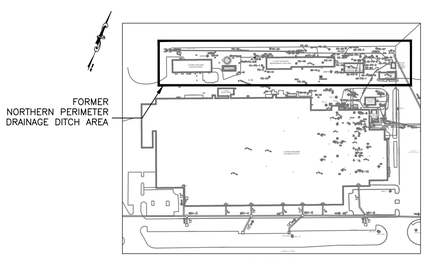
LEGEND:

- MW 6 ◆ — MONITORING WELL LOCATION
- PZ-1 ⊠ — PIEZOMETER LOCATION (INSTALLED 1995)
- A2-PZ-5 ⊠ — PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION (FOCUS AREAS A1 AND A2)
- PZ-27 ⊠ — PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION
- SG-23 ▲ — SOIL GAS PROBE LOCATION – SUPPLEMENTAL FNPD INVESTIGATION
- AREA OF MULTIPLE DSITMS (GRID EVALUATION)

NOTES:

1. CONCENTRATIONS IN MICROGRAMS PER METER CUBED (ug/m³).
2. U FLAG IDENTIFIERS COMPOUND WAS NOT DETECTED ABOVE LABORATORY MDLS.
3. J FLAG INDICATES AN ESTIMATED VALUE.

0 60' 120'
HORIZONTAL SCALE



KEY MAP
SCALE: 1"=300'

FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

AOC 2 - SOIL VAPOR QUALITY

ARCADIS

FIGURE
9

CITY:MAHWAH DIV/GROUP:ENVCAD DB:JG LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*OFF=*REF*
G:\ENVCAD\Melville-NY\ACTIVE\RETURN-TO\Mahwah-NJ\NJ001000\0001\00003\FIG 09 soil vapor quality.dwg LAYOUT: 9 SAVED: 12/20/2010 10:45 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: PDF PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 12/21/2010 8:41 AM BY: SANCHEZ, ADRIAN
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PZ-22 (19-20)

5/19/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	5.4 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	ND J
Benzene	ND

PZ-29 (6-7)

5/25/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	13
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	59
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	44 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	140
Xylenes, total	ND
1,2-Dichloroethene, Total	59
2-Butanone (MEK)	ND
Acetone	26 UB
Benzene	ND

PZ-23 (6-7)

5/18/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	5.3 UB
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	5.3 UB
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	ND J
Benzene	ND

PZ-30 (10-11)

5/25/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	51 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	42 UB
Benzene	ND

PZ-24 (10-11)

5/18/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	6.0 UB
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	6.0 UB
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	ND J
Benzene	ND

PZ-31 (17.5-18.5)

5/26/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	9.7 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	26 UB
Benzene	ND

PZ-26 (8-9)

5/17/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	5.3 UB
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	5.6 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	ND J
Benzene	ND

PZ-32 (13-14)

5/26/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	32 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	30 UB
Benzene	ND

A2-PZ4/A2-B5 (8-9)

6/2/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND J
cis-1,2-Dichloroethene	ND J
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND J
Methylene Chloride	1.3 UBJ
Tetrachloroethene	ND J
Toluene	ND J
Trichloroethene	ND J
Vinyl chloride	ND
Xylenes, total	ND J
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	27 UBJ
Benzene	ND J

A2-PZ8/A2-B10 (9-10)

6/2/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	4.3 J
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	8.1 UBJ
Tetrachloroethene	33
Toluene	ND
Trichloroethene	31
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	4.3 J
2-Butanone (MEK)	ND
Acetone	ND
Benzene	ND

PZ-27 (9-10)

5/17/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	5.3 UB
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	5.3 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	26 UBJ
Benzene	ND

A2-PZ7/A2-B9 (10-11)

6/2/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	12
cis-1,2-Dichloroethene	200
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	8.5
Methylene Chloride	11 UBJ
Tetrachloroethene	110000 D
Toluene	5.8
Trichloroethene	19000 D
Vinyl chloride	3.3
Xylenes, total	2.4
1,2-Dichloroethene, Total	200
2-Butanone (MEK)	ND
Acetone	26 UB
Benzene	ND

A1-B3 (5-6)

5/27/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	31
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	22
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	27 UB
Benzene	ND

A2-PZ3/A2-B3 (6-7)

5/27/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	31 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	30 UB
Benzene	ND

PZ-28 (15-16)

5/25/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	33 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	3 UB
Benzene	33

PZ-33 (10-11)

5/26/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	14 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	25 UB
Benzene	ND

A2-PZ5/A2-B6 (7-8)

6/2/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	8.6 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	32 UBJ
Benzene	ND

A1-PZ2/A1-B2 (18-19)

5/27/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	33 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	26 UB
Benzene	ND

A1-PZ1/A1-B1 (5-6)

5/27/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	2.4 J
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	5.2 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	ND J
Benzene	ND

PZ-34 (6-7)

5/20/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	5.2 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	ND J
Benzene	ND

PZ-35 (5-6)

5/20/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND J
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	5.4 UBJ
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	6.9 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	27 UBJ
Benzene	ND

PZ-40 (10-10.5)

5/25/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	65 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	23 J
Acetone	170
Benzene	ND

PZ-39 (15-16)

5/24/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	50 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	26 UB
Benzene	ND

PZ-41 (5-6)

5/25/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	44 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	3.0 J
Acetone	41 UB
Benzene	ND

PZ-42 (6-7)

5/25/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	51 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	31 UB
Benzene	ND

A2-PZ1/A2-B1 (7-8)

5/26/2010	
1,1,2-Trichlorotrifluoroethane	29 J
Carbon disulfide	6.6 J
Chloroethane	ND
1,1-Dichloroethane	890 D
cis-1,2-Dichloroethene	6100
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND J
Methylene Chloride	36 UBJ
Tetrachloroethene	4.8 J
Toluene	ND J
Trichloroethene	58 J
Vinyl chloride	9.8
Xylenes, total	ND J
1,2-Dichloroethene, Total	6100 D
2-Butanone (MEK)	ND
Acetone	27 UB
Benzene	ND J

A2-B4 (5-6)

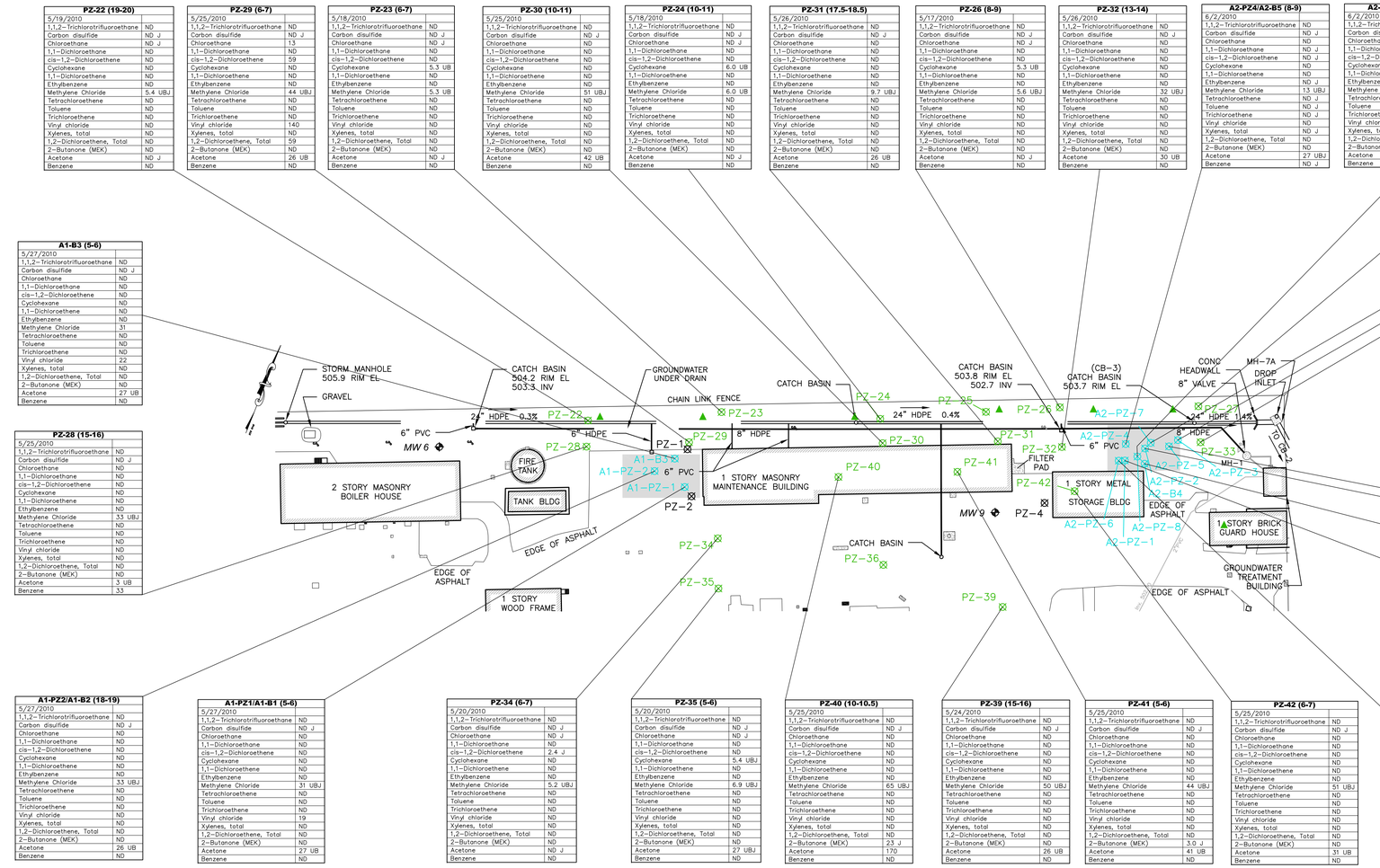
6/2/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	ND
cis-1,2-Dichloroethene	ND
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	13 UBJ
Tetrachloroethene	ND
Toluene	ND
Trichloroethene	ND
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	ND
2-Butanone (MEK)	ND
Acetone	27 UB
Benzene	ND

A2-PZ2/A2-B2 (11-12)

5/26/2010	
1,1,2-Trichlorotrifluoroethane	ND
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	35
cis-1,2-Dichloroethene	3400 D
Cyclohexane	ND
1,1-Dichloroethene	3.9 J
Ethylbenzene	12
Methylene Chloride	29 UBJ
Tetrachloroethene	210000 D
Toluene	5.1 UB
Trichloroethene	36000 D
Vinyl chloride	28
Xylenes, total	ND
1,2-Dichloroethene, Total	390
2-Butanone (MEK)	ND
Acetone	25 UB
Benzene	ND

A2-B8 (9-10)

6/2/2010	
1,1,2-Trichlorotrifluoroethane	1200
Carbon disulfide	ND J
Chloroethane	ND
1,1-Dichloroethane	270
cis-1,2-Dichloroethene	2600
Cyclohexane	ND
1,1-Dichloroethene	ND
Ethylbenzene	ND
Methylene Chloride	110 UBJ
Tetrachloroethene	3300
Toluene	110 UBJ
Trichloroethene	26000 D
Vinyl chloride	ND
Xylenes, total	ND
1,2-Dichloroethene, Total	2600
2-Butanone (MEK)	ND J
Acetone	ND
Benzene	ND

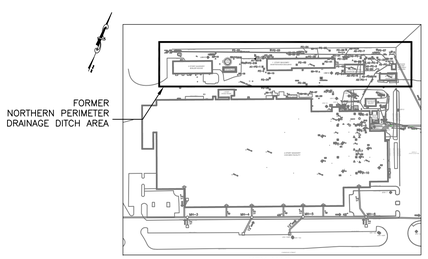


LEGEND:

- SEWER VALVE LOCATION
- MW 6 — MONITORING WELL LOCATION
- PZ–1 — PIEZOMETER LOCATION (INSTALLED 1995)
- A2–PZ–5 — PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION (FOCUS AREAS A1 AND A2)
- PZ–27 — PIEZOMETER LOCATION– SUPPLEMENTAL FNPD INVESTIGATION
- SOIL GAS PROBE LOCATION – SUPPLEMENTAL FNPD INVESTIGATION
- AREA OF MULTIPLE DSITMS (GRID EVALUATION)

NOTES:

1. PZ–37 AND PZ–38 WERE NOT INSTALLED DUE TO UTILITY CLEARANCE RESULTS.
2. SAMPLE LOCATION A2–B4 WAS NOT SURVEYED, LOCATION IS APPROXIMATE.
3. CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg).
4. DATA COMPARED TO NYSDEC RESTRICTED USE – SOIL CLEANUP OBJECTIVES.
5. NO EXCEEDENCS OF SOIL CLEANUP OBJECTIVES WERE DETECTED.
6. J FLAG IDENTIFIES AN ESTIMATED RESULT, UB FLAG IDENTIFIES COMPOUND AS NON–DETECT DUE TO ASSOCIATED BLANK CONTAMINATION, AND D IDENTIFIES CONCENTRATION BASED ON A DILUTED SAMPLE.
7. ND INDICATES THAT CONSTITUENT WAS NOT DETECTED ABOVE THE LABORATORY REPORTING LIMIT.



KEY MAP
SCALE: 1"=300'

0 60' 120'
HORIZONTAL SCALE

FORMER NORTHERN PERIMETER DITCH SUPPLEMENTAL INVESTIGATION REPORT
FORMER LOCKHEED MARTIN
FRENCH ROAD FACILITY
UTICA, NEW YORK

AOC 3 - SOIL QUALITY

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FIGURE
10

Figure 11. AOC 4 - Continuous Water-Level Monitoring Graph for the GCTS

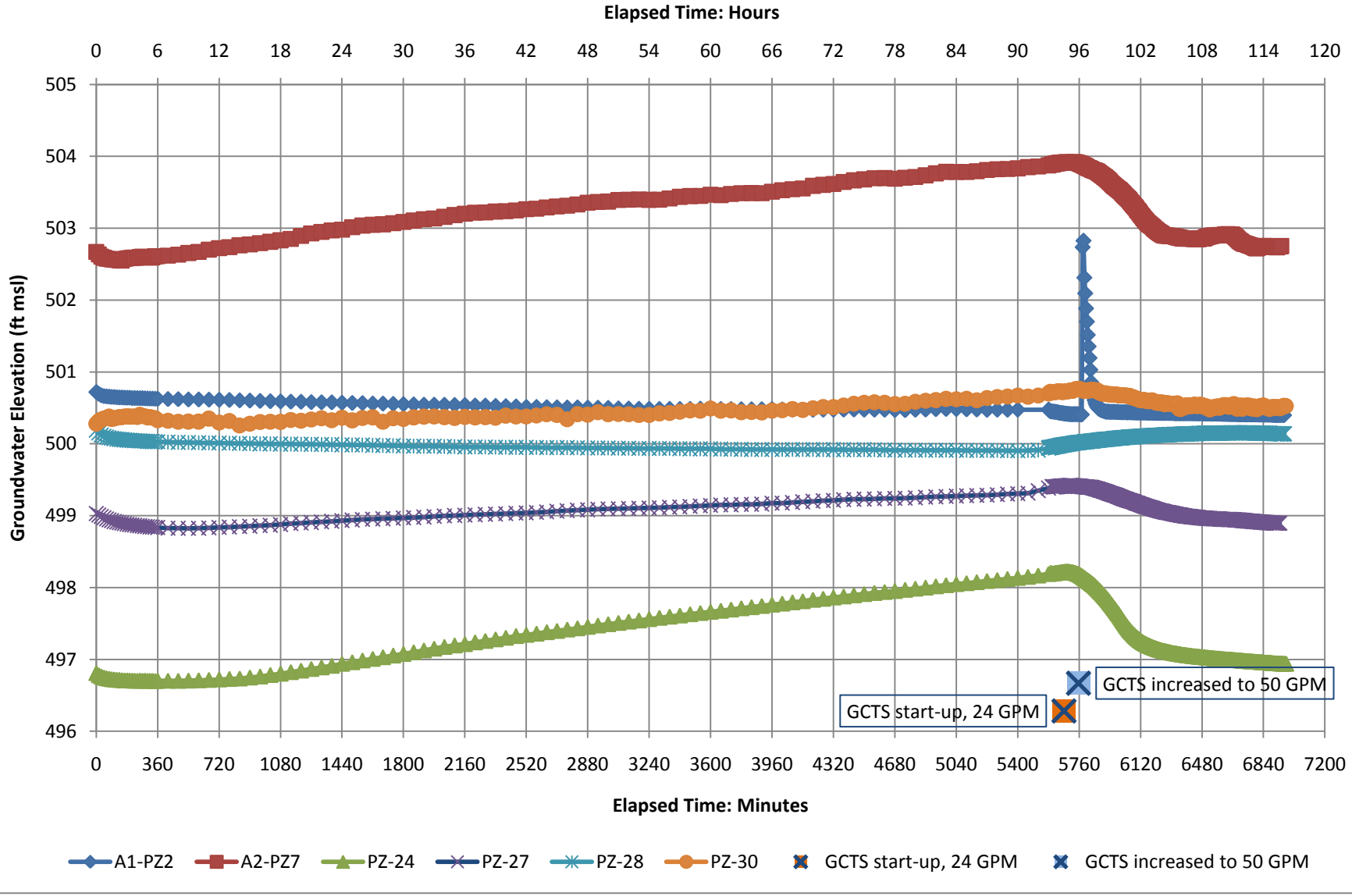
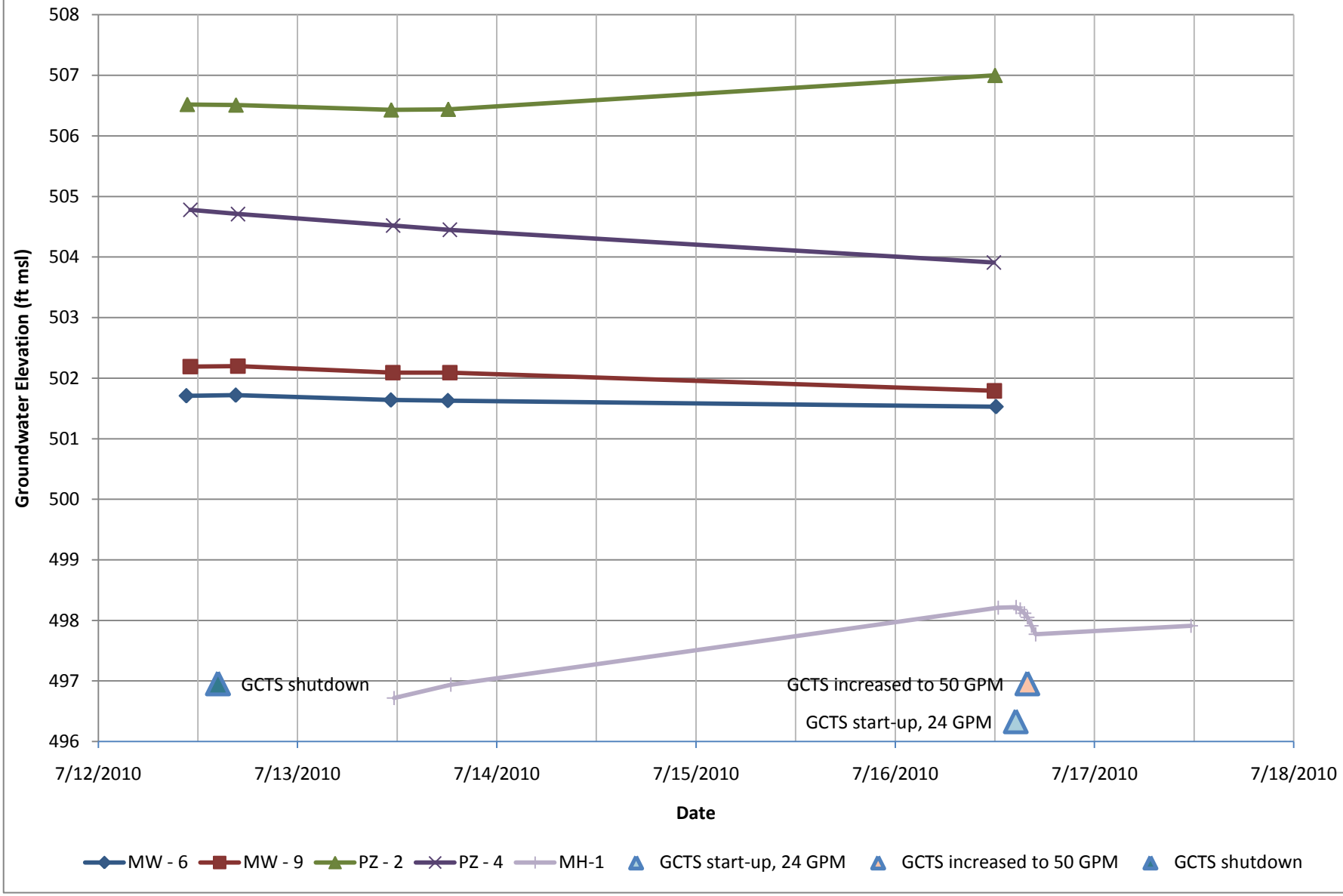


Figure 12. AOC 4 - Manual Water-Level Monitoring Graph for the GCTS



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Appendix A

Soil Boring and Piezometer Construction Logs

Date Start/Finish: 5/27 and 6/1-6/2/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127869.0
Easting: 1167253.0
Casing Elevation: 503.77' AMSL

Borehole Depth: 25.2' bgs
Surface Elevation: 503.96' AMSL

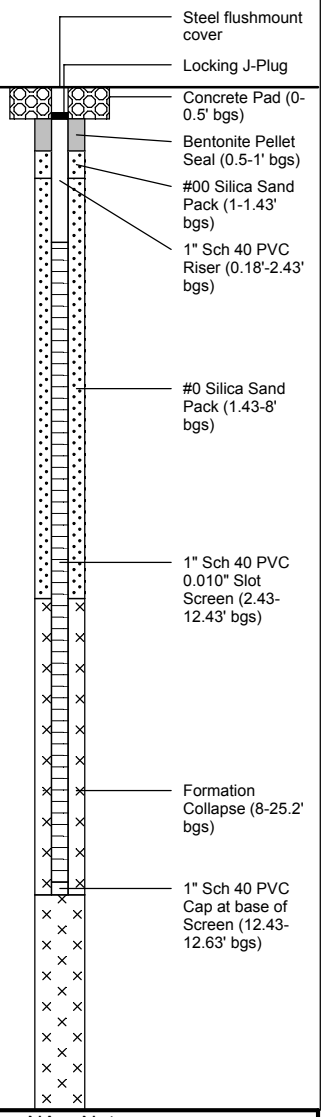
Descriptions By: Daniel Zuck

Well/Boring ID: **A1-B1/A1-PZ1**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505							
		NA	NA	NA	NA			(0-5') Dark brown/gray SAND and CLAY with fine Gravel. (FILL)
5	500	1	5-10	3.7	1.61	X		(0-2.4') Medium to dark brown and gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse rounded Sand, trace very fine to fine Sand, stiff to very stiff, no plasticity, moist. (TILL)
					1.24			(2.4-3.1') Fractured LIMESTONE and SHALE, dry rock dust. (ROCK)
					0.22			(3.1-3.7') Medium to dark brown and gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, little coarse rounded Sand, trace very fine to fine Sand, stiff to very stiff, no plasticity, moist. (TILL)
10	495	2	10-15	5	0.21			(0-2.15') Medium to dark brown and gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, little coarse rounded Sand, trace very fine to fine Sand, stiff to very stiff, no plasticity, moist. (TILL)
					0.49			(2.15-5') Dark gray varved CLAY, trace coarse subrounded Sand and very fine Sand, stiff, moist, low to no plasticity. (CLAY)
15	490							(0-0.2') Dark gray varved CLAY, trace coarse subrounded Sand and very fine Sand, stiff, low to no plasticity, moist. (CLAY)
					0.32			(0.2-3.2') Dark gray SANDY SILT and very fine to fine SAND, some fine to medium subrounded to subangular Gravel, medium stiff, medium dense, no plasticity, wet.



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **A1-B1/A1-PZ1**

Borehole Depth: 25.2' bgs

Site Location:
525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
								(TILL)	
					0.19			(0.2-3.2') Dark gray SANDY SILT and very fine to fine SAND, some fine to medium subrounded to subangular Gravel, medium stiff, medium dense, no plasticity, wet. (TILL)	
		3	15-20	3.2					
	485								
20								(0-3.8') Dark gray SANDY SILT and very fine to fine SAND, some fine to medium subrounded to subangular Gravel, medium stiff, medium dense, no plasticity, wet. (TILL)	
								Saturated (0.5-1') and (2-2.6').	Formation Collapse (8-25.2' bgs)
		4	20-25	3.8	0.15				
	480							Shale in tip of shoe, dry at (0.2'). (BEDROCK)	
25		5	25-25.2	0.2	0.11			(0-0.2') Dark gray SANDY SILT and very fine to fine SAND, some fine to medium subrounded to subangular Gravel, medium stiff, medium dense, no plasticity, wet.	
								End of boring at 25.2' bgs.	
	475								
30									
	470								
35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Date Start/Finish: 5/27 and 6/1-6/2/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128872.3
Easting: 1167223.1
Casing Elevation: 503.00' AMSL

Borehole Depth: 22' bgs
Surface Elevation: 503.25' AMSL

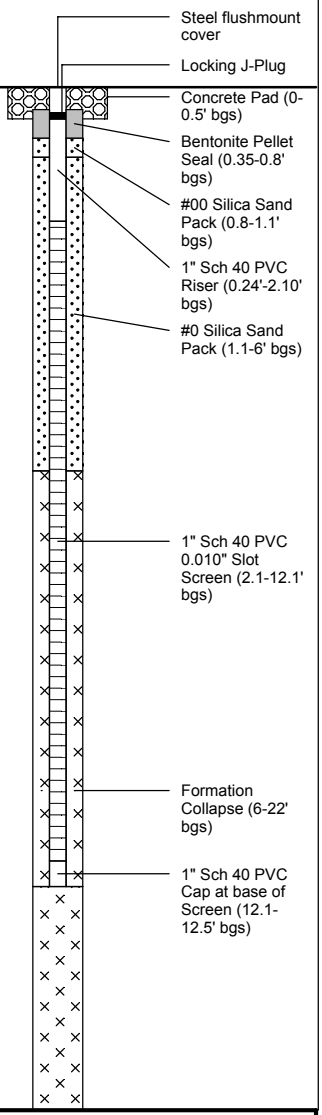
Descriptions By: Daniel Zuck

Well/Boring ID: **A1-B2/A1-PZ2**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
505 / 0							
500 / 5	NA	NA	NA	NA			(0-5') Dark brown SAND, SILT and GRAVEL. (FILL)
495 / 10	1	5-10	2.95	0.11			(5-2.95') Dark brown-gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subangular Gravel, trace very fine Sand, trace coarse subrounded to subangular Sand, very stiff, no plasticity, moist. (TILL)
490 / 15	2	10-15	2.45	0.02 0.06			(0-0.9') Dark brown-gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subangular Gravel, trace very fine Sand, trace coarse subrounded to subangular Sand, very stiff, no plasticity, moist. (TILL) (0.9-2.95') Medium to dark gray SANDY SILT and very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse subangular Gravel, stiff, no plasticity, wet. (TILL) Saturated (0-1.9') and (1.45-2'). (0-3.45') Medium to dark gray SANDY SILT and very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse subangular Gravel, stiff, no plasticity, wet. (TILL)



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 18-19' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **A1-B2/A1-PZ2**

Borehole Depth: 22' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
485 / 20	3	15-20	3.45	0.18	X		(0-3.45') Medium to dark gray SANDY SILT and very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse subangular Gravel, stiff, no plasticity, wet. (TILL) Saturated (0-1.9') and (1.45-2').	Formation Collapse (6-22' bgs)
	4	20-22	2.05	0.06			(0-2.05') Medium to dark gray SANDY SILT and very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse subangular Gravel, stiff, no plasticity, wet. (TILL) Shale in tip of shoe at 2'. (BEDROCK)	
480 / 25							End of boring at 22' bgs.	
475 / 30								
470 / 35								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 18-19' bgs for VOCs.

Date Start/Finish: 5/27/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127889.0
Easting: 1167235.6
Casing Elevation: NA

Borehole Depth: 20' bgs
Surface Elevation: 503.4' AMSL

Descriptions By: Daniel Zuck

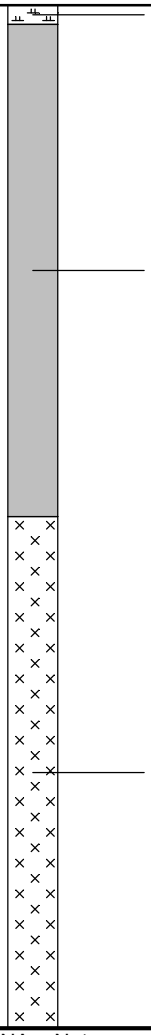
Well/Boring ID: **A1-B3**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
505							
0							
	NA	NA	NA	NA			(0-5') Dark gray-brown SAND, SILT and GRAVEL. (FILL)
500							
5				1.7	X		(0-1.3') Dark brown-gray GRAVELY SILTand fine to medium subrounded to subangular GRAVEL, some coarse subrounded Sand, trace very fine Sand, stiff, no plasticity, moist to wet. (TILL)
	1	5-10	1.3				
495							
10				0.0			(0-0.25') Crushed LIMESTONE fragments. (ROCK)
				0.22			(0.25-1.5') Dark gray varved SILTY CLAY, trace coarse Sand to fine subrounded to subangular Gravel, stiff, low to no plasticity, wet. (CLAY)
	2	10-15	2.3	0.41			(1.5-2.3') Dark brown-gray SANDY SILT and very fine to fine SAND, few coarse Sand to fine subrounded to subangular Gravel, trace Clay, trace coarse 2" Pebbles, loose, low plasticity at Clay interval 1.5-1.7' bgs, no plasticity, wet. (TILL)
490							Saturated 0-3.6' .
15							(0-4.3') Dark brown-gray SANDY SILT and very fine to fine SAND, few coarse Sand to fine subrounded to subangular Gravel, trace Clay, trace coarse 2" Pebbles, loose, low plasticity at Clay interval 1.5-1.7', no plasticity, wet. (TILL)

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **A1-B3**

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
485	3	15-20	4.3	0.29			(0-4.3') Dark brown-gray SANDY SILT and very fine to fine SAND, few coarse Sand to fine subrounded to subangular Gravel, trace Clay, trace coarse 2" Pebbles, loose, low plasticity at Clay interval 1.5-1.7' bgs, no plasticity, wet. (TILL) Saturated 0-3.6' bgs. Shale in tip of shoe at 4.3'. (BEDROCK)	Collapsed material (8-20' bgs)
20							Refusal at 20' bgs. End of boring.	
480								
25								
475								
30								
470								
35								

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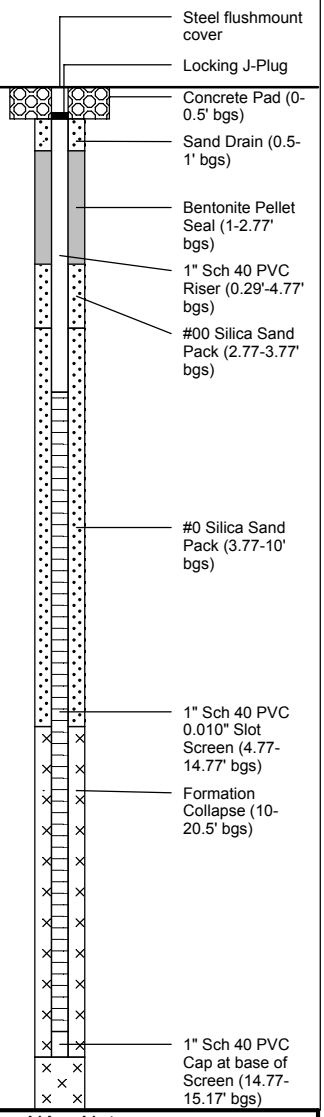
Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Date Start/Finish: 5/26 and 6/2/2010 **Drilling Company:** Zebra Environmental **Driller's Name:** Jon Cewl **Drilling Method:** Direct Push **Sampling Method:** 2.5" by 5' Acetate Liner **Rig Type:** Track-Mounted Geoprobe Rig	**Northing:** 1128033.8 **Easting:** 1167604.7 **Casing Elevation:** 509.74' AMSL **Borehole Depth:** 20.5' bgs **Surface Elevation:** 510.04' AMSL **Descriptions By:** Daniel Zuck	**Well/Boring ID:** **A2-B1/A2-PZ1** **Client:** Lockheed Martin Corporation **Location:** 525 French Road Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-5') Medium brown SANDY SILT and medium to coarse GRAVEL. (FILL)
5	505	1	5-10	2.1	18.2 75.2	X		(0-2.1') Medium to dark gray GRAVELY SILT and fine to coarse subrounded to subangular SAND, few medium to coarse Sands, trace fractured 2" Pebbles, stiff, no plasticity, wet. (TILL)
10	500	2	10-15	4.9	36.1 34.8			(0-3.7') Dark gray varved CLAY, trace coarse subrounded Sand, stiff, low to no plasticity, moist. (CLAY) (3.7-4.9') Dark gray SANDY SILT and fine to medium subangular SAND, some very fine Sand, few coarse Sand to fine subrounded to subangular Gravel, trace coarse subrounded Gravel, dense, no plasticity, moist to wet. (TILL)
15	495							(0-3.45') Dark gray SANDY SILT and fine to medium subangular SAND, some very fine Sand, few coarse Sand to fine subrounded to subangular Gravel, trace coarse subrounded Gravel, dense, no plasticity, moist to wet. Saturated (0-0.9'). (TILL)

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 7-8' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **A2-B1/A2-PZ1**

Borehole Depth: 20.5' bgs

Site Location:
525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		3	15-20	4.8	2.3 0.47 0.29			(0-3.45') Dark gray SANDY SILT and fine to medium subangular SAND, some very fine Sand, few coarse Sand to fine subrounded to subangular Gravel, trace coarse subrounded Gravel, dense, no plasticity, moist to wet. (TILL) (3.45-4.8') Light gray GRAVELY SILT and fine to medium angular GRAVEL (fractured LIMESTONE and SHALE), few coarse subrounded to subangular LIMESTONE Gravel, medium dense, dry. (TILL)	Formation Collapse (10-20.5' bgs)
20	490	4	20-20.5	0.6	0.13 0.03			(0-0.3') Dark gray SANDY SILT and fine to medium subangular SAND, some very fine Sand, few coarse Sand to fine subrounded to subangular Gravel, trace coarse subrounded Gravel, dense, no plasticity, moist. (TILL) (0.3-0.6') Light gray GRAVELY SILT and fine to medium angular GRAVEL (fractured LIMESTONE and SHALE), few coarse subrounded to subangular Limestone Gravel, medium dense, dry. (TILL/BEDROCK) Shale in tip of shoe at 20.5' bgs. Refusal at 20.5' bgs. End of Boring.	
25	485								
30	480								
35	475								

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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 7-8' bgs for VOCs.

Date Start/Finish: 5/26 and 6/1-6/2/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128050.2
Easting: 1167617.3
Casing Elevation: 509.46' AMSL

Borehole Depth: 20.2' bgs
Surface Elevation: 509.90' AMSL

Descriptions By: Daniel Zuck

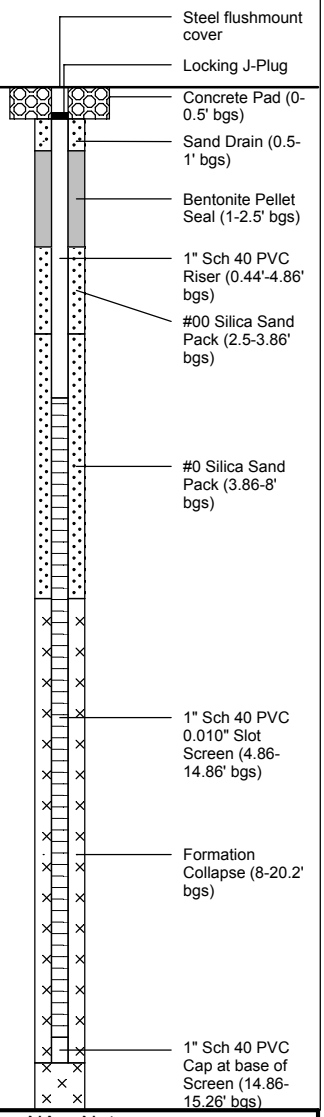
Well/Boring ID: **A2-B2/A2-PZ2**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-5') Medium brown SILT and SAND, some coarse Gravel. (FILL)
5	505	1	5-10	5	4.1			(0-4.1') Dark brown-gray GRAVELY SILT and fine to medium subangular GRAVEL, few coarse Sand and coarse subrounded/subangular Gravel, trace fine to medium Sand, medium stiff to stiff, no plasticity, moist. (TILL)
10	500	2	10-15	4.2	0.66 22.1 109.2	X		(4.1-5') Dark brown-gray varved CLAY, trace coarse subrounded Sand, low to no plasticity, stiff, moist. (CLAY) (0-.65') Dark brown-gray varved CLAY, trace coarse subrounded Sand, low to no plasticity, stiff, moist. (CLAY) (0.65-1.2') Some fine to medium subangular to angular Gravel, few fine to medium SAND, medium stiff, wet. (CLAY) (1.2-4.2') Dark brown-gray SANDY SILT and very fine to fine SAND, some coarse Sand to fine subrounded/subangular Gravel, trace coarse subrounded Limestone Gravel to 2" Pebbles, medium stiff to medium dense, no plasticity, wet. (TILL) Dry 3.3-3.5'
15	495				0.35			(0-4.8') Dark brown-gray SANDY SILT and very fine to fine SAND, some coarse Sand to fine subrounded/subangular Gravel, trace coarse subrounded Limestone Gravel to 2" Pebbles, medium stiff to medium dense, no plasticity, wet. (TILL)

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 11-12' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **A2-B2/A2-PZ2**

Borehole Depth: 20.2' bgs

Site Location:
525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		3	15-20	4.8	0.09			(0-4.8') Dark brown-gray SANDY SILT and very fine to fine SAND, some coarse Sand to fine subrounded/subangular Gravel, trace coarse subrounded Limestone Gravel to 2" Pebbles, medium stiff to medium dense, no plasticity, wet. (TILL) Saturated 1.8-2.5' bgs.	Formation Collapse (8-20.2' bgs)
20	490	4	20-20.5	0.2				Shale in tip of shoe at 20.2' bgs. (BEDROCK)	
								End of Boring at 20.2' bgs.	
25	485								
30	480								
35	475								

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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 11-12' bgs for VOCs.

Date Start/Finish: 5/26 and 6/3/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128067.7
Easting: 1167641.5
Casing Elevation: 509.46' AMSL

Borehole Depth: 15' bgs
Surface Elevation: 509.67' AMSL

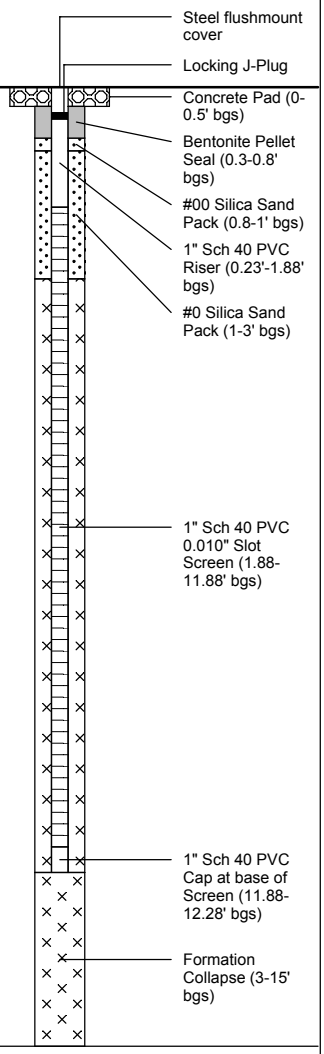
Descriptions By: Daniel Zuck

Well/Boring ID: **A2-B3/A2-PZ3**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-5') Medium to dark gray SAND and CLAY, wet. (FILL)
5	505	1	5-10	3.9	0.04	X		(0-1.6') Dark gray varved CLAY, few to trace coarse Sand to fine Gravel, some very fine Sand in varved layers, stiff, low to no plasticity, moist. (CLAY)
					0.29			(1.6-2.95') Dark gray SANDY SILT and very fine to fine SAND, few coarse Sand to medium subrounded to subangular Gravel, trace subrounded coarse Gravel, loose, medium plasticity, saturated. (TILL)
					0.01			(2.95-3.8') Medium gray SILT, some fine to medium subrounded to subangular Gravel, trace coarse Gravel to 2" pebbles, very stiff, very dense, moist. (TILL)
10	500	2	10-14	4.8	0.00			(3.8-3.9') Fragments of SHALE and LIMESTONE. (ROCK) (0-4.8') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Gravel and very fine Sand, trace 1-2" pebbles of subrounded Limestone, loose, no plasticity, moist. (TILL) Dark gray stiff, dense, no plasticity, moist to wet (3.9-4'). (TILL) Large Limestone fragments, moist (4.5-4.7').
15	495	3	14-15	1.6	0.02 0.02			(0-1.6') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Gravel and very fine Sand, trace 1-2" pebbles of subrounded Limestone, loose, no plasticity, moist. (TILL) End of Boring at 15' bgs.



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

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Date Start/Finish: 6/2/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: NA
Easting: NA
Casing Elevation: NA' AMSL

Borehole Depth: 6' bgs
Surface Elevation: NA' AMSL

Descriptions By: Daniel Zuck

Well/Boring ID: **A2-B4**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA			(0-4') Dark brown-red GRAVELY SILT. (FILL)	Collapsed material (0-6' bgs)
					0.48			(0-0.3') Slough; dark brown GRAVELY SILT. (TILL)	
5	-5	1	4-6	2.5	0.97	X		(0.3-2.5') Red-brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace coarse subrounded to subangular Gravel, trace very fine to fine Sand, stiff, no plasticity, moist. (TILL) Stone fragment in tip of shoe.	
								Refusal at 6' bgs. End of boring.	
10	-10								
15	-15								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 5-6' bgs for VOCs. DUP-060210 collected.

Date Start/Finish: 6/2-6/3/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128047.6
Easting: 1167600.0
Casing Elevation: 509.40' AMSL

Borehole Depth: 15.5' bgs
Surface Elevation: 509.56' AMSL

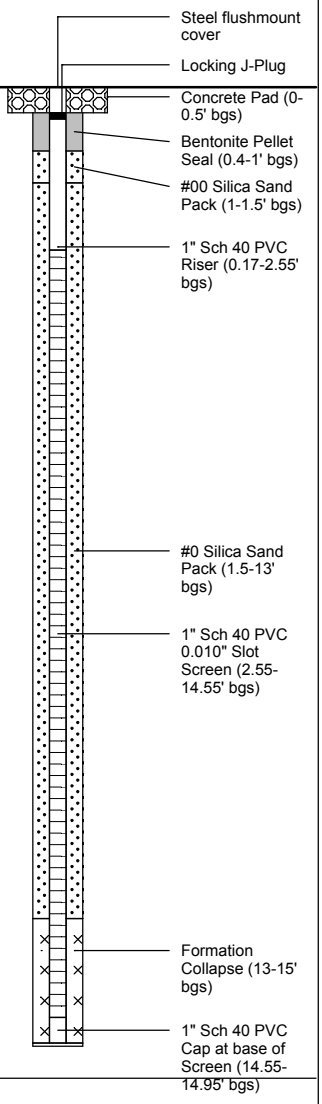
Descriptions By: Daniel Zuck

Well/Boring ID: **A2-B5/A2-PZ4**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510 / 0							
	NA	NA	NA	NA			(0-4') Dark brown/red-brown SAND and fine to coarse GRAVEL. (FILL)
505 / 5				0.71			(0-0.8') Slough/FILL; Medium dark brown GRAVELY SILT, some Sand. (FILL)
	1	4-10	4.8	0.22			(0.8-3.9') Red-brown and gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace very fine to fine Sand, trace coarse subrounded to subangular Gravel, stiff, no plasticity, moist. (TILL) (2.1-3.9') Wet, saturated in pockets, medium stiff.
				3.4			
				6.3	X		(3.9-4.8') Medium gray to dark gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, few very fine to fine Sand, trace coarse subrounded to subangular Gravel, very dense, very stiff, no plasticity, moist. (TILL)
500 / 10							(0-1.5') Slough; Red-brown and medium brown GRAVELY SILT, wet. (TILL)
	2	10-15	4.8	0.44			(1.5-2.4') Medium gray to dark gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, few very fine to fine Sand, trace coarse subrounded to subangular Gravel, very dense, very stiff, no plasticity, moist. (TILL)
				0.78			(2.4-3.3') Dark gray varved CLAY, trace coarse subrounded Sand and very fine Sand, stiff, low to no plasticity, moist. (CLAY)
495 / 15				0.68			(3.3-4.8)' Dark gray SANDY SILT and very fine to fine SAND, some medium coarse subrounded Sand, trace medium to coarse subrounded to subangular Gravel, very dense, no plasticity, moist to wet. (TILL)
							End of Boring at 15.5' bgs.



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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 8-9' bgs for VOCs. MS/MSD collected.

Date Start/Finish: 6/2-6/3/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128059.7
Easting: 1167636.2
Casing Elevation: 510.03' AMSL

Borehole Depth: 14' bgs
Surface Elevation: 510.24' AMSL

Descriptions By: Daniel Zuck

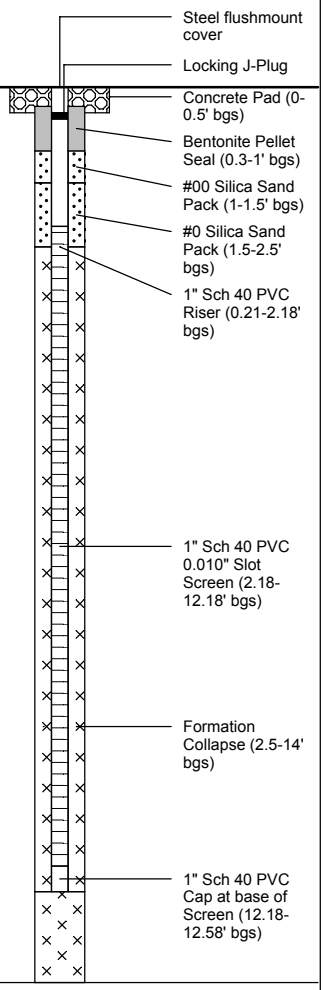
Well/Boring ID: **A2-B6/A2-PZ5**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-3.5') Medium to dark brown GRAVELY SILT and SAND, loose, moist. (FILL)
		1	3.5-5	1.5	0.29 0.39 0.21			(0-1.5') Slough; Dark brown fill material. (1.5-3.6') Red-brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace coarse subrounded to subangular Gravel, trace very fine to fine Sand, stiff, no plasticity, moist. (TILL)
5	505	2	5-10	4.8	0.42 0.8 0.5	X		(0-1.7') Red-brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace coarse subrounded to subangular Gravel, trace very fine to fine Sand, stiff, no plasticity, moist. (TILL) (1.7-3.5') Dark gray varved CLAY, trace coarse Sand to fine subrounded Gravel, stiff, low to no plasticity, moist. (CLAY) (3.5-4.8') Medium gray SANDY SILT and very fine to fine SAND, few coarse Sand to fine subrounded to subangular Gravel, trace medium to coarse subrounded to subangular Gravel, medium dense, no plasticity, moist. (TILL)
10	500	3	10-14	3.9	0.71 0.60			(0-1') Slough/Fill; dark brown. (1-3.9') Medium gray SANDY SILT and very fine to fine SAND, few coarse Sand to fine subrounded to subangular Gravel, trace medium to coarse subrounded to subangular Gravel, medium dense, no plasticity, moist. (TILL)
15	495							End of Boring at 14' bgs.

Well/Boring Construction



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Location hand cleared/air knifed 0-3.5' bgs. Analytical sample collected from 7-8' bgs for VOCs.

Date Start/Finish: 6/2/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: NA
Easting: NA
Casing Elevation: NA' AMSL

Borehole Depth: 6' bgs
Surface Elevation: NA' AMSL

Descriptions By: Daniel Zuck

Well/Boring ID: **A2-B7**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA			(0-4') Dark brown/red-brown SANDY and GRAVELY SILT, wet. (FILL)	Collapsed material (0-6' bgs)
5	-5	1	4-6	0.8	NA			(0-0.8') Fractured SHALE (Gravel/Fill material) and trace pieces of Silt screen. (Rock)	
								End of boring at 6' bgs.	
10	-10								
15	-15								

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Location hand cleared/air knifed 0-4' bgs. No analytical sample collected.

Date Start/Finish: 6/2-6/3/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128031.6
Easting: 1167599.7
Casing Elevation: 509.74' AMSL

Borehole Depth: 18' bgs
Surface Elevation: 509.92' AMSL

Descriptions By: Daniel Zuck

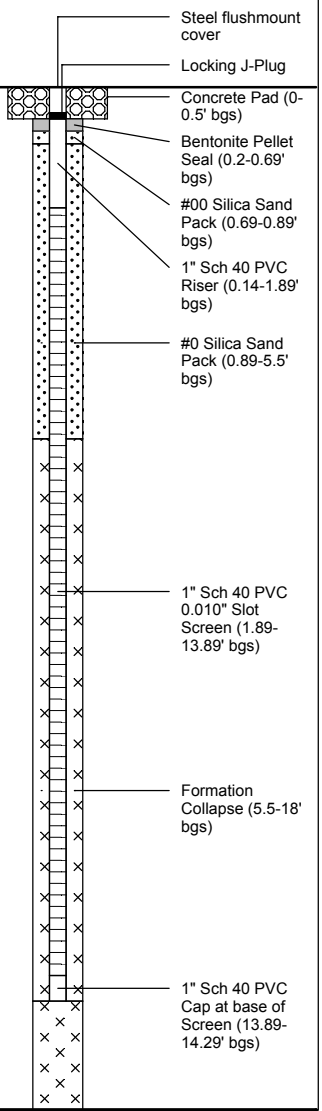
Well/Boring ID: **A2-B8/A2-PZ6**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-4') Dark brown-red GRAVELY SILT and SAND, moist to wet. (FILL)
								(0-0.8') Slough; dark brown SILT and SAND, wet. (FILL)
		1	4-5	2.6	41.1 17.8			(0.8-2.6') Dark red-brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace coarse subrounded to subangular Gravel, stiff, no plasticity, moist. (TILL)
5	505							(0-1.7') Slough; dark red brown SILT and SAND, loose, saturated. (TILL)
		2	5-10	4.8	56.2 78.2			(1.7-3.3') Dark red-brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace coarse subrounded to subangular Gravel, soft to medium stiff, no plasticity, saturated. (TILL)
					346.5	X		(3.3-4.8') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded to subangular SAND, trace very fine to medium Sand, dense, stiff, no plasticity, moist. Trace chemical-like odor. (TILL)
10	500				2.8			(0-1.7') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded to subangular SAND, trace very fine to medium Sand, dense, stiff, no plasticity, moist. Trace chemical-like odor. (TILL)
		3	10-15	2.7	1.3			(1.7-2.7') Dark gray varved CLAY, trace coarse subrounded Sand, trace very fine Sand, very stiff, low to no plasticity, moist. (CLAY)
15	495							(0-1.8') Dark gray SILT, some fine Gravel to coarse subrounded to subangular Sand, few very fine to fine Sand, dense, stiff, no plasticity, moist to wet. (TILL)

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 9-10' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **A2-B8/A2-PZ6**

Borehole Depth: 18' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	4	15-18	2.5	1.1 0.43			(0-1.8') Dark gray SILT, some fine Gravel to coarse subrounded to subangular Sand, few very fine to fine Sand, dense, stiff, no plasticity, moist to wet. (TILL) (1.8-2.5') Medium to light gray SILT, some fine Gravel to coarse subrounded to subangular Sand, few very fine to fine Sand, very dense, very stiff, no plasticity, dry to moist. (TILL)	Formation Collapse (5.5-18' bgs)
20 490							End of Boring at 18' bgs.	
25 485								
30 480								
35 475								

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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 9-10' bgs for VOCs.

Date Start/Finish: 6/2-6/3/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128056.7
Easting: 1167620.1
Casing Elevation: 509.59' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 509.74' AMSL

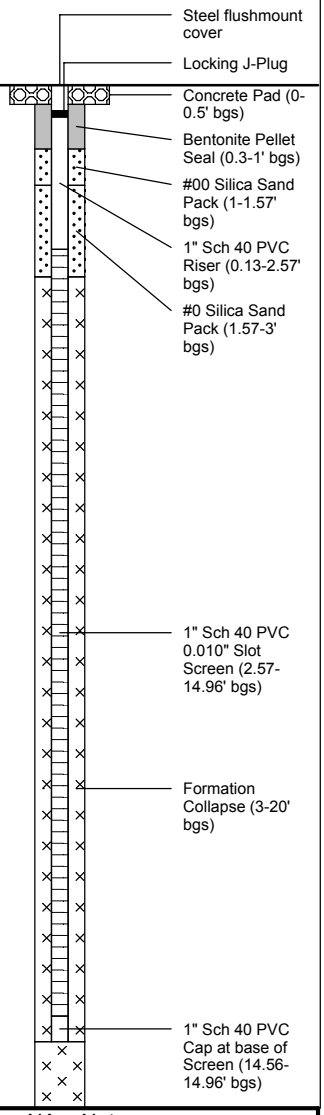
Descriptions By: Daniel Zuck

Well/Boring ID: **A2-B9/A2-PZ7**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0 / 510	NA	NA	NA	NA			(0-4') Dark brown GRAVELY SILT and SAND, moist to wet. (FILL)
5 / 505	1	4-5	2.8	0.37 1.01 0.61			(0-1.2') Slough. (1.2-2.35') Red-gray GRAVELY SILT fine to medium subrounded to subangular GRAVEL, few coarse subrounded Sand, trace very fine to fine Sand, trace coarse subrounded to subangular Gravel, soft, low plasticity, wet. (TILL)
	2	5-10	2.25	0.99			(2.35-2.8') Medium gray SANDY SILT and very fine to fine SAND, few medium to coarse subangular Sand, trace medium to coarse subrounded to subangular Gravel, loose, soft, no plasticity, moist. (TILL) (0-0.1') Slough. (0.1-1.9') Reddish brown and gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded to subangular Sand, trace coarse subangular Gravel, trace very fine to fine Sand, stiff, no plasticity, moist. (TILL)
10 / 500				25.9			(1.9-2.25') Medium grayish brown SANDY SILT and very fine to fine Sand, trace fine subrounded to subangular Gravel to coarse subrounded to subangular Sand, loose, no plasticity, wet. (TILL)
	3	10-15	3.25	145.2 0.0	X		(0-1.2') Slough. (1.2-3.25') Medium grayish brown SANDY SILT and very fine to fine Sand, trace fine subrounded to subangular Gravel to coarse subrounded to subangular Sand, loose, no plasticity, wet. Dry to moist (2.2-3.25'). (TILL)
15 / 495							(0-3.6') Medium grayish brown SANDY SILT and very fine to fine SAND, trace fine subrounded to subangular Gravel to coarse subrounded to subangular Sand, loose, no plasticity, wet. (TILL)



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 10-11' bgs for VOCs.

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Client: Lockheed Martin Corporation

Well/Boring ID: **A2-B9/A2-PZ7**

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490	4	15-20	4.3	0.03			(0-3.6') Medium grayish brown SANDY SILT and very fine to fine SAND, trace fine subrounded to subangular Gravel to coarse subrounded to subangular Sand, loose, no plasticity, wet. (TILL)	Formation Collapse (3-20' bgs)
				0.14			(3.6-4.3') Light gray gravel sized fractured SHALE and rock powder, dry. (BEDROCK)	
20							End of Boring at 20' bgs.	
485								
25								
480								
30								
475								
35								

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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 10-11' bgs for VOCs.

Date Start/Finish: 6/2-6/3/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128041.1
Easting: 1167613.6
Casing Elevation: 509.70' AMSL

Borehole Depth: 15' bgs
Surface Elevation: 509.91' AMSL

Descriptions By: Daniel Zuck

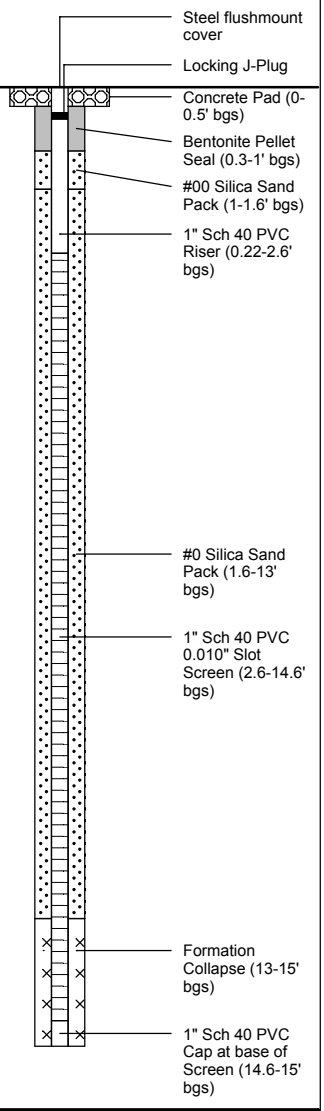
Well/Boring ID: **A2-B10/A2-PZ8**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-4') Medium dark brown SILT and GRAVEL, some Sand, soft, loose, wet. (FILL)
		1	4-5	2.55	1.17			(0-2.55') Reddish brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded to subangular Sand, trace very fine to fine Sand, trace coarse subangular Gravel, stiff, no plasticity, moist. (TILL)
5	505	2	5-10	4.8				(0-4.8') Reddish brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded to subangular Sand, trace very fine to fine Sand, trace coarse subangular Gravel, stiff, no plasticity, moist. (TILL) (4.1-4.8') grayish tint and very dense.
					3.02	X		
10	500	3	10-15	4.8	0.61			(0-2.55') Dark gray varved CLAY, trace coarse subrounded Sand, stiff, low to no plasticity, moist. (CLAY)
					0.7			(2.55-3.2') Dark gray SILT, trace varved Clay, trace coarse subrounded SAND, stiff, no plasticity, moist. (TILL)
					0.29			(3.2-4.8') Dark gray SANDY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subrounded to subangular Sand and very fine to fine Sand comprise matrix, stiff, dense, no plasticity, moist. Wet (3.2-3.6'). (TILL)
15	495							End of Boring at 15' bgs.

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 10-11' bgs for VOCs.

Date Start/Finish: 5/18-5/19/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127892.0
Easting: 1167152.2
Casing Elevation: 508.57' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 505.54' AMSL

Descriptions By: Daniel Zuck

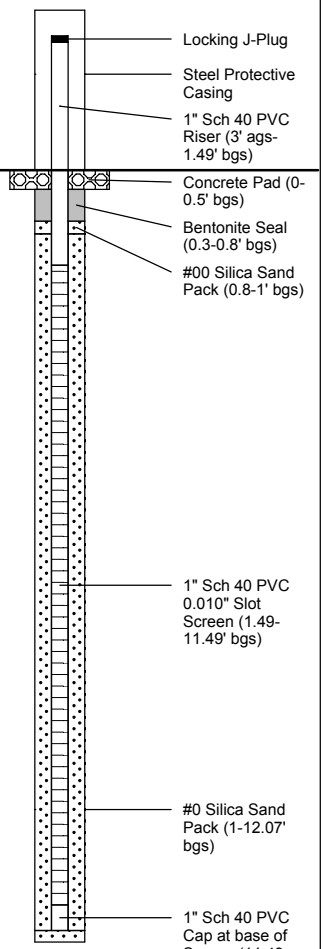
Well/Boring ID: **PZ-22**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Fill material. (FILL)
5	500	1	5-10	4.8	0.0 0.0 0.0			(0-1') Slough; medium brown SILTY Soils with organics and medium Gravel. (FILL) (1-3.1') Medium gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, few very fine to medium Sand, trace coarse Gravel subrounded, stiff, low to no plasticity, wet. (TILL) (3.1-4.8') Medium gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, few very fine to medium Sand, trace coarse Gravel subrounded, stiff, low plasticity, dry to moist. (TILL)
10	495	2	10-15	4.8	0.0 0.0 0.0			(0-0.75') Slough. (0.75-2.2') Medium gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, few very fine to medium Sand, trace coarse Gravel subrounded, stiff, low plasticity, dry to moist. (TILL) (2.2-2.5') Fragmented LIMESTONE. (ROCK) (2.5-4.8') Dark gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, some coarse subrounded Sand, few fine to medium Sand, trace coarse subangular Gravel, dense, no plasticity, moist. (TILL)
15	490				0.0 0.0			(0-0.25') Slough. (0.25-0.6') Dark gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, some coarse subrounded Sand, few fine to medium Sand, trace coarse

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. No analytical sample collected.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-22

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				0.0			subangular Gravel, dense, no plasticity, moist. (TILL)	
							(0.6-2.4') Dark gray varved CLAY stiff to very stiff, low to no plasticity, moist. (CLAY)	
	3	15-20	4.8	0.0			(2.4-3.3') Dark gray SANDY CLAY and medium to coarse subangular to angular SAND, some varved layers, trace medium to coarse angular Gravel, stiff, no plasticity, moist to wet. (CLAY)	
				0.0			(3.3-4.8') Medium to dark gray SANDY SILT and fine to medium subangular Sand, some very fine Sand, trace coarse Sand to fine Gravel, medium dense, no plasticity, wet. (TILL)	
20 / 485							End of Boring at 20' bgs.	
25 / 480								
30 / 475								
35 / 470								

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Location hand cleared/air knifed 0-5' bgs. No analytical sample collected.

Date Start/Finish: 5/18-5/19/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127942.3
Easting: 1167258.7
Casing Elevation: 510.07' AMSL

Borehole Depth: 25' bgs
Surface Elevation: 507.05' AMSL

Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-23**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0 / 510							
0 / 505	NA	NA	NA	0.0			(0-4.5') Hand cleared. (FILL)
5	1	4.5-5	1.05	0.0 0.0			(0-0.6') Slough; Back fill soil with organics. (FILL) (0.6-1.05') Light to medium brown SILTY SAND and very fine to medium subrounded to subangular SAND, trace Clay, medium dense, no plasticity, wet.(TILL)
5 / 500	2	5-10	4.0	0.0 0.0 0.0	X		(0-0.5') Slough. (0.5-1.9') Reddish gray GRAVELY SILT and fine subrounded to subangular GRAVEL, few medium to coarse Sand, trace medium to coarse Limestone fragments and Gravel, medium stiff, no plasticity, moist to wet.(TILL) (1.9-4') Medium gray GRAVELY SILT and fine subrounded to subangular GRAVEL, few medium to coarse Sand, trace medium to coarse angular Limestone Gravel fragments, stiff, no plasticity, moist to wet.(TILL)
10 / 495	3	10-15	4.8	0.0			(0-3.7') Medium gray GRAVELY SILT and fine subrounded to subangular GRAVEL, few medium to coarse Sand, trace medium to coarse angular Limestone Gravel fragments, stiff, no plasticity, moist to wet.(TILL) (3.7-4.8') Medium to dark gray CLAY, few coarse subrounded Sand, varved, stiff, low plasticity, moist.(CLAY)
15							(0-0.9') Slough.

Well/Boring Construction

- Locking J-Plug
- Steel Protective Casing
- Concrete Pad (0-0.5' bgs)
- Bentonite/concrete Grout (0-16' bgs)
- 1" Sch 40 PVC Riser (3' ags-18.07' bgs)

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Location hand cleared/air knifed 0-4.5' bgs. Analytical sample collected from 6-7' bgs for VOCs. DUP-051810 collected.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-23

Borehole Depth: 25' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490	4	15-20	4.8	0.0			(0.9-3.2') Medium to dark gray CLAY, few coarse subrounded Sand, varved, stiff, low plasticity, moist.(CLAY)	Bentonite Seal (16-17' bgs)
				0.0			(3.2-4.8') Medium to dark gray SANDY SILT and medium subangular to angular SAND, some fine to medium Sand, trace coarse Sand to fine subangular to angular Gravel, loose to medium dense, no plasticity, pockets of saturation.(TILL)	#0 Silica Sand Pack (17-20.4' bgs)
20								1" Sch 40 PVC 0.010" Slot Screen (18.07-20.07' bgs)
				0.0			(0-1.1') Slough.	
485	5	20-25	4.5	0.0			(1.1-3.1') Medium to dark gray SANDY SILT and medium subangular to angular SAND, some fine to medium Sand, trace coarse Sand to fine subangular to angular Gravel, loose to medium dense, no plasticity, pockets of saturation.(TILL)	1" Sch 40 PVC Cap at base of Screen (20.07-20.47' bgs)
				0.0			(3.1-4.5') Dark gray GRAVELY SILT and fine to medium subangular to angular GRAVEL, few coarse subrounded Sand to medium Sand, very dense, no plasticity, wet, trace pockets of saturation.(TILL)	
25							End of Boring at 25' bgs.	
480								
30								
475								
35								

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Location hand cleared/air knifed 0-4.5' bgs. Analytical sample collected from 6-7' bgs for VOCs. DUP-051810 collected.

Date Start/Finish: 5/18-5/19/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127988.3
Easting: 1167390.9
Casing Elevation: 504.77' AMSL

Borehole Depth: 14.47' bgs
Surface Elevation: 504.77' AMSL

Descriptions By: Daniel Zuck

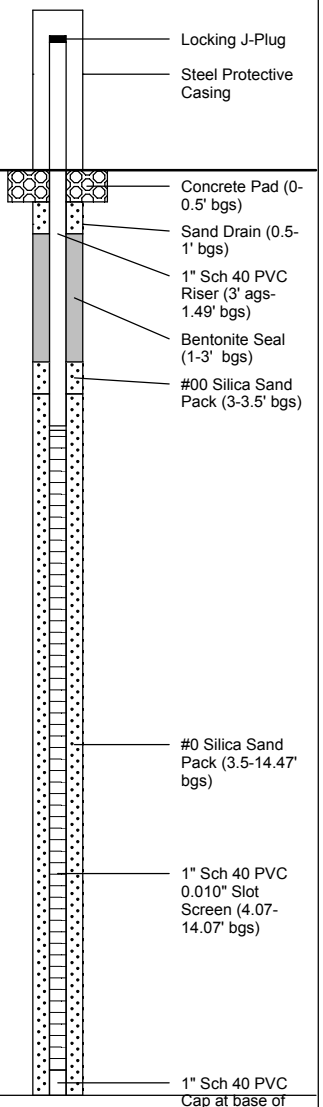
Well/Boring ID: **PZ-24**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Hand cleared. (FILL)
5	500	1	5-10	2.5	0.0			(0-2.2') Medium brown SILTY SAND and very fine to medium subangular to angular SAND, few coarse subrounded Sand, trace Clay lenses at 0.8', trace medium to coarse limestone Gravel, loose to medium dense, wet (0-1.3'), saturated (1.3-2.2'). (TILL)
					0.0			(2.2-2.5') Brownish gray SILTY CLAY, medium stiff, low to medium plasticity, saturated. (CLAY)
10	495	2	10-14	4.8	0.0			(0-1.2') Slough.
								(1.2-2.95') Brownish gray SILTY CLAY, medium stiff, low to medium plasticity, saturated. (CLAY)
					0.0			(2.95-4.15') Brownish gray SILT, trace Clay lenses (3.1-3.4'), soft, very loose, fully saturated. (TILL)
					0.0			(4.15-4.8') Dark to medium gray CLAY, stiff, low plasticity, wet. (CLAY)
15	490							End of Boring at 14.47' bgs.

Well/Boring Construction



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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-11' bgs for VOCs.

Date Start/Finish: 5/17/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128028.4
Easting: 1167475.2
Casing Elevation: 510.62' AMSL

Borehole Depth: 20.11' bgs
Surface Elevation: 507.54' AMSL

Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-25**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510 / 0							
505 / 5	NA	NA	NA	NA			(0-4') Hand cleared; backfill. (FILL)
	1	4-5	0.8	0.0			(0-0.8') Reddish brown GRAVELY SILT and fine to medium subangular to angular GRAVEL, few medium to coarse subangular to angular Sand, trace coarse subrounded Gravel, medium dense to dense, no plasticity, moist. (TILL)
500 / 10	2	5-10	4.8	0.0 0.0	X		(0-0.35') Reddish brown GRAVELY SILT and fine to medium subangular to angular GRAVEL, few medium to coarse subangular to angular Sand, trace coarse subrounded Gravel, medium dense to dense, no plasticity, moist. (TILL) (0.35-4.8') Light to medium gray GRAVELY SILT and fine to medium subangular to angular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone Gravel, trace fine 1.5" Pebbles, medium dense, dry to moist. (TILL)
495 / 15	3	10-13	4.8	0.0 0.0 0.0			(0-0.65') Slough. (0.65-3.2') Light to medium gray GRAVELY SILT and fine to medium subangular to angular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone Gravel, trace fine 1.5" Pebbles, medium dense, dry to moist. (TILL) (3.2-4.8') Medium dark gray varved CLAY, stiff, low to no plasticity, moist. (CLAY)
	4	13-18	7.5	0.0			(0-2') Slough. (2-5') Light to medium gray GRAVELY SILT and fine to medium subangular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone and Shale Gravel, trace fine 1.5" Pebbles, medium dense, no plasticity, moist to wet. (TILL)

Well/Boring Construction

- Locking J-Plug
- Steel Protective Casing
- Concrete Pad (0-0.8' bgs)
- 1" Sch 40 PVC Riser (3' ags-9.67' bgs)
- Bentonite Seal (0.8-8' bgs)
- #0 Silica Sand Pack (8-20.11' bgs)
- 1" Sch 40 PVC 0.010" Slot Screen (9.67-19.67' bgs)

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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 7-8' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-25

Borehole Depth: 20.11' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490				0.0			(2-5') Light to medium gray GRAVELY SILT and fine to medium subangular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone and Shale Gravel, trace fine 1.5" Pebbles, medium dense, no plasticity, moist to wet. (TILL)	
20	5	18-20	0.9	0.0			(0-0.9') Light to medium gray GRAVELY SILT and fine to medium subangular GRAVEL, some very fine to coarse subrounded Sand, few coarse angular Limestone and Shale Gravel, trace fine 1.5" Pebbles, medium dense, no plasticity, wet to saturated. (TILL)	1" Sch 40 PVC Cap at base of Screen (19.67-20.11' bgs)
485							End of Boring at 20.11' bgs.	
25								
480								
30								
475								
35								

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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 7-8' bgs for VOCs.

Date Start/Finish: 5/17/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128056.2
Easting: 1167534.2
Casing Elevation: 510.95' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 507.8' AMSL

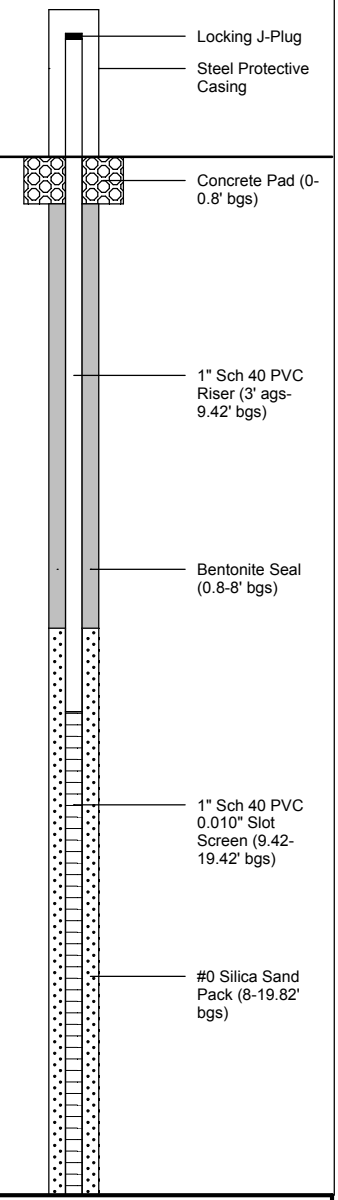
Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-26**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510 / 0							
0	NA	NA	NA	NA			(0-2.6') Fill. (FILL)
505	1	2.6-5	2.6	0.0			(2.6-5) Reddish brown GRAVELY SILT and fine to coarse subrounded to angular Limestone GRAVEL, trace medium to coarse subrounded Sand, medium dense, no plasticity, dry to moist. (TILL)
5	2	5-10	4.8	0.0	X		(0-4.8') Reddish brown GRAVELY SILT and fine to coarse subrounded to angular Limestone GRAVEL, trace medium to coarse subrounded Sand, medium dense, no plasticity, dry to moist. (TILL)
500							
10	3	10-15	4.8	0.0			(0-2.2') Reddish brown GRAVELY SILT and fine to coarse subrounded to angular Limestone GRAVEL, trace medium to coarse subrounded Sand, medium dense, no plasticity, dry to moist. (TILL)
495				0.0			(2.2-4.8') Dark gray varved CLAY, stiff, low to no plasticity, moist. (CLAY)
15				0.0			(0-1') Slough.
				0.0			(1-1.8') Reddish brown SILTY SAND and fine to coarse subrounded to subangular SAND, loose, moist. (TILL)
				0.0			(1-1.8') Reddish brown SILTY SAND and fine to coarse subrounded to subangular SAND, loose, moist. (TILL)



Well/Boring Construction

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Location hand cleared/air knifed 0-2.6' bgs. Analytical sample collected from 8-9' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **PZ-26**

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	490	4	15-20	4.8	0.0			(1.8-4.8') Dark gray SANDY SILT and fine to medium subangular SAND, few medium to coarse subrounded to subangular Limestone Gravel, medium dense, wet. (TILL)	
20								End of Boring at 20' bgs.	1" Sch 40 PVC Cap at base of Screen (19.42-19.82' bgs)
	485								
25									
	480								
30									
	475								
35									

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Location hand cleared/air knifed 0-2.6' bgs. Analytical sample collected from 8-9' bgs for VOCs.

Date Start/Finish: 5/17/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127870.1
Easting: 1167159.4
Casing Elevation: 504.12' AMSL

Borehole Depth: 17' bgs
Surface Elevation: 504.39' AMSL

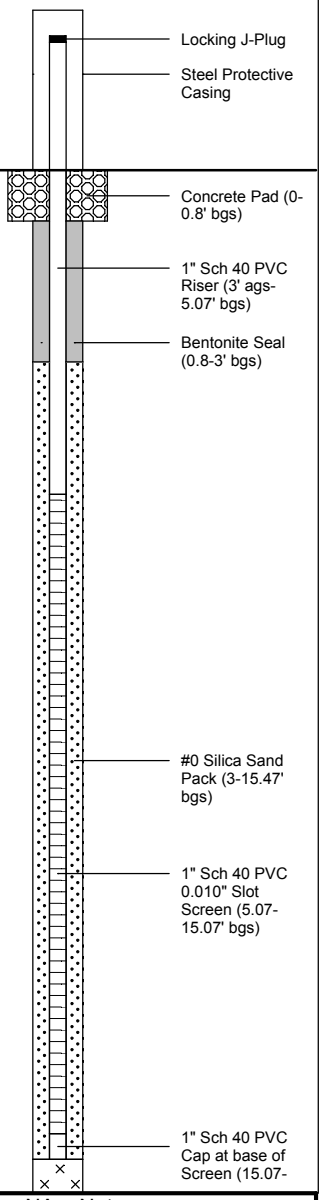
Descriptions By: Daniel Zuck

Well/Boring ID: PZ-27

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	505							
0		NA	NA	NA	NA			(0-4') Hand cleared/air knifed. (FILL)
	500	1	4-9	5.15	0.0			(0-3') Medium brown (hints of red) GRAVELY SILT and medium to coarse subangular to angular Limestone GRAVEL, trace fine to medium Sand, very dense, no plasticity, dry to moist. (TILL)
5					0.0			(3-5.15') Dark gray varved CLAY, very dense, low plasticity, dry to moist. (CLAY)
	495	2	9-14	4.8	0.0	X		(0.9-3.1') Medium to dark brown SANDY CLAY and fine to medium SAND, trace coarse Limestone Gravel, medium dense, no plasticity, moist. (CLAY)
10					0.0			(3.1-4.8') Medium to dark brown SANDY CLAY and fine to coarse subangular to angular SAND, trace coarse Limestone Gravel, medium dense, no plasticity, wet. (CLAY)
					0.0			(2.1-3.8') Light to medium gray SANDY SILT and very fine to coarse subangular to angular SAND, few fine angular Gravel, trace coarse subrounded to subangular Limestone Gravel, medium dense, dry to moist. (TILL)
	490				0.0			(0-1') Slough, cave in.
15		3	14-17	4.5				(1-4.5') Light medium gray SANDY SILT, some fine to medium Limestone and Shale fragments/Gravel, some very fine to medium subangular to angular, loose to medium dense, dry to moist. (TILL)



Well/Boring Construction

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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 9-10' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-27

Borehole Depth: 17' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				0.0			(1-4.5') Light medium gray SANDY SILT, some fine to medium Limestone and Shale fragments/Gravel, some very fine to medium subangular to angular, loose to medium dense, dry to moist. (TILL)	15.47' bgs) Formation Collapse (15.47-17' bgs)
							End of Boring at 17' bgs.	
485 / 20								
480 / 25								
475 / 30								
470 / 35								

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Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 9-10' bgs for VOCs.

Date Start/Finish: 5/25 & 5/27/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127870.1
Easting: 1167159.4
Casing Elevation: 504.12' AMSL

Borehole Depth: 22' bgs
Surface Elevation: 504.39' AMSL

Descriptions By: Daniel Zuck

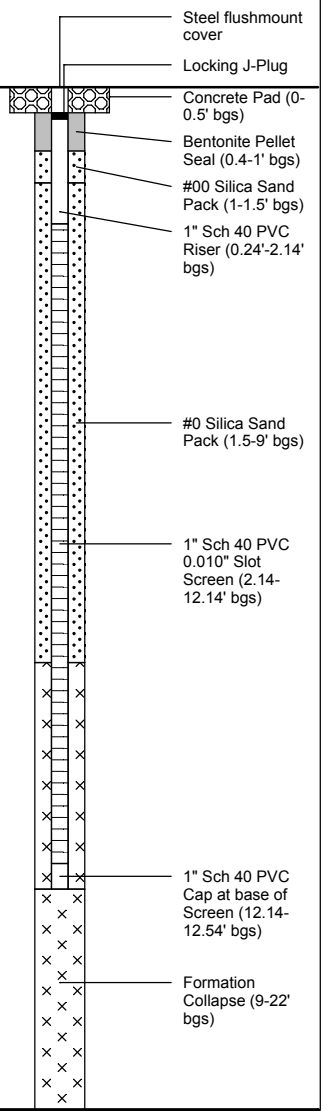
Well/Boring ID: PZ-28

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Medium brown and gray FILL and native SANDY SILT. (FILL)
5	500	1	5-10	4.5	0.0			(0-4.5') Medium dark gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, trace coarse subrounded Sand, trace coarse subrounded to subangular Gravel, very dense, no plasticity, moist. (TILL)
10	495	2	10-15	4.9	0.0			(0-2.6') Medium dark gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, trace coarse subrounded Sand, trace coarse subrounded to subangular Gravel, very dense, no plasticity, moist. (TILL)
					0.0			(2.6-2.8') Dark gray very fine SAND, trace Silt, loose, no plasticity, moist to wet. (TILL)
					0.0			(2.8-4.9') Dark gray varved CLAY, trace very fine Sand, very stiff, low plasticity, moist. (CLAY)
15	490				0.6	X		(0-1') Dark gray varved CLAY, trace very fine Sand, very stiff, low plasticity, moist. (CLAY)

Well/Boring Construction



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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 15-16' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **PZ-28**

Borehole Depth: 22' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				0.0			(1-1.75') Dark gray CLAYEY SILT, some fine to medium subrounded to subangular Gravel, medium stiff to stiff, no plasticity, wet. (CLAY)	
	3	15-20	3.5	0.0			(1.75-3.5') Dark gray SANDY SILT and very fine to fine SAND, some medium subangular Sand, few medium to coarse subrounded to subangular Gravel, trace medium to coarse 2" subrounded to subangular Pebbles, dense, no plasticity, wet. (TILL)	Formation Collapse (9-22' bgs)
485								
20								
	4	20-22	1.7	0.0			(0-1.35') Dark gray SANDY SILT and very fine to fine SAND, some medium subangular Sand, few medium to coarse subrounded to subangular Gravel, trace medium to coarse 2" subrounded to subangular Pebbles, dense, no plasticity, wet. (TILL)	
				0.0			(1.35-1.7') Dark gray SHALE, 1-3mm layers, fractured. (BEDROCK)	
							End of Boring at 22' bgs.	
480								
25								
475								
30								
470								
35								

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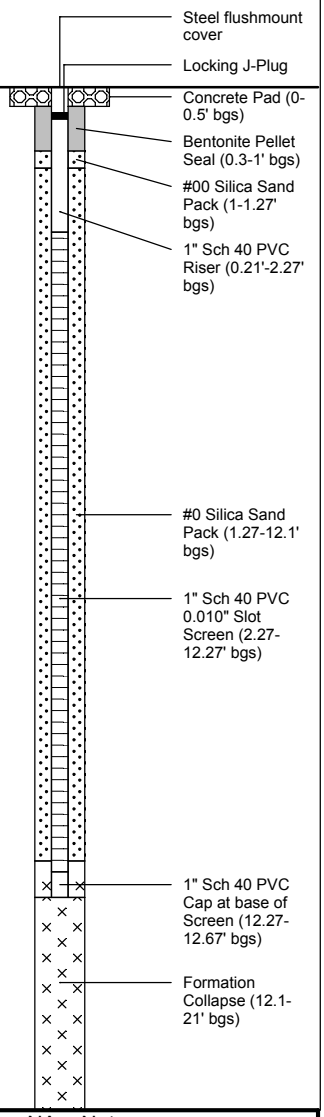
Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 15-16' bgs for VOCs.

Date Start/Finish: 5/25 & 5/27/2010 **Drilling Company:** Zebra Environmental **Driller's Name:** Jon Cewl **Drilling Method:** Direct Push **Sampling Method:** 2.5" by 5' Acetate Liner **Rig Type:** Track-Mounted Geoprobe Rig	**Northing:** 1127907.1 **Easting:** 1167242.0 **Casing Elevation:** 503.84' AMSL **Borehole Depth:** 21' bgs **Surface Elevation:** 504.06' AMSL **Descriptions By:** Daniel Zuck	**Well/Boring ID:** **PZ-29** **Client:** Lockheed Martin Corporation **Location:** 525 French Road Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Medium brown SAND an SILT and GRAVEL. (FILL)
5	500	1	5-10	3.75	5.2	X		(0-3.75') Medium brown/gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse Sand and coarse subrounded to subangular Gravel, dense, stiff, no plasticity, wet (0-2.4'), moist (2.4-3.75'). (TILL)
10	495	2	10-15	3.9	0.0			(0-3.9') Medium brown/gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse Sand and coarse subrounded to subangular Gravel, dense, stiff, no plasticity, moist. (TILL)
15	490							(0-2.7') Medium brown/gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, some fine to medium subrounded to subangular Sand, few coarse Sand and coarse subrounded to subangular Gravel, dense, stiff, no plasticity, moist. Fractured Sandstone (1.85-2.9') and fractured Limestone (2.25-2.4'). (TILL)



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-29

Borehole Depth: 21' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
485	3	15-20	2.7	0.3			(0-2.7') Medium brown/gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, some fine to medium subrounded to subangular Sand, few coarse Sand and coarse subrounded to subangular Gravel, dense, stiff, no plasticity, moist. Fractured Sandstone (1.85-2.9') and fractured Limestone (2.25-2.4'). (TILL)	Formation Collapse (9-22' bgs)
20							(0-0.3') Slough.	
	4	20-21	1	0.0			(0.3-1') Medium dark gray SANDY SILT and fine to medium SAND, few coarse Sand to fine subrounded to subangular Grave;, medium dense, loose, no plasticity. (TILL)	
							End of Boring at 21' bgs.	
480								
25								
475								
30								
470								
35								

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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

Date Start/Finish: 5/25 & 5/27/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127969.2
Easting: 1167400.7
Casing Elevation: 504.72' AMSL

Borehole Depth: 21' bgs
Surface Elevation: 505.08' AMSL

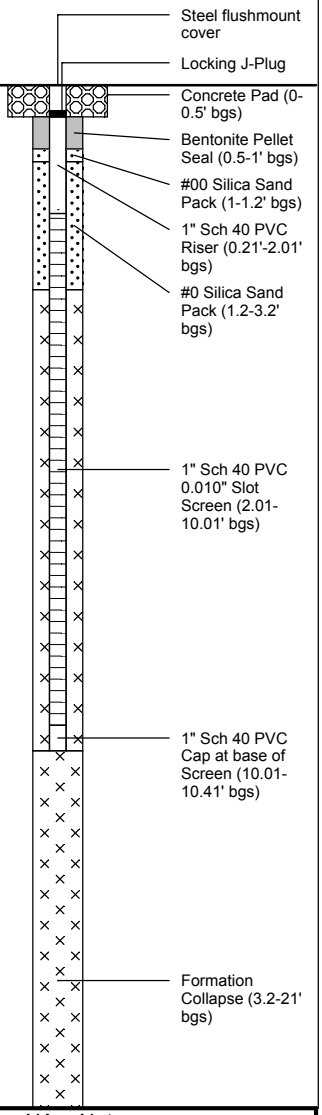
Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-30**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Medium brown SANDY SILT and GRAVEL. (FILL)
5	500	1	5-10	2.7	0.0 0.0 0.0 0.0			(0-0.2') Slough; Medium brown SANDY SILT and fine to medium subangular GRAVEL. (FILL) (0.2-0.8') Fractured LIMESTONE and PEBBLES. (ROCK) (0.8-2.1') Dark gray SANDY SILT and fine to medium subangular SAND, some fine to medium subrounded to subangular Gravel, few coarse Sand and coarse subrounded to subangular Gravel, medium dense, medium stiff, no plasticity, wet. (TILL) (2.1-2.7') Dark brownish gray SILTY CLAY, few coarse Sand to fine subrounded to subangular Gravel, trace coarse subrounded Gravel, stiff, low to no plasticity, moist. (TILL)
10	495	2	10-15	3.8	0.47 0.0	X		(0-1.2') Dark gray varved CLAY, trace coarse subrounded Sand, stiff, low to no plasticity, moist to wet. (CLAY) (1.2-3.8') Medium dark gray SANDY SILT and very fine to medium subangular SAND, some fine to medium subangular Gravel, trace coarse subrounded Gravel, medium dense, no plasticity, wet, saturated (1.8-2.4'). (TILL)
15	490							(0-4.3') Medium dark gray SANDY SILT and very fine to medium subangular SAND, some fine to medium subangular Gravel, trace coarse subrounded Gravel, fractured Limestone (3.8-4'), medium dense, dense to very dense (3-4.3'), no plasticity, wet, saturated (1.5-2'). (TILL)



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-11' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **PZ-30**

Borehole Depth: 21' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20 / 485	3	15-20	4.3	0.05			(0-4.3') Medium dark gray SANDY SILT and very fine to medium subangular SAND, some fine to medium subangular Gravel, trace coarse subrounded Gravel, fractured Limestone (3.8-4'), medium dense, dense to very dense (3-4.3'), no plasticity, wet, saturated (1.5-2'). (TILL)	Formation Collapse (3.2-21' bgs)
	4	20-21	1.4	0.0			(0-1.4') Medium dark gray SANDY SILT and very fine to medium subangular SAND, some fine to medium subangular Gravel, trace coarse subrounded Gravel, fractured Limestone (0.9-1.15'), dense to very dense, no plasticity, wet. (TILL)	
25 / 480							Refusal at 21' bgs. End of Boring.	
30 / 475								
35 / 470								

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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-11' bgs for VOCs.

Date Start/Finish: 5/26 & 5/27/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128008.1
Easting: 1167494.4
Casing Elevation: 505.17' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 505.56' AMSL

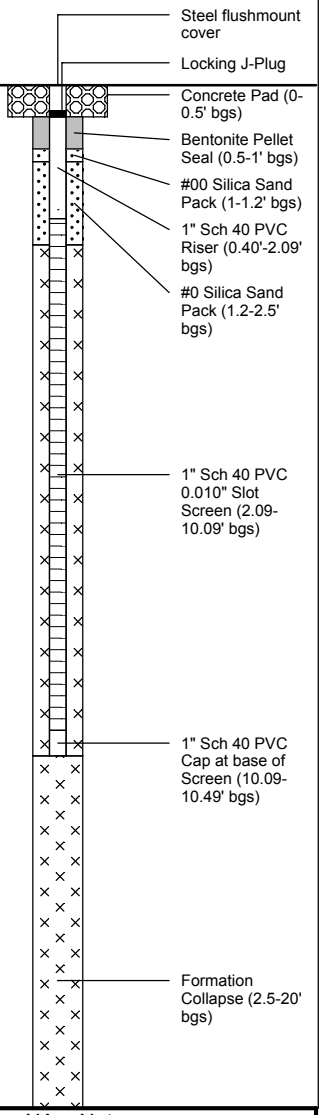
Descriptions By: Daniel Zuck

Well/Boring ID: PZ-31

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Medium brown SANDY SILT with GRAVEL. (FILL)
5	500	1	5-10	5.0	0.23			(0-1.8') Dark brownish gray SILT, some fine to medium subrounded to subangular Gravel, few coarse Sand and coarse subrounded to subangular Gravel, trace fine to medium Sand, dense, stiff, no plasticity, moist. (TILL)
					0.08			(1.8-4.65') Dark brownish gray fine to medium subrounded to subangular GRAVELY SILT, few coarse subrounded to subangular Gravel, trace fine to medium Sand, dense, stiff, no plasticity, moist. (TILL)
					0.16			(4.65-5') Dark gray varved CLAY and very fine to fine SAND, trace medium to coarse subrounded Sand, very stiff, low to no plasticity, moist. (CLAY)
10	495	2	10-15	5.0	0.16			(0-0.5') Dark gray varved CLAY and very fine to fine SAND, trace medium to coarse subrounded Sand, very stiff, low to no plasticity, moist. (CLAY)
					0.19			(0.5-5') Dark gray varved CLAY, trace very fine Sand, stiff, low to no plasticity, moist. (CLAY)
15	490							(0-4.35') Dark gray SANDY SILT and fine to medium subangular SAND, few medium to coarse subangular Gravel, very dense, no plasticity, wet. (TILL)



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 17.5-18.5' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: **PZ-31**

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	3	15-20	4.35	0.40	X		(0-4.35') Dark gray SANDY SILT and fine to medium subangular SAND, few medium to coarse subangular Gravel, very dense, no plasticity, wet. (TILL)	Formation Collapse (2.5-20' bgs)
20 / 485							Limestone transitioning to Shale at 20' bgs. (BEDROCK)	
							Refusal at 20' bgs. End of Boring.	
25 / 480								
30 / 475								
35 / 470								

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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 17.5-18.5' bgs for VOCs.

Date Start/Finish: 5/26-5/27 & 6/1/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128024.4
Easting: 1167548.7
Casing Elevation: 504.90' AMSL

Borehole Depth: 21' bgs
Surface Elevation: 505.29' AMSL

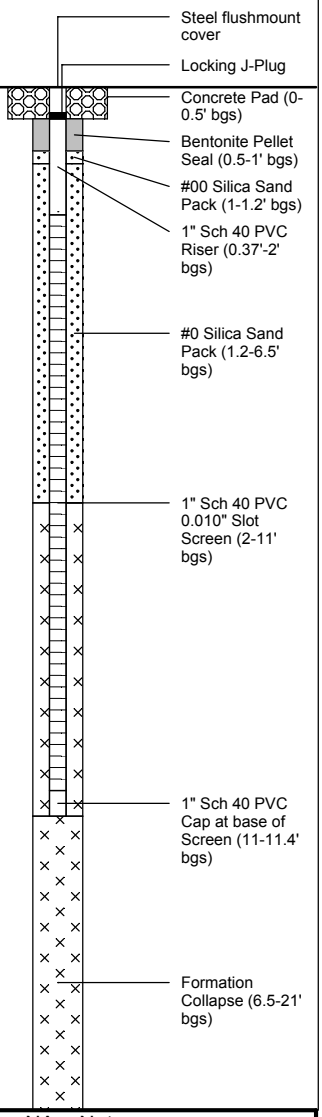
Descriptions By: Daniel Zuck

Well/Boring ID: PZ-32

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Medium brown SANDY SILT and SAND. (FILL)
5	500	1	5-10	5.0	0.21			(0-4.1') Medium brownish gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few very fine to fine Sand, trace coarse subrounded Gravel, loose, soft, moist, saturated (0-0.75'). (TILL)
					0.27			(4.1-5') Dark gray SILTY CLAY and few fine to medium subangular SAND, trace fine to medium subrounded to subangular Gravel, stiff, low to no plasticity, moist. (TILL)
10	495	2	10-15	5.0	0.26			(0-0.3') Dark gray SILTY CLAY and few fine to medium subangular SAND, trace fine to medium subrounded to subangular Gravel, stiff, low to no plasticity, saturated. (TILL)
					0.61			(0.3-1.1') Dark gray SANDY SILT and fine to medium subangular SAND, some fine to medium subangular Gravel, few coarse subrounded Gravel, trace Clay, loose, no plasticity, saturated. (TILL)
					0.38			(1.1-3.3') Dark gray varved CLAY, trace very fine Sand, stiff, medium to low plasticity, moist to wet. (CLAY)
					0.65	X		(3.3-3.95') Dark gray CLAY, some very fine Sand, trace coarse Sand and fine subrounded Gravel, stiff, moist to wet. (CLAY)
					0.33			(3.95-5') Dark gray SANDY SILT and very fine to fine SAND, few coarse subangular to angular Sand, trace coarse subrounded to subangular Gravel. (TILL)
15	490							(0-5') Dark gray SANDY SILT and fine to very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse Sand and coarse Gravel, loose to medium dense, no plasticity, saturated. (TILL)



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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 13-14' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-32

Borehole Depth: 21' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	3	15-20	5.0	0.28			(0-5') Dark gray SANDY SILT and fine to very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse Sand and coarse Gravel, loose to medium dense, no plasticity, saturated. (TILL)	Formation Collapse (6.5-21' bgs)
20 / 485	4	20-21	1.1	0.0 0.54 0.0			(0-0.25') Black SHALE, fractured 1-3mm layers, saturated. (ROCK) (0.25-1') Dark gray SANDY SILT and fine to very fine SAND, few fine to medium subrounded to subangular Gravel, trace coarse Sand and coarse Gravel, loose to medium dense, no plasticity, saturated. (TILL) (1-1.1') Black SHALE, 1cm layers, dense, dry. (BEDROCK) Refusal at 21' bgs. End of Boring.	
25 / 480								
30 / 475								
35 / 470								

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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 13-14' bgs for VOCs.

Date Start/Finish: 5/27 & 6/1/2010
Drilling Company: Zebra Environmental
Driller's Name: Jon Cewl
Drilling Method: Direct Push
Sampling Method: 2.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1128073.3
Easting: 1167660.7
Casing Elevation: 510.00' AMSL

Borehole Depth: 15' bgs
Surface Elevation: 510.27' AMSL

Descriptions By: Daniel Zuck

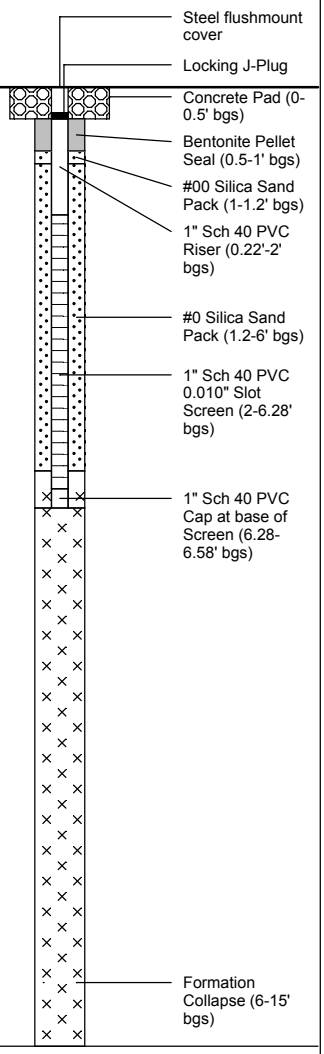
Well/Boring ID: PZ-33

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	510	NA	NA	NA	NA			(0-5') Hand cleared. (FILL)
5	505	1	5-10	3.75	0.76 0.47 0.22			(0-0.8') Dark gray SANDY SILT and fine to medium subangular SAND, some very fine Sand, few fine to medium subrounded to subangular Gravel, medium dense, no plasticity, wet. (TILL) (0.8-1.85') Dark gray varved CLAY, trace coarse subrounded Sand, stiff, low to no plasticity, moist. (CLAY) (1.85-3.75') Dark gray SANDY SILT and fine to medium subangular SAND, some very fine Sand, few fine to medium subrounded to subangular Gravel, medium dense, no plasticity, wet. (TILL)
10	500	2	10-15	3.2	0.81 0.64 0.36 0.56 0.47	X		(0-0.5') Dark gray SILTY SAND and very fine to medium SAND, some coarse subangular Sand, loose, no plasticity, wet. (TILL) (0.5-1.6') Dark gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, trace very fine Sand, very dense, no plasticity, moist. (TILL) (1.6-1.9') Dark gray very fine to fine SAND, some Silt, loose, no plasticity, wet to saturated. (TILL) (1.9-2.9') Dark gray SILTY CLAY, some very fine to fine Sand, stiff, low plasticity, moist. (CLAY) (2.9-3.2') Dark gray GRAVELY SILT and fine to medium subrounded GRAVEL, trace medium subrounded Sand, very dense, very stiff, no plasticity, moist. (TILL)
15	495							Refusal at 15' bgs. End of Boring.

Well/Boring Construction



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Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-11' bgs for VOCs.

Date Start/Finish: 5/20/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127837.7
Easting: 1167296.7
Casing Elevation: 503.88' AMSL

Borehole Depth: 25' bgs
Surface Elevation: 504.12' AMSL

Descriptions By: Daniel Zuck

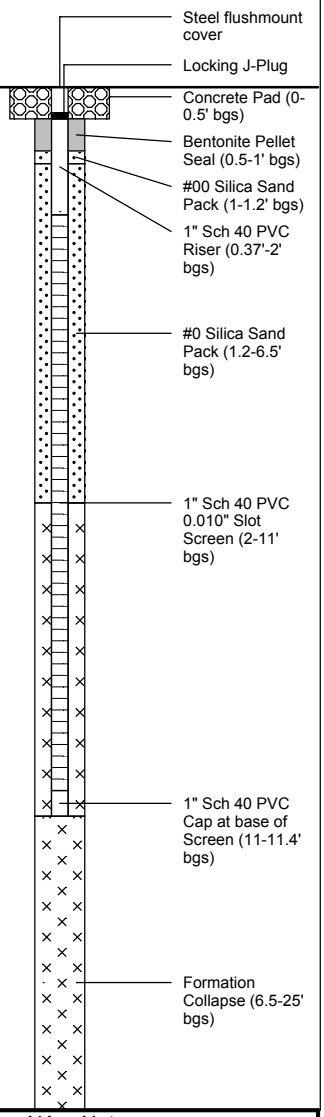
Well/Boring ID: **PZ-34**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	505							
0		NA	NA	NA	NA			(0-5') Medium brown Fill material, Silt and Brick. (FILL)
	500							
5		1	5-10	2.8	2.56	X		(0-0.6') Slough; GRAVEL wet, transitioning to saturated. (0.6-2.8') Reddish gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL and coarse subrounded SAND, some fine to medium Sand, medium dense, no plasticity, moist to wet. (TILL)
	495							
10		2	10-15	3.6	0.02 0.01 0.02			(0-0.4') Slough. (0.4-1') Reddish gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL and coarse subrounded SAND, some fine to medium Sand, dense, no plasticity, wet. (TILL) (1-3.1') Medium gray GRAVELY SILT and medium to coarse subrounded to subangular GRAVEL and coarse SAND to fine subrounded GRAVEL, some fine to medium Sand, medium dense, no plasticity, moist. (TILL) (3.1-3.6') Medium gray GRAVELY SILT and medium to coarse subrounded to subangular GRAVEL and coarse SAND to fine subrounded GRAVEL, some fine to medium Sand, soft, loose, saturated. (TILL)
	490							
15					0.65			(0-0.4') Slough. (0.4-1.3') Dark brown gray varved CLAY, few Silt, trace very fine Sand, low plasticity, moist to wet. (CLAY)

Well/Boring Construction



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

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Client: Lockheed Martin Corporation

Well/Boring ID: PZ-34

Borehole Depth: 25' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0				0.02			(0.4-1.3') Dark brown gray varved CLAY, few Silt, trace very fine Sand, low plasticity, moist to wet. (CLAY)	
	3	15-20	1.5				(1.3-1.5') Dark brown gray CLAY, soft to medium stiff, medium plasticity, wet to saturated. (CLAY)	
485								
20				0.46			(0-0.3') Slough.	
							(0.3-0.65') Dark brown gray CLAY, soft to medium stiff, medium plasticity, wet to saturated. (CLAY)	
				0.51			(0.65-2.4') Medium dark gray SANDY SILT and very fine to medium subangular SAND, few medium to coarse subrounded Limestone Gravel, dense, no plasticity, moist to wet. (TILL)	
	4	20-25	3				(2.4-3') Medium to light gray SILT, few medium to coarse subangular Sand, trace fine to medium subrounded to subangular Gravel, very stiff, very dense, no plasticity, moist. (TILL)	
480								
25							End of Boring at 25' bgs.	
475								
30								
470								
35								

Formation Collapse (6.5-25' bgs)

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

Date Start/Finish: 5/20/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127796.8
Easting: 1167313.6
Casing Elevation: 503.98' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 504.18' AMSL

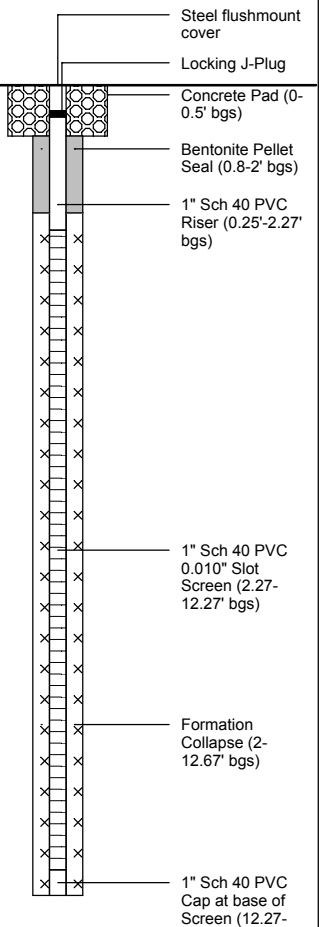
Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-35**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505							
		NA	NA	NA	NA			(0-5') Medium brown SILTY GRAVEL, trace brick, saturated. (FILL)
5	500				0.02			(0-0.3') Slough.
					0.24			(0.3-0.9') Reddish Brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few fine to medium Sand, trace coarse subrounded Gravel, medium stiff, medium dense, no plasticity, wet. (TILL)
		1	5-10	4.8				(0.9-4.8') Reddish brown and gray layered GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, some fine to medium Sand, few coarse subrounded Gravel, trace Clay lenses, dense, no plasticity, moist. (TILL)
					0.09			
10	495							(0-2.5') Slough.
					0.01			
		2	10-15	4.8				(2.5-4.8') Reddish brown and gray layered GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, some fine to medium Sand, few coarse subrounded Gravel, trace Clay lenses, dense, no plasticity, moist. (TILL)
					0.14			
15	490							(0-5') NO RECOVERY.



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-35

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
485	3	15-20	0	NA			(0-5') NO RECOVERY.	
20							End of Boring at 20' bgs.	
480								
25								
475								
30								
470								
35								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Date Start/Finish: 5/21/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127869.8
Easting: 1167440.9
Casing Elevation: 504.23' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 504.23' AMSL

Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-36**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
	505							
0								(0-5') Fill material. (FILL)
		NA	NA	NA	NA			
	500							
5								(0-0.5') Slough; saturated.
					0.03			(0.5-1.45') Reddish gray SANDY SILT and fine to medium subangular SAND, few coarse Sand to fine subrounded to subangular Gravel, trace coarse subrounded Gravel, soft, low plasticity, saturated. (TILL)
		1	5-10	4.0	0.02			(1.45-4') Brownish gray GRAVELY SILT and fine to medium subangular GRAVEL, some coarse subrounded Sand, trace medium Sand, trace coarse subrounded Gravel, stiff, no plasticity, moist. (TILL)
	495							
10								(0-0.3') Slough.
						X		(0.3-3.5') Brownish gray GRAVELY SILT and fine to medium subangular GRAVEL, some coarse subrounded Sand, trace medium Sand, trace coarse subrounded Gravel, stiff, no plasticity, moist. Very stiff, very dense (3.1-3.5'). (TILL)
		2	10-15	3.5	0.07			
	490							
15								(0-0.2') Slough.
					0.04			(0.2-0.6') Brownish gray GRAVELY SILT and fine to medium subangular GRAVEL,

Well/Boring Construction

- Steel flushmount cover
- Locking J-Plug
- Concrete Pad (0-0.5' bgs)
- Bentonite Pellet Seal (0.5-1.2' bgs)
- 1" Sch 40 PVC Riser (0.2'-1.7' bgs)
- 1" Sch 40 PVC 0.010" Slot Screen (1.7-11.7' bgs)
- Formation Collapse (1.2-12.1' bgs)
- 1" Sch 40 PVC Cap at base of Screen (11.7-12.1' bgs)

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-11' bgs for VOCs. MS/MSD collected.

Client: Lockheed Martin Corporation

Well/Boring ID: **PZ-36**

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
485	3	15-20	3.5	0.0			some coarse subrounded Sand, trace medium Sand, trace coarse subrounded Gravel, very stiff, very dense, no plasticity, moist. (TILL)	
							(0.6-2.95') Dark gray varved CLAY, trace fine to coarse Gravel, very stiff, no plasticity, moist. (CLAY)	
				0.04			(0.6-2.95') Dark gray varved CLAY, trace fine to coarse Gravel, very stiff, no plasticity, moist. (CLAY)	
20							(2.95-3.5') Dark to medium gray SANDY SILT and fine to very fine SAND, few subrounded Gravel, stiff, dense, no plasticity, moist to wet. (TILL)	Formation Collapse (12.1-20' bgs)
480							End of Boring at 20' bgs.	
25								
475								
30								
470								
35								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-11' bgs for VOCs. MS/MSD collected.

Date Start/Finish: 5/24/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127874.1
Easting: 1167552.2
Casing Elevation: 504.51' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 504.71' AMSL

Descriptions By: Daniel Zuck

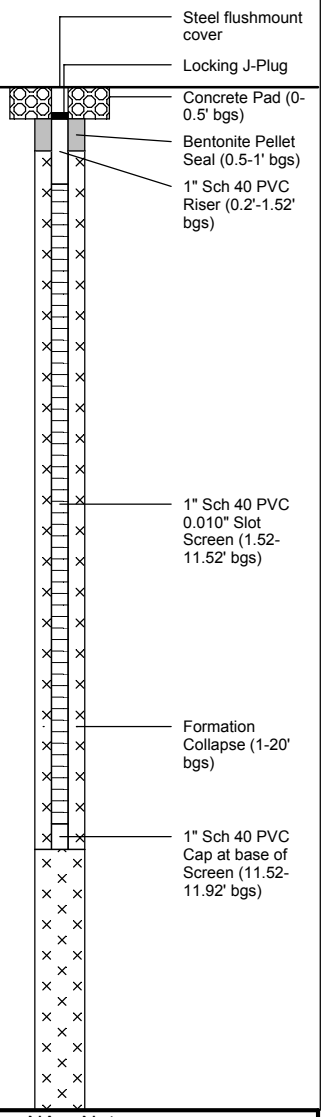
Well/Boring ID: **PZ-39**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505							
		NA	NA	NA	NA			(0-6') Hand cleared/ air knifed to native material. (FILL)
5	500							
		1	6-10	2.8	0.07			(0-0.9') Slough; SILT and GRAVEL, saturated. (0.9-2.9') Dark reddish brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few medium to coarse subangular Sand, trace coarse subrounded Gravel, medium dense, no plasticity, moist to wet. (TILL)
10	495							
		2	10-15	1.0	0.61 0.0			(0-1') Slough; stone stuck in shoe tip.
15	490					X		(0-0.3') Slough. (0.3-2.5') Medium to dark gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few medium to coarse subrounded Sand, trace coarse

Well/Boring Construction



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-6' bgs. Analytical sample collected from 15-16' bgs for VOCs. MS/MSD collected.

Client: Lockheed Martin Corporation

Well/Boring ID: **PZ-39**

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
485	3	15-20	3.1	0.4 0.13			subrounded to subangular Gravel, very stiff, to very dense, no plasticity, moist. (TILL) (0.3-2.5') Medium to dark gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few medium to coarse subrounded Sand, trace coarse subrounded to subangular Gravel, very stiff, to very dense, no plasticity, moist. (TILL) (2.5-3.1') Dark gray varved CLAY, trace very fine to fine Sand, medium stiff, low plasticity, moist. (CLAY)	Formation Collapse (1-20' bgs)
20							End of Boring at 20' bgs.	
480								
25								
475								
30								
470								
35								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-6' bgs. Analytical sample collected from 15-16' bgs for VOCs. MS/MSD collected.

Date Start/Finish: 5/25/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127927.2
Easting: 1167375.6
Casing Elevation: 506.46' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 506.68' AMSL

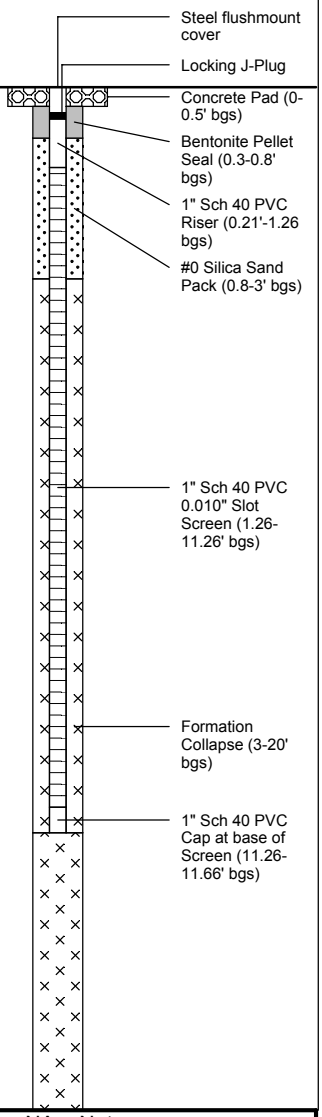
Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-40**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	506							
	505	NA	NA	NA	NA			(0-5') Hand cleared/air knifed. (FILL)
5								
	500	1	5-10	4.5	1.2			(0-0.9') Fill material; Medium brown SANDY SILT, few to some medium subrounded Gravel and fine to medium Sand, loose. Black staining (0.5-0.9'). (FILL)
					0.41			(0.9-1.8') Fill material; Medium brownish gray SANDY SILT, few to some medium subrounded Gravel and fine to medium Sand, loose, saturated. (FILL)
					0.53			(1.8-2.15') Brownish gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, trace coarse subangular gravel, medium stiff, low to no plasticity, moist to wet. (TILL)
					0.27			(2.15-4.5') Reddish brown GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, trace coarse subangular gravel, stiff, low to no plasticity, moist. (TILL)
10								(0-0.25') Slough.
	495	2	10-15	2.7	1.23	X		(0.25-2.1') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, trace coarse subrounded Gravel, trace fine to medium Sand, stiff, no plasticity, moist. Limestone fragments (1.5-1.75'). (TILL)
					0.43			(2.1-2.35') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, trace coarse subrounded Gravel, trace fine to medium Sand, very stiff, no plasticity, moist. (TILL)
					0.3			
					0.56			(2.35-2.7') Medium brownish gray varved CLAY, trace very fine Sand, stiff, low plasticity, moist. (CLAY)
15								(0-0.75') Slough. (CLAY)
					0.35			(0.75-2.7') Medium to dark gray varved CLAY, trace very fine Sand, very stiff, low



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-10.5' bgs for VOCs.

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Client: Lockheed Martin Corporation

Well/Boring ID: PZ-40

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490	3	15-20	4	0.51			plasticity, moist. (CLAY) (0.75-2.7') Medium to dark gray varved CLAY, trace very fine Sand, very stiff, low plasticity, moist. (CLAY)	
				0.29			(2.7-4') Medium to dark gray SANDY SILT and fine to medium subangular SAND, few fine to medium subangular Gravel, trace coarse subrounded Gravel, dense, no plasticity, wet. (TILL)	Formation Collapse (3-20' bgs)
20							End of Boring at 20' bgs.	
485								
25								
480								
30								
475								
35								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 10-10.5' bgs for VOCs.

Date Start/Finish: 5/25/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127970.0
Easting: 1167471.3
Casing Elevation: 506.27' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 506.55' AMSL

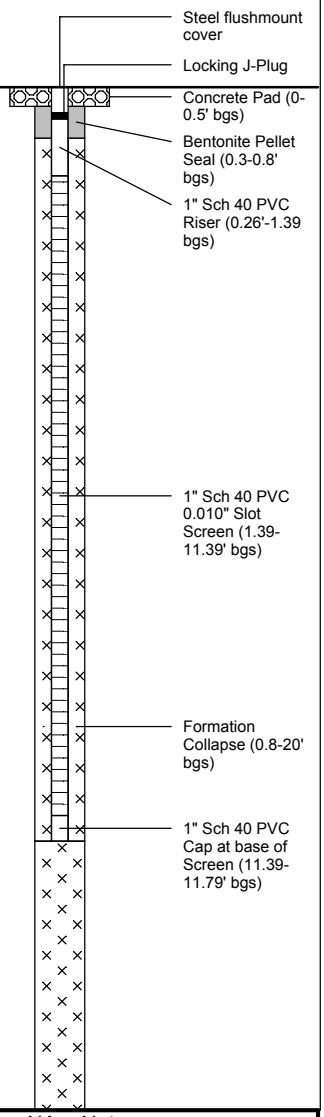
Descriptions By: Daniel Zuck

Well/Boring ID: **PZ-41**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	0.66			(0-5') Fill material. (FILL)
5	500	1	5-10	4.8	0.45	X		(0-1.4') Medium brown SANDY SILT and medium to fine SAND, few medium to coarse subrounded to subangular Gravel, loose, no plasticity. Mixture of fill and native material. (TILL)
					0.0			(1.4-4.8') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few very fine to fine Sand, trace coarse subrounded Gravel, medium stiff, medium dense, no plasticity, moist. (TILL)
10	495	2	10-15	2.8	0.02			(0-0.3') Slough.
					0.03			(0.3-1.15') Medium gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few very fine to fine Sand, trace coarse subrounded Gravel, medium stiff, medium dense, no plasticity, moist. (TILL)
					0.04			(1.15-2.05') Medium to dark gray varved CLAY, trace very fine Sand, stiff to very stiff, low plasticity, moist. (CLAY)
15								(2.05-2.8') Dark gray SANDY SILT and fine to medium subangular SAND, trace coarse Sand, trace fine subrounded to subangular Gravel, dense, no plasticity, moist to wet. (TILL)
								(0-0.3') Slough.
								(0.3-3.4') Dark gray SANDY SILT and fine to medium subangular SAND, few medium to coarse subrounded Gravel, trace coarse Sand, trace fine subrounded to



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Client: Lockheed Martin Corporation

Well/Boring ID: PZ-41

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490	3	15-20	3.4	0.0			subangular Gravel, dense, no plasticity, moist to wet. Very dense (2.3-3.4'). (TILL) (0.3-3.4') Dark gray SANDY SILT and fine to medium subangular SAND, few medium to coarse subrounded Gravel, trace coarse Sand, trace fine subrounded to subangular Gravel, dense, no plasticity, moist to wet. Very dense (2.3-3.4'). (TILL)	Formation Collapse (0.8-20' bgs)
20							End of Boring at 20' bgs.	
485								
25								
480								
30								
475								
35								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 5-6' bgs for VOCs.

Date Start/Finish: 5/25/2010
Drilling Company: Zebra Environmental
Driller's Name: Phil Orsi
Drilling Method: Direct Push
Sampling Method: 1.5" by 5' Acetate Liner
Rig Type: Track-Mounted Geoprobe Rig

Northing: 1127992.3
Easting: 1167573.5
Casing Elevation: 505.18' AMSL

Borehole Depth: 20' bgs
Surface Elevation: 505.45' AMSL

Descriptions By: Daniel Zuck

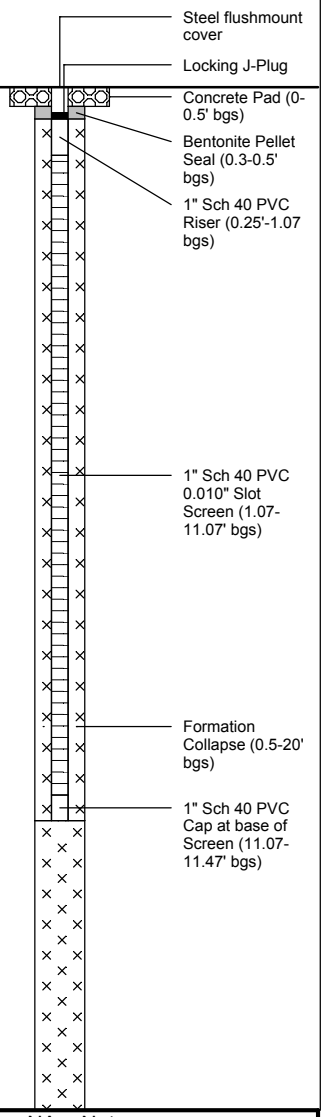
Well/Boring ID: **PZ-42**

Client: Lockheed Martin Corporation

Location: 525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	505	NA	NA	NA	NA			(0-5') Fill material. (FILL)
5	500				2.6			(0-0.75) Slough/Fill; wet to saturated. (FILL)
		1	5-10	4.0	2.1	X		(0.75-4') Reddish brown/gray GRAVELY SILT and fine to medium subrounded to subangular GRAVEL, few coarse subangular Gravel, trace fine to medium Sand, medium dense to dense, no plasticity, moist. (TILL)
10	495							(0-0.8') Slough. (TILL)
					0.31			(0.8-1.8') Medium gray GRAVELY SILT and fine to medium subrounded to subangular, few coarse subangular Gravel, trace fine to medium Sand, medium dense to dense, no plasticity, moist. (TILL)
		2	10-15	3.3	0.29			(1.8-3.3') Medium to dark gray GRAVELY SILT and fine to medium subrounded to subangular Gravel, few medium to coarse Sand, very dense, no plasticity, moist. (TILL)
15	490							(0-3.45') Slough; medium brown SAND and SILT, saturated.

Well/Boring Construction



Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

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Client: Lockheed Martin Corporation

Well/Boring ID: PZ-42

Borehole Depth: 20' bgs

Site Location:
525 French Road
Utica, New York

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		3	15-20	4.8	1.2			(0-3.45') Slough; medium brown SAND and SILT, saturated. (TILL)	Formation Collapse (0.5-20' bgs)
								(3.45-3.55') Dark gray SANDY SILT and fine to medium subangular SAND, few coarse subrounded Sand, loose, no plasticity, saturated. (TILL)	
					0.24			(3.55-4.5') Dark gray varved CLAY, trace very fine Sand, soft to medium dense, medium to low plasticity, wet. (CLAY)	
					0.27				
20					0.51			(4.5-4.8') Dark gray SANDY SILT and fine to medium subangular SAND, few subrounded to subangular coarse Sand to fine Gravel, trace coarse gravel, very dense, no plasticity, moist. (TILL)	
	485							End of Boring at 20' bgs.	
25	480								
30	475								
35	470								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Location hand cleared/air knifed 0-5' bgs. Analytical sample collected from 6-7' bgs for VOCs.

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Appendix B

Soil-Vapor-Probe Construction Logs

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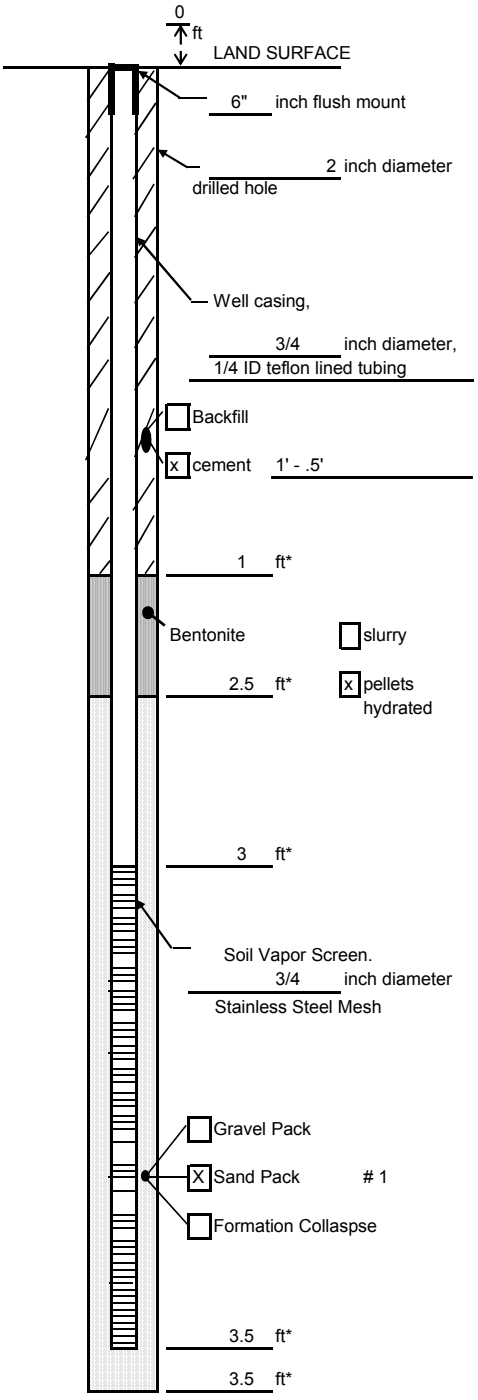
Soil Gas Probe Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project LMC- Utica Well SG-7

Town/City Utica, NY

County Oneida State NY

Permit No. N/A

Land-Surface Elevation and Datum:

_____ feet [x] Surveyed

[ ] Estimated

Installation Date(s) 8/2/2010

Drilling Method Geoprobe Rig

Drilling Contractor Zebra

Drilling Fluid None

Development Technique(s) and Date(s)

Fluid Loss During Drilling NA gallons

Water Removed During Development NA gallons

Static Depth to Water NA feet below M.P.

Pumping Depth to Water N/A feet below M.P.

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Soil vapor sampling

Remarks

Prepared by D. Zuck

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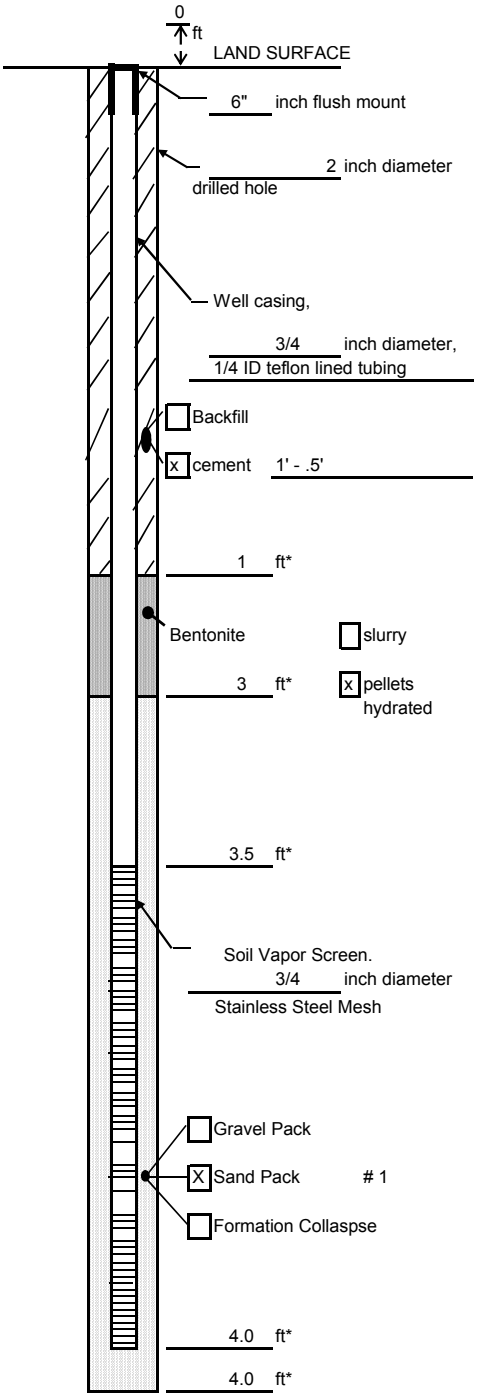
Soil Gas Probe Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project LMC- Utica Well SG-22

Town/City Utica, NY

County Oneida State NY

Permit No. N/A

Land-Surface Elevation and Datum:

_____ feet [x] Surveyed

[ ] Estimated

Installation Date(s) 8/2/2010

Drilling Method Geoprobe Rig

Drilling Contractor Zebra

Drilling Fluid None

Development Technique(s) and Date(s)

Fluid Loss During Drilling NA gallons

Water Removed During Development NA gallons

Static Depth to Water NA feet below M.P.

Pumping Depth to Water N/A feet below M.P.

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Soil vapor sampling

Remarks

Prepared by D. Zuck

D□□□ S□□r□F□□□□□□ 5/18-5/19/2010
Dr□□□□□ C□□ □□□□□ Zebra Environmental
Dr□□□r□□ N□□ □□ Phil Orsi
Dr□□□□□ M□□□□d□ Direct Push
S□□ □□□□ M□□□□d□ 1.5" by 5' Acetate Liner
R□ T□□□□Track-Mounted Geoprobe Rig

N□r□□□□□1127941.1
E□□□□□□1167256.4
C□□□□ E□□□□□□□NA' AMSL

B□r□□□□ D□□□□ 25' bgs
S□r□□□ E□□□□□□□507.4' AMSL

D□□□r□□□□□ B□□ Daniel Zuck

W□□B□r□□ ID□SG□23

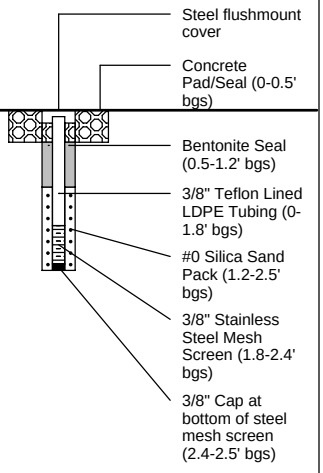
C□□□□Lockheed Martin Corporation

L□□□□□□□525 French Road
Utica, New York

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510							
0							(0-4.5') Hand cleared.
505	NA	NA	NA	0.0			
	1	4.5-5	1.05	0.0 0.0			(0-0.6') Slough; Back fill soil with organics.
5				0.0			(0.6-1.05') Light to medium brown SILTY SAND and very fine to medium subrounded to subangular SAND, trace Clay, medium dense, no plasticity, wet.
							(0-0.5') Slough.
				0.0	X		(0.5-1.9') Reddish gray GRAVELY SILT and fine subrounded to subangular GRAVEL, few medium to coarse Sand, trace medium to coarse Limestone fragments and Gravel, medium stiff, no plasticity, moist to wet.
500	2	5-10	4.0	0.0			(1.9-4') Medium gray GRAVELY SILT and fine subrounded to subangular GRAVEL, few medium to coarse Sand, trace medium to coarse angular Limestone Gravel fragments, stiff, no plasticity, moist to wet.
10							(0-3.7') Medium gray GRAVELY SILT and fine subrounded to subangular GRAVEL, few medium to coarse Sand, trace medium to coarse angular Limestone Gravel fragments, stiff, no plasticity, moist to wet.
495	3	10-15	4.8				
				0.0			(3.7-4.8') Medium to dark gray CLAY, few coarse subrounded Sand, varved, stiff, low plasticity, moist.
15							(0-0.9') Slough.

Well/Boring Construction



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SG-23 lithology and drilling information from PZ-23 log.

Location hand cleared/air knifed 0-4.5' bgs. Analytical sample collected from 6-7' bgs for VOCs. DUP-051810 collected.

C□□□□□Lockheed Martin Corporation

W□□□B□r□□□ ID□SG□23

B□r□□□□□ D□□□□□ 25' bgs

S□□□ L□□□□□□□□

525 French Road
Utica, New York

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490	4	15-20	4.8	0.0			(0.9-3.2') Medium to dark gray CLAY, few coarse subrounded Sand, varved, stiff, low plasticity, moist.	
				0.0			(3.2-4.8') Medium to dark gray SANDY SILT and medium subangular to angular SAND, some fine to medium Sand, trace coarse Sand to fine subangular to angular Gravel, loose to medium dense, no plasticity, pockets of saturation.	
20								
				0.0			(0-1.1') Slough.	
485	5	20-25	4.5	0.0			(1.1-3.1') Medium to dark gray SANDY SILT and medium subangular to angular SAND, some fine to medium Sand, trace coarse Sand to fine subangular to angular Gravel, loose to medium dense, no plasticity, pockets of saturation.	
				0.0			(3.1-4.5') Dark gray GRAVELY SILT and fine to medium subangular to angular GRAVEL, few coarse subrounded Sand to medium Sand, very dense, no plasticity, wet, trace pockets of saturation.	
25							End of Boring at 25' bgs.	
480								
30								
475								
35								

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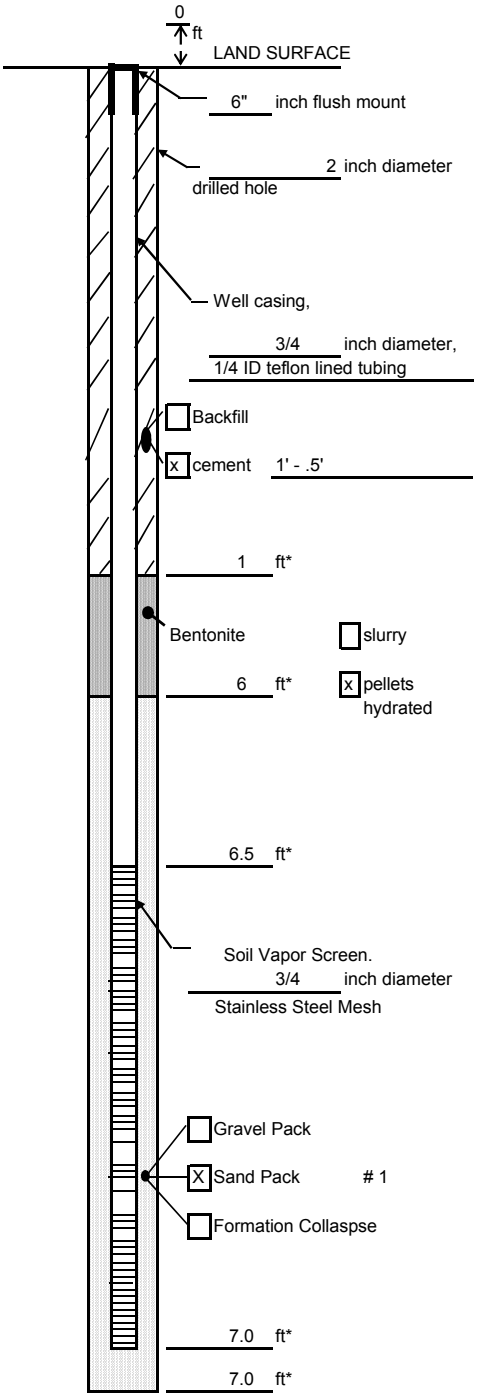
SG-23 lithology and drilling information from PZ-23 log.

Location hand cleared/air knifed 0-4.5' bgs. Analytical sample collected from 6-7' bgs for VOCs. DUP-051810 collected.

ARCADIS

Soil Gas Probe Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project LMC- Utica Well SG-24

Town/City Utica, NY

County Oneida State NY

Permit No. N/A

Land-Surface Elevation and Datum:

_____ feet [x] Surveyed [ ] Estimated

Installation Date(s) 8/2/2010

Drilling Method Geoprobe Rig

Drilling Contractor Zebra

Drilling Fluid None

Development Technique(s) and Date(s)

Fluid Loss During Drilling NA gallons

Water Removed During Development NA gallons

Static Depth to Water NA feet below M.P.

Pumping Depth to Water N/A feet below M.P.

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Soil vapor sampling

Remarks

Prepared by D. Zuck

D□□□ S□□r□F□□□□□□ 5/17/2010
Dr□□□□□□ C□□ □□□□□ Zebra Environmental
Dr□□□r□□ N□□ □□ Phil Orsi
Dr□□□□□□ M□□□□d□ Direct Push
S□□ □□□□□ M□□□□d□ 1.5" by 5' Acetate Liner
R□□ T□□□□Track-Mounted Geoprobe Rig

N□r□□□□□1128027.8
E□□□□□□1167472.2
C□□□□□ E□□□□□□□NA' AMSL

B□r□□□□D□□□□□ 20.11' bgs
S□r□□□□ E□□□□□□□507.8' AMSL

D□□□r□□□□□B□□ Daniel Zuck

W□□□B□r□□□ ID□SG□2□

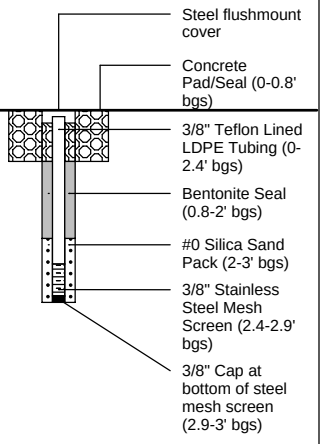
C□□□□□Lockheed Martin Corporation

L□□□□□□□525 French Road
Utica, New York

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510							
0							
	NA	NA	NA	NA			(0-4') Hand cleared; backfill.
505							
	1	4-5	0.8	0.0			(0-0.8') Reddish brown GRAVELY SILT and fine to medium subangular to angular GRAVEL, few medium to coarse subangular to angular Sand, trace coarse subrounded Gravel, medium dense to dense, no plasticity, moist.
5							
				0.0			(0-0.35') Reddish brown GRAVELY SILT and fine to medium subangular to angular GRAVEL, few medium to coarse subangular to angular Sand, trace coarse subrounded Gravel, medium dense to dense, no plasticity, moist.
							(0.35-4.8') Light to medium gray GRAVELY SILT and fine to medium subangular to angular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone Gravel, trace fine 1.5" Pebbles, medium dense, dry to moist.
500	2	5-10	4.8		X		
				0.0			
10							
				0.0			(0-0.65') Slough.
							(0.65-3.2') Light to medium gray GRAVELY SILT and fine to medium subangular to angular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone Gravel, trace fine 1.5" Pebbles, medium dense, dry to moist.
	3	10-13	4.8	0.0			
							(3.2-4.8') Medium dark gray varved CLAY, stiff, low to no plasticity, moist.
495				0.0			
							(0-2') Slough.
				0.0			
15							
	4	13-18	7.5				(2-5') Light to medium gray GRAVELY SILT and fine to medium subangular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone and Shale Gravel, trace fine 1.5" Pebbles, medium dense, no plasticity, moist to wet.

Well/Boring Construction



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Infrastructure, environment, buildings

R□□ □r□□□ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

SG-25 lithology and drilling information from PZ-25 log.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 7-8' bgs for VOCs.

C□□□□□Lockheed Martin Corporation

W□□□B□r□□□ ID□SG□2□

S□□□ L□□□□□□□□

525 French Road
Utica, New York

B□r□□□□□ D□□□□□ 20.11' bgs

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490				0.0			(2-5') Light to medium gray GRAVELY SILT and fine to medium subangular Gravel, some very fine to coarse subrounded Sand, few coarse angular Limestone and Shale Gravel, trace fine 1.5" Pebbles, medium dense, no plasticity, moist to wet.	
20	5	18-20	0.9	0.0			(0-0.9') Light to medium gray GRAVELY SILT and fine to medium subangular GRAVEL, some very fine to coarse subrounded Sand, few coarse angular Limestone and Shale Gravel, trace fine 1.5" Pebbles, medium dense, no plasticity, wet to saturated.	
485							End of Boring at 20.11' bgs.	
25								
480								
30								
475								
35								

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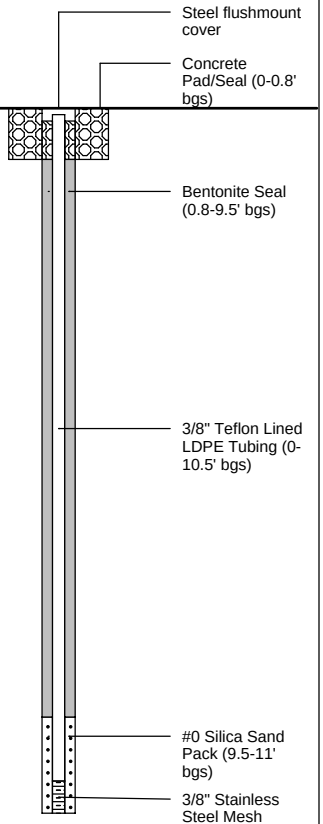
SG-25 lithology and drilling information from PZ-25 log.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 7-8' bgs for VOCs.

D□□□ S□□r□F□□□□□□ 5/17/2010 Dr□□□□□□ C□□ □□□□□ Zebra Environmental Dr□□□r□□ N□□ □□ Phil Orsi Dr□□□□□□ M□□□□d□ Direct Push S□□ □□□□□ M□□□□d□ 1.5" by 5' Acetate Liner R□□ T□□□□Track-Mounted Geoprobe Rig	N□r□□□□□1128055.6 E□□□□□□1167532.9 C□□□□□ E□□□□□□□□NA' AMSL B□r□□□□ D□□□□□ 20' bgs S□r□□□□ E□□□□□□□□508.0' AMSL D□□□r□□□□□ B□□ Daniel Zuck	W□□B□r□□□ ID□SG□26 C□□□□□Lockheed Martin Corporation L□□□□□□□525 French Road Utica, New York **DRAFT**

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510							
0							
	NA	NA	NA	NA			(0-2.6') Hand cleared.
505	1	2.6-5	2.6	0.0			(2.6-5) Reddish brown GRAVELY SILT and fine to coarse subrounded to angular Limestone GRAVEL, trace medium to coarse subrounded Sand, medium dense, no plasticity, dry to moist.
5							(0-4.8') Reddish brown GRAVELY SILT and fine to coarse subrounded to angular Limestone GRAVEL, trace medium to coarse subrounded Sand, medium dense, no plasticity, dry to moist.
	2	5-10	4.8	0.0	X		
500							
10							(0-2.2') Reddish brown GRAVELY SILT and fine to coarse subrounded to angular Limestone GRAVEL, trace medium to coarse subrounded Sand, medium dense, no plasticity, dry to moist.
				0.0			
	3	10-15	4.8				(2.2-4.8') Dark gray varved CLAY, stiff, low to no plasticity, moist.
495				0.0			
15							(0-1') Slough.
				0.0			(1-1.8') Reddish brown SILTY SAND and fine to coarse subrounded to subangular



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SG-26 lithology and drilling information from PZ-26 log.

Location hand cleared/air knifed 0-2.6' bgs. Analytical sample collected from 8-9' bgs for VOCs.

C□□□□□Lockheed Martin Corporation

W□□□B□r□□□ ID□SG□26

B□r□□□□□ D□□□□□ 20' bgs

S□□□ L□□□□□□□□

525 French Road
Utica, New York

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
490	4	15-20	4.8	0.0 0.0			SAND, loose, moist. (1-1.8') Reddish brown SILTY SAND and fine to coarse subrounded to subangular SAND, loose, moist. (1.8-4.8') Dark gray SANDY SILT and fine to medium subangular SAND, few medium to coarse subrounded to subangular Limestone Gravel, medium dense, wet.	
20							End of Boring at 20' bgs.	
485								
25								
480								
30								
475								
35								

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SG-26 lithology and drilling information from PZ-26 log.

Location hand cleared/air knifed 0-2.6' bgs. Analytical sample collected from 8-9' bgs for VOCs.

D□□□ S□□r□F□□□□□□ 5/17/2010
Dr□□□□□□ C□□ □□□□□ Zebra Environmental
Dr□□□r□□ N□□ □□ Phil Orsi
Dr□□□□□□ M□□□□d□ Direct Push
S□□ □□□□□ M□□□□d□ 1.5" by 5' Acetate Liner
R□□ T□□□□Track-Mounted Geoprobe Rig

N□r□□□□□1128101.5
E□□□□□□1167645.1
C□□□□□ E□□□□□□□□NA' AMSL

B□r□□□□D□□□□□ 17' bgs
S□r□□□□ E□□□□□□□507.3' AMSL

D□□□r□□□□□B□□ Daniel Zuck

W□□□B□r□□□ ID□SG□2□

C□□□□□Lockheed Martin Corporation

L□□□□□□□525 French Road
Utica, New York

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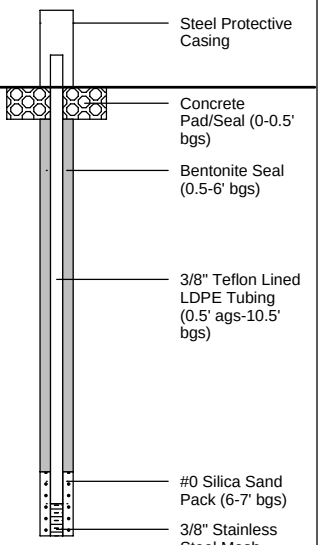
DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
510							
0							(0-4') Hand cleared/air knifed.
505	NA	NA	NA	NA			
5	1	4-9	5.15	0.0			(0-3') Medium brown (hints of red) GRAVELY SILT and medium to coarse subangular to angular Limestone GRAVEL, trace fine to medium Sand, very dense, no plasticity, dry to moist.
500				0.0			(3-5.15') Dark gray varved CLAY, very dense, low plasticity, dry to moist.
10	2	9-14	4.8	0.0	X		(0-0.9') Medium to dark brown SANDY CLAY and fine to medium SAND, trace coarse Limestone Gravel, medium dense, no plasticity, moist.
				0.0			(0.9-12.1') Medium to dark brown SANDY CLAY and fine to coarse subangular to angular SAND, trace coarse Limestone Gravel, medium dense, no plasticity, wet.
495				0.0			(2.1-3.8') Light to medium gray SANDY SILT and very fine to coarse subangular to angular SAND, few fine angular Gravel, trace coarse subrounded to subangular Limestone Gravel, medium dense, dry to moist.
15	3	14-17	4.5	0.0			(0-1') Slough, cave in. (1-4.5') Light medium gray SANDY SILT, some fine to medium Limestone and Shale fragments/Gravel, some very fine to medium subangular to angular, loose to medium dense, dry to moist.

Well/Boring Construction



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SG-27 lithology and drilling information from PZ-27 log.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 9-10' bgs for VOCs.

C□□□□□Lockheed Martin Corporation

W□□□B□r□□□ ID□SG□2□

S□□□ L□□□□□□□□

525 French Road
Utica, New York

B□r□□□□□ D□□□□□ 17' bgs

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
				0.0			(1-4.5') Light medium gray SANDY SILT, some fine to medium Limestone and Shale fragments/Gravel, some very fine to medium subangular to angular, loose to medium dense, dry to moist.	
490							End of Boring at 17' bgs.	
20								
485								
25								
480								
30								
475								
35								

ARCADIS
Infrastructure, environment, buildings

R□□ □r□□□ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

SG-27 lithology and drilling information from PZ-27 log.

Location hand cleared/air knifed 0-4' bgs. Analytical sample collected from 9-10' bgs for VOCs.