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INSTALLATION RESTORATION PROGRAM

FINAL

SITE ASSESSMENT REPORT
SITE 1, SITE 4, SITE 9, SITE 10, SITE 11, AOC 1-3

174TH FIGHTER WING
NEW YORK AIR NATIONAL GUARD
HANCOCK AIR NATIONAL GUARD BASE
SYRACUSE, NEW YORK

FEBRUARY 2003

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Prepared For

AIR NATIONAL GUARD READINESS CENTER
ANDREWS AFB, MARYLAND 20762-5157

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LIST OF ACRONYMS/ABBREVIATIONS

ANG	Air National Guard
ANGB	Air National Guard Bureau
ANGRC	Air National Guard Readiness Center
ANGSIP	Air National Guard Site Investigation Protocol
AOC	Area of Conern
Aneptek	Aneptek Corporation
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CS	Concrete Sample
DD	Decision Document
DOD	Department of Defense
DOT	Department of Transportation
DWQS	Drinking Water Quality Standard
EM	Electro Magnetic
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
FW	Fighter Wing
ft/ft	Foot per Foot
GW	Groundwater
HASP	Health and Safety Plan
IDW	Investigation Derived Waste
IRP	Installation Restoration Program
JP-4	JP-4 Jet Fuel
LEL	Lower Explosive Limit
LEL	Lower Effect Level
MDL	Method Detection Limit
mg/kg	milligram per kilogram
MIS	Management Information System
ml	milliliter
mph	miles per hour
MS	Matrix Spike
msl	mean sea level
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NCDC	National Climatic Data Center
ND	Not Detected
NGB	National Guard Bureau
NFRAPDD	No Further Response Action Planned Decision Document
NTU	Nephelometric Turbidity Unit
NUS	NUS Corporation
NYANG	New York Air National Guard
NYCRR	New York Codes, Rules, and Regulations

LIST OF ACRONYMS/ABBREVIATIONS (CONT.)

NYSDEC	New York State Department of Environmental Conservation
O.D.	outside diameter
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated biphenyls
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	parts per million
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RI	Remedial Investigation
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SEL	Severe Effect Level
SI	Site Inspection
SOP	Standard Operating Procedure
SOW	Statement of Work
SS	Surface Soil
SVOC	Semi-Volatile Organic Compounds
TAGM	Technical and Administrative Guidance Manual
TAL	Target Analyte List
TCL	Target Compound List
TDS	Total Dissolved Solids
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
USAF	United States Air Force
USCS	Unified Soil Classification System
USGS	United States Geological Survey
µg/L	micrograms per liter
VOC	Volatile Organic Compounds

EXECUTIVE SUMMARY

Background

In November, 2000, Aneptek Corporation completed a Site Assessment (SA) at the Hancock Air National Guard Base (ANGB) located in Syracuse, New York. The SA encompassed six site locations: Site 1-FT-1 Fire Training Area Tract III (Site 1), Site 4-D-5 Disposal Site Tract III (Site 4), Site 9-D-4 Disposal Area Tract III (Site 9), Site 10 S-2 Hazardous Material Storage Site B/759 (Site 10), Site 11, the WT-1 Sand Filter Bed (Site 11), and one Area of Concern (AOC), AOC 1-3 Area Adjacent to D-3, Zone 2 (AOC 1-3). The data collected during this SA was used for an evaluation of site geology, hydrogeology, and the nature and extent of residual contamination.

Site Assessment Summary

Site 1

Site 1 encompasses approximately 0.75 acres in the southern portion of the Hancock ANGB (the Base). The Site was used by the ANG, U.S. Air Force, and City of Syracuse fire fighters from 1948 to 1985 for conducting fire training exercises, and consists of a burn area located on an abandoned concrete aircraft parking area. The concrete burn area was not permanently bermed (e.g., with concrete) to prevent runoff of fuel and water. Subsequent investigations were conducted at Site 1, including a Phase II/Stage 2 Confirmation/Quantification Report completed in June 1989. The Phase II/Stage 2 Confirmation/Quantification Report concluded that the low contaminant levels identified at Site 1 posed no threat to human health or the environment, and a No Further Response Action Planed Decision Document (NFRAP DD) was subsequently completed for Site 1 in April 1990, and was updated in 1998 by Radian International (Radian, 1998a). However, at the SA Kick-Off Meeting conducted on September 8, 1999, the New York State Department of Environmental Conservation (NYSDEC) requested further investigation at Site 1.

The field program conducted at Site 1 during the SA included the advancement of Geoprobe® borings to facilitate the collection of surface and subsurface soil samples, concrete samples, and groundwater samples. All samples collected at Site 1 were submitted to an off-site laboratory for analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), and Target Analyte List (TAL) metals.

Site 4

Site 4 consists of a former unlined disposal area located in the southern portion of the Base. The disposal area was approximately 100 feet by 150 feet. Site 4 was used from 1950 to 1976 by the U.S. Air Force and the AN to dispose of construction debris, empty ammunition boxes, sod, empty drums, and possibly drums containing hazardous wastes (e.g., paints, thinners, and solvents) generated by shops at the Base. Site 4 was initially identified in Phase I Records Search Report competed in July 1982. Due to reported past waste disposal activities, the Phase I Records Search Report recommended additional investigation of Site 4 (Radian, 1998b). A subsequent investigation was performed at Site 4, and a Phase II, Stage 1 Confirmation/ Quantification Report was completed in October 1984. Based on the results of that investigation, further investigation of Site 4 was

recommended in the Phase II/Stage I Report (Radian, 1998b). A Phase II/Stage 2 Confirmation/Quantification Report was completed in June 1989. The results of a Baseline Risk Assessment conducted as part of the June 1989 Report, indicated that the concentrations of contaminants detected at Site 4 did not present a significant threat to human health or the environment. A NFRAP DD was subsequently completed for Site 4 in April 1990, and was updated in 1998 by Radian International (Radian, 1998b). At the SA Kick-Off Meeting, NYSDEC requested additional investigation at Site 4.

The field program conducted at Site 4 during the SA included an electromagnetic geophysical survey used to locate possible buried materials, and the collection of subsurface soil samples and groundwater samples. All samples collected at Site 4 were submitted to an off-site laboratory for analysis of VOCs, SVOCs, PCBs, and TAL metals.

Site 9

Site 9 consists of a reported former disposal area approximately 0.06 acre in size. Site 9 is located in the northern portion of the Base. Reportedly, the site was used throughout the 1950s and 1960s for disposal of construction rubble. There are no reports that containerized hazardous waste was disposed at Site 9. However, Site 9 is located near a vehicle maintenance building that reportedly generated hazardous waste. Information on past investigation activities at Site 9 is unavailable.

The field program conducted at Site 9 during the SA included an electromagnetic geophysical survey used to locate possible buried materials, and the collection of subsurface soil samples and groundwater samples. All samples collected at Site 9 were submitted to an off-site laboratory for analysis of VOCs, SVOCs, PCBs, and TAL metals.

Site 10

Site 10 was originally reported to be located at Building No. 759 in the south western part of the Base. Reportedly, the location was used to store hazardous materials (e.g., transformers and pesticide containers) beginning in 1980. Building No.759, in addition to other Site 10 structures, have been demolished. No known spills were reported to have occurred at Building No.759. After a through Base records search and interviews with Base personnel, the exact location of Site 10 could not be verified. Also, according to Base personnel, there have been no previous investigational activities conducted at Site 10. Therefore, investigative activities conducted with regards to Site 10 during this SA were limited to the records search and Base personnel interviews.

Site 11

Site 11 reportedly encompasses approximately 0.5 acre and is located in the southern portion of the Base. The Site 11 Sand Filter Bed was reportedly used during the 1950s to treat sanitary wastes generated at Building No. 601. The location of Site 11 could not initially be determined. However, after a detailed records search and interviews with Base personnel, Site 11 was located. According to Base personnel, there have been no previous investigational activities conducted at Site 11. The field program conducted at Site 11 during the SA included the abovementioned records search and Base personnel interviews and the collection of subsurface soil samples and groundwater samples. All samples collected at Site 11 were submitted to an off-site laboratory for analysis of VOCs,

SVOCs, PCBs, TPH, and TAL metals.

AOC 1-3

AOC 1-3 is located in the north eastern part of the Base. During the Phase II/Stage 2 investigative activities, a total of seven sediment samples were collected from a drainage ditch located in this area. Three of the samples had concentrations of arsenic which exceeded site background concentrations. NYSDEC requested additional sampling in these areas to verify these previous results.

The field program conducted at AOC 1-3 during the SA was comprised of collecting sediment soil samples from approximately the same locations as were previously sampled during the Phase II/Stage 2 field program. All samples collected at AOC 1-3 were submitted to an off-site laboratory for analysis of TPH and TAL metals.

Investigation Findings

Geology

The local geology of Sites 1, 4, 9, and 11, are all very similar. The overburden underlying the Base consists mainly of a heterogeneous mix of brown to gray native silt and fine to medium sand containing trace amounts of clay. At Site 9, a fill/gravel layer was noted at a depth of eight feet in boring SB-02. The soils at Site 9 appear to be mostly fill material of a non-native origin. Borings were only advanced to a depth of approximately 12 feet bgs, therefore no bedrock was encountered.

Hydrogeology

Depth to groundwater at each site was consistently observed at depths of between 4 to 6 feet bgs. General groundwater flow direction was determined Site 1 and Site 4 using measurements obtained from existing groundwater monitoring wells. Site 9 and Site 11 did not have monitoring wells within the study areas, therefore general groundwater flow direction was obtained from reports generated from previous investigations conducted in areas in the same general locations as Site 9 and Site 11. Hydraulic conductivity was not measured during the SA.

Based on groundwater elevations obtained from four monitoring wells measured during a one day period, general groundwater flow direction at Site 1 is to the east with an average hydraulic gradient of 0.008 ft/ft.

Based on elevations obtained from three monitoring wells measured during a one day period, general groundwater flow direction at Site 4 is in a northeasterly direction. The hydraulic gradient was calculated to be 0.012 ft/ft.

At Site 9 and Site 11, groundwater was encountered in soil borings at 4 feet and 6.5 feet bgs, respectively. According to previous reports, a groundwater divide exists at Site 9, causing groundwater to flow the northwest and to the southeast, depending on seasonal flucuations and site specific influences (Parsons, June 1999), while groundwater flow direction at Site 11 is to the east southeast (HAZWRAP, 1997, Aneptek, March 2000).

Nature and Extent of Contamination

Site 1

Site 1 surface and subsurface soils were generally free of contamination. Two of the subsurface samples collected contained xylene (3,594 µg/kg and 2,579 µg/kg) in exceedance of the NYSDEC Cleanup Objective (1,200 µg/kg). There were no VOC exceedances in the surface soil samples. No SVOCs, pesticides, or PCBs or were detected in any of the subsurface soil samples collected. Two SVOCs (flouranthene and pyrene), and one pesticide (BHC-a) were detected below their respective Cleanup Objectives in one surface soil sample. Low levels of TPH were detected in the subsurface soil samples, higher concentrations were detected in the surface samples. Several inorganic compounds were detected above their respective NYSDEC Cleanup Objectives in both the subsurface and surface soil samples. These compounds were generally detected in each sample at the same, relatively low level concentrations which only marginally exceeded their respective Cleanup Objectives. One exception was iron, which was detected in each sample at moderate to high concentrations with respect to its Cleanup Objective.

Site 1 groundwater was free of organic contamination. No VOCs, SVOCs, pesticides, PCBs, or TPH were detected in any of the groundwater samples collected. Several inorganics were detected above their respective NYSDEC Drinking Water Quality Standards (DWQS). The majority of the inorganics found in each sample were detected at relatively the same concentrations, the exception being the sample collected at MW-09, which had fewer inorganics detected and at lower concentrations than the other samples. MW-09 is located approximately 500 feet to the north on the northern perimeter of Site 1 relative to the other sampled wells.

Site 4

Site 4 subsurface soil samples were generally free of VOC, PCB, and inorganic contamination. Only relatively low concentrations of four VOCs were detected, none above their respective NYSDEC Cleanup Objective. VOCs were not detected in seven of the ten samples collected. PCBs were not detected in any of the samples collected, however some had elevated detection limits due to interference of other analytes in the sample. A number of inorganic compounds were detected above their respective Cleanup Objectives. For the most part, each sample contained the same compounds at relatively the same, low level concentrations.

Six SVOCs were detected at concentrations above their respective Cleanup Objectives in four of the ten samples collected. The majority of these were Poly Aromatic Hydrocarbons (PAHs), indicating possible contamination through fuel related products. These concentrations were moderate to high in the two to four foot bgs intervals in two of the soil boring (SB) samples collected (SB-03 and SB-04). Groundwater at Site 4 appear to be free of any organic contamination. VOCs, SVOCs, and PCBs, were all non-detect in the groundwater sample collected at Site 4. With the exception of aluminum and iron, inorganics detected in the groundwater were generally low level. This sample was collected from a temporary well which was neither developed or purged prior to sampling. The resultant high turbidity is the most likely cause for the inorganic exceedances.

Site 9

Soils and groundwater at Site 9 are generally free of contamination. One soil sample collected

contained xylene at a concentration of 2,268 µg/kg, above the NYSDEC Cleanup Objectiveof 1,200 µg/kg. No SVOCs or PCBs were detected in any of the soil samples collected at Site 9. A total of eight inorganic compounds were detected above their respective Cleanup Objectives, most of these were low level concentrations. No VOCs, SVOCs, or PCBs, were detected in the groundwater sample collected at Site 9. Groundwater samples were submitted for inorganic analysis. However, after review of the conditions under which the samples were collected and the resulting data, it was decided not to include the results in the data tables in this report. This is based on the fact that the samples were collected from a temporary well which was neither developed or purged prior to sampling, this resulted in samples which were highly turbid in nature. As inorganics inherently tend to adhere to particulate matter, analytical results from highly turbid samples may result in false positives (exceedances) which would not reflect actual in-situ conditions. It is believed the resultant high turbidity was the most likely cause for the inorganic exceedances in these samples, therefore the sample results are considered erroneous and un-conclusive. However, for general reporting purposes, a brief summary of the inorganic analyses is included in the text.

Site 11

Soil and groundwater at Site 11 are generally free of contamination. The only VOC detected in any of the soil samples collected was xylene, found in two of the samples. Neither concentration exceeded the NYSDEC Cleanup Objective. No other VOCs were detected. No SVOCs or PCBs were detected in any of the soil samples collected. Seven inorganic compounds were detected in the soils. With the exception of iron, all were generally low level concentrations. Groundwater at Site 11 was free of and VOC, SVOC, and PCB contamination. Groundwater samples were submitted for inorganic analysis. However, after review of the conditions under which the samples were collected and the resulting data, it was decided not to include the results in the data tables in this report. This is based on the fact that the samples were collected from a temporary well which was neither developed or purged prior to sampling, this resulted in samples which were highly turbid in nature. As inorganics inherently tend to adhere to particulate matter, analytical results from highly turbid samples may result in false positives (exceedances) which would not reflect actual in-situ conditions. It is believed the resultant high turbidity was the most likely cause for the inorganic exceedances, therefore the sample results are considered erroneous and un-conclusive. However, for general reporting purposes, a brief summary of the inorganic analyses is included in the text.

AOC 1-3

Sediment samples collected at AOC 1-3 contained several inorganic compounds which exceeded their respective NYSDEC sediment screening guidance values, including arsenic, mercury, and cadmium. Low levels of TPH were deteted in two of the four samples collected.

SECTION 1.0

1.0 INTRODUCTION

Under the Environmental Restoration Program (ERP) of the Air National Guard Readiness Center (ANGRC), Site Assessments (SA) are undertaken to assess areas of possible contamination at hazardous material/waste disposal and spill sites at Air National Guard (ANG) installations. This SA was performed by Aneptek Corporation (Aneptek) for the ANGRC under National Guard Bureau (NGB) Contract No. DAHA90-97-D-0011, Delivery Order No. 11. This SA report has been developed for the 174th Fighter Wing (FW), New York Air National Guard (NYANG) Base (the Base) located at Hancock Field, in Syracuse, New York.

This report presents the results of the field activities completed by Aneptek during the performance of the SA at the following Installation Restoration Program (IRP) sites; Site 1 (FT-1 Fire Training Area, Tract III), Site 4 (D-5, Disposal Site, Tract III), Site 9 (D-4, Disposal Site, Tract III), Site 10 (S-2, Hazardous Materials Storage Site, Tract III), Site 11 (WT-1, Sand Filter Bed, Tract III), and Area of Concern (AOC) 1-3 (located adjacent to D-3, Zone 2). The SA was performed under the authority of the Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA), and the Superfund Amendments and Reauthorization Act (SARA).

1.1 Background

The SA program was initiated at a Kick-Off Meeting held at the Base on September 8, 1999 attended by officials from the ANGRC, the New York State Department of Environmental Conservation (NYSDEC), the NYANG, and Aneptek. During the meeting, background information pertaining to the history of each site was presented by the representatives of the NYANG. An investigative approach was then discussed by the meeting attendees. Regulatory guidelines were also discussed. Based on information obtained during the Kick-Off Meeting and subsequent conversations between the attending parties, Aneptek completed a Draft SA Work Plan which was subsequently reviewed by the ANGRC, NYSDEC, and NYANG. Based on reviewer comments, Aneptek completed a Final Work Plan and performed the field investigation in November 2000.

1.2 Purpose

The purpose of this SA was to collect sufficient data to determine if soil and groundwater have been impacted at any or all of the six IRP sites.

1.3 Scope

The scope of the SA included:

- Conducting a record and file search to determine, if possible, the correct locations of Site 10 and Site 11. If locations are determined, advance soil borings to facilitate sample collection.
- Conducting Geophysical surveys at Site 4 and Site 9 to determine the location of possible buried materials.

- Advancing Geoprobe® borings at Site 1, Site 4, Site 9, and Site 11 to collect soil and groundwater samples to determine the extent of possible contamination.

- Collecting sediment samples to determine the presence of possible contamination at AOC 1-3.

1.4 Methodology

The investigative methodologies utilized during this SA are as follows:

Site 1: Soil and groundwater samples collected using direct push Geoprobe® methods. Concrete samples collected using a chisel and hammer. Samples analyzed for Target Compound List (TCL)Volatile Organic Compounds (VOCs) per Environmental Protection Agency (EPA) Method 8021, TCL Semi-Volatile Organic Compounds (SVOCs) per EPA Method 8270 C, Target Analyte List (TAL) Metals per EPA Method 6010 B, pesticides per EPA Method 8081, Polychlorinated Biphenyls (PCBs) per EPA Method 8082, and Total Petroleum Hydrocarbons (TPH) per EPA Method 8015 B.

Site 4: Geophysical survey conducted using electro magnetic conductivity methods. Soil and groundwater samples collected using direct push Geoprobe® methods. Samples analyzed for TCL VOCs, TCL SVOCs, PCBs, and TAL metals.

Site 9: Geophysical survey conducted using electro magnetic conductivity methods. Soil and groundwater samples collected using direct push Geoprobe® methods. Samples analyzed for TCL VOCs, TCL SVOCs, PCBs, and TAL metals.

Site 10: File search to determine location of site. If located, collect soil samples using direct push Geoprobe® methods. Samples analyzed for pesticides and PCBs.

Site 11: File search to determine location of site. If located, collect soil and groundwater samples using direct push Geoprobe® methods. Samples analyzed for TCL VOCs, TCL SVOCs, PCBs, and TAL metals.

AOC 1-3: Sediment samples collected and analyzed for TPH and TAL metals.

SECTION 2.0

2.0 FACILITY BACKGROUND

The NYANG 174th FW is based at Hancock Field (the Base) located approximately 2 miles northeast of Syracuse in Onondaga County, New York (Figure 2-1). The Base occupies approximately 359 acres, and is bordered to the east and south by the Town of Dewitt. The town of Cicero borders the Base to the north, and the town of Salina borders the Base to the west. The Syracuse-Hancock International Airport borders the Base to the northeast.

Hancock Field was constructed in 1942, and was originally used as a staging area for warplanes during World War II. Following the war, the 138th Fighter Squadron of the NYANG remained as the only tenant. The 174th FW was established at the Base in 1984, and incorporated the 138th Fighter Squadron. The Base layout is shown on Figure 2-2.

2.1 Site Descriptions/Previous Investigative Results

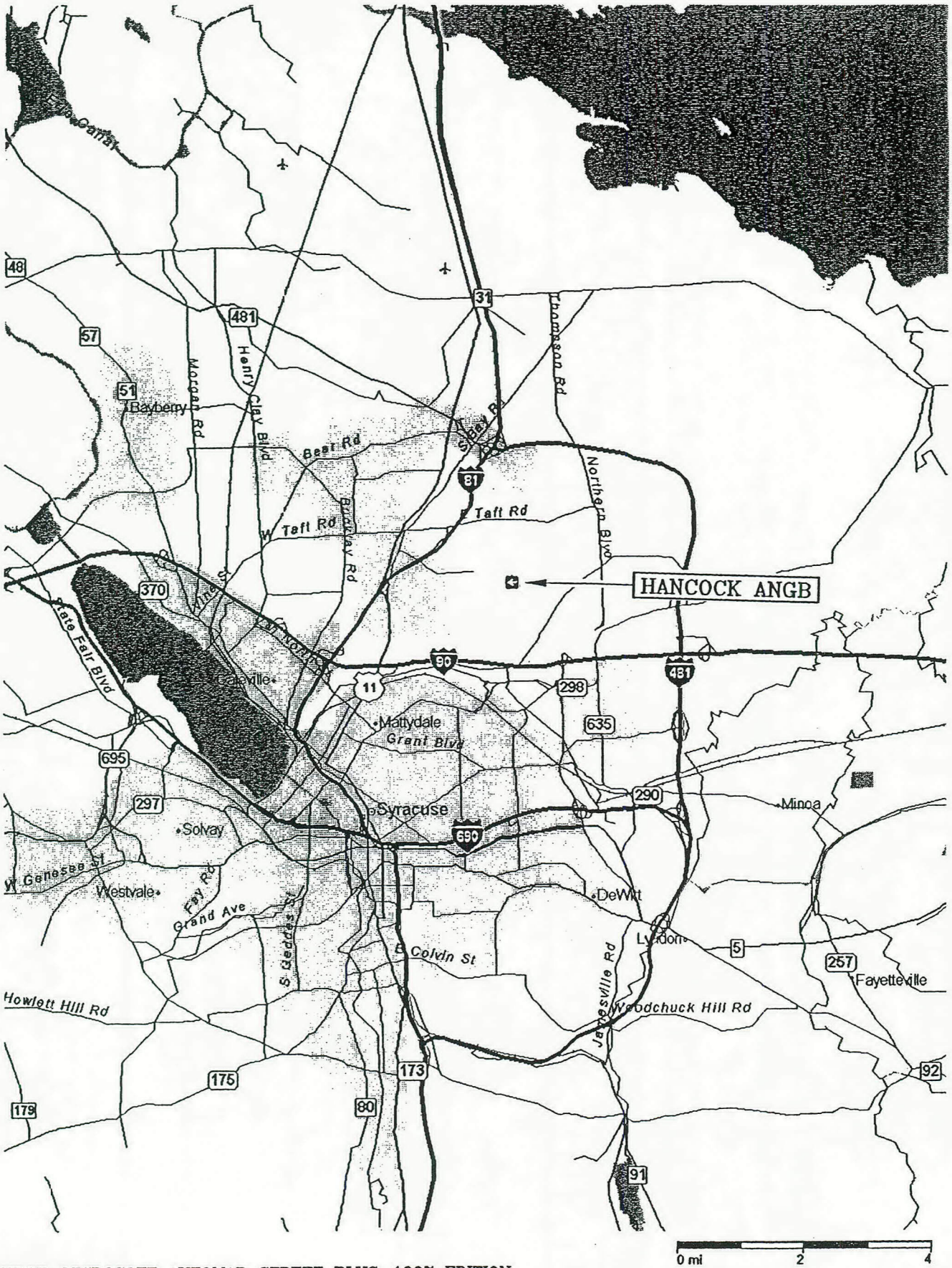
Six individual sites were investigated during this SA. A brief description of each is presented below. Previous investigative results are also briefly discussed. Locations of these sites are shown on Figure 2-2.

2.1.1 Site 1 - FT-1 Fire Training Area, Tract III

Site 1, the former FT-1 Fire Training Area, encompasses approximately 0.75 acres in the southern portion of the Base. Site 1 is located approximately 250 feet northwest of the intersection of Avenue D and Thompson Road (Figure 2-2). The Site was used by the ANG, U.S. Air Force, and City of Syracuse fire fighters from 1948 to 1985 for conducting fire training exercises, and consists of a burn area located on an abandoned concrete aircraft parking area. The concrete burn area was not permanently bermed (e.g., with concrete) to prevent runoff of fuel and water. An earthen, horseshoe-shaped berm partially surrounded the northern portion of the concrete aircraft parking area. The berm, however is no longer visible at Site 1 (Radian, 1998a).

Approximately 100 to 150 gallons of waste fuel (e.g, waste oils, solvents, paint thinners, and JP-4) were used as accelerants during each fire fighter training exercise, which were conducted at least monthly. From the late 1970s until 1985, JP-4 was the only accelerant used during the training exercises. Currently, Site 1 consists of an abandoned concrete aircraft parking area surrounded by scrub brush and small trees (Radian, 1998a). Also at Site 1, a large pile of soil has been stockpiled on the concrete pad. This soil is the result of a removal action conduced in June of 2001 at another site located on Base, Site 15-Former Petroleum, Oil, Lubrication (POL) area (Site 15). The soil is reported to be contaminated by Poly Chlorinated Byphenyls (PCBs), the soil was not sampled during this SA. This soil is reportedly to be disposed of in conjunction with additional soil removal activities to be conducted at Site 15 at a later date. At the time of this SA, the pile was still located on the concrete pad at Site 1.

Site 1 was initially identified in a Phase I Records Search Report (equivalent to a Preliminary Assessment [PA] Report) competed in July 1982. Waste oil residue was noted in soils at Site 1. Therefore, the Phase I Records Search Report recommended additional investigation of Site 1 (Radian, 1998a). A subsequent investigation was performed at Site 1, and a Phase II, Stage I



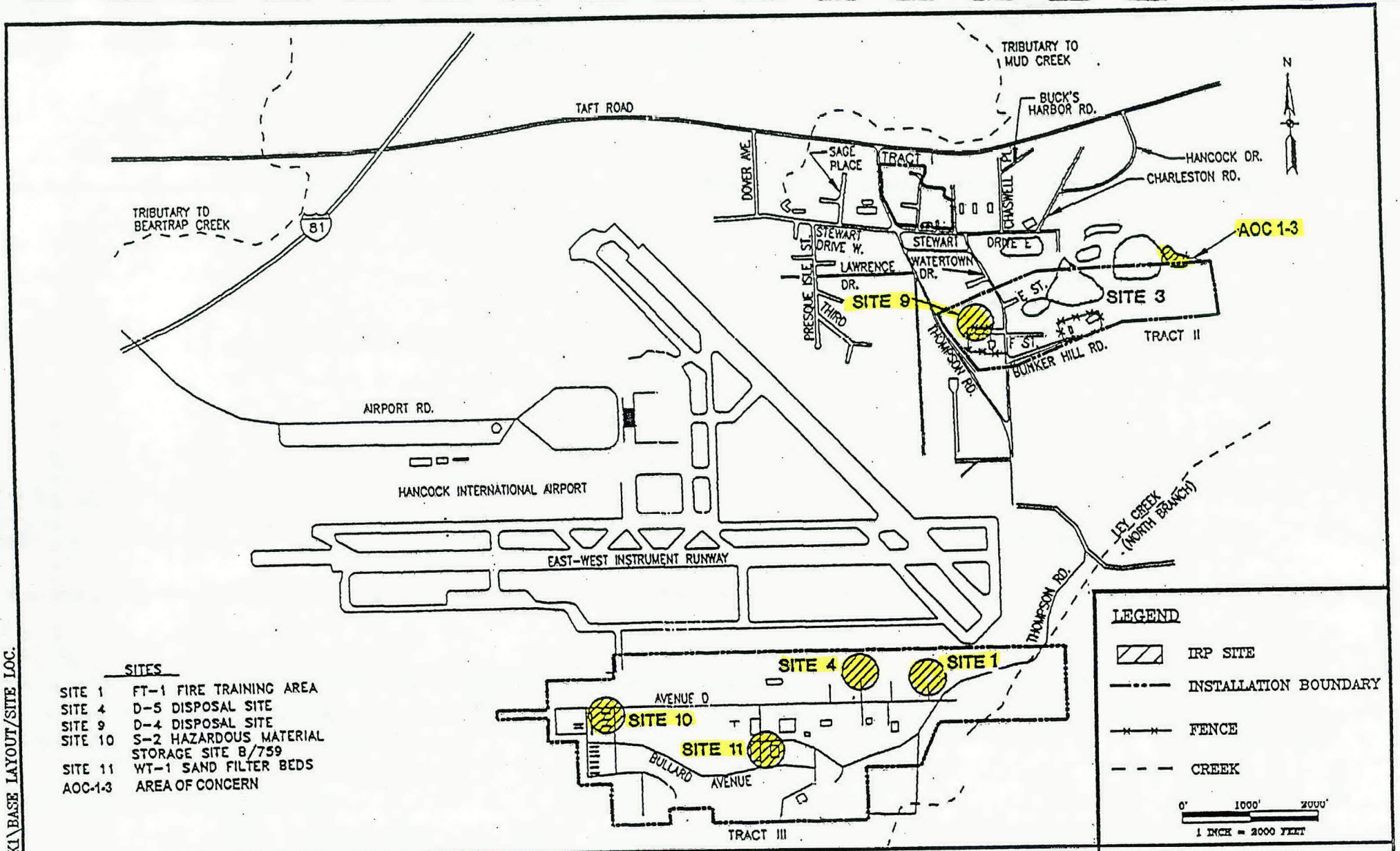
SOURCE: MICROSOFT AUTOMAP STREET PLUS, 1997 EDITION.

C:\DRAW\HANCOCK\DISK1\BASE LOCATION MAP

HANCOCK AIR NATIONAL GUARD BASE
BASE LOCATION MAP
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 2-1



HANCOCK AIR NATIONAL GUARD BASE

BASE LAYOUT/SITE LOCATIONS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 2-2

C:\DRAW\BARNES\DISK1\BASE LAYOUT/SITE LOC.

Confirmation/ Quantification Report (equivalent to a SI Report) was completed in October 1984. Oil and grease were detected in Site 1 sediment samples collected during the investigation, data on groundwater is not available and the extent of groundwater contamination is not known at this time. Further investigation of Site 1 was recommended in the Phase II/Stage I Report (Radian, 1998a).

A Phase II/Stage 2 Confirmation/Quantification Report (equivalent to a RI Report) was completed in June 1989. Reportedly, the investigation included collecting soil gas, soil, and groundwater samples for laboratory analysis. Benzene and toluene were detected in soil gas samples, but were not detected in shallow soil samples collected at Site 1. Polynuclear aromatic hydrocarbons (PAHs), lead, and total petroleum hydrocarbons (TPH) were detected in Site 1 soil samples. Concentrations of five PAHs and lead exceeded State cleanup standards. Methylene chloride, 1,2-dichloroethane (1,2-DCA), and xylenes were detected in Site 1 groundwater samples at concentrations above State cleanup standards. PAHs were detected in surface water and sediment samples at concentrations above State cleanup standards. Sediment samples also contained low levels of cadmium and lead which exceeded State cleanup standards. The Phase II/Stage 2 Confirmation/Quantification Report concluded that the low contaminant levels identified at Site 1 posed no threat to human health or the environment, and a No Further Response Action Planed Decision Document (NFRAP DD) was subsequently completed for Site 1 in April 1990, and was updated in 1998 by Radian International (Radian, 1998a). However, at the Project Kick-Off Meeting conducted on September 8, 1999, the NYSDEC requested further investigation at this site.

2.1.2 Site 4 - D-5 Disposal Site, Tract III

Site 4, the D-5 Disposal Site, consists of a former unlined disposal area located in the southern portion of the Base. Site 4 is located approximately 250 feet north of Avenue D as shown on Figure 2-2, and surrounds a former concrete hardstand or aircraft parking area that extends north from Avenue D. The disposal area was approximately 100 feet by 150 feet. However, the exact dimensions of the disposal area are difficult to determine due to earth-moving activities performed during modification of the aircraft parking area (Radian, 1998b).

The Site 4 disposal area was used from 1950 to 1976 by the U.S. Air Force and the ANG to dispose of construction debris, empty ammunition boxes, sod, empty drums, and possibly drums containing hazardous wastes (e.g., paints, thinners, and solvents) generated by shops at the Base. After 1976, the aircraft hardstand was used by the ANG as an engine test pad. However, the hardstand is no longer used as an engine test pad. Details regarding the types and quantities of waste disposed at Site 4 and the waste disposal procedures are not available (Radian, 1998b).

Site 4 was initially identified in Phase I Records Search Report (equivalent to a PA Report) competed in July 1982. Due to reported past waste disposal activities and the potential for contaminant migration, the Phase I Records Search Report recommended additional investigation of Site 4 (Radian, 1998b).

Subsequent investigation was performed at Site 4, and a Phase II, Stage 1 Confirmation/ Quantification Report (equivalent to a SI Report) was completed in October 1984. Oil and grease and total halogenated organics were detected in Site 4 groundwater, surface water, and sediment samples. Further investigation of Site 4 was recommended in the Phase II/Stage I Report (Radian, 1998b).

A Phase II/Stage 2 Confirmation/Quantification Report (equivalent to a RI Report) was completed in June 1989 (SAIC, June, 1989). Volatile organic compounds were detected below State action levels in surface water and groundwater samples. Manganese was detected in a groundwater sample above State action levels but below background standards. Zinc was detected above State action levels in a turbid surface water sample. Two PAHs were detected at concentrations slightly above action levels in one sediment sample. In that same sample, cadmium, lead, and zinc were also detected slightly above State action levels. The results of a Baseline Risk Assessment conducted as part of the June 1989 Report, indicated that the concentrations of contaminants detected in the sediment at Site 4 did not present a significant threat to human health or the environment. A NFRAP DD was subsequently completed for Site 4 in April 1990, and was updated in 1998 by Radian International (Radian, 1998b).

2.1.3 Site 9 - D-4 Disposal Site, Tract II

Site 9, the D-4 Disposal Site, consists of a reported former disposal area approximately 0.06 acre in size. Site 9 is located east of Thompson Road and south of Stewart Road in the northern portion of the Base (Figure 2-2). Reportedly, the site was used throughout the 1950s and 1960s for disposal of construction rubble. There are no reports that containerized hazardous waste was disposed at Site 9. However, Site 9 is located near Building 442 - Vehicle Maintenance that reportedly generated hazardous waste. Information on past investigation activities at Site 9 is unavailable.

2.1.4 Site 10 - S-2 Hazardous Materials Storage Site, Tract III

Site 10, the S-2 Hazardous Materials Storage Site, is located at Building 759 on the corner of Avenue D and 16th Street (Figure 2-2). Reportedly, the location was used to store hazardous materials (e.g., transformers and pesticide containers) beginning in 1980. The location is no longer used for storage, and Building 759, in addition to other Site 10 structures, have been demolished. Building 759 was constructed with concrete floors and an 8-inch concrete dike surrounding the storage area. No known spills were reported to have occurred at Building 759. According to Base personel, no previous investigative activities have been performed at Site 10.

2.1.5 Site 11 - WT-1 Sand Filter Bed, Tract III

Site 11, the WT-1 Sand Filter Bed encompasses approximately 0.5 acre, and is located between Avenue D and Bullard Avenue in the southern portion of the Base (Figure 2-2). The WT-1 Sand Filter Bed was reportedly used during the 1950s to treat sanitary wastes generated at Building 601. During a recent visit to the Base by Aneptek, ANG and Base personnel were unable to locate Site 11. According to Base personel, no previous investigative activities have been performed at Site 11.

2.1.6 AOC 1-3, Area Adjacent to D-3, Zone 2

AOC 1-3 is located in an area adjacent to the eastern side of Site D-3 in Zone 2 (Figure 2-2). As presented in the Phase II/Stage 2 Confirmation\Quantification Report (SAIC, 1989), a total of seven sediment samples were collected from a drainage ditch located in this area. Three of the samples that were collected directly adjacent to the Site had concentrations of arsenic which exceeded site background concentrations.

SECTION 3.0

3.0 ENVIRONMENTAL SETTING

3.1 Climate

The climate of Syracuse is continental in character and comparatively humid. Almost all cyclonic systems moving from the interior of the country through the St. Lawrence Valley will affect the local area. During the summer and in portions of the transitional periods between seasons, the temperature usually rises rapidly during the daytime to moderate levels and falls rapidly after sunset. Nights are relatively cool and comfortable. Winters are usually cold and severe. Daytime temperatures average in the low 30's with nighttime lows in the teens. Precipitation is well distributed throughout the year. The average low precipitation has been in June (2.34 in.) and the average high in July (4.40 in.), with a net annual average precipitation of 36.2 inches. Average daily temperatures, monthly precipitation and snowfall based on a 5-year period are shown in Table 3-1.

3.2 Topography

Hancock ANG Base is located within the Ontario-Mohawk Region of the Central Lowland Physiographic Province, which extends from Albany to Buffalo, New York. This province is characterized by a relatively flat topography resulting from glacial erosion and deposition. The area in and around the Base is typical of the province, being relatively flat. Many of the low areas on the Base were filled in during construction, but there are naturally occurring swamps and poorly drained areas still present within and around the Base (HAZWRAP, 1997).

3.3 Geology

The surficial geology at the Base consists of glaciofluvial sediments deposited by glacial meltwater overlying poorly sorted till deposited directly by glaciers. The glaciofluvial sediments include silty clays, sands, and gravels, with thicknesses ranging from 45 to 55 feet. The underlying till consists of gravel, cobbles, and boulders entrained in a silty clay matrix and ranges in thickness from 30 to 100 feet (HAZWRAP, 1997).

The sediments in the area were deposited by large sheets of ice associated with glaciation. The sediments were either deposited directly by the ice (i.e., till) or by meltwater streams and lakes (i.e., outwash) associated with continental glaciation. Two types of till are present at the Base, lodgement till and ablation till. Lodgement till represents the basal layer, which lies directly on top of the bedrock. The lodgement till is compact, rich in clay, and nearly impermeable. This thicker till layer is overlain by a thinner, sometimes discontinuous till deposit enriched in coarser material, presumably deposited during glacial ablation. The thickness of the till varies considerably in the Ontario-Mohawk Lowland Region. Thicknesses of 30 feet are considered common, and in some area the till may be as much as 200 feet thick. At the Base, the thickness of the till typically ranges from 30 to 100 feet (HAZWRAP, 1997).

Bedrock is encountered at depths ranging from 75 to 109 feet below ground surface, and consists of the

TABLE 3-1
Average Monthly Temperature and Precipation Data
5 - Year Period
Syracuse, New York

Time Interval	Average Daily Temperature (F^0)	Average Monthly Precipation (in)*	Average Monthly Snowfall (in)*
January	24.5	2.73	45.3
February	24.3	2.46	34.4
March	33.1	4.09	31
April	47.9	4.34	5.8
May	57.4	4	0
June	66.6	2.34	Trace
July	71.4	4.4	Trace
August	69.6	4.38	0
September	60.8	3.7	Trace
October	50.3	3.18	0.5
November	40.9	3.28	8.8
December	30.8	3.32	24.4
Yearly Average	48.1	3.52	

* Source: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Environmental Satellite, Data and Information Service, National Climatic Data Center, Asheville, North Carolina, October 1995

Upper Silurian Vernon Formation. This formation consists of thinly bedded soft red shale with thin beds of green shale, gypsum, halite, and dolomite. The competence of this unit varies from soft and crumbly to dense and hard. The degree of competence appears to be proportional to the density of fractures in the shale. Major faults have not been identified or mapped near the Base, however, the shale is characterized by solutionally enlarged fractures, joints, and bedding planes (HAZWRAP, 1997).

3.4 Soils

Reportedly, soils beneath the Base consist of a thin surface layer of non-native fill material overlying approximately 13 feet of clayey and silty loam (Figure 3-1). Soil slopes generally range from between 0 and 4 percent, and the permeability of shallow soils is estimated to range from $1x10^{-6}$ to $1x10^{-5}$ centimeters per second. The estimated permeability indicates that soils underlying the Base are poorly drained (Radian, 1998a).

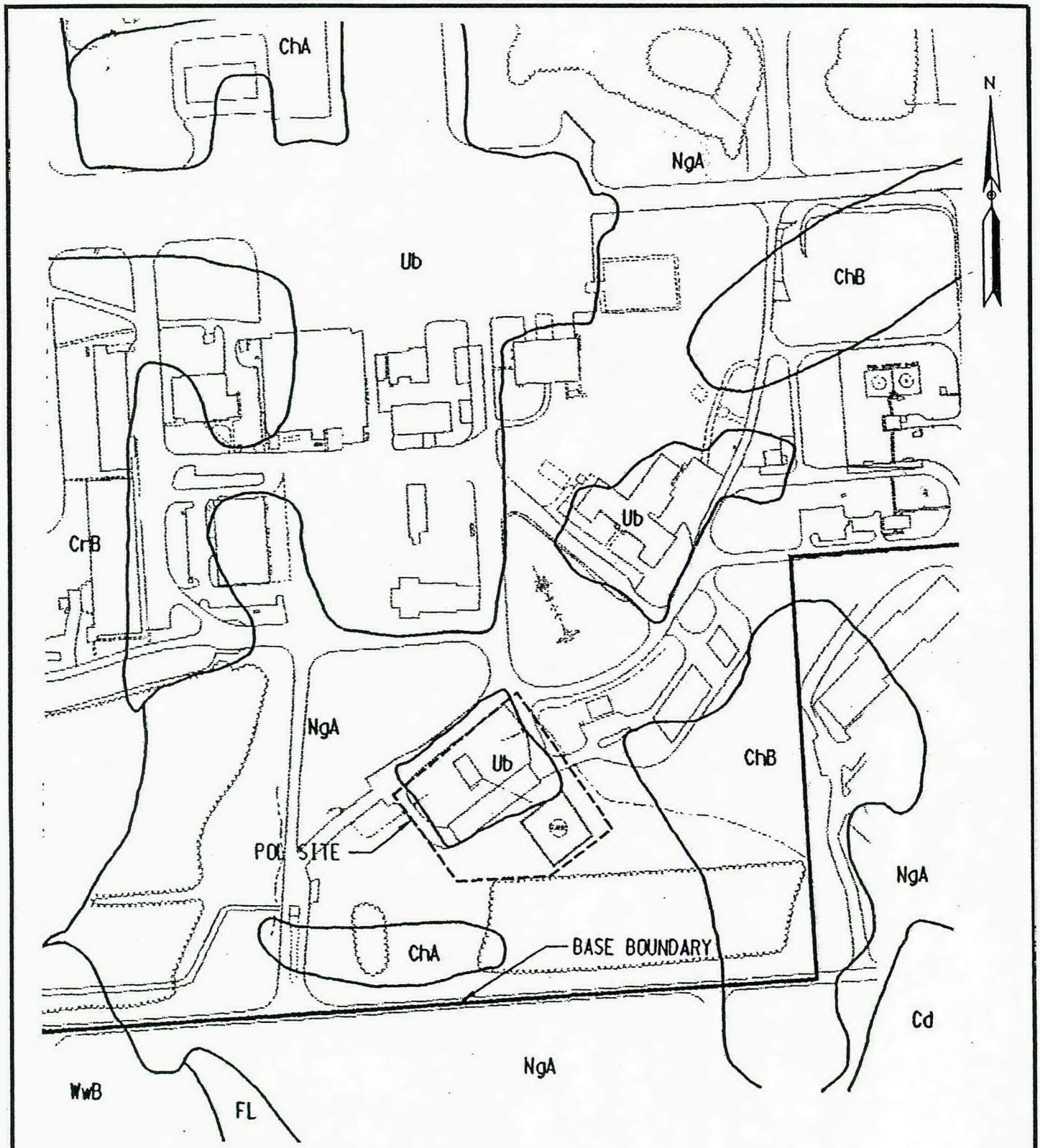
3.5 Surface Water Hydrology

The Base is located within the Eastern Oswego River Basin. Surface water runoff on the Base is locally controlled by drainage ditches that direct the flow of surface water runoff north to drainage channels (Figure 3-2). The drainage channels are routed into the north branch of Ley Creek, which flows south along the eastern Base boundary. Ley Creek flows to the west and southwest before discharging to Lake Onondaga. Ley Creek was constructed in the 1940s to provide additional surface water drainage during Base construction activities. Surface water at the Base ultimately drains north into Lake Ontario (HAZWRAP, 1997).

3.6 Hydrogeology

The Base lies within the Glaciated Central Groundwater Region. The area consists of a thick glacial cover mass atop a thick unit of fractured shale (Vernon Formation) (Figure 3-3). Wells screened within the shale reportedly yield as much as 300 gpm, although the average is only 25 gpm. These wide ranges in yield are caused by varying degrees of solutioning of the rock, and infilling of solution cavities and other openings with fine sediments. Depending on grain size and degree of sorting, the unconsolidated glacial deposits can yield anywhere from less than 1 gpm to more than 500 gpm. Hydraulic conductivities for the dominant aquifers can range from 5 to 1000 feet per day. The principal aquifers in the region include portions of the Vernon Formation that possess a large number of fractures and joints, and the overlying well-sorted fairly homogeneous glacial deposits consisting of sand and gravel (HAZWRAP, 1997).

Because of the nature of the lithology, the Vernon Formation is not particularly transmissive and does not contain large volumes of accessible water. Groundwater movement and storage is achieved through localized fractures and bedding planes and is enhanced as a consequence of solutional widening of existing fractures and joints in dolomite- and gypsum-rich intervals. Although the Vernon Formation has potential as a viable groundwater aquifer, the water quality is poor. The groundwater contains large concentrations of dissolved solids, salts, and/or sulfate and may be very hard. The water is typically used only for cooling, fire protection, sanitation, and some agricultural purposes. Groundwater from the Vernon Formation is not used as a source for drinking water (HAZWRAP, 1997). Much of the groundwater within the Vernon Shale is under confining conditions because of a regionally continuous basal till layer that overlies the shale and acts as a confining layer. Recharge of the shale is



LEGEND

Cd - Canandaigua mucky silt loam
ChA - Collamer silt loam, 0 to 2 percent slopes
ChB - Collamer silt loam, 2 to 6 percent slopes
CrB - Croghan loamy fine sand, 0 to 6 percent slopes
FL - Fluvaquents, frequently flooded
NgA - Niagra silt loam, 0 to 4 percent slopes
Ub - Urban land
WwB - Williamson silt loam, 2 to 6 percent slopes

HANCOCK AIR NATIONAL GUARD BASE
SOIL MAP OF THE
HANCOCK FIELD AREA
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
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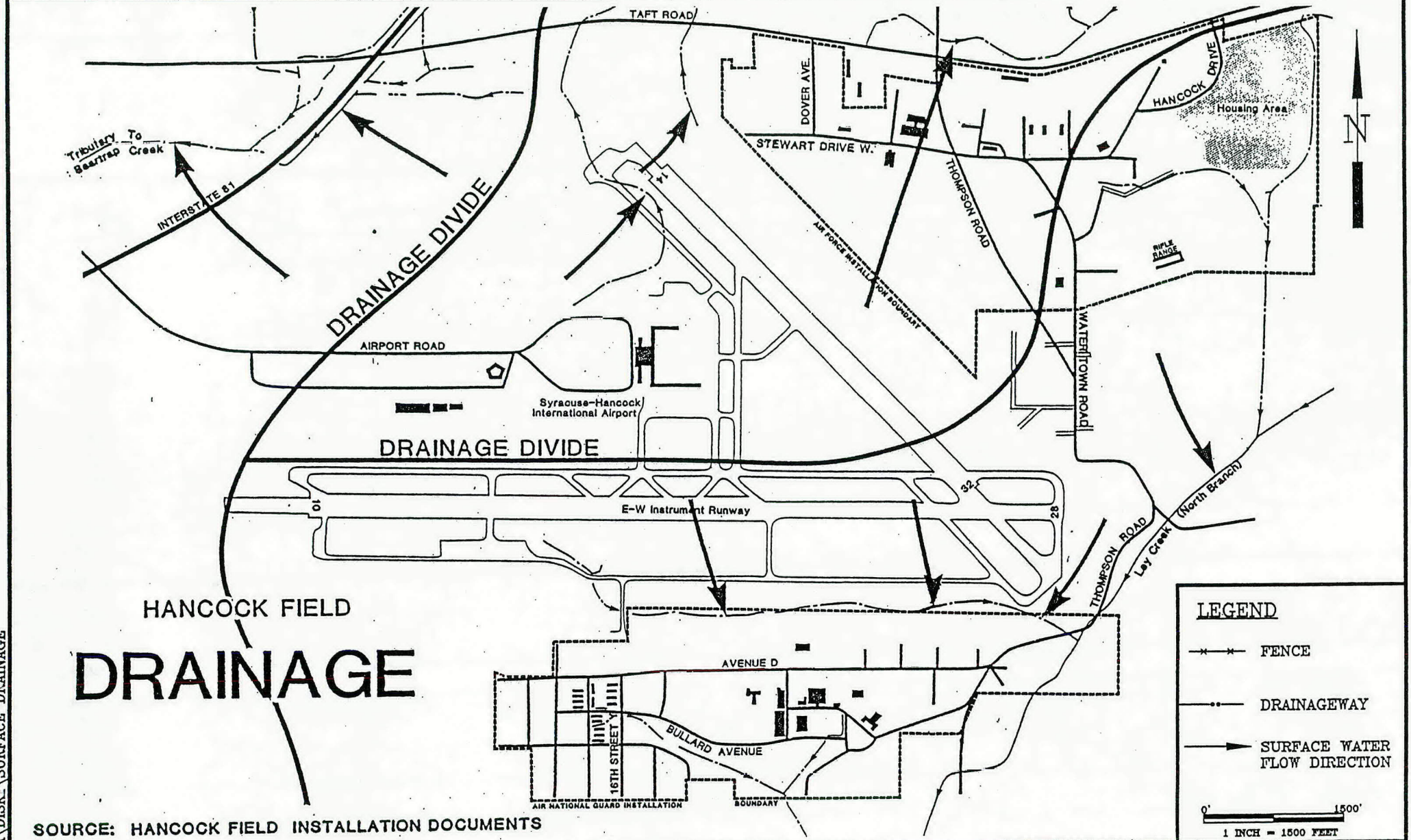
FIGURE: 3-1

C:\DRAW\HANCOCK\DISK1\SOIL MAP



SOURCE: HANCOCK FIELD INSTALLATION DOCUMENTS

HANCOCK AIR NATIONAL GUARD BASE
SURFACE AREA DRAINAGE MAP
SYRACUSE, NEW YORK

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FIGURE: 3-2

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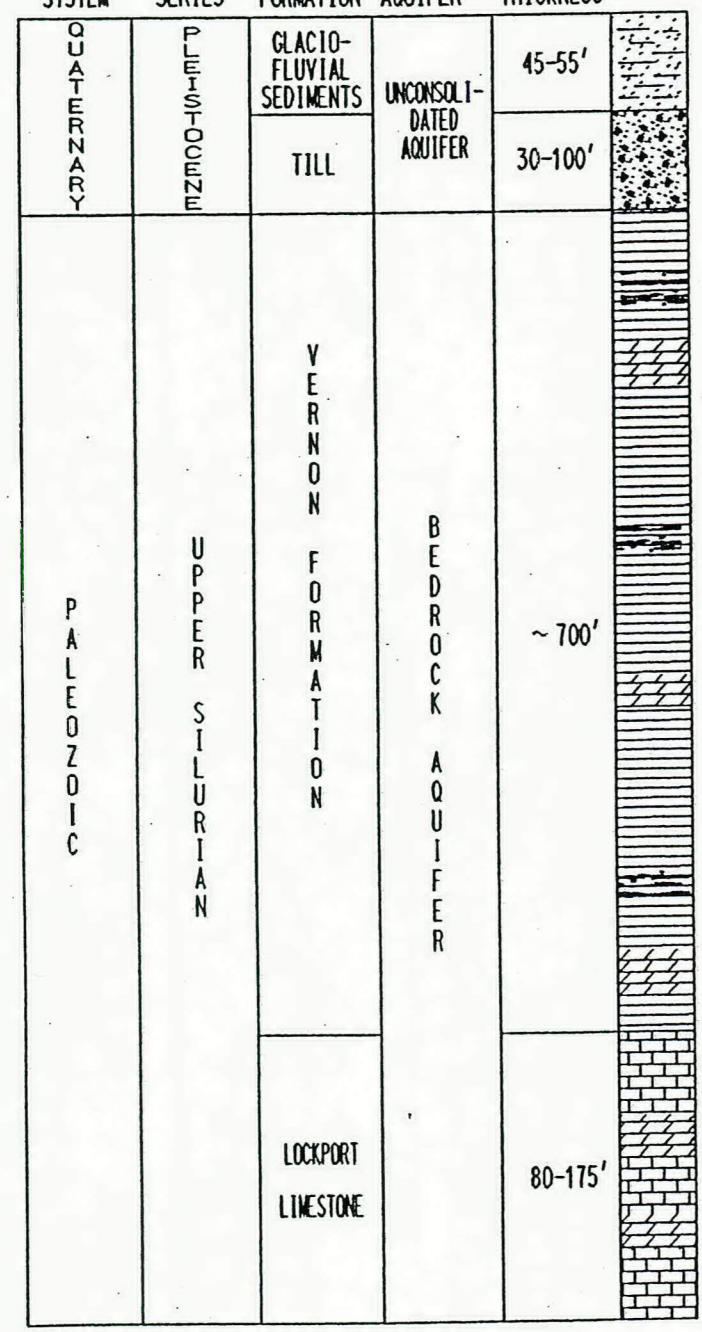
SYSTEM	SERIES	FORMATION	AQUIFER	THICKNESS	LITHOLOGY
QUATERNARY	PLEISTOCENE	GLACIO-FLUVIAL SEDIMENTS	UNCONSOLIDATED AQUIFER	45-55′	LACUSTRINE SANDS, SILTS AND CLAYS LAMINATED/STRATIFIED
		TILL		30-100′	GRAVELS, COBBLES, AND BOULDERS
PALEOZOIC	UPPER SILURIAN	VERNON FORMATION	BEDROCK AQUIFER	~ 700′	SHALE, HEMATITE-RED, LOCALLY THIN BEDS OF GREEN SHALE, SOFT, ARGILLACEOUS, LOCALLY THIN BEDS OF GYPSUM AND DOLOMITE
		LOCKPORT LIMESTONE		80-175′	LIMESTONE, DOLOMITIC, VERY DARK GRAY TO BLACK



LEGEND

- SHALE
- GYPSUM
- SAND
- CLAYEY SILT
- LIMESTONE
- DOLOMITE
- GRAVELS, COBBLES AND BOULDERS

0' 0'

NOT TO SCALE

SOURCE: HAZWRAP, MARCH 1997

C:\DRAW\HANCOCK\DISK1\STRATIGRAPHIC COLUMN

HANCOCK AIR NATIONAL GUARD BASE
STRATIGRAPHIC COLUMN
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
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FIGURE: 3-3

accomplished via the downward migration of groundwater from the overlying glacial deposits where till is absent and/or direct infiltration at outcrops. By nature, these deposits are characterized by low effective porosities, low hydraulic conductivities (i.e., less than 10^{-7} feet per day), and low specific yields. Only small quantities of groundwater can be withdrawn from these units. In the case of the tills, rarely can more than 3 gpm be obtained (HAZWRAP, 1997).

The only glacial deposits that contain significant amounts of groundwater are the well-sorted homogeneous sands and gravels. In areas where these deposits are laterally extensive and readily recharged, large quantities of groundwater are available. These deposits are found mainly in the valleys and in scattered deposits in the lowlands. Groundwater within the sands and gravels is often under artesian conditions when overlying confining units are present. Groundwater in the vicinity of the Base exists in both the glaciofluvial sediments and the Vernon shale, but not in the low-permeability till. The surficial (glaciofluvial) aquifer is low yielding and the groundwater is high in iron, calcium, and magnesium. Water in the bedrock aquifer exists under artesian conditions and is high in sulfate, chloride, and total dissolved solids (TDS). Water supplies in the vicinity of the Base consist exclusively of surface water; therefore, neither aquifer is a source of drinking water (HAZWRAP, 1997).

Water levels at the Base have been shown to range from 5 to 11 feet below ground surface. Shallow groundwater occurs under unconfined conditions, though the potential for partially confined conditions exists. Regional groundwater flow is to the south and southeast towards Ley Creek. Low hydraulic conductivities and gradients indicated low linear groundwater flow velocities on the order of 3 to 40 feet per year (HAZWRAP, 1997).

3.7 Critical Habitats and Endangered/Threatened Species

Reportedly, no state or federally-designated threatened or endangered species have been identified at the Base. Information contained in the Significant Habitat Program and Natural Heritage Program files compiled by the New York State Department of Environmental Conservation (NYSDEC) Significant Habitat Unit did not indicate the presence of endangered, threatened, or special concern wildlife species. The files did not indicate the presence of significant habitats or rare plant, animal, or natural community occurrences on or near the Base. The Cicero State Wildlife Management Area located approximately two miles northeast of the Base is a habitat for a variety of waterfowl (Radian, 1998a).

4.0 FIELD PROGRAM

4.1 Summary

The field program was implemented in accordance with the Final Site Assessment Work Plan (Aneptek, November, 2000), except as noted in Section 4.2, Deviations from the Work Plan. The planned and executed field programs are summarized in Table 4-1. Field activities were performed during the period November 26, 2000 through December 1, 2000.

All laboratory analyses reports were submitted for third party data validation. During validation, it was found that the laboratory had exceeded the holding times for the SVOC fractions of the following samples:

Site 4 - Groundwater samples SB-04GW and SB-044GW
Site 9 - Groundwater sample SB-04GW
Site 11 - Groundwater samples SB-03GW and SB-04GW

These samples were grab groundwater samples collected from temporary wells installed in soil borings. To rectify this situation, Aneptek re-sampled the groundwater at the abovementioned sites on April 12 and 13, 2001 for SVOC analysis. At Site 9 and Site 11, samples were collected in the same manner as previously collected and approximately one foot from the original locations. At Site 4, due to recent precipitation and the fact that the original sample location is in a low-lying area, drilling vehicles could not be driven to the location without becoming mired in the soft ground. To avoid this, a groundwater sample was collected from a previously existing monitoring well, MW-17. MW-17 is located approximately 40 feet from the original sample location and screened in the overburden. Prior to sampling, approximately three well volumes were extracted from the well to ensure site representative groundwater would be collected. Both re-sampling and the use of MW-17 were done with ANG and NYSDEC approval.

4.2 Deviations from the Work Plan

The following is a summary of deviations from the Work Plan:

Site 1 - There were no deviations from the Work Plan.

Site 4 - Due to the shallow groundwater table at the site (between 4.5 to 6 feet bgs), only two soil samples were collected at soil borings (SB) SB-01, SB-03, and SB-04, instead of the planned three per boring. Three samples were collected from soil boring SB-02. Also, as reported in Section 4.1, a groundwater sample was collected from a previously existing monitoring well, MW-17, to replace the groundwater sample originally collected from SB-04.

Site 9 - Due to the shallow groundwater table (approximately 4 feet) at soil boring SB-03 and SB-04, only two soil samples were collected from each of these borings instead of three, as cited in the Work Plan. In addition, two groundwater samples were to be collected, one from each of the down gradient borings (SB-01 and SB-04). Only one groundwater sample (SB-04GW) was collected, that being from SB-04. Due to the elevated nature of the topography and a corresponding increase in depth to groundwater in relation to SB-04, and the limitations inherent when using direct push drilling methods (i.e., refusal due to dense soils/cobbles), the boring at SB-01 could not be advanced to groundwater. As reported in Section 4.1, SB-04GW had to be re-sampled due to laboratory error.

TABLE 4-1
PLANNED AND EXECUTED FIELD PROGRAM - SITE ASSESSMENT
HANCOCK AIR NATIONAL GUARD BASE
SYRACUSE, NEW YORK

	Planned Field Activity	Analytical Parameters	Executed Field Activity
Site 1	Collect 4 chip samples from concrete pad	VOC's, SVOC's, Pest/PCB's, Metals, TPH	Sampled as planned.
	Collect 4 surface soil samples from area north of site	VOC's, SVOC's, Pest/PCB's, Metals, TPH	Sampled as planned.
	Advance 4 soil borings to 10 ft. under concrete pad. Collect 3 soil samples per boring	VOC's, SVOC's, Pest/PCB's, Metals, TPH	Sampled as planned.
	Advance 4 soil borings to 2 ft. around outside edge of concrete pad. Collect 1 sample per boring	VOC's, SVOC's, Pest/PCB's, Metals, TPH	Sampled as planned.
	Collect 1 round of groundwater samples from 5 existing wells	VOC's, SVOC's, Pest/PCB's, Metals, TPH	Sampled as planned.
Site 4	Conduct geophysical survey over site Advance 4 soil borings, 3 to 10 ft. and 1 to water table (approx. 15 ft.) Collect 3 soil samples per boring Collect 1 groundwater sample at downgradient boring	VOC's, SVOC's, PCB's, Metals	Geophysical survey conducted as planned. Due to shallow groundwater table (approx. 4 ft bgs) collected 10 soil samples instead of 12. Due to laboratory error, SVOC fraction of ground water had to be re-sampled. Sample collected from existing well, MW-17.
Site 9	Conduct geophysical survey over site Advance 4 soil borings, 2 to 10 ft. and 2 to water table (approx. 15 ft.) Collect 3 soil samples per boring Collect 1 groundwater sample at 2 downgradient borings	VOC's, SVOC's, PCB's, Metals	Geophysical survey conducted as planned. Due to shallow groundwater table (approx. 4 ft bgs) collected 10 soil samples instead of 12. Due to drilling refusal at approx. 15 ft bgs, did not reach water table at second boring, collected 1 groundwater sample instead of 2, Due to laboratory error, SVOC fraction of ground water had to be re-sampled. Sample collected from same location as original sample.
Site 10	Conduct record search and interview Base personnel to acertain exact location of Site. If Site is located, advance 4 soil borings to 5 ft. Collect 2 soil samples per boring.	Pest/PCB's,	Record search and Base personnel interviews conducted. Exact loction of Site 10 could not be located. Executed activities consisted of record search and Base personnel interviews only.
Site 11	Conduct record search and interview Base personnel to acertain exact location of Site. If Site is located, advance 4 soil borings, 2 to 10 ft. and 2 to water table (approx. 15 ft.) Collect 3 soil samples per boring. collect 1 groundwater sample at 2 borings	VOC's, SVOC's, PCB's, Metals	Samples collected as planned. Location of Site 11 was determined. Due to shallow groundwater table (approx. 6 ft bgs) collected 10 soil samples instead of 12. Due to laboratory error, SVOC fraction of ground water had to be re-sampled. Sample collected from same location as original sample.
AOC 1-3	Collect 3 sediment soil samples from drainage ditch area	TPH, Metals	Sampled as planned.

Site 10 - After a file and records search and interviews with Base personnel, the location of Site 10 could not be determined. Therefore, investigative activities at Site 10 were limited to the record search and interviews.

Site 11 - After a file and records search and interviews with Base personnel, the location of Site 11 was determined. Due to the shallow groundwater table (approximately 6 feet) only two soil samples were collected from SB-01, SB-03, and SB-04. Three samples were collected from SB-02. As reported in Section 4.1, due to laboratory error, the groundwater samples originally collected at Site 11 (SB-03GW and SB-04GW), had to be re-sampled.

AOC 1-3 - There were no deviations from the Work Plan.

4.3 Field Screening Activities

With the exception of Site 10, field screening activities were conducted at each of sites investigated during this SA. Field screening consisted of the use of a photoionization detector (PID) at all sites investigated. In addition, a geophysical survey was conducted at Site 4 and Site 9 to locate possible buried debris. Field screening activities are discussed below.

4.3.1 Photoionization Detector

A ThermoElectron 580B Photoionization Detector (PID), utilizing an 11.7 electron volt (eV) lamp, was used to screen subsurface soil samples for VOCs. A PID uses an ultraviolet lamp to ionize airborne VOC vapors that enter the ionizing chamber within the instrument. The ionized vapor then passes an ionization detector, providing a relative reading of the quantity of VOCs present in the sampled air.

PID screening was performed on each soil sample interval collected during the SA. After the sampler was removed from the boring, the tip of the PID was passed over the exposed sample. PID readings, if any, were recorded on the appropriate boring log. Aneptek personnel also obtained PID readings from the samples by placing a portion of the recovered sample in a ziploc bag and screening the headspace within the bag. PID readings were recorded on soil boring logs included in Appendix A.

4.3.2 Geophysical Survey

In addition to PID screening, a geophysical survey was performed at Site 4 and Site 9 to facilitate the location of possible buried debris. Based on the results of the survey, soil borings were located in areas which indicated the highest probability of buried debris. The survey was conducted using a Geonics® EM61 metal detector. The Geonics EM61 employs an electromagnetic (EM) energy source and sensors to measure the response of buried materials by generating an EM pulse 150 times per second. The off-time between pulses is measured. After each pulse, secondary EM fields are briefly induced in the moderately conductive soils, and for a longer time in the surface and buried metallic objects. During the measuring time between each EM pulse, the system waits until the response from the soils dissipates, then measures the prolonged metal response. By sensing only the response from the buried metal, the instrument detects targets that would be otherwise missed. The geophysical surveys were conducted on November 16 and 17, 2000, by Geophysics GPR International, Inc., located in Westford, Massachusetts. A detailed report was submitted to Aneptek Corporation. This report and accompanying data and are presented in Appendix B.

4.4 Confirmatory Activities

Confirmatory activities performed during this SA included file search and Base personnel interviews

(Site 10 and 11 only), the advancement of soil borings, and the collection of concrete, soil, sediment, and groundwater samples for off-site analyses. During this SA, six separate sites, Site 1, Site 4, Site 9, Site 10, Site 11, and AOC 1-3, were investigated. Laboratory analysis and sample media varied from site to site. Soil, groundwater, concrete, and sediment samples were collected in accordance with Section 9.0 in the approved Work Plan (Aneptek, November, 2000) and with appropriate Standard Operating Procedures (SOPs) contained in Appendix C of the Work Plan. All Quality Assurance/Quality Control (QA/QC) procedures were followed in accordance with Appendix B contained in the Work Plan. To confirm analysis results, laboratory results were then submitted for third party data validation. The following sections present the confirmatory sampling activities at each of the six sites.

4.4.1 Site 1

A total of eight soil borings were advanced at Site 1 to facilitate the collection of subsurface soil samples. Borings were advanced using a Geoprobe direct push drill rig. Subsurface soil samples were collected from borings via a four foot Geoprobe macro-core sampler. Four surface soil samples and four concrete chip samples were also collected. In addition, groundwater samples were collected at Site 1 from five pre-existing monitoring wells. All samples collected at Site 1 were submitted to an off-site laboratory for analyses for VOCs, SVOCs, Pesticides, PCBs, TAL Metals, and TPH. All soil borings were backfilled to the surface with bentonite chips following investigative activities. Sample locations for all media sampled are presented in Figure 4-1.

4.4.1.1 Soil Borings

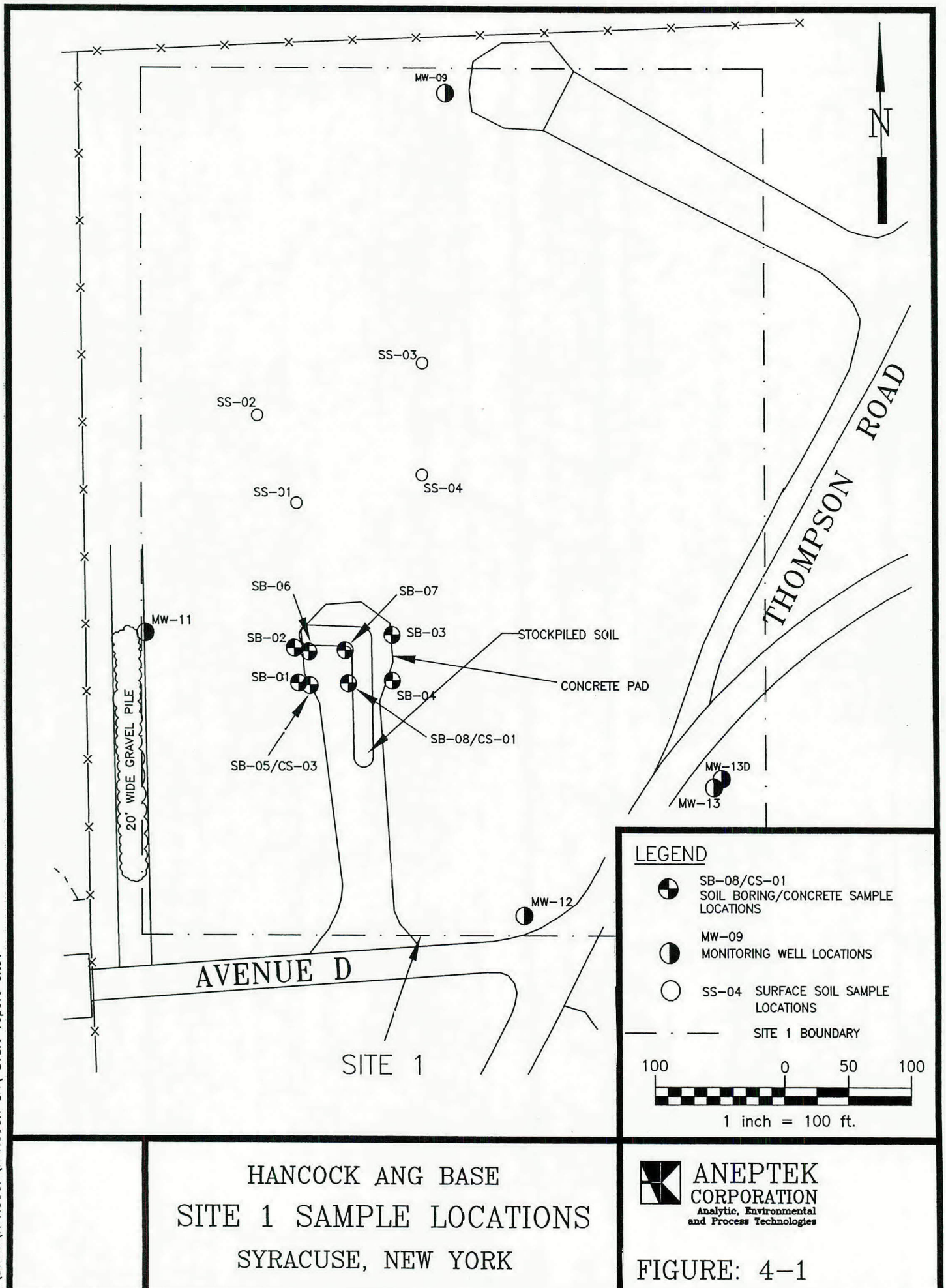
Eight soil borings were advanced at Site 1. Four borings (SB-01 through SB-04) were advanced to a depth of 2 feet bgs around the perimeter of the concrete pad. One sample was collected from each of these borings from 0 to 2 feet bgs. Four borings (SB-05 through SB-08) were advanced through the concrete pad to a depth of 10 feet bgs. Advancement of the borings through the concrete pad was facilitated by first coring through the pad. The borings were then initiated just below the pad to the final depth. Three samples were collected from each boring under the concrete pad. At SB-05, samples were collected at the 0 to2 ft, 8 to 10 ft, and 10 to 12 ft intervals. At SB-06, samples were collected at the 0 to 2 ft, 4 to 8 ft, and 8 to 10 ft intervals. At SB-07, samples were collected at the 0 to2 ft, 6 to 8 ft, and 8 to 10 ft intervals. At SB-08, samples were collected at the 0 to2 ft, 6 to 8 ft, and 8 to 10 ft intervals. For quality control purposes, a duplicate sample was collected at SB-07 4-8 (from the 4 to 8 ft interval). This sample was identified as SB-77 4-8.

4.4.1.2 Concrete Sampling

Four concrete chip samples (CS-01, CS-02, CS-03, and CS-04) were collected from the surface of the concrete pad. Sample locations were first swept clean of any residual dirt or debris. A decontaminated hammer and chisel were then used to chip off the top inch from each sample location prior to collecting the sample from below the surface. For quality control purposes, a duplicate sample was collected at CS-02. This sample was identified as CS-22.

4.4.1.3 Surface Soil Sampling

Four surface soil samples (SS-01, SS-02, SS-03, and SS-04) were collected from an area located directly north of the concrete pad. This is a low-lying area which is believed to receive surface water runoff from the concrete pad. For quality control purposes, a duplicate sample was collected at SS-01. This sample was identified as SS-11.



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HANCOCK ANG BASE

SITE 1 SAMPLE LOCATIONS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
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FIGURE: 4-1

4.4.1.4 Groundwater Sampling

One round of confirmatory groundwater samples was collected from five pre-existing monitoring wells. Prior to sampling, each of these wells was re-developed and purged. Four of these wells, MW-09, MW-11, MW-12, and MW-13, are shallow, overburden wells with an average depth of 32 feet. These wells were developed and sampled using dedicated bailers. The fifth well, MW-13D, was a bedrock well approximately 130 feet deep. A submersible pump was used to develop and sample MW-13D. Clean, new sample tubing was attached to the pump and inserted into the well to facilitate development and sampling. Each groundwater sample was identified with the site designation, Site 1, and then the appropriate well number. For quality control purposes, a duplicate sample was collected at MW-13. This sample was designated as Site 1 MW-113.

4.4.2 Site 4

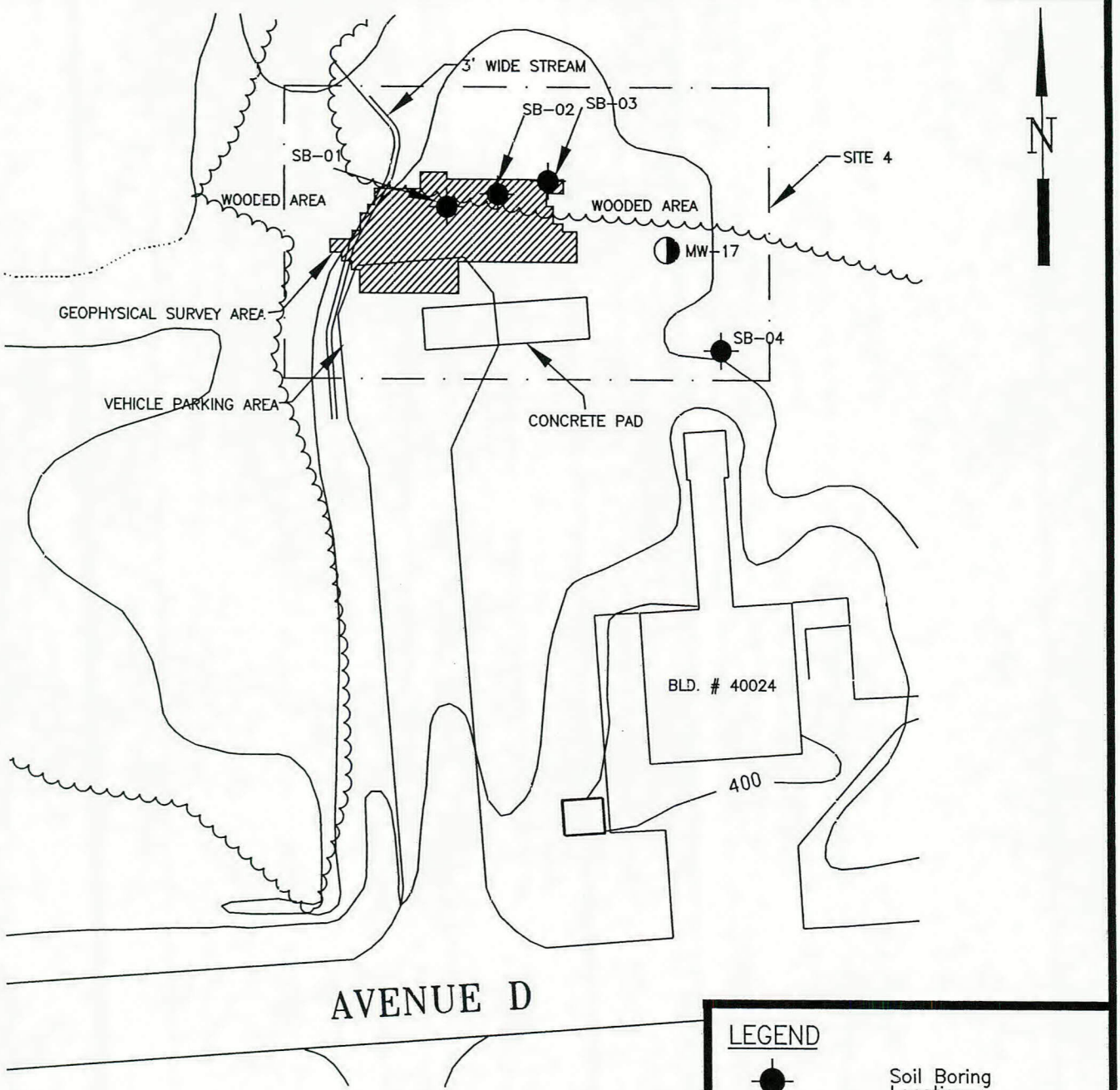
Based on the results of the geophysical survey, four soil borings (SB-01, SB-02, SB-03, and SB-04) were advanced at Site 4 to facilitate the collection of subsurface soil samples. All borings were advanced to a depth of approximately six to ten feet bgs. In addition, one groundwater sample was collected from an existing monitoring well (MW-17). A duplicate groundwater sample, MW-117, was also collected at MW-17. All sample locations and the geophysical survey location are shown in Figure 4-2. All samples collected at Site 4 were submitted to an off-site laboratory for VOCs, SVOCs, PCBs, and TAL metals.

4.4.2.1 Soil Borings

As discussed in Section 4.3, a geophysical survey was first conducted at Site 4 to locate possible buried debris. The survey was conducted within a 150 foot by 70 foot grid (approximate). The location of the grid was based upon previous investigative information (SAIC, June, 1989). Based on the results of the geophysical survey, three of the borings, SB-01, SB-02, and SB-03, were located within the grid. SB-04 was located outside of the grid to the east-southeast of Site 4. This was done to facilitate the collection of a groundwater sample to detect any possible off-site contaminant migration. Borings were advanced with a Geoprobe drill rig and sampled using a four foot Geoprobe® macro-core sampler. Soil samples collected at Site 4 were submitted to an off-site laboratory and analyzed for VOCs, SVOCs, PCBs, and TAL metals. Due to the shallow groundwater table at Site 4, two soil samples were collected from SB-01 from the 2-4 ft and 5-7 ft intervals (SB-01 2-4 and SB-01 5-7). Two soil samples were also collected from SB-03 (SB-03 2-4 and SB-03 4-6), and SB-04 (SB-04 2-4 and SB-04 4-6). Three samples were collected from SB-02 (SB-02 2-4, SB-02 4-6, and SB-02 8-10). For quality control purposes, one duplicate sample was collected. The duplicate soil sample was collected from SB-02 8-10, this sample was identified as SB-22 8-10. All soil borings were backfilled to the surface with bentonite chips following investigative activities.

4.4.2.2 Groundwater Sampling

One groundwater sample was collected at Site 4. This sample was originally collected from a temporary well installed in SB-04 and identified as SB-04GW. SB-04 was located to the east-southeast and downgradient of Site 4. Based on groundwater elevation data presented in the Phase II/Stage 2 Confirmation/Quantification Report (SAIC, 1989), groundwater flow direction at Site 4 is to the east-southeast (see Section 5.1.2, Site 4). After the groundwater sample was collected, the temporary well material (PVC) was pulled



HANCOCK ANG BASE

SITE 4 SAMPLE LOCATIONS/ GEOPHYSICAL SURVEY AREA

SYRACUSE, NEW YORK

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FIGURE: 4-2

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from the boring and the boring was backfilled to the surface with bentonite chips. As stated in Section 4.1, the groundwater at Site 4 had to be re-sampled for SVOCs due to a laboratory error. The groundwater was sampled from an existing monitoring well, MW-17, which is screened in the overburden. Three well volumes were removed from MW-17 prior to sampling. Samples were collected using a clean, dedicated bailer. MW-17 is located approximately 40 feet to the north of the original sample location and downgradient of Site 4 (based on groundwater elevation data presented in the Phase II/Stage 2 Confirmation/Quantification Report [SAIC, 1989]). A duplicate groundwater sample, identified as MW-117, was also collected at MW-17.

4.4.3 Site 9

Based on the results of the geophysical survey, four soil borings (SB-01, SB-02, SB-03, and SB-04) were advanced at Site 9 to facilitate the collection of soil and groundwater samples. One groundwater sample was collected from a temporary well installed in soil boring SB-04. All samples collected at Site 9 were submitted to an off-site laboratory and analyzed for VOCs, SVOCs, PCBs, and TAL metals. All Site 9 sample locations and the geophysical survey area are shown in Figure 4-3.

4.4.3.1 Soil Borings

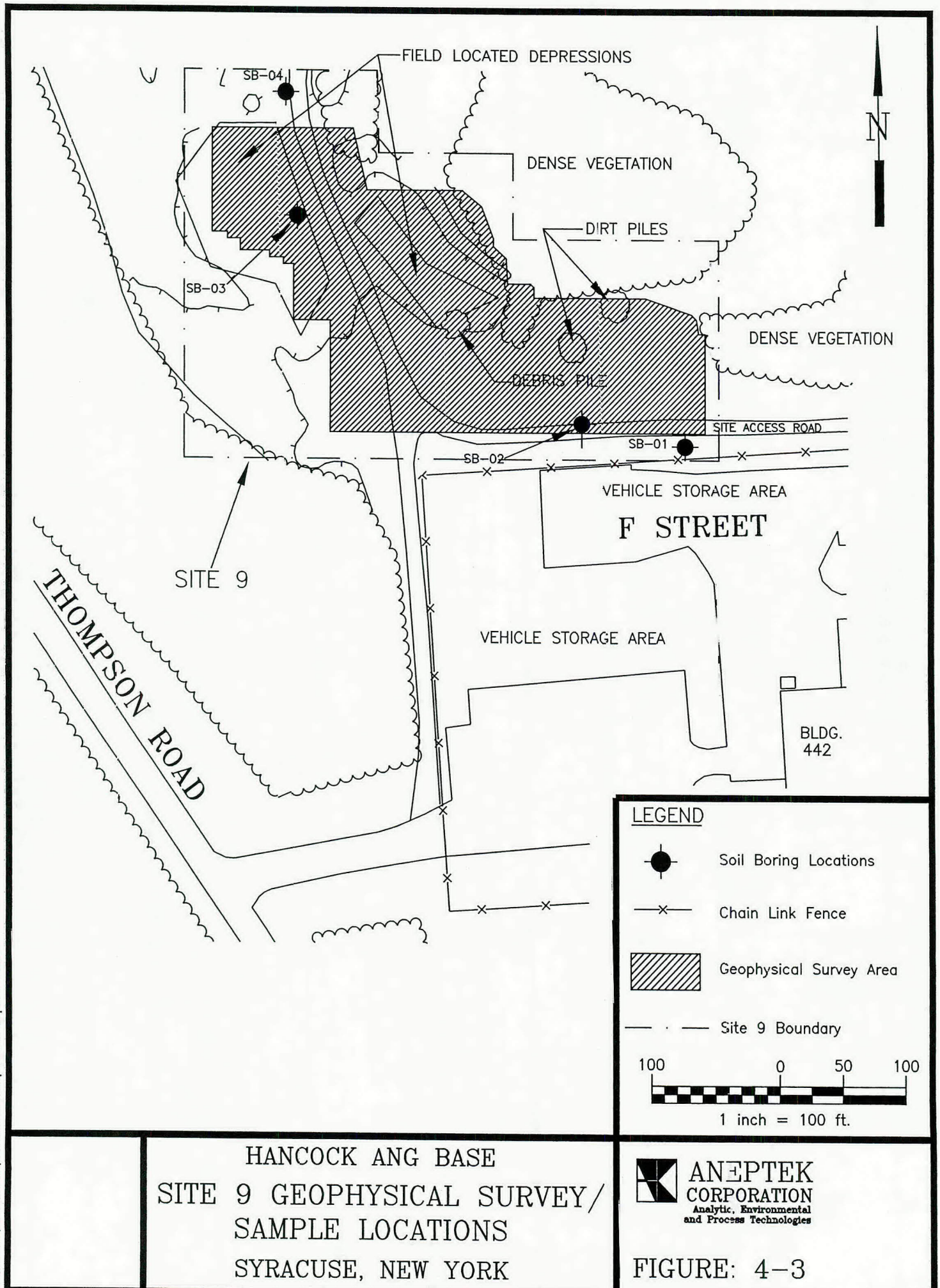
As discussed in Section 4.3, a geophysical survey was first conducted at Site 9 to locate possible buried debris. The location of the grid was chosen based upon previous investigative information (Parsons, June, 1999). The survey was conducted within a grid measuring approximately 350 feet long by 200 feet wide. Soil borings SB-02 and SB-03 were located within the grid at locations which the survey results indicated had the highest probability of buried debris. Borings SB-01 and SB-04 were located outside of the survey grid to collect groundwater samples to gauge possible off-site contaminant migration.

Borings were advanced using a Geoprobe® direct push drill rig. All borings were advanced to a depth of between four to twelve feet bgs. Samples were collected using a four foot Geoprobe® macro sampler. Three soil samples were collected from soil borings SB-01 (at intervals of 2 to 4, 4 to 8, and 10 to 12 feet), and SB-02 (at intervals of 2 to 4, 6 to 8, and 8 to 10 feet). Due to the shallow groundwater at Site 9 (noted at approximately 4 to 6 feet bgs) and lower topographical locations relative to SB-01 and SB-02, only two soil samples were able to be collected from SB-03 and SB-04 prior to encountering groundwater. Both borings were sampled from the 0 to 2 and 2 to 4 foot intervals. For quality control purposes, a duplicate sample was collected at SB-01 from the 4 to 8 foot interval. This sample was identified as SB-11 4 to 8.

4.4.3.2 Groundwater Sampling

Soil borings SB-01 and SB-04 were selected to facilitate the collection of groundwater samples. Upon review of previous information (Parsons, June 1999), it appears a possible groundwater divide may exist at Site 9, with groundwater flowing in both northerly and southeasterly directions. For this reason, SB-01 was located south of the suspected boundary of Site 9 and SB-04 was located to the north of the suspected boundary.

As discussed in Section 4.2, groundwater sampling at SB-01 could not be conducted due to soil refusal above the water table. Only one groundwater sample, SB-04GW, was collected. The sample was collected from a temporary well installed in SB-04. A dedicated bailer was used to collect the sample.



HANCOCK ANG BASE

SITE 9 GEOPHYSICAL SURVEY/ SAMPLE LOCATIONS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 4-3

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Also, as stated in Section 4.1, SB-04GW was re-sampled for SVOCs due to laboratory error. All samples collected at Site 9 were submitted to an off-site laboratory for VOC, SVOC, PCB, and TAL metals analysis.

4.4.4 Site 10

A detailed record search and interviews with Base personnel was performed to try and determine the exact location of Site 10. Based on the results of the record search and interviews, the location of Site 10 could not be determined, therefore no further investigative activities were conducted with regards to Site 10.

4.4.5 Site 11

A total of four soil borings (SB-01, SB-02, SB-03, and SB-04) were advanced at Site 11 to facilitate the collection of soil and groundwater samples. Borings were advanced using a Geoprobe® direct push drill rig. Groundwater samples were collected from temporary wells installed in the soil borings SB-03 and SB-04. All Site 11 sample locations are shown in Figure 4-4.

4.4.5.1 Soil Borings

Borings were advanced with a Geoprobe® drill rig and sampled using a four foot Geoprobe® macro-core sampler. Due to the shallow groundwater table at Site 11, only two soil samples were collected from SB-03 (SB-03 2-4 ft and SB-03 5-6 ft) and SB-04 (SB-04 2-4 ft and SB-04 4-6 ft). Three samples were collected from SB-01 (SB-01 2-4 ft, SB-01 4-6 ft, and SB-01 6-8 ft) and SB-02 (SB-02 2-4 ft, SB-02 4-6 ft, and SB-02 6-8 ft). For quality control purposes, one duplicate sample was collected from SB-04 from the 4 to 6 foot interval. This sample was identified as SB-44 4-6. All samples collected at Site 11 were submitted to an off-site laboratory and analyzed for VOCs, SVOCs, PCBs, and TAL metals. All soil borings were backfilled to the surface with bentonite chips following investigative activities.

4.4.5.2 Groundwater Sampling

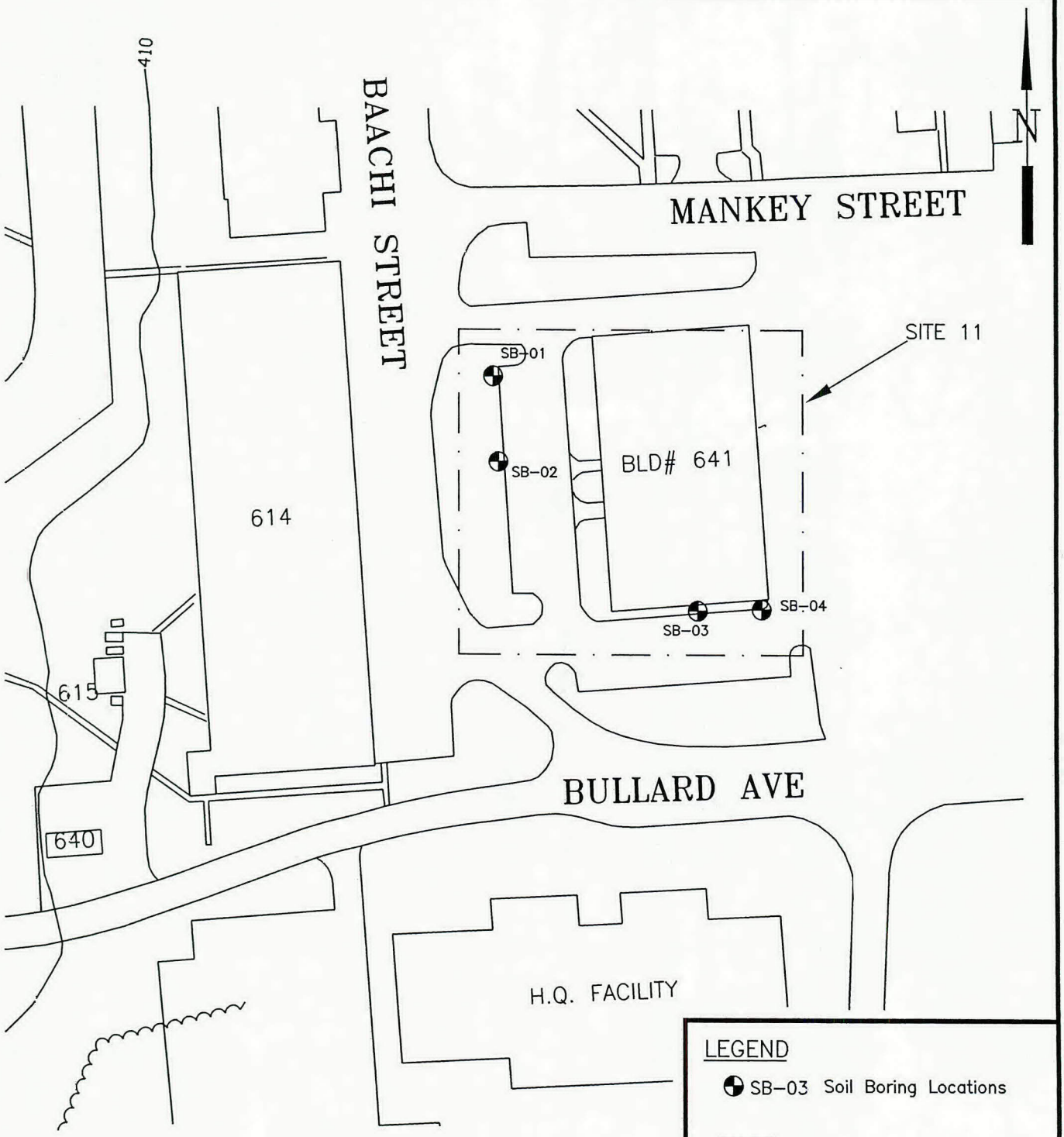
Two groundwater samples were collected at Site 11. The samples were collected from temporary wells installed in soil borings SB-03 and SB-04. The samples were identified as SB-03GW and SB-04GW. Samples were collected using dedicated bailers. For quality control purposes, a duplicate sample was collected at SB-04GW and identified as SB-044GW.

4.4.6 AOC 1-3

At AOC 1-3, only sediment soil samples were collected. All samples collected at AOC 1-3 (SD-1A, SD-2A, SD-3A, and SD-22A) were submitted to an off-site laboratory and analyzed for TPH and TAL metals. SD-22A is a duplicate sample of SD-2A. AOC 1-3 sample locations are shown in Figure 4-5.

4.4.6.1 Sediment Sampling

Four sediment samples (SD-1A, SD-2A, SD-3A, and SD-22A) were collected from AOC 1-3. For quality control purposes, a duplicate sample of SD-2A , SD-22A, was also collected. AOC 1-3 is located in an area adjacent to the eastern side of Site D-3 in Zone 2 (Figure 3-2). As reported in the Phase II/Stage 2 Confirmation\Quantification Report (SAIC, 1989), a total of seven sediment samples were collected from a drainage ditch located in this area. Three of the samples that were collected directly adjacent to Site D-3 had concentrations of arsenic that exceeded site background concentrations. The three samples collected during this SA were collected from approximately the



HANCOCK ANG BASE

SITE 11 SAMPLE LOCATIONS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 4-4

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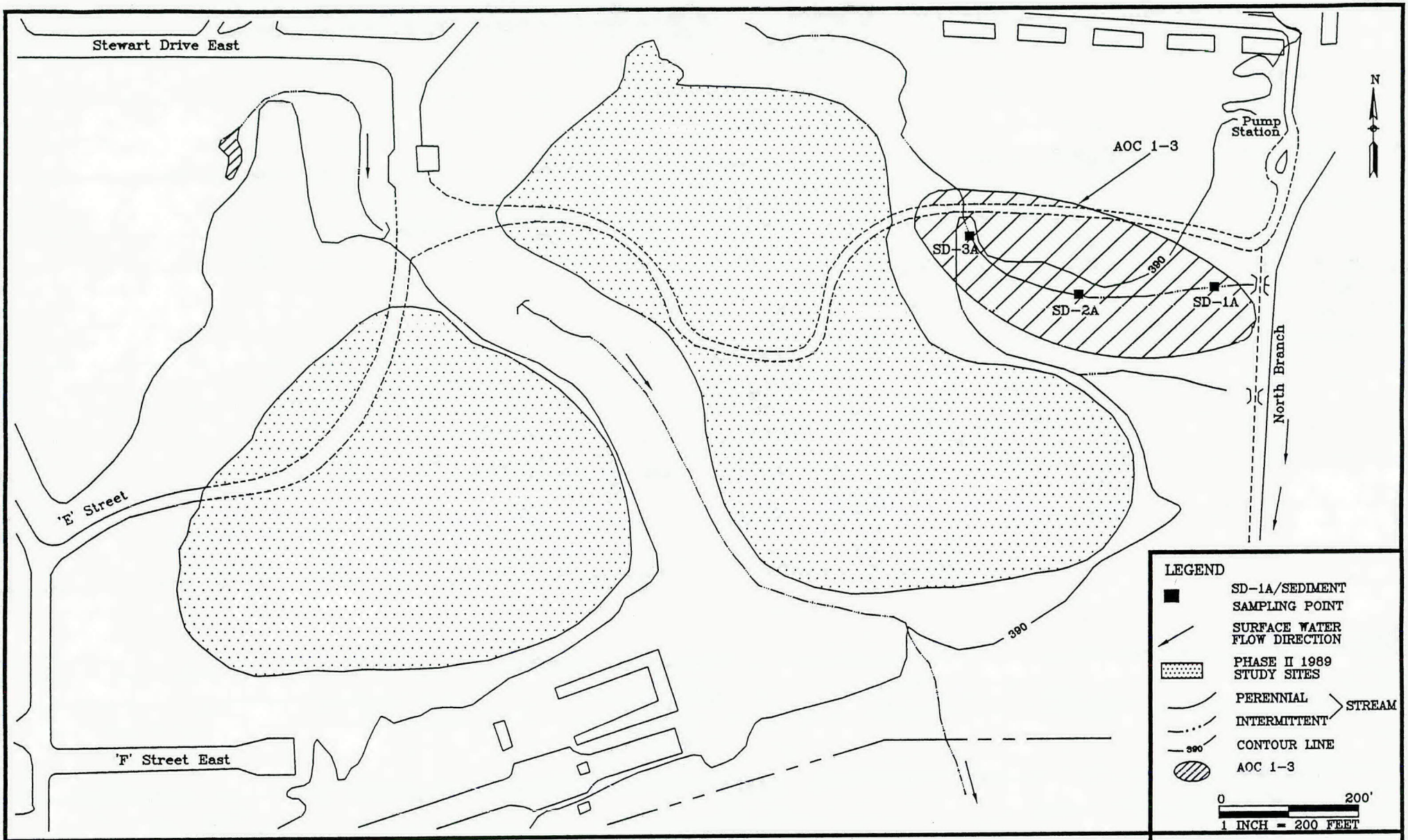

HANCOCK AIR NATIONAL GUARD BASE
SITE AOC 1-3
AOC 1-3 SEDIMENT SAMPLING LOCATIONS
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 4-5

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same locations as the Phase II samples which contained elevated arsenic levels.

4.7 Investigation Derived Waste

Investigation derived waste (IDW) generated during this SA included residual soil generated during soil sample collection, and water generated during monitoring well development/purging and equipment decontamination. As per the SA Work Plan (Aneptek, 2000), soil measuring 5 ppm or greater during field screening was containerized for later disposal. Only a small amount of soil at Site 1 registered above 5 ppm. Due to the small amount generated (approximately ten to twenty pounds) the soil was spread on top of previously stockpiled soil located on top of the concrete pad at Site 1. This soil is slated for removal and off-site disposal due to PCB contamination.

Based upon previous investigative analytical reports, and with ANG and NYSDEC approval, groundwater generated during the re-development/purging and sampling of monitoring wells was disposed of on the ground at the point of origin. Water generated during equipment de-contamination was drummed in 55 gallon DOT approved drums, labeled appropriately, sampled for disposal, and staged on Base. Analytical results confirmed no contamination was present. The contents of the drums were disposed of on the ground on Base property with NYSDEC approval.

4.8 Surveying

A State of New York Registered Land Surveyor was retained to obtain horizontal and vertical coordinates for each of the monitoring wells and confirmatory soil boring and surface soil sample locations used during this SA. The survey was performed by C.T. Male Associates, P.C., located in Syracuse, New York. Coordinates were located to within 0.1 feet for horizontal locations and to within 0.01 feet for vertical elevations. Pertinent objects located within the study area were also included in the survey.

5.0 INVESTIGATION FINDINGS

The results of the SA are presented in this Section. Section 5.1 provides a discussion of the geologic and hydrogeologic conditions present at each of the sites, Section 5.2 presents the results of field screening activities conducted at each site, and Section 5.3 presents confirmatory soil , groundwater, and concrete sampling (Site 1 only) results from each site.

5.1 Site Geology and Hydrogeology

Drilling activities were conducted during this SA at four of the six sites investigated (Site 1, Site 4, Site 9, and Site 11). At AOC 1-3, only sediment samples were collected, therefore no geologic information is available for this site. There were no drilling activities conducted at Site 10.

Soils in the overburden were basically homogenous throughout the individual sites. Although no monitoring wells were installed as part of the field program, limited groundwater information was obtained through observations made during the advancement of soil borings and during the sampling of existing monitoring wells. Section 5.1.1 presents the geologic findings, while Section 5.1.2 presents the hydrogeologic findings.

5.1.1 Geology

Site 1

As indicated on the boring logs included in Appendix A, soils to a depth of 12 feet at Site 1 consist of a heterogeneous mix of brown to gray native silt and fine to medium sand containing trace amounts of clay. These deposits appear to be representative of the glaciofluvial sediments deposited during the Wisconsinian glacial period (HAZWRAP, 1997).

Site 4

As indicated on the boring logs included in Appendix A, soils to a depth of 12 feet at Site 4 consist primarily of a heterogeneous mix of brown to dark brown silt and fine sand interbedded with clay. These deposits appear to be representative of the glaciofluvial sediments deposited during the Wisconsinian glacial period (HAZWRAP, 1997).

Site 9

As indicated on the boring logs included in Appendix A, soils to a depth of 12 feet at Site 9 consist primarily of layered brown silt and fine to coarse sand. A fill/gravel layer was noted at a depth of 8 feet in boring SB-02. The soils encountered at Site 9 appear to be fill material of a non-native origin.

Site 10

Based on the results of the file and record search and Base personnel interviews, the exact location of Site 10 could not be determined. Therefore, no further investigative activities were conducted at Site 10.

Site 11

As indicated on the boring logs included in Appendix A, soils to a depth of 8 feet at Site 11 consist primarily of light brown to brown silt/clayey silt and sand. These deposits appear to be representative of the glaciofluvial sediments deposited during the Wisconsinian glacial period (HAZWRAP, 1997).

5.1.2 Hydrogeology

Hydrogeologic information was obtained at Site 1 and Site 4 by measuring groundwater elevations in existing site wells. Information for Site 9 and Site 11 was obtained by reviewing results from previously conducted investigations. At Site 1 and Site 4, monitoring wells had previously been installed as part of the Phase II/StageII Confirmation/Quantification Program (SAIC, 1989). Although these wells were installed in the 1980's, they were inspected prior to sampling and found to be fully functional. Groundwater elevations at Site 1 wells, MW-09, MW-11, MW-12, and MW-13, and Site 4 wells, MW-16, MW-17, and MW-18, were measured on November 30, 2000. All groundwater elevations were measured from the top of the PVC well riser. Although the deep bedrock well, MW-13D at Site 1, was sampled as part of the SA, it was not used to develop groundwater flow direction due to being screened in a confined aquifer.

At Site 9 and Site 11, only temporary wells were installed to collect groundwater samples, thereby only depth to groundwater information was obtained. Other hydrogeologic information was obtained through review of archived reports. No groundwater information is available for AOC 1-3 or Site 10. A summary of the groundwater elevations at Site 1 and Site 4 is presented in Table 5-1and Table 5-2, respectively. Hydrogeologic findings are discussed below.

Site 1

Based on groundwater elevations obtained from four Site 1monitoring wells on November 30, 2000, general groundwater flow direction at Site 1 is to the east with an average hydraulic gradient of 0.008 ft/ft. Depth of groundwater ranged from 9.73 ft in MW-13 to 6.52 ft in MW-09. Groundwater flow direction at Site 1 is shown in Figure 5-1.

Site 4

Based on groundwater elevations obtained from three monitoring wells on November 30, 2000, general groundwater flow direction at Site 4 is in a northeasterly direction. It should be noted that the Phase II/Stage 2 Confirmation/Quantification Report (SAIC, 1989) reported that groundwater flow direction is to the east southeast. This descrepency may be due to seasonal groundwater flucuations or an error in measurment, either during the Phase II or the SA. The average hydraulic gradient was calculated to be 0.012 ft/ft. Depth to groundwater ranged from 4.76 ft in MW-17 to 3.64 ft in MW-18. Groundwater flow direction, based on the SA data, is shown in Figure 5-2.

Site 9

Due to the fact that there were no existing monitoring wells and that no monitoring wells were installed at Site 9 during this SA, hydrogeologic information is based on results from previous investigations. As reported in the Phase II Confirmation/Quantification Report (SAIC, 1989), groundwater at Site 9 flows in both a northwestly or southeastly direction, depending on seasonal and site specific influences. Based on measurements taken during March 1987, the hydraulic gradient at Site 9 is approximately 0.0065 feet per foot (ft/ft) (SAIC, 1989). During temporary well installations conducted as part of this SA, groundwater was encountered at approximately 4 feet bgs.

TABLE 5-1
GROUND WATER ELEVATION SUMMARY
SITE 1
HANCOCK, ANGB
SYRACUSE, NEW YORK

MEASUREMENT LOCATION	DEPTH TO GROUNDWATER (1)	GROUNDWATER ELEVATION (2)
MW-09	6.52	391.00
MW-11	6.79	393.36
MW-12	9.12	389.75
MW-13	9.73	389.13
MW-13D	1.44	397.26

Notes\Abbreviations:

1 - Depths to groundwater measured in feet below top of PVC riser pipe

2 - Groundwater elevations measured relative to mean sea level

MW - Monitoring well

All groundwater elevations measured on November 30, 2000

TABLE 5-2
GROUND WATER ELEVATION SUMMARY
SITE 4
HANCOCK, ANGB
SYRACUSE, NEW YORK

MEASUREMENT LOCATION	DEPTH TO GROUNDWATER [1]	GROUNDWATER ELEVATION [2]
MW-16	4.04	394.75
MW-17	4.76	393.41
MW-18	3.64	394.57

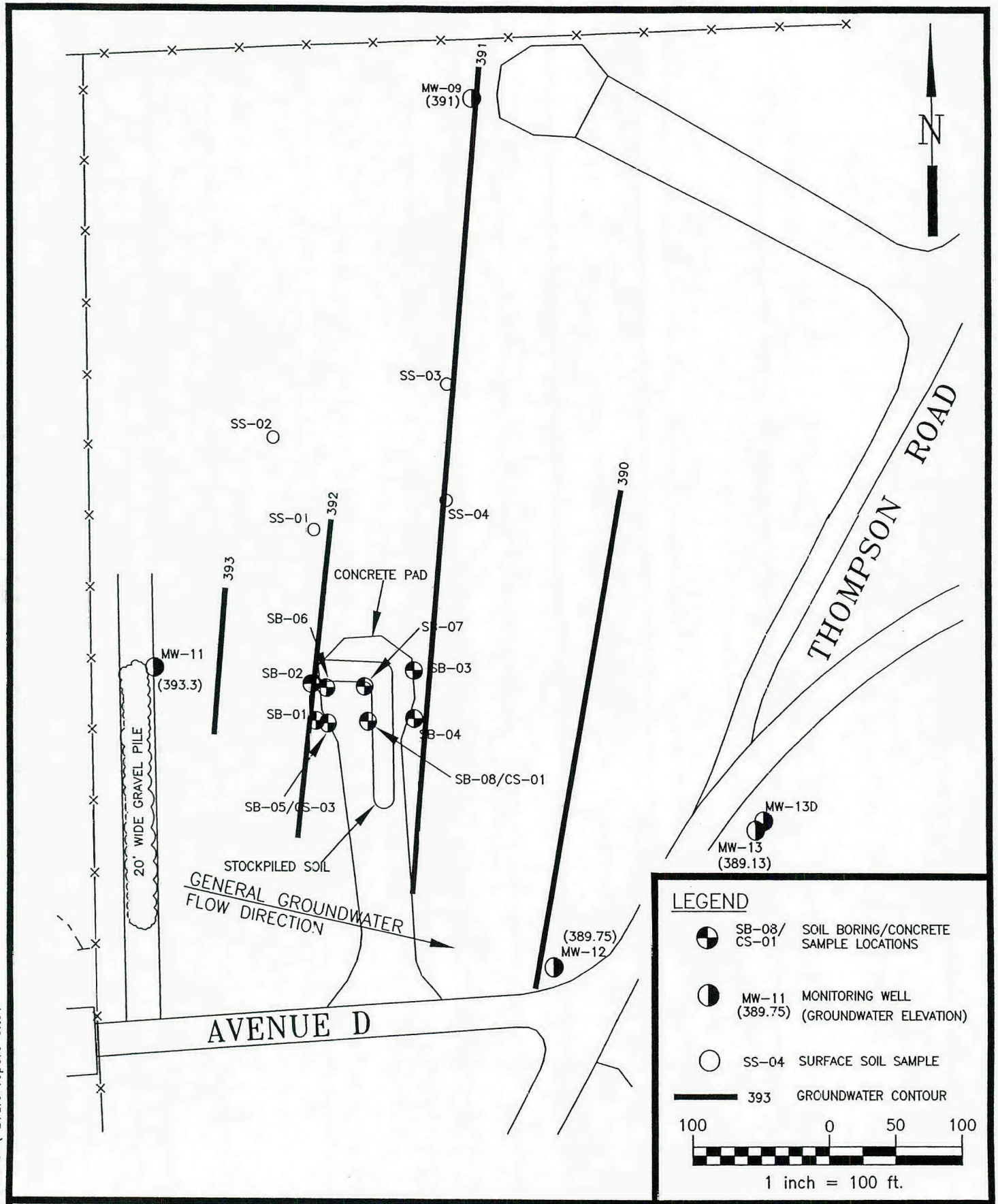
Notes\Abbreviations:

1 - Depths to groundwater measured in feet below top of PVC riser pipe

2 - Groundwater elevations measured relative to mean sea level

MW - Monitoring well

All groundwater elevations measured on November 30, 2000



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HANCOCK ANG BASE

SITE 1 GROUNDWATER FLOW DIRECTION

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
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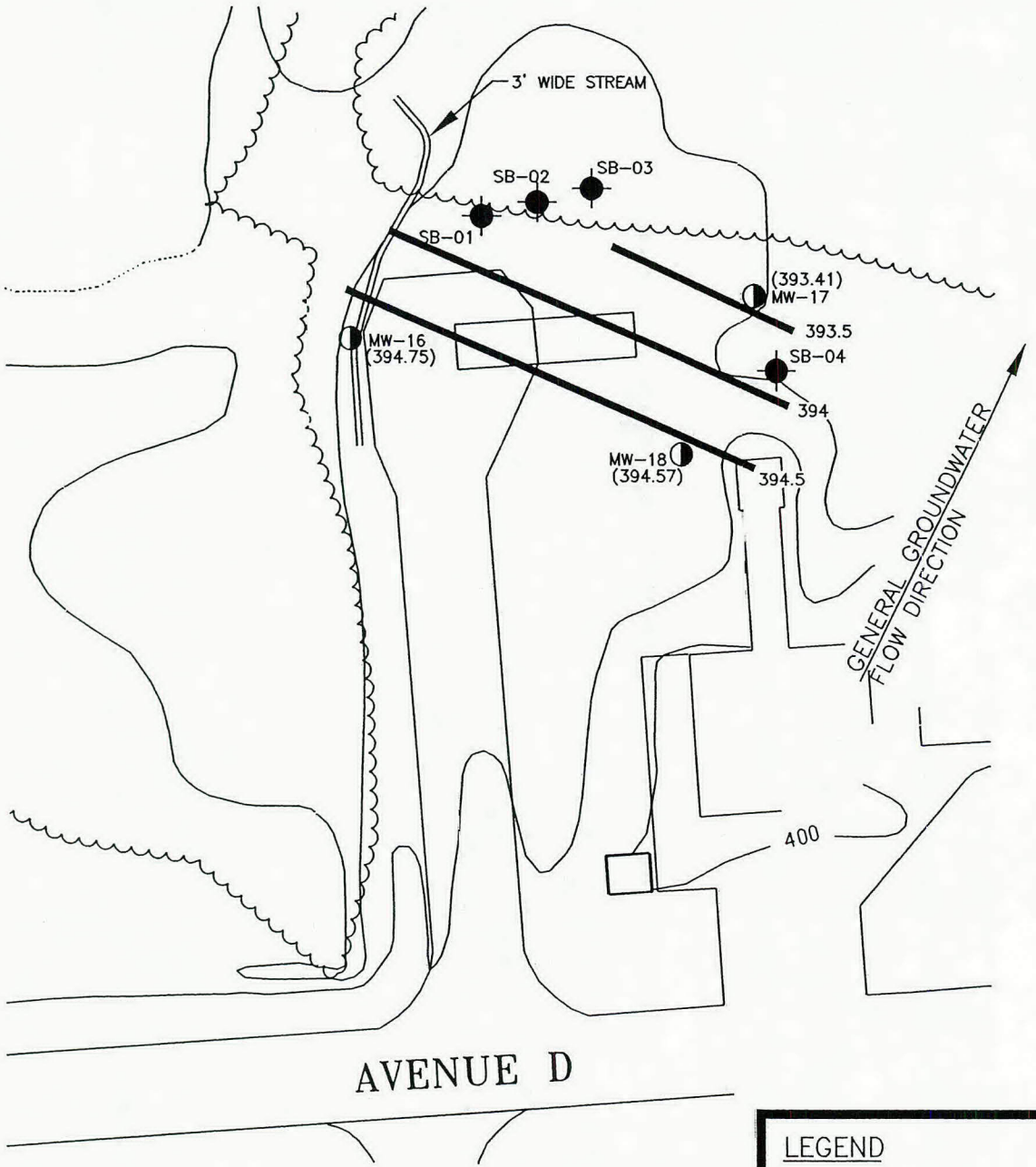
FIGURE: 5-1



LEGEND

SB-03 SOIL BORING LOCATIONS

MW-18 (394.57) MONITORING WELL (GROUNDWATER ELEVATION)

394.5 GROUNDWATER CONTOUR

0 100 50 100

1 inch = 100 ft.

HANCOCK ANG BASE

SITE 4 GROUNDWATER FLOW DIRECTION

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-2

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Site 10

No information regarding geology or hydrogeology was found during the file and record search or during Base personnel interviews.

Site 11

At Site 11, groundwater was encountered in soil borings at approximately 6.5 feet bgs.

5.2 Field Screening Results

As discussed in Section 4.3, soils collected during confirmatory sampling activities were field screened using a PID equipped with an 11.7 eV lamp. A geophysical survey was also conducted at Site 4 and Site 9 to determine the presence of possible buried debris. With the exception of Site 10, the following sections present the results of field screening at the individual sites. As only sediment samples were collected at AOC 1-3, no PID screening was performed.

5.2.1 Site 1

PID readings above zero parts per million (ppm) were recorded in four of the eight soil borings advanced at Site 1. Soil borings SB-01, SB-02, SB-03, and SB-04 all registered zero ppm. Soil borings SB-05, SB-06, SB-07, and SB-08 all registered elevated PID results. These borings had an average final depth of between ten to twelve feet bgs. PID readings ranged from five ppm in SB-06 (0-2 ft bgs) to 149 ppm in SB-07 (8-10 ft bgs). Petroleum odor was also present in the soils associated with the elevated readings. These borings registered the highest readings from approximately four to ten feet bgs. Readings dropped to near zero below a depth of 8 to 10 feet. PID readings and sample intervals are presented in Table 5-3.

5.2.2 Site 4

All subsurface soils at Site 4 registered a zero ppm response when screened with the PID. No unusual odors or visual characteristics were noted in any of the subsurface soils or groundwater at Site 4. As stated in Section 5.2, an electromagnetic geophysical survey was conducted at Site 4 to locate possible buried debris. The survey utilized a grid system which measured approximately 150 feet long by 70 feet wide. Fifteen individual or grouped anomalies were located throughout the survey area without visible source objects. The largest anomaly was recorded along the extreme northern portion of the survey area. Grid coordinates for this anomaly extended from coordinates 20 east by 50 north to 115 east by 50 north. The anomaly measured approximately 100 feet long and ten feet wide. Electromagnetic response factors along this area ranged from 700 to 1000 millivolts, the highest recorded during the survey. Based upon this information, soil borings SB-01, SB-02, and SB-03, were advanced at grid coordinates 50 east by 50 north, 70 east by 50 north, and 100 east by 55 north, respectively. These boring locations cover the approximate length of the anomaly. Survey results also indicated three to four anomalies with response factors in the 200 to 700 millivolt range. These locations were in the southern portion of survey area. The location of the survey area and soil boring locations are presented in Figure 4-2. The geophysical survey data and report is presented in Appendix B.

5.2.3 Site 9

All subsurface soils at Site 9 registered a zero ppm response when screened with the PID. No unusual odors or visual characteristics were noted in any of the subsurface soils or groundwater at

Table 5 -3
PID Field Screening Results - Site 1
Hancock ANGB
Syracuse, New York

Soil Boring Location	Depth BGS (ft)	PID Reading (ppm)
SB-01	0 to 2	0
SB-02	0 to 2	0
SB-03	0 to 2	0
SB-04	0 to 2	0
SB-05	0 to 2	24
SB-05	4 to 8	No Recovery
SB-05	8 to 10	7.4
SB-05	10 to 12	0
SB-06	0 to 2	5
SB-06	4 to 8	59
SB-06	8 to 10	0
SB-07	0 to 2	17
SB-07	4 to 8	54
SB-07	8 to 10	149
SB-08	0 to 2	22
SB-08	4 to 8	No Recovery
SB-08	6 to 8	30
SB-08	8 to 10	4.7

Site 9.

The electromagnetic geophysical survey conducted at Site 9 detected ten separate or grouped anomalies at which buried metallic debris may be located. The survey was conducted using a grid system and covered an area approximately 350 feet long by 200 feet wide. The highest electromagnetic response of the anomalies registered approximately 460 millivolts and was located at coordinates 97 west by 8 north. Soil boring SB-02 was advanced at this location. This location is right along the access road leading into Site 9 in the southeast portion of the survey area. The next highest response, at approximately 260 millivolts, was located at 295 west by 170 north. This location is in the northwest portion of the survey area. Soil boring SB-03 was advanced at this location. The general character of the electromagnetic response at Site 9 indicates most of the site is free of significant concentrations of subsurface metallic objects. The majority of the anomalies detected are located in the eastern portion of the site.

5.2.4 Site 11

All subsurface soils at Site 11 registered a zero ppm response when screened with the PID. No unusual odors or visual characteristics were noted in any of the subsurface soils or groundwater at Site 11.

5.3 Confirmatory Sampling Results

This section summarizes the results of soil, groundwater, and concrete sampling confirmatory analysis for each of the five sites investigated. Chain of custody documentation and data validation reports are presented in Appendices C and D, respectively.

There were no site specfic confirmatory background soil or groundwater samples collected during this SA. For reporting purposes in this document, where NYSDEC regulatory standards have established a numerical concentration or site background as the standard, sample results will be compared to the numerical concentration.

5.3.1 Site 1

Twenty two confirmatory soil samples (including two duplicate samples) were collected for off-site laboratory analysis of VOCs, SVOCs, pesticides, PCBs, TPH, and TAL metals. Of the total number of samples collected, seventeen were subsurface soil samples and five were surface soil samples. Also collected at Site 1 were five concrete chip samples (including one duplicate sample) collected from the surface of the concrete pad. Six groundwater samples (including one duplicate sample) were also collected from existing wells at Site 1. The analytical results are summarized in the following sections.

5.3.1.1 Surface Soil Sampling Analytical Results

There were no NYSDEC regulatory exceedances of VOCs in the five surface soil (SS) samples collected at Site 1. A total of seven VOCs were detected at concentrations below their regulatory limit or for which a regulatory limit has not been established.

Xylene and toluene were detected at concentrations below regulatory limits. Xylene was detected in surface soil (SS) samples SS-01, SS-02, and SS-11(a duplicate sample of SS-01). Concentrations ranged from 173 micrograms per kilogram (µg/kg) in SS-01to 89 µg/kg in SS-02. The NYSDEC regulatory standard for xylenes is 1,200 µg/kg. Toluene was detected in samples SS-01 and SS-11,

at concentrations of 149 µg/kg and 81 µg/kg, respectively. The NYSDEC regulatory standard for toluene is 1,500 µg/kg.

VOCs which were detected but for which a regulatory limit has not been established include sec-Butylbenzene (SS-02 at a concentration of 85 µg/kg), n-Butylbenzene (SS-02 at a concentration of 135 µg/kg and SS-11 at a concentration of 225 µg/kg), 4-Isopropyltoluene (SS-02 at a concentration of 59 µg/kg and SS-03 at a concentration of 132 µg/kg), 1,3,5-Trimethylbenzene (SS-02 at a concentration of 54 µg/kg), and 1,2,4-Trimethylbenzene (SS-02, SS-03, and SS-11, at concentrations of 107 µg/kg, 40 µg/kg, and 99 µg/kg, respectively).

Two SVOCs, flouranthene and pyrene, were detected in SS-02 at concentrations of 5,400 µg/kg, below the NYSDEC regulatory standard of 50,000 µg/kg. No other SVOCs were detected in any of the surface soil samples. One pesticide, BHC-a, was detected in SS-02 at a concentration of 5.3 µg/kg, below the regulatory limit of 110 µg/kg. No other pesticides were detected in any of the surface soil samples. There were no PCBs detected in any of the surface soil samples collected. Concentrations of TPH ranged from 3,500 milligrams per kilogram (mg/kg) in sample SS-01 to 22 mg/kg reported in sample SS-04. SS-03 was non-detect for TPH.

Several metals were detected at levels which exceeded their respective NYSDEC regulatory standards. Beryllium was detected in each of the samples collected, ranging from 0.3 mg/kg to 0.83 mg/kg. The cleanup standard for beryllium is 0.16 mg/kg or site background. Cadmium was detected in each of the samples ranging from 3.2 mg/kg to 13.3 mg/kg, the standard for cadmium is 1 mg/kg or site background. Chromium was detected in each of the samples collected with concentrations ranging from 16 mg/kg in SS-02 to 33 mg/kg in SS-04. The cleanup standard for chromium is 10 mg/kg or site background. Cobalt was also detected in each of the samples collected. Concentrations ranged from 43 mg/kg in SS-02 to 80 mg/kg in SS-04, the standard for cobalt is 30 mg/kg or site background. Copper was detected in three of the five samples collected. Concentrations were 93 mg/kg, 119 mg/kg, and 77 mg/kg detected in SS-01, SS-04, and SS-11, respectively. SS-11 is a duplicate sample of SS-01. The standard for copper is 25 mg/kg or site background. Iron was detected in all five samples collected with concentrations ranging from 12,800 mg/kg in SS-02 to 22,900 mg/kg in SS-04. The standard for iron is 2,000 or site background. Mercury was detected in one sample, SS-01, at a concentration of 0.24 mg/kg, above the standard of 0.1 mg/kg. Nickel was detected in each of the samples collected, concentrations ranged from 22 mg/kg in SS-03 to 39 mg/kg in SS-04, the standard for nickel is 13 mg/kg or site background. Zinc was also detected in each of the samples collected, concentrations ranged from 46 mg/kg in SS-03 to 330 mg/kg in SS-01, the standard for zinc is 20 mg/kg or site background.

Surface soil sampling results are presented in Table 5-4 and summarized in Figure 5-3.

5.3.1.2 Subsurface Soil Sampling Analytical Results

Xylenes were detected in two of the seventeen subsurface samples (SB) collected at Site 1 at concentrations above the NYSDEC regulatory standard of 1,200 µg/kg. Xylenes were detected in amples SB-06 4 to 8 ft (3,594 µg/kg) and SB-07 0 to 2 ft (2,579 µg/kg). Toluene was detected in SB-07 4 to 8 ft at 4,900 µg/kg, above the regulatory limit of 1,500 µg/kg. All other sample results were either non-detect or below the regulatory standard. Other VOCs detected below regulatory standards or for which no regulatory standard is listed include ethylbenzene, n-Butylbenzene, sec-Butylbenzene, 1,3,5-Trimethylbenzene, and 1,2,4-Trimethylbenzene.

No SVOCs were detected in subsurface soil samples at Site 1 above their respective method

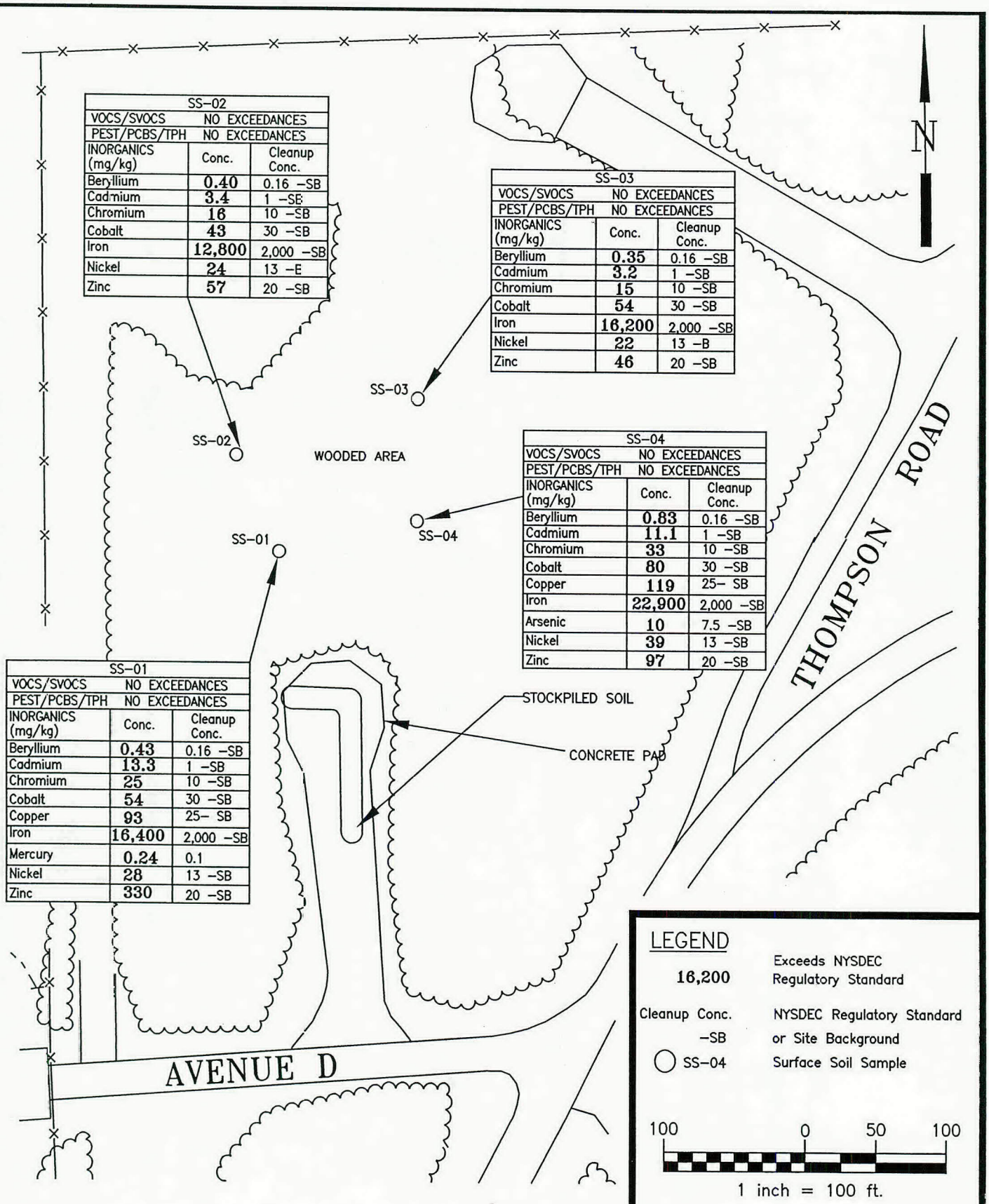
TABLE 5-4
SURFACE SOIL SAMPLE RESULTS
HANCOCK ANGB - SITE 1
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SS-01		SS-02		SS-03		SS-04		SS-11[2]	
VOC's (µg/kg)												
tert-Butylbenzene	37	NA	<37		<37		<37		<37		<37	
sec-Butylbenzene	37	NA	<37		85	J	<37		<37		<37	
Trichloroethene	37	700*	<37		<37		<37		<37		<37	
Ethylbenzene	37	5500*	<37		<37		<37		<37		<37	
n-Butylbenzene	37	NA	<37		135	J	<37		<37		225	J
Isopropyl benzene	37	NA	<37		<37		<37		<37		<37	
4-Isopropyltoluene	37	NA	<37		59	J	132		<37		<37	
n-Propylbenzene	37	NA	<37		<37		<37		<37		<37	
1,3,5-Trimethylbenzene	37	NA	<37		54	J	<37		<37		<37	
1,2,4.Trimethylbenzene	37	NA	<37		107	J	40	J	<37		99	J
Xylenes (total)	37	1200*	173	J	89	J	<37		<37		150	
Styrene	37	NA	<37		<37		<37		<37		<37	
Toluene	37	1500*	149	J	<37		<37		<37		81	J
SVOC's (µg/kg)												
Flouranthene	390	50,000**	<500	UJ	5400	J	<460	UJ	<480	UJ	<480	UJ
Pyrene	390	50,000**	<500	UJ	5400	J	<460	UJ	<480	UJ	<480	UJ
PESTICIDESs (µg/kg)												
BHC-a	2.5	110	ND		5.3	J	ND		ND		ND	
PCBs (µg/kg)	2.5	1,000	ND		ND		ND		ND		ND	
TPH (mg/kg)	0.5	NA	3500		1200		ND		22		3300	
INORGANICS (mg/kg)												
Aluminum	200	SB	10,500		7800		9300		11,000		10,100	
Antimony	60	SB	<43		<41		<38		<41		<45	
Arsenic	2	7.5 or SB	4	J	7.3		4.4		10		7.3	J
Barium	200	300 or SB	110		54		43		99		112	
Beryllium	1	0.16 or SB	0.43		0.40		0.35		0.83		0.30	
Cadmium	1	1 or SB	13.3	J	3.4	J	3.2	J	11.1	J	12.2	J
Calcium	5,000	SB	5200		7200		2400		1600		5100	
Chromium	2	10 or SB	25		16		15		33		26	
Cobalt	50	30 or SB	54		43		54		80		49	
Copper	25	25 or SB	93		19		13.1		119		77	
Iron	100	2,000 or SB	16,400		12,800		16,200		22,900		15,900	
lead	3	SB	340	J	42	J	17	J	39	J	380	J
Magnesium	5,000	SB	2500		3500		2100		4900		2500	
Manganese	15	SB	630	J	310	J	490	J	240	J	620	J
Mercury	0.1	0.1	0.24	J	<0.1		<0.1		<0.1		<0.1	
Nickel	40	13 or SB	28		24		22		39		25	
Potassium	5,000	SB	980	J	740	J	610	J	1400	J	880	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.2		<0.2	
Silver	2	SB	<7.2		<6.6		<6.3		<6.9		<7.5	
Sodium	5,000	SB	400	J	420	J	400	J	500	J	450	J
Thallium	10	SB	5.6		<0.4		<0.5		<0.5		3.5	
Vanadium	50	150 or SB	<43		<41		<38		<41		<45	
Zinc	20	20 or SB	330		57		46		97		290	

ABBREVIATIONS:
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
ND - Not Detected above reported detection limit
NA - Not Available
NYSDEC - New York State Department of Environmental Conservation
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
TPH - Total Petroleum Hydrocarbons

NOTES:
1) NYSDEC TAGM HWR - 94-4046, January 24,1994
2) SB-22 is a duplicate sample of SB-02
*) As per TAGM # 4046, total VOC's < 10 ppm.
**) As per TAGM # 4046, total VOC's <10 ppm, total SVOC's < 500 ppm, and individual SVOC's < 50 ppm must be maintained for the listed NYSDEC concentration to apply.

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.



HANCOCK ANG BASE
SITE 1 SURFACE SOIL SAMPLING ANALYTICAL RESULTS
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-3

detection limits. There were no pesticides or PCBs detected in any of the subsurface soil samples collected at Site 1. Low level concentrations of TPH were detected in ten of the subsurface soil samples collected. Concentrations ranged from a low of 6.6 milligrams per kilogram (mg/kg) in SB-02, 0 to 2 ft, to a high of 383 mg/kg (SB-03, 0 to 2 ft). The next highest concentration was detected in SB-06, 4 to 8 ft, at 64 mg/kg, followed by a concentration of 19 mg/kg detected in SB-07, 8 to 10 ft. There is no available NYSDEC regulatory standard for TPH.

Several metals were detected at levels which exceeded their respective NYSDEC regulatory standards. Arsenic was detected in four of the subsurface samples at concentrations slightly above regulatory standards. Concentrations ranged from at 9.6 mg/kg in SB-05, 0 to 2 ft, to 8 mg/kg in SB-03, 0 to 2 ft. The NYSDEC regulatory standard for arsenic is 7.5 mg/kg or site background. Beryllium was detected at levels exceeding regulatory standards in each of the samples collected. The concentrations ranged from a high of 1.18 mg/kg in SB-06, 0 to 2 ft, to a low of 0.20 mg/kg detected in SB-07, 0 to 2 ft. The NYSDEC regulatory standard for beryllium is 0.16 mg/kg or site background. Cadmium was also detected above the regulatory standard in each of the samples collected. Concentrations ranged from a high of 3.6 mg/kg in SB-05, 0 to 2 ft, to a low of 1.8 mg/kg detected in SB-06, 4 to 8 ft. The NYSDEC regulatory standard for cadmium is 1.0 mg/kg or site background. Chromium was detected above regulatory standards in fourteen of the seventeen samples collected. The highest concentration was detected in SB-05, 0 to 2 ft, at 30 mg/kg. The lowest concentration was detected in SB-03, 0 to 2 ft, at 10.3 mg/kg. The NYSDEC regulatory standard for chromium is 10 mg/kg or site background. Cobalt was detected in all samples except one (SB-06, 4 to 8 ft) at concentrations exceeding regulatory standards. Sample SB-05, 0 to 2 ft, had the highest concentration at 65 mg/kg, the lowest concentration was also detected in sample SB-05 in the 10 to 12 ft interval, at a concentration of 31 mg/kg. The NYSDEC regulatory standard for cobalt is 30 mg/kg or site background. Copper was detected slightly above regulatory standards in two of the samples collected. Samples SB-03, 0 to 2 ft, and SB-06, 0 to 2 ft, had concentrations of 29 mg/kg and 28 mg/kg, respectively. The NYSDEC regulatory standard for copper is 25 mg/kg or site background.

Iron and nickel were detected in all samples above regulatory standards. Concentrations of iron ranged from 26,800 mg/kg in sample SB-06, 0 to 2 ft, to 6,700 mg/kg, also in SB-06 in the 4 to 8 ft. The NYSDEC regulatory standard for iron is 2,000 mg/kg or site background. Nickel was detected in concentrations ranging from 29 mg/kg in SB-05, 0 to 2 ft, to 16 mg/kg in SB-06, 4 to 8 ft. The NYSDEC regulatory standard for nickel is 13 mg/kg or site background. Zinc was detected above regulatory limits in all but one sample (SB-06, 4 to 8 ft). Concentrations ranged from 52 mg/kg in SB-05, 0 to 2 ft, to 23 mg/kg detected in SB-04, 0 to 2 ft. The NYSDEC regulatory limit is 20 mg/kg or site background. The analytical results are presented in Table 5-5 and summarized in Figure 5-4.

5.3.1.3 Concrete Sampling Analytical Results

Five concrete chip samples (CS) were collected from the surface of the concrete pad at Site 1. Samples were submitted for analysis of VOCs, SVOCs, pesticides, PCB, TPH, and TAL metals. No NYSDEC regulatory cleanup standards have been established for concrete. Therefore, exceedances could not be determined for these parameters.

Numerous VOCs were detected in three of four of the samples, CS-02, CS-03, and CS-22 (CS-22 is a duplicate sample of CS-02). The majority of VOCs detected consisted of fuel related compounds. Sample CS-03 had the highest VOC concentrations. N-Butylbenzene, ethylbenzene, 1,2,4-

TABLE 5-5
SOIL SAMPLE RESULTS
HANCOCK ANGB - SITE 1
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS							
			SB-01 0-2 ft		SB-02 0-2 ft		SB-03 0-2 ft		SB-04 0-2 ft	
VOC's (µg/kg)										
sec-Butylbenzene	30	NA	135	UJ	275	J	<30		<30	
tert-Butylbenzene	30	NA	<30		<30		<30		<30	
n-Butylbenzene	30	NA	786	UJ	1319	J	<30		<30	
Ethylbenzene	30	5,500	281	UJ	353	J	374	J	<30	
Isopropyl benzene	30	NA	92	UJ	92	J	<27	UJ	<30	
4-Isopropyltoluene	30	NA	97	UJ	277	J	<30		<30	
n-Propylbenzene	30	NA	67	UJ	130	J	33	J	<30	
1,3,5-Trimethylbenzene	30	NA	332	UJ	381	J	98	J	<30	
1,2,4.Trimethylbenzene	30	NA	1760	UJ	1047	J	424	J	<30	
Xylenes (total)	30	1,200	568	UJ	1057	J	<30		<30	
Styrene	30	NA	<30	UJ	220	J	<30		<30	
Toluene	30	1500	54	UJ	69	J	<30		<30	
SVOC's (µg/kg)										
Flouranthene	370	50,000**	<370	UJ	<370	UJ	<360	UJ	<370	UJ
Pyrene	370	50,000**	<370	UJ	<370	UJ	<360	UJ	<370	UJ
PESTICIDESs (µg/kg)										
BHC-a	1.9	110	ND		ND		ND		ND	
PCBs (µg/kg)	1.9	10,000	ND		ND		ND		ND	
TPH (mg/kg)		NA	21		6.6	J	383	J	ND	
INORGANICS (mg/kg)										
Aluminum	200	SB	7100		5300		4000		3600	
Antimony	60	SB	<35		31		<34		<30	
Arsenic	2	7.5 or SB	8.7		3.8		8		4.2	
Barium	200	300 or SB	<35		<31		<34		<30	
Beryllium	1	0.16 or SB	0.21		0.26		0.38		0.38	
Cadmium	1	1 or SB	1.9	J	2	J	2.7	J	2.2	J
Calcium	5,000	SB	900		19,800		50,000		26,000	
Chromium	2	10 or SB	13		10		10.3		9.1	
Cobalt	50	30 or SB	34		33		36		32	
Copper	25	25 or SB	8.9		17		29		20	
Iron	100	2,000 or SB	9600		10,000		10,900		9700	
lead	3	SB	<12	UJ	<10.4	UJ	<11	UJ	<9.9	UJ
Magnesium	5,000	SB	2200		2900		7500		4600	
Manganese	15	SB	100	J	220	J	400	J	374	J
Mercury	0.1	0.1	<0.1		<0.1		<0.1		<0.1	
Nickel	40	13 or SB	18		18		21		19	
Potassium	5,000	SB	570	J	760	J	1200	J	1100	J
Selenium	0.1	2 or SB	<0.2		<0.2		<0.1		<0.1	
Silver	2	SB	<5.8		<5.2		<5.5		<5	
Sodium	5,000	SB	340	J	350	J	460	J	300	J
Thallium	10	SB	<0.4		0.4		<0.4		<0.4	
Vanadium	50	150 or SB	<35		<31		<34		<30	
Zinc	20	20 or SB	26		26		32		23	

TABLE 5-5 (CONT.)
SOIL SAMPLE RESULTS
HANCOCK ANGB - SITE 1
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SB-05 0-2 ft		SB-05 8-10 ft		SB-05 10-12 ft		SB-06 0-2 ft		SB-06 4-8 ft	
VOC's (µg/kg)												
sec-Butylbenzene	30	NA	114		230	UJ	<30		<30		2870	
tert-Butylbenzene	30	NA	<30		222	UJ	<30		<30		710	
n-Butylbenzene	30	NA	1345		562	UJ	<30		<30		10,200	
Ethylbenzene	30	5500*	207		<30		<30		<30		<30	
Isopropyl benzene	30	NA	<30		<30		<30		<30		<30	
4-Isopropyltoluene	30	NA	93		<30		<30		<30		592	
n-Propylbenzene	30	NA	50	J	<30		<30		<30		<30	
1,3,5-Trimethylbenzene	30	NA	156	J	67	UJ	<30		<30		2180	J
1,2,4.Trimethylbenzene	30	NA	355	J	164	UJ	<30		65	J	3220	J
Xylenes (total)	30	1200*	405		242	UJ	<30		80		3594	
Styrene	30	NA	49	J	<30		<30		<30		2640	J
Toluene	30	1500*	61		<30		<30		<30		538	
Trichloroflurcmethane	30	NA	<30		<30		<30		<30		<30	
SVOC's (µg/kg)												
Flouranthene	390	50,000**	<400	UJ	<430	UJ	<400	UJ	<410	UJ	<380	UJ
Pyrene	390	50,000**	<400	UJ	<430	UJ	<400	UJ	<410	UJ	<380	UJ
PESTICIDESs (µg/kg)												
BHC-a	2.2	110	ND		ND		ND		ND		ND	
PCBs (µg/kg)	2	10,000	ND		ND		ND		ND		ND	
TPH (mg/kg)		NA	ND		ND		ND		ND		64	J
INORGANICS (mg/kg)												
Aluminum	200	SB	16,700		5100		4600		18,300		2400	
Antimony	60	SB	<31		<39		<35		<34		<31	
Arsenic	2	7.5 or SB	9.6		2.3		2.5		6.3		2.5	
Barium	200	300 or SB	77		<39		<35		146		<31	
Beryllium	1	0.16 or SB	0.68		0.33		0.42		1.18		0.28	
Cadmium	1	1 or SB	3.6	J	2.5	J	2.5	J	5.7	J	1.8	J
Calcium	5,000	SB	1000		15,600		51,800		2700		41,400	
Chromium	2	10 or SB	30		13		13		33		8.1	
Cobalt	50	30 or SB	65		42		31		89		28	
Copper	25	25 or SB	18		14		15		28		10.5	
Iron	100	2,000 or SB	20,200		12,600		9400		26,800		6700	
lead	3	SB	<10.1	UJ	<13	UJ	<11.5	UJ	13	J	<10.2	UJ
Magnesium	5,000	SB	3900		9100		16,900		5400		6400	
Manganese	15	SB	250	J	1800	J	400	J	660	J	310	J
Mercury	0.1	0.1	<0.1		<0.1		<0.1		<0.1		<0.1	
Nickel	40	13 or SB	29		25		24		44		16	
Potassium	5,000	SB	1100	J	820	J	870	J	1900	J	640	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.2		<0.2	
Silver	2	SB	<5.1		<6.5		<5.8		<5.7		<5.2	
Sodium	5,000	SB	300	J	530	J	420	J	380	J	250	J
Thallium	10	SB	<0.4		<0.4		<0.4		<0.4		4.5	
Vanadium	50	150 or SB	35		<39		<35		42		<31	
Zinc	20	20 or SB	52		31		30		67		14	

TABLE 5-5 (CONT.)
SOIL SAMPLE RESULTS
HANCOCK ANGB - SITE 1
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SB-06 8-10 ft		SB-07 0-2 ft		SB-07 4-8 ft		SB-07 8-10 ft		SB-77[2] 4-8 ft	
VOC's (µg/kg)												
tert-Butylbenzene	30	NA	<30		<30		1800	J	<30		<30	
sec-Butylbenzene	30	700*	235		753		<30		683	J	<30	
Ethylbenzene	30	5500*	<30		566		5500	J	269	J	<30	
Isopropyl benzene	30	NA	<30		171		1200	J	88	J	<30	
4-Isopropyltoluene	30	NA	<30		169		1500	J	304	J	<30	
n-Propylbenzene	30	NA	<30		553		260	J	<30		<30	
n-Butylbenzene	30	NA	1000		6820		<30		1800	J	<30	
1, 3,5-Trimethylbenzene	30	NA	80		2235	J	411	J	<30		<30	
1,2,4.Trimethylbenzene	30	NA	123		6820	J	3200	J	1950	J	<30	
Xylenes (total)	30	1200*	<30		2579		1835	UJ	1112	J	<30	
Styrene	30	NA	64		819	J	7000	J	305	J	<30	
Toluene	30	1500*	<30		155		4900	J	<30		<30	
SVOC's (µg/kg)												
Flouranthene	390	50,000**	<420	UJ	<390		<410	UJ	<410		<420	
Pyrene	390	50,000**	<420	UJ	<390	UJ	<410	UJ	<410	UJ	<420	UJ
PESTICIDESs (µg/kg)												
BHC-a	2.2	110	ND		ND		ND		ND		ND	
PCBs (µg/kg)	2	10,000	ND		ND		ND		ND		ND	
TPH (mg/kg)		ND	ND		14	J	8	J	19	J	13	
INORGANICS (mg/kg)												
Aluminum	200	SB	6200		10,800		6200		5000		4400	
Antimony	60	SB	<32		<33		<33		<31		<38	
Arsenic	2	7.5 or SB	2.6		4.8		1.6		2.7		1.5	
Barium	200	300 or SB	<32		40		<33		<31		<38	
Beryllium	1	0.16 or SB	0.51		0.20		0.44		0.44		0.24	
Cadmium	1	1 or SB	3	J	2.7	J	2.6	J	3.2	J	3.3	J
Calcium	5,000	SB	60,000		1800		37,800	J	64,600		11,500	J
Chromium	2	10 or SB	15		15		15		13		12.4	
Cobalt	50	30 or SB	42		38		39		34		49	
Copper	25	25 or SB	17		9.2		15		17		16	
Iron	100	2,000 or SB	11,900		12,900		11,800		10,900		15,000	
lead	3	SB	<10.6	UJ	<11	UJ	13	J	<10.1	UJ	<13	UJ
Magnesium	5,000	SB	11,100		1900		17,100	J	13,400		6500	J
Manganese	15	SB	405	J	102	J	590	J	540	J	3800	J
Mercury	0.1	0.1	<0.1		<0.1		<0.1		<0.1		<0.1	
Nickel	40	13 or SB	25		17		24		22		24	
Potassium	5,000	SB	1100	J	760	J	1500	J	1100	J	850	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.2		<0.2	
Silver	2	SB	<5.3		<5.5		<5.7		<5.1		<6.3	
Sodium	5,000	SB	390	J	260	J	360	J	310	J	450	J
Thallium	10	SB	<0.4		<0.4		4.1	J	3		10	J
Vanadium	50	150 or SB	<32		<33		<33		<31		<38	
Zinc	20	20 or SB	35		35		32		29		33	

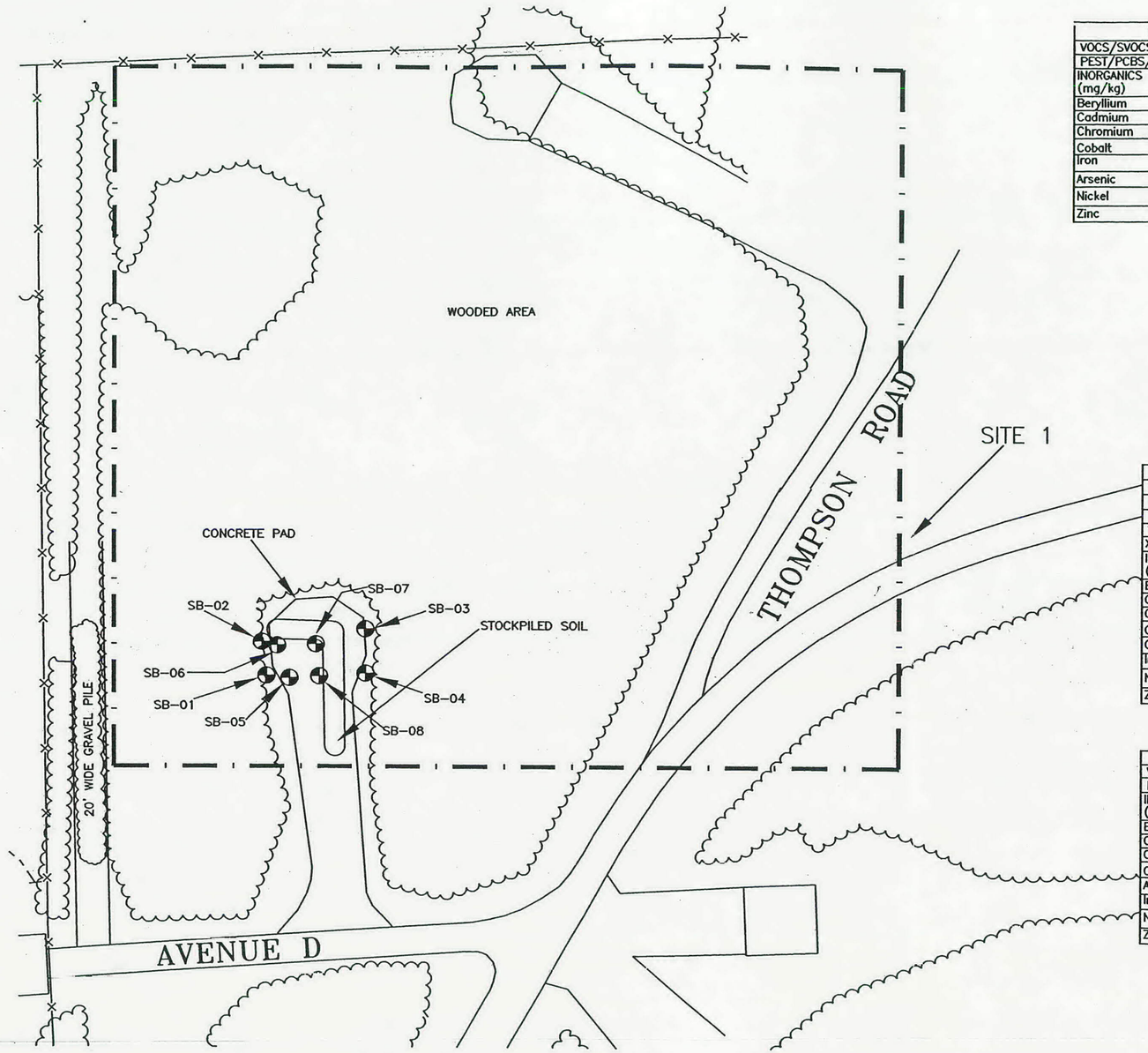
TABLE 5-5 (CONT.)
SOIL SAMPLE RESULTS
HANCOCK ANGB - SITE 1
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS					
			SB-08 0-2 ft		SB-08 6-8 ft		SB-08 8-10 ft	
VOC's (µg/kg)								
tert-Butylbenzene	30	NA	<30		299	UJ	<30	
sec-Butylbenzene	30	NA	<30		1570	UJ	<30	
Trichloroethene	30	700*	<30		<30		<30	
Ethylbenzene	30	5500*	<30		<30		<30	
n-Butylbenzene	30	NA	<30		8900	J	<30	
Isopropyl benzene	30	NA	<30		73	UJ	<30	
4-Isopropyltoluene	30	NA	<30		296	UJ	<30	
n-Propylbenzene	30	NA	<30		<30		<30	
1,3,5-Trimethylbenzene	30	NA	<30	UJ	1450	UJ	<30	
1,2,4.Trimethylbenzene	30	NA	<30		3980	UJ	<30	
Xylenes (total)	30	1200*	<30		<30		<30	
Styrene	30	NA	<30		<30		<30	
Toluene	30	1500*	<30		<30		<30	
SVOC's (µg/kg)								
Flouranthene	390	50,000**	<390		<400		<380	
Pyrene	390	50,000**	<390	UJ	<400	UJ	<380	UJ
Napthalene								
PESTICIDESs (µg/kg)								
BHC-a	2	110	ND		ND		ND	
PCBs (µg/kg)	2	10,000	ND		ND		ND	
TPH(mg/kg)		NA	7.3	J	12	J	ND	
INORGANICS (mg/kg)								
Aluminum	200	SB	8700		8300		8500	
Antimony	60	SB	<28		<35		<33	
Arsenic	2	7.5 or SB	2.8		9.1		1.8	
Barium	200	300 or SB	51		54		45	
Beryllium	1	0.16 or SB	0.31		0.59		0.37	
Cadmium	1	1 or SB	2.4	J	2.8	J	2.9	J
Calcium	5,000	SB	9100		10,100		2800	
Chromium	2	10 or SB	13		19		18	
Cobalt	50	30 or SB	38		55		45	
Copper	25	25 or SB	13		23		15	
Iron	100	2,000 or SB	10,800		16,900		14,900	
lead	3	SB	13	J	<11.5	UJ	<11.3	UJ
Magnesium	5,000	SB	2600		3900		2600	
Manganese	15	SB	130	J	470	J	380	J
Mercury	0.1	0.1	<0.1		<0.1		<0.1	
Nickel	40	13 or SB	19		28		22	
Potassium	5,000	SB	720	J	1000	J	1200	J
Selenium	2	2 or SB	<0.1		<0.2		<0.2	
Silver	2	SB	<5		<5.8		<5.6	
Sodium	5,000	SB	320	J	430	J	410	J
Thallium	10	SB	<0.4		5.2		<0.4	
Vanadium	50	150 or SB	<28		<35		<33	
Zinc	20	20 or SB	33		42		33	

ABBREVIATIONS:
mg/kg - milligrams per kilogram
mg/kg - micrograms per kilogram
ND - Not Detected above reported detection limit
NA - Not Available
NYSDEC - New York State Department of Environmental Conservation
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
TPH - Total Petroleum Hydrocarbons

NOTES:
1) NYSDEC TAGM HWR - 94-4046, January 24,1994
2) SB-22 is a duplicate sample of SB-02
*) As per TAGM # 4046, total VOC's < 10 ppm.
**) As per TAGM # 4046, total VOC's < 10 ppm.
total SVOC's < 500 ppm, and individual SVOC's < 50 ppm must be maintained for the listed NYSDEC concentration to apply.

DATA QUALIFIERS
UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.



SB-01 – 0'-2'		
VOCS/SVOCS	NO EXCEEDANCES	
PEST/PCBS/TPH	NO EXCEEDANCES	
INORGANICS (mg/kg)	Conc.	Cleanup Conc.
Beryllium	0.21	0.16 –SB
Cadmium	1.9	1 –SB
Chromium	13	10 –SB
Cobalt	34	30 –SB
Iron	9600	2,000 –SB
Arsenic	8.7	7.5 –SB
Nickel	18	13 –SB
Zinc	26	20 –SB

SB-02 – 0'-2'		
VOCS/SVOCS	NO EXCEEDANCES	
PEST/PCBS/TPH	NO EXCEEDANCES	
INORGANICS (mg/kg)	Conc.	Cleanup Conc.
Beryllium	0.26	0.16 –SB
Cadmium	2	1 –SB
Cobalt	33	30 –SB
Iron	10,000	2,000 –SB
Nickel	18	13 –SB
Zinc	26	20 –SB

SB-03 – 0'-2'		
VOCS/SVOCS	NO EXCEEDANCES	
PEST/PCBS/TPH	NO EXCEEDANCES	
INORGANICS (mg/kg)	Conc.	Cleanup Conc.
Beryllium	0.38	0.16 –SB
Cadmium	2.7	1 –SB
Chromium	10.3	10 –SB
Cobalt	36	30 –SB
Copper	29	25– SB
Iron	10,900	2,000 –SB
Arsenic	8	7.5 –SB
Nickel	21	13 –SB
Zinc	32	20 –SB

SB-04 – 0'-2'		
VOCS/SVOCS	NO EXCEEDANCES	
PEST/PCBS/TPH	NO EXCEEDANCES	
INORGANICS (mg/kg)	Conc.	Cleanup Conc.
Beryllium	0.38	0.16 –SB
Cadmium	2.2	1 –SB
Cobalt	32	30 –SB
Nickel	19	13 –SB
Zinc	23	20 –SB
Iron	9700	2000–SB

SB-05				
VOCS/SVOCS	NO EXCEEDANCES			
PEST/PCBS/TPH	NO EXCEEDANCES			
INORGANICS (mg/kg)	Conc.			Cleanup Conc.
	0'-2'	8'-10'	10'-12'	
Beryllium	0.68	0.33	0.42	0.16 –SB
Cadmium	3.6	2.5	2.5	1 –SB
Chromium	30	13	13	10 –SB
Cobalt	65	42	31	30 –SB
Arsenic	9.6	2.3	2.5	7.5– SB
Iron	20,200	12,600	9400	2,000 –SB
Nickel	29	25	24	13 –SB
Zinc	52	31	30	20 –SB

SB-06				
SVOCS	NO EXCEEDANCES			
PEST/PCBS/TPH	NO EXCEEDANCES			
	Conc.			Cleanup
VOCS (ug/kg)	0'-2'	4'-8'	8'-10'	Conc.
Xylenes	80	3594	<30	1200
INORGANICS (mg/kg)				
Beryllium	1.18	0.28	0.51	0.16 –SB
Cadmium	5.7	1.8	3	1 –SB
Chromium	33	8.1	15	10 –SB
Cobalt	89	28	42	30 –SB
Copper	28	10.5	17	25– SB
Iron	26,800	6700	11,900	2,000 –SB
Nickel	44	16	25	13 –SB
Zinc	67	14	35	20 –SB

SB-07				
SVOCS	NO EXCEEDANCES			
PEST/PCBS/TPH	NO EXCEEDANCES			
	Conc.			Cleanup
VOCS (ug/kg)	0'-2'	4'-8'	8'-10'	Conc.
Xylenes	2579	1835UJ	1112J	1200
Toluene	155	4900J	<30	1500
INORGANICS (mg/kg)				
Beryllium	0.2	0.44	0.44	0.16 –SB
Cadmium	2.7	2.6	3.2	1 –SB
Chromium	15	15	13	10 –SB
Cobalt	38	39	34	30 –SB
Iron	12,900	11,800	10,900	2,000 –SB
Nickel	17	24	22	13 –SB
Zinc	35	32	29	20 –SB

SB-08				
VOCS/SVOCS	NO EXCEEDANCES			
PEST/PCBS/TPH	NO EXCEEDANCES			
INORGANICS (mg/kg)	Conc.			Cleanup Conc.
	0'-2'	6'-8'	8'-10'	
Beryllium	0.31	0.59	0.37	0.16 –SB
Cadmium	2.4	2.8	2.9	1 –SB
Chromium	13	19	18	10 –SB
Cobalt	38	55	45	30 –SB
Arsenic	2.8	9.1	1.8	7.5– SB
Iron	10,800	16,900	14,900	2,000 –SB
Nickel	19	28	22	13 –SB
Zinc	33	42	33	20 –SB

LEGEND

- Soil Boring Locations
- 23000 — Exceeds NYSDEC Regulatory Standard
- Cleanup Conc. — NYSDEC Regulatory Standard
- -SB — or Site Background
- Chain Link Fence
- Site 1 Boundary

0 100 150 200

1 inch = 100 ft.

HANCOCK ANG BASE

SITE 1 SUBSURFACE SOIL SAMPLING ANALYTICAL RESULTS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-4

Trimethylbenzene, and xylene were the VOCs detected at the highest concentrations. CS-01 did not have any VOC detections above the reported detection limits.

No SVOCs were detected above the reported detection limits, however, the detection limits were elevated due to matrix interference. One pesticide, BHC-a, was detected at a concentration of 5.3 µg/kg in sample CS-02. No PCBs were detected in any of the samples collected. TPH was detected in each ofthe samples at concentrations ranging from 38 mg/kg (CS-01) to 2,600 mg/kg (CS-03).

Although several inorganics were detected in the concrete samples, none of the results indicated elevated levels of contaminants. The exception being calcium, which had concentrations ranging from a high of 170,000 mg/kg in CS-04 to a low of 11,000 mg/kg in CS-22. As these are concrete samples, high levels of calcium would not be unexpected. The analytical results are presented in Table 5-6.

5.3.1.4 Groundwater Sampling Analytical Results

Six groundwater samples (including one duplicate sample) were collected at Site 1. The samples were collected from five monitoring wells installed during the Phase II, Stage 2 Confirmation/Quantification Investigation (SAIC, 1989). Four of the wells, MW-09, MW-11, MW-12, and MW-13, are screened in the overburden. Monitoring well MW-13D is screened in bedrock. Sample MW-113 is a duplicate sample of MW-13. Each well was re-developed prior to sampling.

No VOCs, SVOCs, pesticides, PCBs, or TPH were detected in any of the groundwater samples collected at Site 1.

Several inorganics were detected at levels above regulatory limits. Aluminum was detected in all samples collected except from MW-13D. Concentrations ranged from 120 milligrams per liter (mg/L) in MW-12 to 16 mg/L in MW-09. The NYSDEC regulatory limit for aluminum is 0.1 mg/L. Cadmium was detected above regulatory limits in five of the samples collected, including MW-13D. Concentrations ranged from 0.052 mg/L in MW-12 to 0.009 mg/L in both MW-13 and MW-13D. The NYSDEC regulatory limit for cadmium is 0.005 mg/L. Cadmium was detected in MW-09 at the regulatory limit of 0.005 mg/L. Chromium was detected above regulatory limits in MW-11, MW-12, MW-13, and MW-113 at concentrations ranging from 0.25 mg/L in MW-12 to 0.13 mg/L in MW-13. The NYSDEC regulatory limit for chromium is 0.05 mg/L.

Cobalt was detected at concentrations ranging from 0.76 mg/L in MW-12 to 0.06 mg/L in MW-09. Cobalt was not detected in MW-13D. The NYSDEC regulatory limit for cobalt is 0.05 mg/L. Iron was detected in each of the groundwater samples collected at Site 1 at concentrations ranging from 220 mg/L in MW-12 to 3.1 mg/L in MW-13D. These concentrations exceed the NYSDEC regulatory limit of 0.3 mg/L.

Magnesium was detected in each sample except MW-09. Concentrations ranged from 300 mg/L detected in MW-12 to 65 mg/L in MW-13. The NYSDEC regulatory limit is 35 mg/L. Manganese was detected in each of the groundwater samples collected. Concentrations ranged from 9.2 mg/L in MW-12 to 0.6 mg/L in MW-09, the NYSDEC regulatory limit for manganese is 0.3 mg/L. Nickel was detected at concentrations above the regulatory limit of 0.1 mg/L in four of the samples collected. Concentrations ranged from 0.43 mg/L in MW-12 to 0.18 mg/L in MW-13. Silver was detected in only one sample, MW-12, at a concentration of 0.09 mg/L. The NYSDEC regulatory limit for silver is 0.05 mg/L. Sodium was also detected in only one sample, MW-13D, at a concentration of 240 mg/L, exceeding the NYSDEC regulatory limit of 20 mg/L. The analytical results are presented in Table 5-7 and summarized in Figure 5-5.

TABLE 5-6
CONCRETE SAMPLE RESULTS
HANCOCK ANGB - SITE 1
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			CS-01		CS-02		CS-03		CS-04		CS-22[2]	
VOC's (µg/kg)												
tert-Butylbenzene	25	NA	<25		441	J	<25		1000	UJ	1300	J
sec-Butylbenzene	25	NA	<25		215	J	<25		<25		<25	
n-Butylbenzene	25	NA	<25		690	J	12,000	J	1200	UJ	1300	J
Trichloroethene	25	NA	<25		<25		<25		<25		<25	
Ethylbenzene	25	NA	<25		<25		15,500	J	474	UJ	265	J
Isopropyl benzene	25	NA	<25		47		4500	J	230	UJ	186	J
4-Isopropyltoluene	25	NA	<25		265	J	7300	J	551	UJ	482	J
n-Propylbenzene	25	NA	<25		<25		11,000	J	289	UJ	147	J
1,3,5-Trimethylbenzene	25	NA	<25		<25		752	J	<25		<25	
1,2,4.Trimethylbenzene	25	NA	<25		670	J	23,000	J	1560	UJ	1300	J
Xylenes (total)	25	NA	<25		387	J	27,500	J	1630	UJ	1117	J
Styrene	25	NA	<25		272	J	4900	J	<25		655	J
Toluene	25	NA	95		<25		6000	J	126	UJ	86	J
SVOC's (µg/kg)												
Flouranthene	3400	NA	<3400*	UJ	<3400*	UJ	<3400*	UJ	<3400*	UJ	<3400*	UJ
Pyrene	3400	NA	<3400*	UJ	<3400*	UJ	<3400*	UJ	<3400*	UJ	<3400*	UJ
PESTICIDESs (µg/kg)												
BHC-a	2.5	NA	ND		5.3	J	ND		ND		ND	
PCBs (µg/kg)	1.8	NA	ND		ND		ND		ND		ND	
TPH (mg/kg)		NA	38	J	88	J	2600	J	530	J	170	J
INORGANICS (mg/kg)												
Aluminum	200	NA	5500		6400		5600		4100		5000	
Antimony	60	NA	<30	UJ	<33	UJ	<26	UJ	<31	UJ	41	J
Arsenic	2	NA	2.7		1.5	J	4.1		3.4		3.6	J
Barium	200	NA	<30		39		50		38		<29	
Beryllium	1	NA	0.35		0.31		0.34		0.41		0.30	
Cadmium	1	NA	1.7	J	1.5	J	1.3	J	1.3	J	1.2	J
Calcium	5,000	NA	11,0000	J	76,000	J	76,000	J	170,000	J	11,000	J
Chromium	2	NA	10	J	11	J	8	J	9.1	J	11	J
Cobalt	50	NA	24		27		22		22		28	
Copper	25	NA	13		16		12		13		13	
Iron	100	NA	7500	J	8700	J	7300	J	6000	J	7700	J
lead	3	NA	<10	UJ	<11	UJ	<8.7	UJ	<10	UJ	<9.8	UJ
Magnesium	5,000	NA	3900	J	2900	J	3200	J	3300	J	13,000	J
Manganese	15	NA	220		320		270		380		220	
Mercury	0.1	NA	<0.1		<0.1		<0.1		<0.1		<0.1	
Nickel	40	NA	14	J	14	J	12	J	11	J	15	J
Potassium	5,000	NA	470	J	380	J	300	J	340	J	490	J
Selenium	2	NA	<0.1		<0.2		<0.2		<0.2		<0.2	
Silver	2	NA	5.8	J	<5.5	UJ	<4.4	UJ	5	J	5.1	J
Sodium	5,000	NA	360	J	400	J	320	J	350	J	440	J
Thallium	10	NA	<0.4		2.1	J	<0.4		<0.4		<0.4	UJ
Vanadium	50	NA	<30		<33		<26		<31		<29	
Zinc	20	NA	16	J	18	J	15	J	13	J	15	J

ABBREVIATIONS:
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
ND - Not Detected above reported detection limit
NA - Not Available
NYSDEC - New York State Department of Environmental Conservation
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
PCB's - Polychlorinated Biphynels
TPH - Total Petroleum Hydrocarbons

NOTES:
1) NYSDEC TAGM HWR - 94-4046, January 24,1994
2) CS-22 is a duplicate sample of CS-02
*) Matrix interference precludes lower detection limits

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.

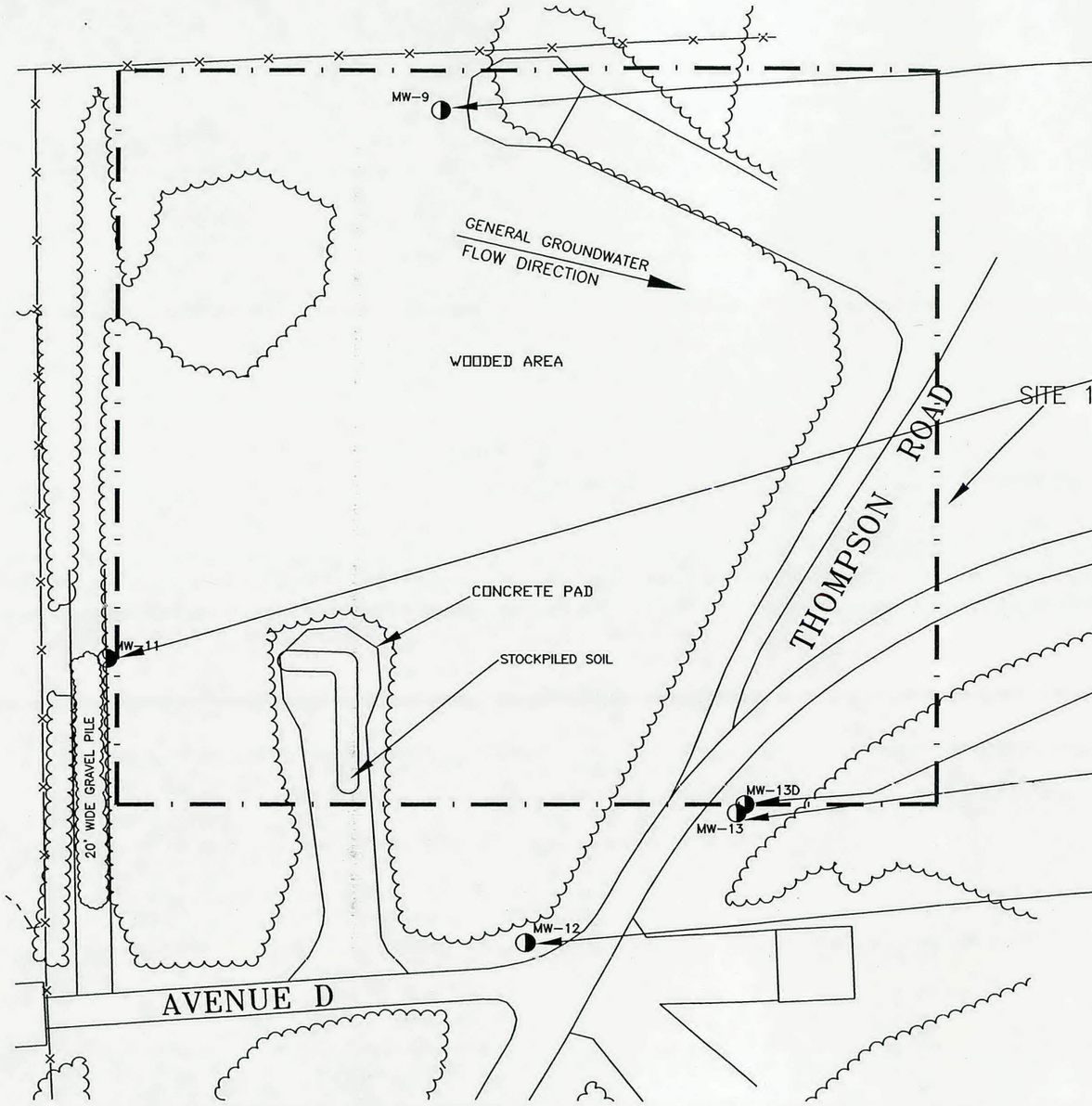
TABLE 5-7
GROUND WATER SAMPLING RESULTS
SITE 1
HANCOCK ANGB
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC DWQS[1]	SAMPLE NUMBERS					
			MW - 09	MW - 11	MW - 12	MW - 13	MW - 13D	MW - 113[2]
VOCs (µg/L)	0.5		ND	ND	ND	ND	ND	ND
SVOCs (µg/L)	5		ND	ND	ND	ND	ND	ND
PESTICIDES (µg/L)	0.05		ND	ND	ND	ND	ND	ND
PCBs (µg/L)	0.05	0.09	ND	ND	ND	ND	ND	ND
TPH (mg/L)	0.1	NA	ND	ND	ND	ND	ND	ND
INORGANICS (mg/L)								
Aluminum	0.05	0.1	16	79	120	18	0.38 U	19
Antimony	0.003	0.003	<0.003 UJ	<0.003 UJ	<0.003 UJ	<0.003 UJ	<0.003 UJ	<0.003 UJ
Arsenic	0.001	0.05	0.006 U	0.025	0.024	0.006 U	0.004 U	0.009 U
Barium	0.001	1	<0.3 UJ	0.5 J	0.6 J	<0.3 UJ	<0.3 UJ	<0.3 UJ
Beryllium	0.0003	NA	<0.003	0.008	0.01	<0.003	0.003	<0.003
Cadmium	0.001	0.005	0.005 J	0.037 J	0.052 J	0.009 J	0.009 J	0.01 J
Calcium	0.5	NA	160 U	800	890	200 U	690	240
Chromium	0.005	0.05	<0.05 UJ	0.18 J	0.25 J	0.13 J	<0.05 UJ	0.18 J
Cobalt	0.005	0.05	0.06 J	0.44 J	0.76 J	0.09 J	<0.05 UJ	0.1 J
Copper	0.001	0.2	0.04 U	0.25 U	0.38 U	0.05 U	0.02 U	0.06 U
Iron	0.03	0.3	25	140	220	28	3.1	33
Lead	0.001	0.05	0.009 UJ	0.45 UJ	0.06 UJ	0.011 UJ	0.001 UJ	0.02 UJ
Magnesium	0.5	35	43 U	270	300	65	180	83
Manganese	0.02	0.3	0.6	4.5	9.2	0.55 J	0.42	0.87 J
Mercury	0.0002	0.0007	<0.0004 UJ	0.0005 J	0.0005 J	<0.0004 UJ	<0.0004 UJ	<0.0004 UJ
Nickel	0.003	0.1	0.1 J	0.29 J	0.43 J	0.18 J	0.09 J	0.19 J
Potassium	0.5	NA	6.8 UJ	17 J	16 J	8 UJ	32 J	6.9 UJ
Selenium	0.001	0.01	<0.001 UJ	<0.001 UJ	<0.001 UJ	<0.001 UJ	<0.001 UJ	<0.001 UJ
Silver	0.001	0.05	<0.05 UJ	<0.05 UJ	0.09 J	<0.05 UJ	<0.05 UJ	<0.05 UJ
Sodium	0.05	20	6.6 UJ	8.3 UJ	9 UJ	29 UJ	240 J	27 UJ
Thallium	0.001	NA	<0.003	0.031	0.041	<0.003 UJ	<0.003	0.053 J
Vanadium	0.3	NA	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Zinc	0.01	NA	0.06 U	0.4	0.67	0.1 U	0.03 U	0.1 U

ABBREVIATIONS:
DWQS - Drinking Water Quality Standards
µg/L - micrograms per liter
mg/L - milligrams per liter
NA - Not Available
ND - Not Detected above listed detection limit
NYSDEC - New York State Department of Environmental Conservation
PCB's - Polychlorinated Biphenyls
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
TPH - Total Petroleum Hydrocarbons

NOTES:
1) NYSDEC Water Quality Standards and guidance values, June 1988. Unless otherwise noted, the value listed is the State promulgated standard for the protection of drinking water from a ground water source
2) MW-113 is a duplicate sample of MW-13

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample limit. However, the reported quantitation limit is approximate and may or may not precisely measure the analyte in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed for but not detected.
102 Indicates concentration that exceeds State regulatory limit



MW-09		
VOCS/SVOCS	NONE DETECTED	
PEST/PCBS/TPH	NONE DETECTED	
INORGANICS (mg/L)	Conc.	DWQS
Aluminium	**16**	0.1
Cadmium	0.005	0.005
Chromium	<0.5 UJ	0.05
Cobalt	**0.6**	0.05
Iron	**25**	0.3
Silver	<0.5 UJ	0.05
Nickel	0.1	0.1
Sodium	6.6 UJ	20
Magnesium	43 U	35
Manganese	**0.6**	0.3

MW-11		
VOCS/SVOCS	NONE DETECTED	
PEST/PCBS/TPH	NONE DETECTED	
INORGANICS (mg/L)	Conc.	DWQS
Aluminium	**79**	0.1
Cadmium	**0.037**	0.005
Chromium	**0.18**	0.05
Cobalt	**0.44**	0.05
Iron	**140**	0.3
Silver	<0.05 UJ	0.05
Nickel	**0.29**	0.1
Sodium	8.3 UJ	20
Magnesium	**270**	35
Manganese	**4.5**	0.3

MW-13D		
VOCS/SVOCS	NONE DETECTED	
PEST/PCBS/TPH	NONE DETECTED	
INORGANICS (mg/L)	Conc.	DWQS
Aluminium	38 U	0.1
Cadmium	**0.009J**	0.005
Chromium	<0.05 UJ	0.05
Cobalt	<0.05 UJ	0.05
Iron	**3.1**	0.3
Silver	<0.05 UJ	0.05
Nickel	0.09 J	0.1
Sodium	**240 J**	20
Magnesium	**180**	35
Manganese	**0.42**	0.3

MW-13		
VOCS/SVOCS	NONE DETECTED	
PEST/PCBS/TPH	NONE DETECTED	
INORGANICS (mg/l)	Conc.	DWQS
Aluminium	**18**	0.1
Cadmium	**0.009J**	0.005
Chromium	**0.13 J**	0.05
Cobalt	**0.09 J**	0.05
Iron	**26**	0.3
Silver	<0.05 UJ	0.05
Nickel	**0.18 J**	0.1
Sodium	29 UJ	20
Magnesium	**65**	35
Manganese	**0.55 J**	0.3

MW-12		
VOCS/SVOCS	NONE DETECTED	
PEST/PCBS/TPH	NONE DETECTED	
INORGANICS (mg/L)	Conc.	DWQS
Aluminium	**120**	0.1
Cadmium	**0.052J**	0.005
Chromium	**0.25 J**	0.05
Cobalt	**0.76 J**	0.05
Iron	**220**	0.3
Silver	**0.09 J**	0.05
Nickel	**0.43 J**	0.1
Sodium	9 UJ	20
Magnesium	**300**	35
Manganese	**9.2**	0.3

N

LEGEND

- MW-09 — Monitoring Well Location
- **180** — Exceeds NYSDEC Drinking Water Quality Standard
- DWQS — NYSDEC Drinking Water Quality Standard
- 11.1 — Undetected/Estimated
- Chain Link Fence
- Site 1 Boundary

0 100 150 200

1 inch = 100 ft.

HANCOCK ANG BASE
SITE 1 GROUNDWATER SAMPLING ANALYTICAL RESULTS
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-5

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5.3.2 Site 4

Ten subsurface soil samples (including one duplicate sample) and two groundwater samples (including one duplicate sample) were collected at Site 4. Subsurface soil samples were collected at depths ranging from two to ten feet bgs. For quality assurance purposes, a duplicate sample was collected at soil boring SB-02 from the 8 to 10 foot interval. The duplicate sample was identified as SB-22 8 to 10 ft. As stated in Section 4.1, one groundwater sample was collected from monitoring well MW-17. A duplicate sample was also collected at MW-17, and identified as MW-117. All samples collected at Site 4 were analyzed for VOCs,SVOCs, PCBs, and TAL metals. Sample results are summarized in the following sections.

5.3.2.1 Subsurface Soil Sampling Analytical Results

There were no exceedances for VOCs in any of the subsurface samples collected at Site 4. Four compounds were detected below NYSDEC regulatory limits. N-Butylbenzene was detected in soil boring SB-02, 2 to 4ft, at a concentration of 226 µg/kg. 1,2,4-Trimethylbenzene was detected at 81 µg/kg in SB-01, 2 to 4 ft and in SB-04 2 to 4 ft, at a concentration of 130 µg/kg. Xylene was detected in SB-02, 2 to 4 ft, and SB-04, 2 to 4 ft, at concentrations of 198 µg/kg and 95 µg/kg, respectively. Isopropyltoluene was detected in SB-02, 2 to 4 ft, and SB-04, 2 to 4 ft, at concentrations of 58 µg/kg and 89 µg/kg, respectively.

Several SVOCs were detected in subsurface soil samples collected. Six were in exceedance of NYSDEC regulatory limits. Benzo(a)anthracene, chrysene, and benzo(a)pryrene were detected in SB-02, 4 to 6 ft, at concentrations of 970 µg/kg, 840 µg/kg, and 780 µg/kg, respectively. These same three compounds were also detected in SB-03, 2 to 4 ft, at concentrations of 7,600 µg/kg, 6,800 µg/kg, and 7,400 µg/kg, and in SB-04, 2 to 4 ft, at concentrations of 13,000 µg/kg, 11,000 µg/kg, and 10,000 µg/kg, respectively. NYSDEC regulatory limits for benzo(a)anthracene, chrysene, and benzo(a)pryrene, are 224 µg/kg, 400 µg/kg, and 61 µg/kg, respectively. Benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene were also detected in SB-03, 2 to 4 ft, and SB-04, 2 to 4 ft. Concentrations of 8,300 µg/kg, 4,000 µg/kg, and 4,600 µg/kg were reported in SB-03, 2 to 4 ft, and at 13,000 µg/kg, 5,800 µg/kg, and 5,700 µg/kg, in SB-04, 2 to 4 ft, respectively. The NYSDEC regulatory limit for benzo(b)fluoranthene and benzo(k)fluoranthene is 1,000 µg/kg. The regulatory limit for indeno(1,2,3-cd)pyrene is 3,200 µg/kg. Pentachlorophenol was detected in SB-01, 2 to 4 ft, at a concentration of 7,800 µg/kg, above the NYSDEC regulatory standard of 1,000 µg/kg. Pentachlorophenol was not detected above the regulatory standard in any of the other samples collected.

No PCBs were detected in any subsurface soil samples collected at Site 4.

Seven metals were detected at Site 4 which exceeded NYSDEC regulatory limits. Beryllium was detected in six of the samples collected. Concentrations ranged from 0.59 mg/kg, detected in SB-03, 4 to 6 ft, to 0.21 mg/kg, detected in both SB-02, 4 to 6 ft, and SB-22 (duplicate sample of SB-02), 8 to 10 ft, respectively. The NYSDEC regulatory limit for beryillium is 0.16 mg/kg or site background. Concentrations of cadmium ranged from a high of 22 mg/kg in SB-02, 2 to 4 ft, to 1.1 mg/kg in SB-01, 5 to 7 ft. The NYSDEC regulatory limit for cadmium is 1 mg/kg or site background. Chromium exceeded regulatory limits in six of the samples collected. Concentrations ranged from 14 mg/kg in SB-02, 8 to 10 ft, to 10.1 mg/kg, detected in SB-03, 2 to 4ft. The regulatory limit for chromium is 10 mg/kg or site background. Cobalt was detected at concentrations ranging from 49 mg/kg in SB-02, 8 to 10 ft, to 32 mg/kg detected in SB-02, 2 to 4 ft, SB-03, 4 to 6 ft, and SB-22, 8 to 10 ft, respectively. The regulatory limit for cobalt is 30 mg/kg.

Concentrations of iron exceeded the NYSDEC regulatory limit of 2,000 mg/kg or site background in each of the samples collected, ranging from 12,000mg/kg detected in SB-02, 8 to 10 ft, to 5,800 mg/kg detected in SB-04, 2 to 4 ft. Mercury was detected in four of the samples at levels exceeding the regulatory limit of 0.1 mg/kg. Concentrations ranged from 0.33 mg/kg in SB-03, 4 to 6 ft, to 0.20 mg/kg in SB-04, 2 to 4 ft. Zinc was present in eight of the ten samples collected at concentrations above regulatory limits, ranging from 94 mg/kg in SB-01, 2 to 4 ft, to 22 mg/kg in SB-04, 4 to 6 ft. The NYSDEC regulatory limit for zinc is 20 mg/kg or site background. Analytical results are presented in Table 5-8 and summarized in Figure 5-6.

5.3.2.2 Groundwater Sampling Analytical Results

There were no VOCs, SVOCs, or PCBs detected in the two groundwater samples collected at Site 4. Several inorganics were detected above their respective NYSDEC regulatory limits. Aluminum was detected in both sample MW-17 and MW-117 at concentrations of 180 mg/L and 170 mg/L, respectively. The regulatory limit for aluminum is 0.1 mg/L. Antimony was detected at 0.5 mg/L in sample MW-17, above the regulatory limit of 0.003 mg/L. Barium was detected slightly above the regulatory limit of 1 mg/L at concentrations of 1.4 mg/L and 1.3 mg/L in MW-17 and MW-117, respectively. Cadmium was detected in MW-17 and MW-117 at concentrations of 0.062 mg/L and 0.055 mg/L, respectively, above the regulatory limit of 0.005 mg/L. Chromium was detected in MW-17 at 0.30 mg/L and in MW-117 at 0.28 mg/L. Cobalt was detected at concentrations of 0.59 mg/L and 0.58 mg/L in MW-17 and MW-117, respectively. The NYSDEC regulatory limit for these compounds is 0.05 mg/L. Iron, lead, magnesium, manganese, and nickel were all detected at concentrations slightly above their respective regulatory limits. Mercury was detected at concentrations of 0.0012 mg/L and 0.0011 mg/L in MW-17 and MW-117, respectively, slightly exceeding the regulatory limit of 0.0007 mg/L. Groundwater analytical results are presented in Table 5-9 and summarized in Figure 5-7.

5.3.3 Site 9

Eleven subsurface samples and one groundwater sample were collected at Site 9. The groundwater sample was collected from a temporary well installed in SB-04. One duplicate subsurface soil sample was collected at soil boring SB-01, 4 to 8 ft, and identified as SB-11, 4 to 8 ft. All samples collected at Site 9 were analyzed for VOCs,SVOCs, PCBs, and TAL metals.

5.3.3.1 Subsurface Soil Analytical Results

No VOCs, SVOCs, or PCBs were detected above NYSDEC regulatory limits. Several VOCs were detected in Samples SB-01, in the 2 to 4 ft and 4 to 8 ft intervals, and SB-04, in the 2 to 4 ft interval, The VOCs most prevalent in these samples include tert-Butylbenzene, n-Butylbenzene, 1,2,4-trimethylbenzene, and xylene.

A limited number of inorganics were detected above their respective NYSDEC regulatory limits. The most common of these were iron, detected in all samples collected with concentrations ranging from 18,900 mg/kg in SB-02, 8 to 10 ft, to 4,100 mg/kg, detected in SB-01, 2 to 4 ft. The regulatory limit for iron is 2,000 mg/kg or site background. Beryllium was detected in two samples, SB-01, 10 to 12 ft, and SB-02, 6 to 8 ft, at concentrations of 0.22 mg/kg and 0.17 mg/kg, slightly above their regulatory limit of 0.16 mg/kg or site background. Cobalt and copper were detected in four of the eleven samples collected. Concentrations ranging from 59 mg/kg to 41 mg/kg for cobalt, concentrations of copper ranged from 51 mg/kg to 30 mg/kg. The regulatory limit for these two compounds is 30 mg/kg or site background and 25 mg/kg or site background, respectively. Mercury was detected in one sample,

TABLE 5-8
SOIL SAMPLING RESULTS
HANCOCK ANGB - SITE 4
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SB-01 2-4 ft		SB-01 5-7 ft		SB-02 2-4 ft		SB-02 4-6 ft		SB-02 8-10 ft	
VOC's (µg/kg)												
n-Butylbenzene	30	NA	<30		<30		226		<30		<30	
1 ,2,4.Trimethylbenzene	30	NA	81	J	<30		<30		<30		<30	
Xylenes (total)	30	1200*	<30		<30		198		<30		<30	
4-Isopropyltoluene	25	NA	<30		<30		58		<30		<30	
SVOC's (µg/kg)												
Fluorene	390	50,000**	<3900***	UJ	<400	UJ	<19,000***	UJ	<380	UJ	<390	UJ
Dibenzofuran	390	6,200	<3900***	UJ	<400	UJ	<19,000***	UJ	<380	UJ	<390	UJ
Phenanthrene	390	50,000**	4500	J	<400	UJ	45,000	J	2400	J	<390	UJ
Napthalene	390	13,000	<3900***	UJ	<400	UJ	<19,000***	UJ	<380	UJ	<390	UJ
Anthracene	980	50,000**	<3900***	UJ	<400	UJ	<19,000***	UJ	810	J	<390	UJ
Carbazole	390	NA	<3900***	UJ	<400	UJ	<19,000***	UJ	<380	UJ	<390	UJ
Fluoranthene	390	50,000**	6500	J	<400	UJ	44,000	J	2400	J	<390	UJ
Pyrene	390	50,000**	5400	J	<400	UJ	40,000	J	1800	J	<390	UJ
Benzo(b)fluoranthene	390	1,100	<3900***	UJ	<400	UJ	<19,000***	UJ	980	J	<390	UJ
Benzo(k)fluorenthene	390	1,100	<3900***	UJ	<400	UJ	<19,000***	UJ	410	J	<390	UJ
Indeno(1,2,3-cd)pyrene	390	3,200	<3900***	UJ	<400	UJ	<19,000***	UJ	470	J	<390	UJ
Benzo(ghi)perylene	390	50,000**	<3900***	UJ	<400	UJ	<19,000***	UJ	440	J	<390	UJ
Benzo (a) anthracene	390	224 or MDL	<3900***	UJ	<400	UJ	<19,000***	UJ	**970**	**J**	<390	UJ
Chrysene	390	400	<3900***	UJ	<400	UJ	<19,000***	UJ	**840**	**J**	<390	UJ
Benzo (a) pyrene	390	61 or MDL	<3900***	UJ	<400	UJ	<19,000***	UJ	**780**	**J**	<390	UJ
Pentachlorophenel	390	1000 or MDL	**7800**	**J**	800	UJ	<38,000	UJ	760	UJ	780	UJ
PCBs (mg/kg)	2	10,000	20****	UJ	2	UJ	19****	UJ	1.9	UJ	2	UJ
INORGANICS (mg/kg)												
Aluminum	200	SB	5500		3800		5900		5800		7600	
Antimony	60	SB	<34	UJ	<33	J	<30	UJ	<28	UJ	50	J
Arsenic	2	7.5 or SB	6.2		2.4	J	1.2		2.1		2.9	
Barium	200	300 or SB	40		33	J	32		49		78	
Beryllium	1	0.16 or SB	0.12		0.11	J	**0.30**		**0.21**		**0.34**	
Cadmium	1	1 or SB	**1.8**	**J**	**1.1**		**22**	**J**	**1.8**	**J**	**2.1**	**J**
Calcium	5,000	SB	12,000	J	18,000		47,000	J	2400	J	3200	J
Chromium	2	10 or SB	10	J	7.4		**12**	**J**	7.1	J	**14**	**J**
Cobalt	50	30 or SB	27		21		**32**		17		**49**	
Copper	25	25 or SB	14		11		22		6.7		18	
Iron	100	2,000 or SB	**7800**	**J**	**6700**	**J**	**9200**	**J**	**4900**	**J**	**12,000**	**J**
lead	3	SB	29	J	<11	UJ	25	J	<9.4	UJ	<11	UJ
Magnesium	5,000	SB	3100	J	7700	J	13,000	J	13,000	J	11,000	J
Manganese	15	SB	240		430		310		74		540	J
Mercury	0.1	0.1	**0.22**	**J**	<0.1		**0.21**	**J**	<0.1		<0.1	
Nickel	40	13 or SB	9.7	J	10	J	**14**	**J**	5.5	J	**20**	**J**
Potassium	5,000	SB	680	J	400	J	740	J	470	J	1300	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.2		<0.2	
Silver	2	SB	<5.6	UJ	<5.4	UJ	<5.1	UJ	<4.7	UJ	<5.6	UJ
Sodium	5,000	SB	440	J	370	J	300	J	290	J	370	J
Thallium	10	SB	2.4		2.6		<0.4		<0.4		4.9	J
Vanadium	50	150 or SB	<34		<33		<30		<28		<34	
Zinc	20	20 or SB	**94**	**J**	14	J	**55**	**J**	16	J	**31**	**J**

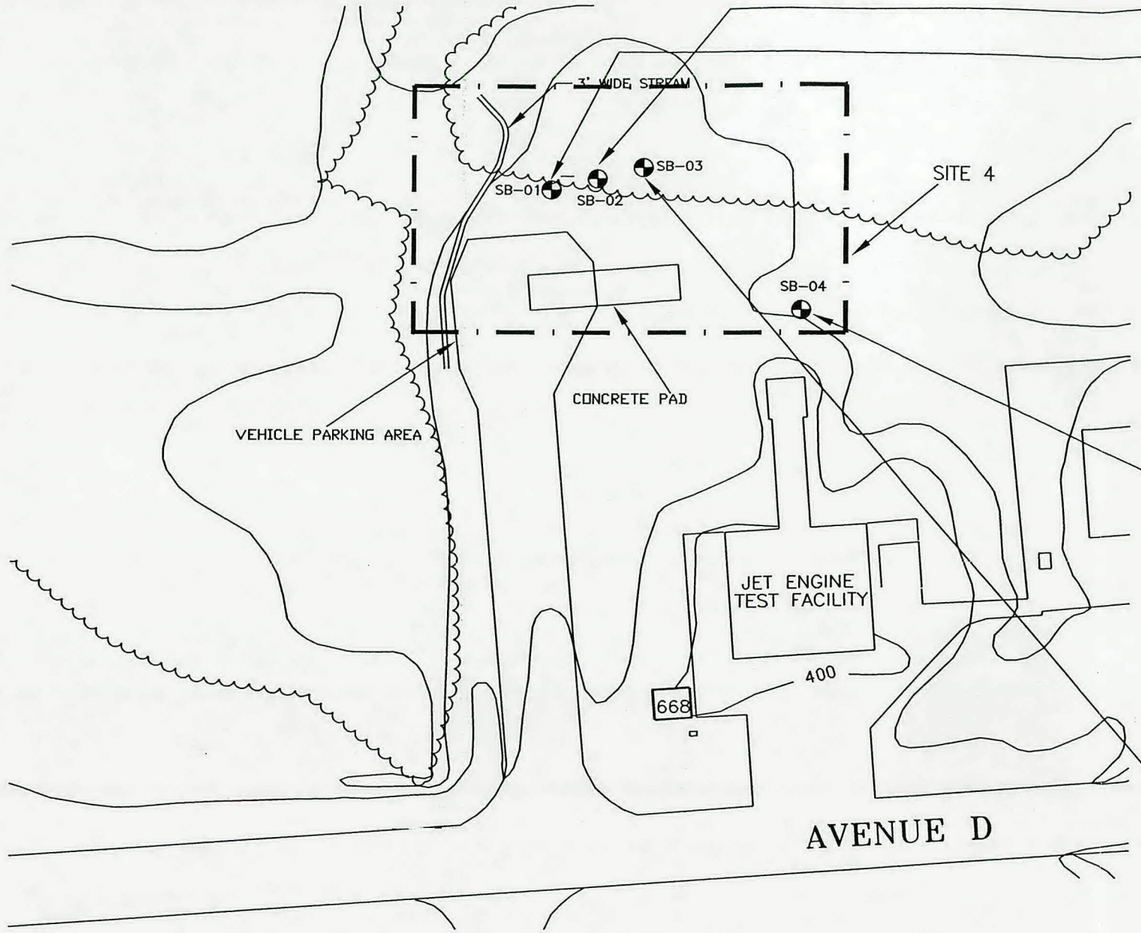
TABLE 5-8 (CONT.)
SOIL SAMPLING RESULTS
HANCOCK ANGB - SITE 4
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SB-03 2-4 ft		SB-03 4-6 ft		SB-04 2-4 ft		SB-04 4-6 ft		SB-22[2] 8-10 ft	
VOC's (µg/kg)												
n-Butylbenzene	30	NA	<25		<25		<25	UJ	<25		<25	
1 ,2,4.Trimethylbenzene	30	NA	<25		<25		130	J	<25		<25	
Xylenes (total)	30	1200*	<25		<25		95	UJ	<25		<25	
4-Isopropyltoluene	25	NA	<25		<25		89	J	<25		<25	
SVOC s (µg/kg)												
Fluorene	390	50,000**	<3900***	U	380	UJ	6200	J	<390	UJ	<390	UJ
Dibenzofuran	390	6,200	<3900***	U	380	UJ	4900	J	<390	UJ	<390	UJ
Phenanthrene	390	50,000**	12,000	J	380	UJ	33,000	J	<390	UJ	<390	UJ
Naphthalene	390	13,000	<3900***	UJ	380	UJ	4100***	UJ	<390	UJ	<390	UJ
Anthracene	390	50,000**	<3900***	UJ	380	UJ	10,000	J	<390	UJ	<390	UJ
Carbazole	390	NA	<3900***	UJ	380	UJ	4300	J	<390	UJ	<390	UJ
Fluoranthene	390	50,000**	16,000	J	380	UJ	26,000	J	<390	UJ	<390	UJ
Pyrene	390	50,000**	14,000	J	380	UJ	25,000	J	<390	UJ	<390	UJ
Benzo(b)fluoranthene	390	1,100	8300	J	380	UJ	13,000	J	<390	UJ	<390	UJ
Benzo(k)fluorenthene	390	1,100	4000	J	380	UJ	5800	J	<390	UJ	<390	UJ
Indeno(1,2,3-cd)pyrene	390	3,200	4600	J	380	UJ	5700	J	<390	UJ	<390	UJ
Benzo(ghi)perylene	390	50,000**	4700	J	380	UJ	5400	J	<390	UJ	<390	UJ
Benzo (a) anthracene	390	224 or MDL	7600	J	380	UJ	13,000	J	<390	UJ	<390	UJ
Chrysene	390	400	6800	J	380	UJ	11,000	J	<390	UJ	<390	UJ
Benzo (a) pyrene	390	61 or MDL	7400	J	380	UJ	10,000	J	<390	UJ	<390	UJ
Pentachlorophenel	390	1000 or MDL	7800***	UJ	760	UJ	8100***	UJ	780	UJ	780	UJ
PCBs (µg/kg)	2	10,000	20****	UJ	1.9	UJ	21****	UJ	2	UJ	2	UJ
INORGANICS (mg/kg)												
Aluminum	200	SB	4000		3900		5600		6100		6400	
Antimony	60	SB	<31		<35		<36	UJ	<34	UJ	<33	UJ
Arsenic	2	7.5 or SB	3.3		3.2		2.7		2.7		2.3	
Barium	200	300 or SB	31		35		49		52		48	
Beryllium	1	0.16 or SB	0.13		0.59		0.25		0.14		0.21	
Cadmium	1	1 or SB	0.94		0.82		1.4	J	1.2	J	1.5	J
Calcium	5,000	SB	41,900		1700		51,000	J	2400	J	25,000	J
Chromium	2	10 or SB	10.1		9.5		12	J	12	J	12	J
Cobalt	50	30 or SB	29		32		20		34		32	
Copper	25	25 or SB	15		11		15		12		15	
Iron	100	2,000 or SB	10,400		11,100		5800	J	11,000	J	11,000	J
Lead	3	SB	27		13		33	J	<11	UJ	<11	UJ
Magnesium	5,000	SB	5800		2000		8500	J	2100	J	11,000	J
Manganese	15	SB	310		125		130		160		270	J
Mercury	0.1	0.1	<0.1		0.33		0.20	J	<0.1		<0.1	
Nickel	40	13 or SB	11		10.9		12	J	12	J	16	J
Potassium	5,000	SB	470		340		540	J	470	J	1100	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.1		<0.2	
Silver	2	SB	<5.2		<5.9		<	UJ	<5.7	UJ	<5.4	UJ
Sodium	5,000	SB	380		330		280	J	240	J	390	J
Thallium	10	SB	<0.4		<0.4		<0.4		<0.4		<0.4	UJ
Vanadium	50	150 or SB	<31		<35		<36		<34		<33	
Zinc	20	20 or SB	52		23		63	J	22	J	26	J

ABBREVIATIONS:
mg/kg - milligrams per kilogram
µg/kg - micrograms per kilogram
ND - Not Detected
NA - Not Available
NYSDEC - New York State Department of Environmental Conservation
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
PCB's - Polychlorinated Biphenyls

NOTES:
1) NYSDEC TAGM HWR - 94-4046, January 24,1994
2) SB-22 8-10 is a duplicate sample of SB-02 8-10
*) As per TAGM # 4046, total VOC's < 10 ppm.
**) As per TAGM # 4046, total VOC's <10 ppm, total SVOC's < 500 ppm, and individual SVOC's < 50 ppm must be maintained for the listed NYSDEC concentration to apply.
***) Presence of other target analytes precludes lower detection limit
****) Matrix interference precludes lower detection limit

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentrtion of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.



SB-01			
VOCS	NO EXCEEDANCES		
PCBS	NO EXCEEDANCES		
SVOCS (ug/kg)	Conc. 2'-4'	5'-7'	Cleanup Conc.
Benzo(b)fluoranthene	<3900 UJ	400 UJ	1100
Benzo(k)fluoranthene	<3900 UJ	400 UJ	1100
Indeno(1,2,3-CD)pryene	<3900 UJ	400 UJ	3200
Benzo(a)anthracene	<3900 UJ	400 UJ	224 -MDL
Chrysene	<3900 UJ	400 UJ	61 -MDL
Benzo(a)pryene	<3900 UJ	400 UJ	61 -MDL
Pentachlorophenel	**7800 J**	800 UJ	1000- MDL
INORGANICS (mg/kg)			
Beryllium	0.12	0.11 J	0.16 -SB
Cadmium	**1.8 J**	**1.1**	1 -SB
Chromium	10	7.4	10 -SB
Cobalt	27	21	30 -SB
Iron	**7800 J**	**6700J**	2000 -SB
Mercury	**0.22 J**	<0.1	0.1
Nickel	9.7 J	10 J	13 -SB
Zinc	**94 J**	14J	20 -SB

SB-02				
VOCS	NO EXCEEDANCES			
PCBS	NO EXCEEDANCES			
SVOCS (ug/kg)	Conc. 2'-4'	4'-6'	8'-10'	Cleanup Conc.
Benzo(b)fluoranthene	<19,000 UJ	980 J	<390 J	1100
Benzo(k)fluoranthene	<19,000 UJ	410 J	<390 J	1100
Indeno(1,2,3-CD)pryene	<19,000 UJ	470 J	<390 J	3200
Benzo(a)anthracene	<19,000 UJ	**970 J**	<390 J	224 -MDL
Chrysene	<19,000 UJ	**840 J**	<390 J	61 -MDL
Benzo(a)pryene	<19,000 UJ	**780 J**	<390 J	61 -MDL
Pentachlorophenel	<38,000 UJ	760UJ	780UJ	1000- MDL
INORGANICS (mg/kg)				
Beryllium	**0.30**	**0.21**	**0.34**	0.16 -SB
Cadmium	**22 J**	**1.8 J**	**2.1 J**	1 -SB
Chromium	**12 J**	7.1 J	**14 J**	10 -SB
Cobalt	**32**	17	**49**	30 -SB
Iron	**9200 J**	**4900J**	**12,000**	2000 -SB
Mercury	**0.21 J**	<0.1	<0.1	0.1
Nickel	**14 J**	5.5 J	**20J**	13 -SB
Zinc	**55 J**	16 J	**31**	20 -SB

SB-03			
VOCS	NO EXCEEDANCES		
PCBS	NO EXCEEDANCES		
SVOCS (ug/kg)	Conc. 2'-4'	4'-6'	Cleanup Conc.
Benzo(b)fluoranthene	**8300 J**	380 UJ	1100
Benzo(k)fluoranthene	**4000 J**	380 UJ	1100
Indeno(1,2,3-CD)pryene	**4600 J**	380 UJ	3200
Benzo(a)anthracene	**7600 J**	380 UJ	224 -MDL
Chrysene	**6800 J**	380 UJ	61 -MDL
Benzo(a)pryene	**7400 J**	380 UJ	61 -MDL
Pentachlorophenel	7800 UJ	760 UJ	1000- MDL
INORGANICS (mg/kg)			
Beryllium	0.13	**0.59**	0.16 -SB
Cadmium	0.94	0.82	1 -SB
Chromium	**10.1**	9.5	10 -SB
Cobalt	29	**32**	30 -SB
Iron	**10,400**	**11,100**	2000 -SB
Mercury	0.1	**0.33**	0.1
Nickel	11	10.9	13 -SB
Zinc	**52**	**23**	20 -SB

SB-04			
VOCS	NO EXCEEDANCES		
PCBS	NO EXCEEDANCES		
SVOCS (ug/kg)	Conc. 2'-4'	4'-6'	Cleanup Conc.
Benzo(b)fluoranthene	**13,000 J**	<390 J	1100
Benzo(k)fluoranthene	**5800 J**	<390 J	1100
Indeno(1,2,3-CD)pryene	**5700 J**	<390 J	3200
Benzo(a)anthracene	**18,000 J**	<390 J	224 -MDL
Chrysene	**11,000 J**	<390 J	61 -MDL
Benzo(a)pryene	**10,000 J**	<390 J	61 -MDL
Pentachlorophenel	8100 UJ	780 UJ	1000- MDL
INORGANICS (mg/kg)			
Beryllium	**0.25**	0.14	0.16 -SB
Cadmium	**1.4 J**	**1.2 J**	1 -SB
Chromium	**12 J**	**12 J**	10 -SB
Cobalt	20	**34**	30 -SB
Iron	**5800 J**	**11,000J**	2000 -SB
Mercury	**0.20 J**	<0.1	0.1
Nickel	**540 J**	12 J	13 -SB
Zinc	**63 J**	**22 J**	20 -SB

LEGEND

SB-04	Soil Boring Locations
5800 J	Exceeds NYSDEC Regulatory Standards
Cleanup Conc.	NYSDEC Regulatory Standard
Conc.	Detected Concentration
-SB	or Site Background
UJ	Undetected/Estimated
-MDL	or Minimum Detection Limit
	Site 4 Boundary
-x-x-x-	Chain Link Fence

0 100 150 200

1 inch = 100 ft.

HANCOCK ANG BASE

SITE 4 SUBSURFACE SOIL SAMPLING ANALYTICAL RESULTS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-6

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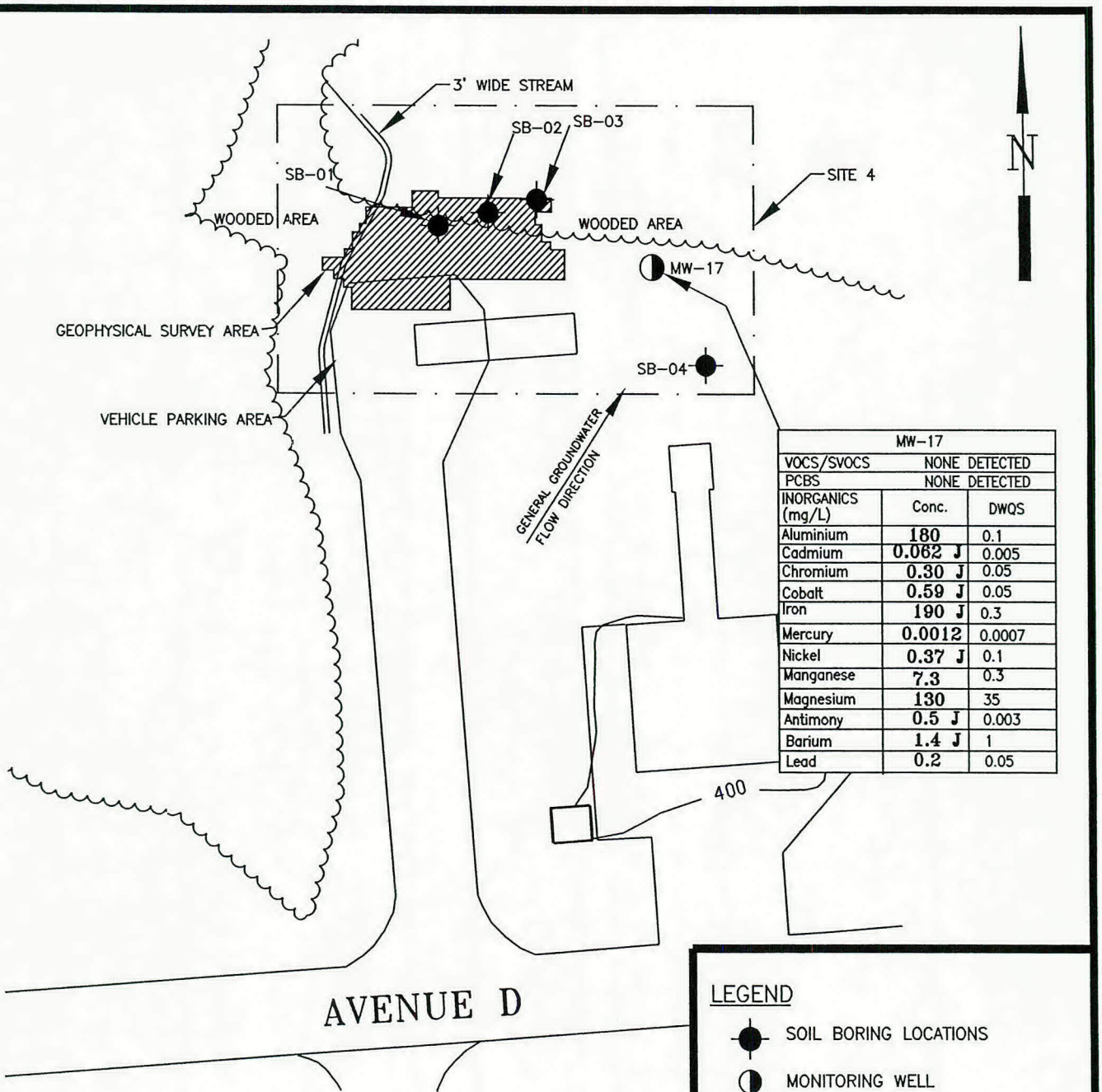
TABLE 5-9
GROUNDWATER SAMPLING RESULTS
HANCOCK ANGB - SITE 4
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC DWQS[1]	SAMPLE NUMBERS			
			MW-17 GW		MW-117[2] GW	
VOC's (µg/L)						
n-Butylbenzene	0.5	5	< 0.5		< 0.5	
1 ,2,4.Trimethylbenzene	0.5	5	< 0.5		< 0.5	
Xylenes (total)	0.5	5	< 0.5		< 0.5	
4-Isopropyltoluene	0.5	5	< 0.5		< 0.5	
SVOC's (µg/L)						
Fluorene	5	NA	< 5		< 5	
Dibenzofuran	5	NA	< 5		< 5	
Phenanthrene	5	NA	< 5		< 5	
Napthalene	5	NA	< 5		< 5	
Anthracene	5	NA	< 5		< 5	
Carbazole	5	NA	< 5		< 5	
Fluoranthene	5	NA	< 5		< 5	
Pyrene	5	NA	< 5		< 5	
Benzo(b)fluoranthene	5	NA	< 5		< 5	
Benzo(k)fluorenthene	5	NA	< 5		< 5	
Indeno(1,2,3-cd)pyrene	5	NA	< 5		< 5	
Benzo(ghi)perylene	5	NA	< 5		< 5	
Benzo (a) anthracene	5	NA	< 5		< 5	
Chrysene	5	NA	< 5		< 5	
Benzo (a) pyrene	5	ND	< 5		< 5	
Pentachlorophenol	10	1	<10		<10	
PCBs (µg/kg)	0.05	0.09	0.05	UJ	0.05	UJ
INORGANICS (mg/L)						
Aluminum	0.05	0.1	**180**		**170**	
Antimony	0.003	0.003	**0.5**	J	**0.3**	R
Arsenic	0.001	0.05	0.010		0.010	
Barium	0.001	1	**1.4**	J	**1.3**	J
Beryllium	0.0003	0.011	0.011		0.010	
Cadmium	0.001	0.005	**0.062**	J	**0.055**	J
Calcium	0.5	NA	390		370	
Chromium	0.005	0.05	**0.30**	J	**0.28**	J
Cobalt	0.005	0.05	**0.59**	J	**0.58**	J
Copper	0.001	0.2	.039	U	0.35	U
Iron	0.03	0.3	**190**	J	**180**	J
Lead	0.001	0.05	**0.2**		**0.1**	
Magnesium	0.5	35	**130**		**120**	
Manganese	0.02	0.3	**7.3**		**7.0**	
Mercury	0.0002	0.0007	**0.0012**		**0.0011**	
Nickel	0.003	0.1	**0.37**	J	**0.39**	J
Potassium	0.5	NA	18	J	15	J
Selenium	0.001	0.01	0.001	UJ	0.001	UJ
Silver	0.001	0.05	0.05		0.05	
Sodium	0.05	20	12	UJ	13	UJ
Thallium	0.001	NA	0.003	UJ	0.028	J
Vanadium	0.3	NA	0.3	J	0.3	J
Zinc	0.01	NA	0.83		0.79	

ABBREVIATIONS:
DWQS - Drinking Water Quality Standards
µg/L - micrograms per liter
mg/L- milligrams per liter
NA - Not Available
ND - Not Detected above listed detection limit
NYSDEC - New York State Department of Environmental Conservation
PCB's - Polychlorinated Biphenyls
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds

NOTES:
1) NYSDEC Water Quality Standards and guidance values, June 1988. Unless otherwise noted, the value listed is the State promulgated standard for the protection of drinking water from a ground water source
2) MW-117 GW is a duplicate sample of MW-17GW

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample limit. However, the reported quantitation limit is approximate and may or may or may not precisely measure the analyte in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed for but not detected.
102 Indicates concentration that exceeds State regulatory limits.



MW-17		
VOCS/SVOCS	NONE DETECTED	
PCBS	NONE DETECTED	
INORGANICS (mg/L)	Conc.	DWQS
Aluminium	180	0.1
Cadmium	0.062 J	0.005
Chromium	0.30 J	0.05
Cobalt	0.59 J	0.05
Iron	190 J	0.3
Mercury	0.0012	0.0007
Nickel	0.37 J	0.1
Manganese	7.3	0.3
Magnesium	130	35
Antimony	0.5 J	0.003
Barium	1.4 J	1
Lead	0.2	0.05

LEGEND

- SOIL BORING LOCATIONS
- MONITORING WELL LOCATION
- DWQS — NYSDEC DRINKING WATER QUALITY STANDARD
- Conc. — DETECTED CONCENTRATION
- 0.0012 — EXCEEDS NYSDEC DRINKING WATER QUALITY STANDARD
- J — ESTIMATED RESULT
- SITE 4 BOUNDARY
- GEOPHYSICAL SURVEY AREA

100 0 50 100

1 inch = 100 ft.

HANCOCK ANG BASE
SITE 4 GROUNDWATER SAMPLING ANALYTICAL RESULTS
SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-7

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SB- 02, 8 to 10 ft, at a concentration of 0.33 mg/kg, above the regulatory limit of 0.1 mg/kg. Analytical results are presented in Table 5-10 and summarized in Figure 5-8.

5.3.3.2 Groundwater Sampling Analytical Results

There were no VOCs, SVOCs, or PCBs detected in the groundwater sample collected at Site 9.

Several inorganics were detected above their respective regulatory limits. These compounds include antimony (0.7 mg/L), beryllium (0.018 mg/L), cadmium (0.12 mg/L), chromium (0.58 mg/L), and mercury (0.0012 mg/L). Regulatory limits for these compounds are 0.003 mg/L, 0.018 mg/L, 0.005 mg/L, 0.05 mg/L, and 0.0007 mg/L, respectively. As stated in the Executive Summary, the groundwater samples at Site 9 were collected from a temporary well which was neither developed nor purged prior to sampling. This resulted in a high level of turbidity in the samples. As inorganics inherently tend to adhere to particulate matter, analytical results from highly turbid samples may result in false positives (exceedances) which would not reflect actual in-situ conditions. As such, the inorganic results are considered mis-leading and are not included in the data tables in this report. Analytical results for VOCs, SVOCs, and PCBs are presented in Table 5-11 and summarized in Figure 5-9.

5.3.4 Site 11

Eleven subsurface soil samples (including one duplicate sample) were collected at Site 11. The duplicate subsurface soil sample was collected at SB-04, from the 4 to 6 foot interval. The duplicate sample was identified as SB-44, 4 to 6 ft. Two groundwater samples were also collected. All samples collected at Site 11 were analyzed for VOCs, SVOCs, PCBs, and TAL metals.

5.3.4.1 Subsurface Soil Sampling Analytical Results

Xylene was the only VOC detected among the eleven samples collected. All concentrations were well below the NYSDEC regulatory limit of 1,200 µg/kg. The highest concentration was detected in SB-02, 6 to 8 ft, at 67 µg/kg. Other detections include 60 µg/kg in SB-01, 4 to 6 ft, and 32 µg/kg in SB-01, 6 to 8 ft.

There were no SVOCs or PCBs detected in any of the soil samples collected at Site 11.

Inorganics detected above regulatory standards include cadmium, detected in eight of the eleven samples collected. Concentrations ranged from 2.6 mg/kg in SB-01, 2 to 4 ft and 6 to 8 ft, to 1 mg/kg detected in SB-02, 4 to 6 ft. The regulatory limit for cadmium is 1 mg/kg or site background. Chromium was detected in five of the samples collected. Concentrations ranged from 21 mg/kg in SB-01, 2 to 4 ft to 11 mg/kg in SB-01, 4 to 6 ft, and SB-02 in the 2 to 4 and 4 to 6 foot intervals. The NYSDEC regulatory limit for chromium is 10 mg/kg or site background. Iron was the only compound detected in all eleven samples collected. Concentrations ranged from 18,000 mg/kg in SB-04, 2 to 4 ft, to 6,100 mg/kg, in SB-44, 4 to 6 ft. The regulatory limit for iron is 2,000 mg/kg or site background. Analytical results are presented in Table 5-12 and summarized in Figure 5-10.

5.3.4.2 Groundwater Sampling Analytical Results

There were no VOCs, SVOCs, or PCBs detected in either of the groundwater samples collected at Site 11. Inorganics detected above their respective regulatory limits include aluminum, cadmium, chromium, and cobalt. Aluminum was detected at 67 mg/L and 74 mg/L in samples SB-03GW and SB-04GW, respectively, above the regulatory limit of 0.1 mg/L. Cadmium was detected in SB-03GW and SB-04GW at concentrations of 0.032 mg/L and 0.043 mg/L, respectively. The regulatory limit for cadmium is 0.005 mg/L. Chromium was detected in SB-03GW and SB-04GW at concentrations of 0.16 mg/L and 0.17 mg/L, respectively, above the regulatory limit of 0.05 mg/L. Cobalt was detected in SB-

TABLE 5-10
SOIL SAMPLING RESULTS
HANCOCK ANGB - SITE 9
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SB-01 2-4 ft		SB-01 4-8 ft		SB-01 10-12 ft		SB-02 2-4 ft		SB-02 6-8 ft	
VOC's (µg/kg)												
tert-Butylbenzene	30	NA	181	J	1700	J	<30		<30		<30	
sec-Butylbenzenz	30	NA	200	J	454	J	<30		<30		<30	
Ethylbenzene	30	5500*	42	UJ	227	J	<30		<30		<30	
n-Butylbenzene	30	NA	261	J	1310	J	290		<30		<30	
Isopropyl benzene	30	NA	99	J	454	J	<30		<30		<30	
4-Isopropyltoluene	30	NA	166	J	511	J	<30		<30		<30	
1,3,5-Trimethylbenzene	30	NA	107	J	57	J	<30		<30		<30	
1,2,4.Trimethylbenzene	30	NA	166	J	1400	J	73		<30		<30	
Xylenes (total)	30	1200*	202	J	2268	J	<30		<30		<30	
Styrene	30	NA	<30		568	J	<30		<30		<30	
Toluene	30	1500*	24	J	398	J	<30		<30		<30	
SVOC's (µg/kg)	370		ND		ND		ND		ND		ND	
PCBs (µg/kg)	1.9	10,000	ND		ND		ND		ND		ND	
INORGANICS (mg/kg)												
Aluminum	200	SB	2500		3800	J	2900	J	4300		3400	J
Antimony	60	SB	<33	UJ	<32	UJ	<28	UJ	<33	UJ	<30	UJ
Arsenic	2	7.5 or SB	1.2		2.9	J	4.6	J	5.4	J	6.9	J
Barium	200	300 or SB	33		<32	UJ	<28	UJ	<33	UJ	<30	UJ
Beryllium	1	0.16 or SB	0.11		0.11		0.22		0.19	UJ	0.17	
Cadmium	1	1 or SB	<0.55	UJ	<0.52	UJ	0.93	J	1.4	J	0.70	J
Calcium	5,000	SB	630	J	1000	J	77,700	J	61,000	J	60,200	J
Chromium	2	10 or SB	<5.5	UJ	8.2	J	5.4	J	8.3	J	8	J
Cobalt	50	30 or SB	12		25	J	47	J	42		41	J
Copper	25	25 or SB	5.7		18		34		30	J	30	
Iron	100	2,000 or SB	4100	J	9000	J	14,900	J	11,000	J	14,000	J
Lead	3	SB	<11	UJ	<10.5	UJ	12	J	<11	UJ	<10.1	UJ
Magnesium	5,000	SB	810	J	1800		23,400		12,000		14,000	
Manganese	15	SB	79		490	J	580	J	460		630	J
Mercury	0.1	0.1	<0.1		<0.1		<0.1		<0.1	UJ	<0.1	
Nickel	40	13 or SB	<3.3	UJ	10.6	J	10	J	13	J	10.5	J
Potassium	5,000	SB	450	J	720	J	610	J	840	J	710	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.2	R	<0.2	
Silver	2	SB	<5.5	UJ	<5.2	UJ	<4.7	UJ	<5.5	UJ	<5.1	UJ
Sodium	5,000	SB	170	J	250	J	210	J	340	J	320	J
Thallium	10	SB	<0.4		<0.4	UJ	<0.4	UJ	<0.04		3.2	J
Vanadium	50	150 or SB	<33		<32		<28		<33	UJ	<30	
Zinc	20	20 or SB	6.6	J	18	J	28	J	26	J	40	J

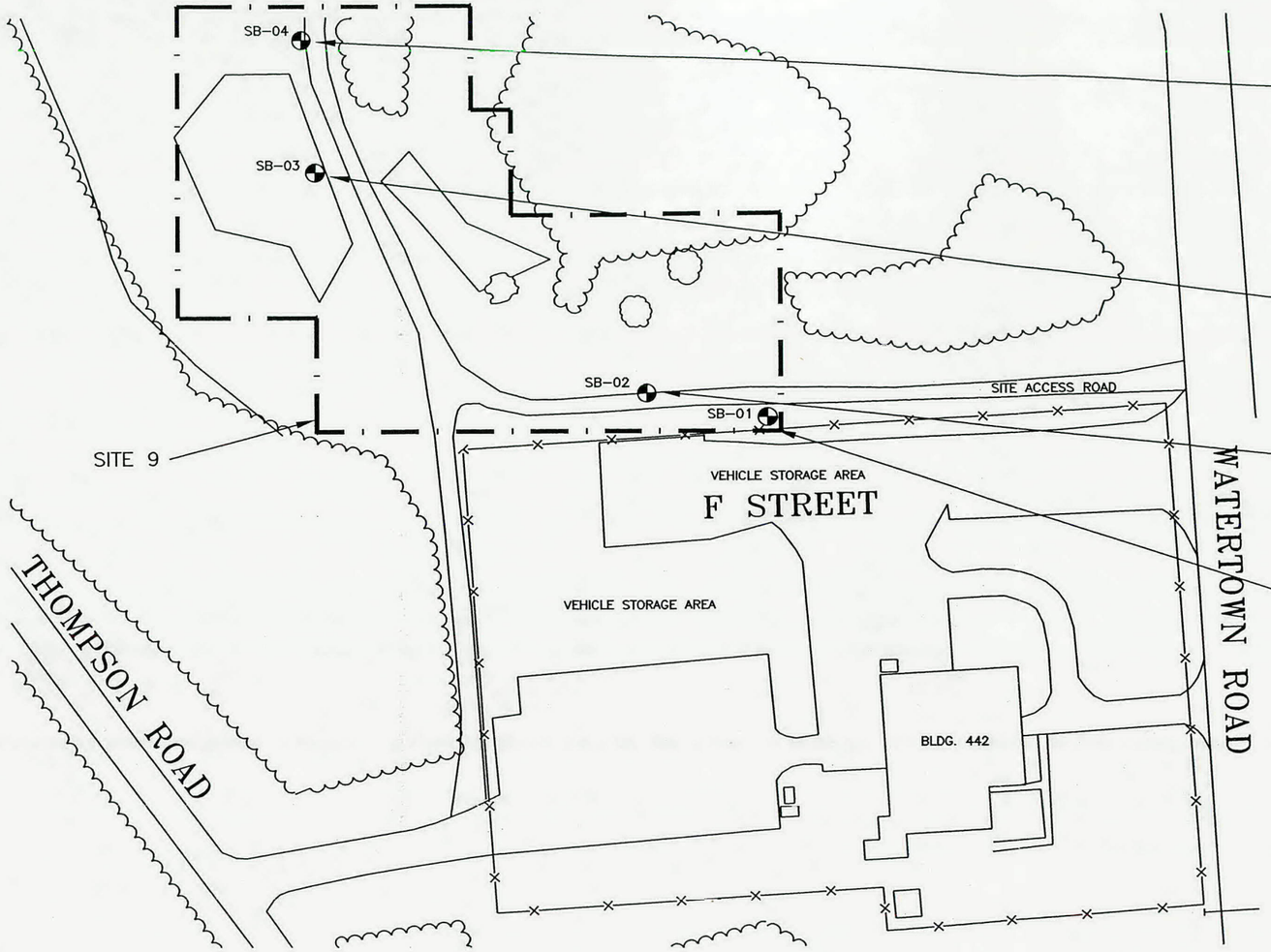
TABLE 5-10 (CONT.)
SOIL SAMPLING RESULTS
HANCOCK ANGB - SITE 9
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS											
			SB-02 8-10 ft		SB-03 0-2 ft		SB-03 2-4 ft		SB-04 0-2 ft		SB-04 2-4 ft		SB-11[2] 4-8 ft	
VOC's (mg/kg)														
tert-Butylbenzene	25	NA	<25		<25		<25		<25		5500	J	<25	
sec-Butylbenzene	25	NA	<25		<25		<25		<25		315	J	<25	
n-Butylbenzene	25	5500*	<25		<25		<25		<25		1910	J	<25	
Ethylbenzene	25	NA	<25		<25		<25		<25		582	J	<25	
Isopropyl benzene	25	NA	<25		<25		<25		<25		1120	J	<25	
4-Isopropyltoluene	25	NA	<25		<25		<25		<25		1570	J	<25	
1,3,5-Trimethylbenzene	25	NA	<25		<25		<25		<25		381	J	<25	
1,2,4.Trimethylbenzene	25	NA	<25		<25		<25		<25		3600	J	<25	
Xylenes (total)	25	1200*	<25		<25		<25		<25		1130	UJ	<25	
Styrene	25	NA	71	J	<25		<25		<25		2630	J	<25	
Toluene	25	1500*	6		<25		<25		<25		530	J	<25	
SVOC's (mg/kg)	370		ND		ND		ND		ND		ND		ND	
PCBs (mg/kg)	1.9	10,000	ND		ND		2	UJ	ND		ND		2.2	UJ
INORGANICS (mg/kg)														
Aluminum	200	SB	3500	J	1700	J	1300	J	2500		2300		3800	J
Antimony	60	SB	<32	UJ	<34	UJ	<30	UJ	<29	UJ	<33	UJ	<33	UJ
Arsenic	2	7.5 or SB	9.4	J	4.6	J	3.6	J	5.5		3.5		2.7	J
Barium	200	300 or SB	33	J	<34	UJ	<30	UJ	<29		<33		<33	UJ
Beryllium	1	0.16 or SB	0.15		0.12		0.11		0.15		0.12		0.11	
Cadmium	1	1 or SB	1.6	J	<0.57	UJ	0.5	J	0.67	J	0.74	J	0.55	J
Calcium	5,000	SB	66,300	J	26,000	J	24,000	J	34,000	J	30,000	J	1300	J
Chromium	2	10 or SB	8.8	J	<5.8	UJ	<5.1	UJ	5.2	J	5.6	J	7.9	J
Cobalt	50	30 or SB	59	J	21	J	18	J	27		23		23	J
Copper	25	25 or SB	51		13		15		17		19		13	
Iron	100	2,000 or SB	18,900	J	6300	J	5900	J	6100	J	6600	J	8700	J
lead	3	SB	15	J	<11	UJ	<10.1	UJ	<9.8	UJ	<11	UJ	16	J
Magnesium	5,000	SB	17,900		5300		9300		7800	J	6700	J	2100	
Manganese	15	SB	680	J	250	J	240	J	250		220		230	J
Mercury	0.1	0.1	0.33	J	<0.1		<0.1		<0.1		<0.1		<0.1	
Nickel	40	13 or SB	16	J	7.4	J	7.3	J	11	J	10	J	10.8	J
Potassium	5,000	SB	640	J	580	J	490	J	740	J	700	J	740	J
Selenium	2	2 or SB	<0.2		<0.2		<0.2		<0.2		<0.1		<0.2	
Silver	2	SB	<5.3	UJ	19	J	<5.1	UJ	<4.9	UJ	<5.5	UJ	<5.5	UJ
Sodium	5,000	SB	360	J	250	J	320	J	200	J	160	J	350	J
Thallium	10	SB	<0.4	UJ	<0.4	UJ	<0.4	UJ	1.9		<0.4		<0.4	UJ
Vanadium	50	150 or SB	<32		<34		<30		<29		33		<33	
Zinc	20	20 or SB	35	UJ	15	J	20	J	19	J	18	J	18	J

ABBREVIATIONS:
mg/kg - milligrams per kilogram
mg/kg - micrograms per kilogram
ND - Not Detected
NA - Not Available
NYSDEC - New York State Department of Environmental Conservation
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
PCB's- Polychlorinated biphyenls

NOTES:
1) NYSDEC TAGM HWR - 94-4046, January 24,1994
2) SB-11 4-8 is a duplicate sample of SB-01 4-8
*) As per TAGM # 4046, total VOC's < 10 ppm.
**) As per TAGM # 4046, total VOC's <10 ppm, total SVOC's < 500 ppm, and individual SVOC's < 50 ppm must be maintained for the listed NYSDEC concentration to apply.

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.



SB-04			
VOCS	NO EXCEEDANCES		
SVOCS/PCBS	NONE DETECTED		
INORGANICS (mg/kg)	Conc. 0'-2'	Conc. 2'-4'	Cleanup Conc.
Beryllium	0.15	0.12	0.16 -SB
Cadmium	0.67 J	0.74 J	1 -SB
Chromium	5.2 J	5.6J	10 -SB
Cobalt	27	23	30 -SB
Iron	**6100 J**	**6600J**	2000 -SB
Mercury	<0.1 UJ	<0.1	0.1
Nickel	11 J	10 J	13 -SB
Zinc	19 J	18 J	20 -SB
Copper	17	19	25 -SB
Arsenic	5.5	3.5	7.5 -SB

SB-03			
VOCS	NO EXCEEDANCES		
SVOCS/PCBS	NONE DETECTED		
INORGANICS (mg/kg)	Conc. 0'-2'	Conc. 2'-4'	Cleanup Conc.
Beryllium	0.12	0.11	0.16 -SB
Cadmium	<0.57 UJ	0.5 J	1 -SB
Chromium	<5.8 UJ	<5.1UJ	10 -SB
Cobalt	21 J	18 J	30 -SB
Iron	**6300 J**	**5900 J**	2000 -SB
Mercury	<0.1 UJ	<0.1	0.1
Nickel	7.4 J	7.3 J	13 -SB
Zinc	15 J	20 J	20 -SB
Copper	13	15	25 -SB
Arsenic	4.6 J	3.6 J	7.5 -SB

SB-02				
VOCS	NO EXCEEDANCES			
SVOCS/PCBS	NONE DETECTED			
INORGANICS (mg/kg)	Conc. 2'-4'	Conc. 6'-8'	Conc. 8'-10'	Cleanup Conc.
Beryllium	0.19 UJ	**0.17**	0.15	0.16 -SB
Cadmium	**1.4 J**	0.7 J	**1.6 J**	1 -SB
Chromium	8.3 J	8 J	8.8 J	10 -SB
Cobalt	**42**	**41 J**	**59 J**	30 -SB
Arsenic	5.4 J	6.9 J	**9.4 J**	7.5- SB
Iron	**11,000J**	**14,000J**	**18,900J**	2,000 -SB
Nickel	13 J	10.5 J	**16 J**	13 -SB
Zinc	**26 J**	**40 J**	35 UJ	20 -SB
Copper	**30 J**	**30**	**51**	25 -SB
Mercury	<0.1 UJ	<0.1	**0.33 J**	0.1

SB-01				
SVOCS	NO EXCEEDANCES			
PCBS	NO EXCEEDANCES			
	Conc. 2'-4'	Conc. 4'-8'	Conc. 10'-12'	Cleanup Conc.
VOCS (ug/kg)				
Xylenes	202J	**2268J**	<30	1200
INORGANICS (mg/kg)				
Beryllium	0.11	0.11	**0.22**	0.16 -SB
Cadmium	<0.55 UJ	<0.52UJ	0.93 J	1 -SB
Chromium	<5.5 UJ	8.2 J	5.4 J	10 -SB
Cobalt	12	18	**47**	30 -SB
Arsenic	1.2	2.9 J	4.6 J	7.5- SB
Iron	**4100 J**	**9000J**	**14,900J**	2,000 -SB
Nickel	<3.3 UJ	10.6 J	10 J	13 -SB
Zinc	6.6 J	18 J	**28 J**	20 -SB
Copper	5.7	18	**34**	25 -SB
Mercury	<0.1	<0.1	<0.1	0.1

LEGEND

- SB-04 — Soil Boring Locations
- 7500J — Exceeds NYSDEC Regulatory Standard
- Cleanup Conc. — NYSDEC Regulatory Standard
- UJ — Undetected/Estimated
- -SB — or Site Background
- Site 9 Boundary
- Chain Link Fence

0 100 150 200

1 inch = 100 ft.

HANCOCK ANG BASE

SITE 9 SUBSURFACE SOIL SAMPLING ANALYTICAL RESULTS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-8

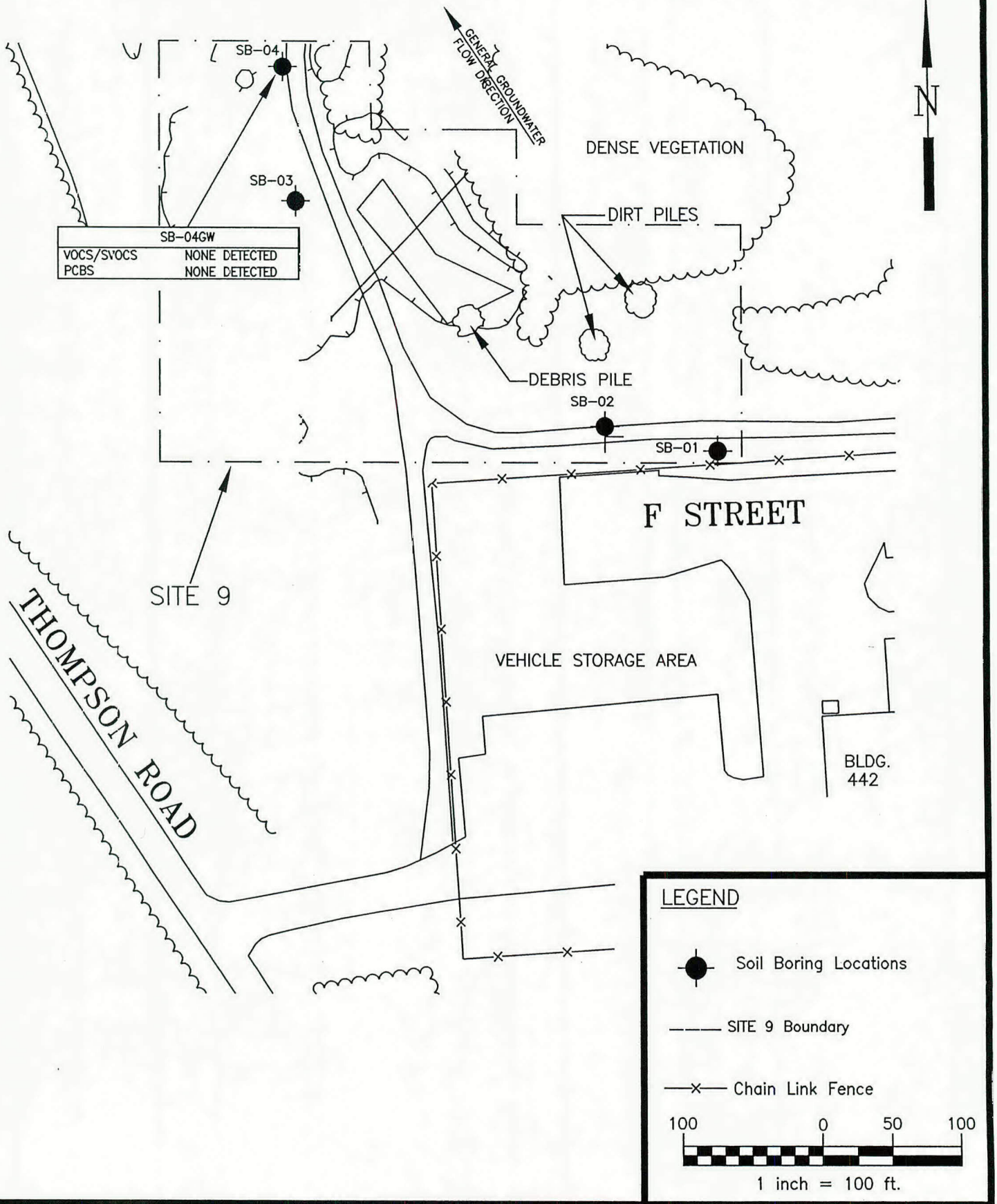
TABLE 5-11
GROUNDWATER SAMPLING RESULTS
HANCOCK ANGB - SITE 9
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC DWQS[1]	SAMPLE NUMBERS
			SB-04 GW
VOC's (mg/kg)			
tert-Butylbenzene	0.5	5	<0.5
sec-Butylbenzenz	0.5	5	<0.5
Ethylbenzene	0.5	5	<0.5
n-Butylbenzene	0.5	5	<0.5
Isopropyl benzene	0.5	5	<0.5
4-Isopropyltoluene	0.5	5	<0.5
1,3,5-Trimethylbenzene	0.5	5	<0.5
1,2,4.Trimethylbenzene	0.5	5	<0.5
Xylenes (total)	0.5	5	<0.5
Styrene	0.5	5	<0.5
Toluene	0.5	5	<0.5
SVOC's (mg/kg)	5		ND
PCBs (mg/kg)	0.05	0.09	ND

ABBREVIATIONSL
DWQS - Drinking Water Quality Standards
mg/L - micrograms per liter
mg/L- milligrams per liter
NA - Not Available
ND - Not Detected above listed detection limit
NYSDEC - New York State Department of Environmental Conservation
PCB's - Polychlorinated Biphenyls
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds

NOTES:
1) NYSDEC Water Quality Standards and guidance values, June 1988. Unless otherwise noted, the value listed is the State promulgated standard for the protection of drinking water from a ground water source

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample limit. However, the reported quantitation limit is approximate and may or may or may not precisely measure the analyte in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed for but not detected.
102 Indicates concentration that exceeds State regulatory limits.



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HANCOCK ANG BASE

SITE 9 GROUNDWATER SAMPLING ANALYTICAL RESULTS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-9

TABLE 5-12
SOIL SAMPLING RESULTS
HANCOCK ANGB - SITE 11
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS									
			SB-01 2-4 ft		SB-01 4-6 ft		SB-01 6-8 ft		SB-02 2-4 ft		SB-02 4-6 ft	
VOC's (mg/kg)												
Xylenes (total)	30	1,200	<30		60	UJ	32		<30		<30	
SVOC's (mg/kg)	<10		ND		ND		ND		ND		ND	
PCBs (mg/kg)	0.09	10,000	0.1	UJ	0.1	UJ	0.1	UJ	ND		0.1	UJ
INORGANICS (mg/kg)												
Aluminum	200	SB	12,000		6000		13,000		6800		3600	
Antimony	60	SB	64	J	<32	UJ	<34	UJ	<36	UJ	<37	UJ
Arsenic	2	7.5 or SB	4.1	J	2.6	J	3.8	J	2.6	J	3.4	J
Barium	200	300 or SB	82	J	32	J	67	J	<36	UJ	<37	UJ
Beryllium	1	0.16 or SB	0.37	J	0.12	UJ	0.42	J	0.12	UJ	0.12	UJ
Cadmium	1	1 or SB	2.6	J	1.6	J	2.6	J	1.5	J	1	J
Calcium	5,000	SB	20,000	J	30,000	J	33,000	J	21,000	J	29,000	J
Chromium	2	10 or SB	21	J	11	J	20	J	11	J	6.9	J
Cobalt	50	30 or SB	57		35		58		32		22	
Copper	25	25 or SB	22	J	13	J	19	J	11	J	10	J
Iron	100	2,000 or SB	17,000	J	11,000	J	16,000	J	10,000	J	6500	J
lead	3	SB	<12	UJ	<11	UJ	<11	UJ	<12	UJ	<12	UJ
Magnesium	5,000	SB	8800		9100		8700		7900		11,000	
Manganese	15	SB	210		350		370		270		280	
Mercury	0.1	0.1	<0.1	UJ	<0.1	UJ	<0.1	UJ	<0.1	UJ	<0.1	UJ
Nickel	<40	13 or SB	20	J	12	J	22	J	9.2	J	5.4	J
Potassium	5,000	SB	1500	J	820	J	1900	J	1200	J	810	J
Selenium	2	2 or SB	<0.2	R	<0.2	R	<0.2	R	<0.2	R	<0.2	R
Silver	2	SB	<6.1	UJ	<5.3	UJ	<5.7	UJ	<6	UJ	<6.2	UJ
Sodium	5,000	SB	400	J	450	J	540	J	420	J	440	J
Thallium	10	SB	<0.4		3		2.5		3.4		<0.4	
Vanadium	50	150 or SB	<37	UJ	<32	UJ	<34	UJ	<36	UJ	<37	UJ
Zinc	20	20 or SB	42	J	26	J	44	J	25	J	16	J

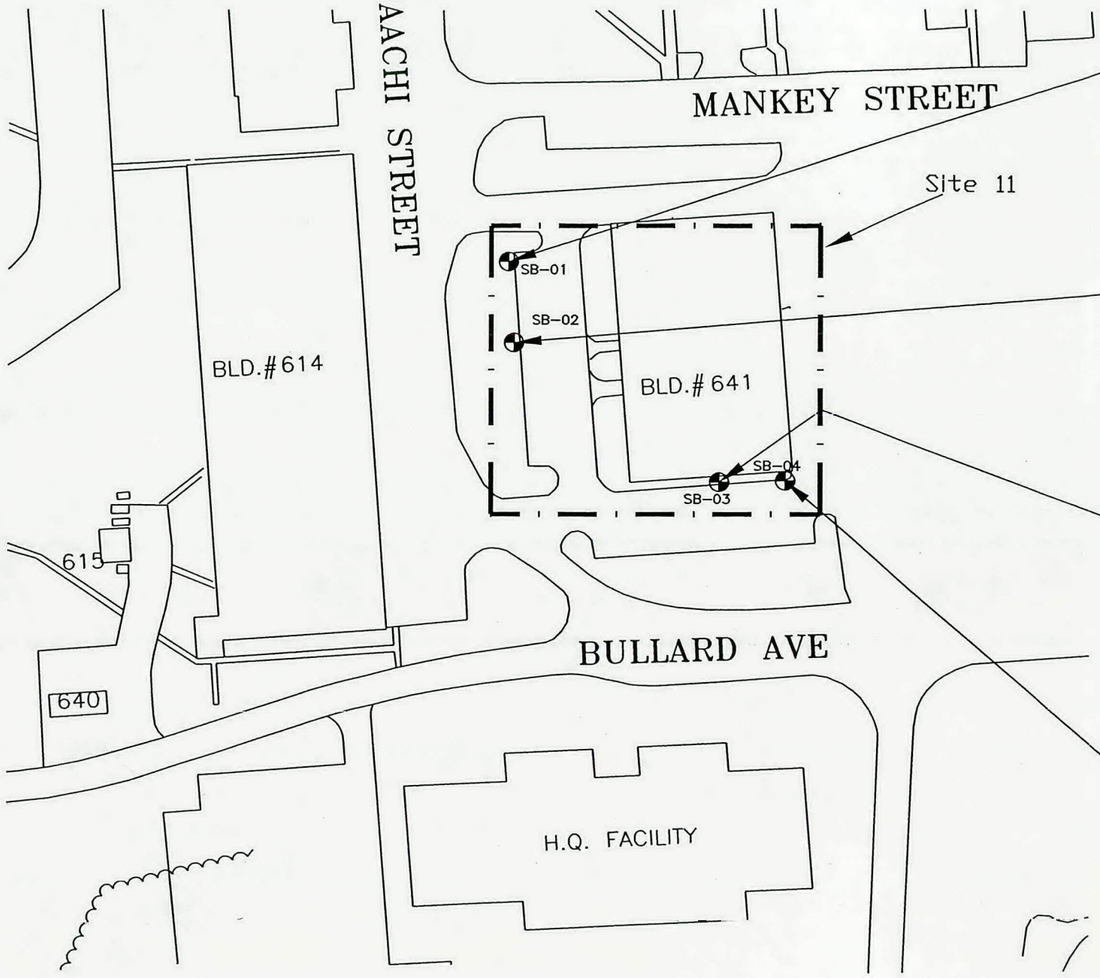
TABLE 5-12 (CONT.)
SOIL SAMPLING RESULTS
HANCOCK ANGB - SITE 11
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC CLEANUP CONC.[1]	SAMPLE NUMBERS											
			SB-02 6-8 ft		SB-03 2-4 ft		SB-03 5-6 ft		SB-04 2-4 ft		SB-04 4-6 ft		SB-44[2] 4-6 ft	
VOC's (µg/kg)														
Xylenes (total)	30	1200*	67		<30		<30		<30		<30		<30	
SVOC's (µg/kg)	410		ND		ND		ND		ND		ND		ND	
PCB's (µg/kg)	0.1	10,000	ND		ND		ND		ND		ND		ND	
INORGANICS (mg/kg)														
Aluminum	200	SB	5700		5000		4000		5300		4200		3700	
Antimony	60	SB	<34	UJ	<35	UJ	<31	UJ	<33	UJ	<30	UJ	<30	UJ
Arsenic	2	7.5 or SB	7.1	J	3.4	J	2.9	J	5.4	J	2.3	J	2	J
Barium	200	300 or SB	34	UJ	110	J	<31	UJ	180	J	30	J	<30	UJ
Beryllium	1	0.16 or SB	0.16	J	<0.12	UJ	<0.11	UJ	<0.23	UJ	<0.11	UJ	<0.11	UJ
Cadmium	1	1 or SB	1.6	J	1.1	J	0.68	J	2.5	J	0.8	J	0.59	J
Calcium	5,000	SB	34,000	J	16,000	J	520	J	45,000	J	1100	J	620	J
Chromium	2	10 or SB	11	J	7.9	J	<5.2	UJ	10	J	6.7	J	6	J
Cobalt	50	30 or SB	38		34		18		63		24		20	
Copper	25	25 or SB	14	J	18	J	3.5	J	18	J	9.8	J	5.6	J
Iron	100	2,000 or SB	11,000	J	9700	J	6500	J	18,000	J	7500	J	6100	J
lead	3	SB	<11	UJ	<12	UJ	10	UJ	<11	UJ	<9.9	UJ	<9.9	UJ
Magnesium	5,000	SB	11,000		4300		990		5400		1600		1200	
Manganese	15	SB	340		93		60		170		180		140	
Mercury	0.1	0.1	<0.1	UJ	<0.1	UJ	<0.1	UJ	<0.1	UJ	<0.1	UJ	<0.1	UJ
Nickel	40	13 or SB	13	J	15	J	<3.1	UJ	20	J	4.7	J	3.5	J
Potassium	5,000	SB	1100	J	710	J	530	J	760	J	600	J	510	J
Selenium	2	2 or SB	<0.2	R	<0.2	R	<0.2	R	<0.2	R	<0.2	R	<0.2	R
Silver	2	SB	<5.7	UJ	<5.9	UJ	<5.2	UJ	<5.5	UJ	<5	UJ	<5	UJ
Sodium	5,000	SB	390	J	370	J	300	J	390	J	300	J	260	J
Thallium	10	SB	<0.4		2.3		<0.4		<0.4		<0.4		<0.4	
Vanadium	50	150 or SB	<34	UJ	<35	UJ	<31	UJ	<33	UJ	<30	UJ	<30	UJ
Zinc	20	20 or SB	26	J	24	J	9.2	J	23	J	15	J	10	J

ABBREVIATIONS:
mg/kg - milligrams per kilogram
mg/kg - micrograms per kilogram
ND - Not Detected
NA - Not Available
NYSDEC - New York State Department of Environmental Conservation
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds
PCB's - Polychlorinated Biphenyls

NOTES:
1) NYSDEC TAGM HWR - 94-4046, January 24,1994
2) SB-44 4-6 is a duplicate sample of SB-04 4-6
*) As per TAGM # 4046, total VOC's < 10 ppm.
**) As per TAGM # 4046, total VOC's <10 ppm, total SVOC's < 500 ppm, and individual SVOC's < 50 ppm must be maintained for the listed NYSDEC concentration to apply.

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentrtion of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.



SB-01				
VOCS/SVOCS	NO EXCEEDANCES			
PEST/PCBS	NO EXCEEDANCES			
INORGANICS (mg/kg)	Conc.			Cleanup Conc.
	2'-4'	4'-6'	6'-8'	
Beryllium	0.37 J	0.12UJ	0.42J	0.16 -SB
Cadmium	2.6 J	1.6 J	2.6J	1 -SB
Chromium	21 J	11 J	20J	10 -SB
Cobalt	57	35	58	30 -SB
Iron	17,000	11,000J	16,000J	2,000 -SB
Nickel	20 J	12 J	22J	13 -SB
Zinc	42 J	26 J	44J	20 -SB

SB-02				
VOCS/SVOCS	NO EXCEEDANCES			
PEST/PCBS	NO EXCEEDANCES			
INORGANICS (mg/kg)	Conc.			Cleanup Conc.
	2'-4'	4'-6'	6'-8'	
Beryllium	0.12UJ	0.12UJ	0.16J	0.16 -SB
Cadmium	1.5J	1 J	1.6 J	1 -SB
Chromium	11J	6.9J	11 J	10 -SB
Cobalt	32	22	38	30 -SB
Iron	10,000J	6,500J	11,000J	2,000 -SB
Nickel	9.2J	5.4 J	13 J	13 -SB
Zinc	25J	16 J	26 J	20 -SB

SB-03			
VOCS/SVOCS	NO EXCEEDANCES		
PCBS	NO EXCEEDANCES		
INORGANICS (mg/kg)	Conc.		Cleanup Conc.
	2'-4'	5'-6'	
Beryllium	<0.12UJ	<0.11UJ	0.16 -SB
Cadmium	1.1J	0.68J	1 -SB
Chromium	7.9J	<5.2UJ	10 -SB
Cobalt	34	18	30 -SB
Iron	9700J	6500J	2000 -SB
Nickel	15J	<3.1UJ	13 -SB
Zinc	24J	9.2J	20 -SB

SB-04			
VOCS/SVOCS	NO EXCEEDANCES		
PCBS	NO EXCEEDANCES		
INORGANICS (mg/kg)	Conc.		Cleanup Conc.
	2'-4'	4'-6'	
Beryllium	<0.23UJ	<0.11UJ	0.16 -SB
Cadmium	2.5J	0.8J	1 -SB
Chromium	10J	6.7J	10 -SB
Cobalt	63	24	30 -SB
Iron	18,000J	7500J	2000 -SB
Nickel	20J	4.7J	13 -SB
Zinc	23J	15J	20 -SB

N

LEGEND

SB-02	Soil Boring Locations
7500J	Exceeds NYSDEC Standard
Cleanup Conc.	NYSDEC Regulatory Standard
-SB	or Site Background
UJ	Undetected/Estimate
- - -	Site 11 Boundary
-x-x-x-	Chain Link Fence

0 100 150 200

1 inch = 100 ft.

HANCOCK ANG BASE

SITE 11 SUBSURFACE SOIL SAMPLING ANALYTICAL RESULTS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
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FIGURE: 5-10

03GW and SB-04GW at concentrations of 0.46 mg/L and 0.41 mg/L, respectively. The regulatory limit for cobalt is 0.05 mg/L. Mercury was detected in one sample, SB-04GW, at a concentration of 0.0008 mg/L, just over the regulatory limit of 0.0007 mg/L.

As stated in the Executive Summary, the groundwater samples at Site 11 were collected from temporary wells which was neither developed nor purged prior to sampling. This resulted in a high level of turbidity in the samples. As inorganics inherently tend to adhere to particulate matter, analytical results from highly turbid samples may result in false positives (exceedances) which would not reflect actual in-situ conditions. As such, the inorganic results are considered mis-leading and are not included in the data tables in this report.

VOC, SVOC, and PCB analytical results are presented in Table 5-13 and summarized in Figure 5-11.

5.3.5 AOC 1-3

Four sediment samples (including one duplicate sample) were collected at AOC 1-3. The duplicate sample was collected at sediment sample SD-2A, and identified as SD-22A. Samples were analyzed for TPH and TAL metals. Metals results were compared to guidance values listed in the Technical Guidance for Screening Contaminated Sediments (NYSDEC, Division of Fish, Wildlife, and Marine Resources, November 22, 1993). Two levels of risk have been established as guidance values for metals, the Lowest Effect Level (LEL) and the Severe Effect Level (SEL). A sediment is considered contaminated if either criterion is exceeded. If both criteria are exceeded, the sediment is considereed to be severely impacted. If only the LEL is exceeded, the impact is considered moderate.

5.3.5.1 Sediment Soil Sampling Analytical Results

TPH was detected in samples SD-1A and SD-22A at concentrations of 32 mg/kg and 20 mg/kg respectively. No NYSDEC regulatory limit is available for TPH.

Inorganics detected above their respective regulatory guidance values include antimony, arsenic, cadmium, copper, manganese, silver, and mercury. Antimony was detected in SD-2A at a concentration of 60 mg/kg, above the SEL of 33 mg/kg. Arsenic was detected in each sample collected, with concentrations ranging from 42 mg/kg in SD-1A to 15 mg/kg in SD-3A. The guidance value for arsenic is 6 mg/kg (LEL) and 33 (SEL). Cadmium was found in three of the four samples collected, with concentrations ranging from 2.7 mg/kg in SD-1A to 1.1 mg/kg in SD-22A, above the LEL guidance value of 0.6 but below the SEL value of 9 mg/kg. Copper was detected above the LEL (16 mg/kg) but below the SEL (110 mg/kg) in SD-1A, SD-2A, and SD-3A at concentrations of 23 mg/kg, 17 mg/kg, and 16 mg/kg, respectively. Magnesium was detected in one sample, SD-1A, at a concentration of 1,400 mg/kg, above the SEL of 1,100 mg/kg. Mercury was detected in each of the samples collected. Concentrations ranged from 0.44 mg/kg in SD-1A to 0.24 mg/kg in SD-22A. The guidance value for mercury is 0.15 mg/kg (LEL) and 1.3 mg/kg (SEL). Silver was detected in one sample, SD-1A at a concentration of 18 mg/kg, exceeding the SEL of 2.2 mg/kg. Analytical results are presented in Table 5-14 and summarized in Figure 5-12.

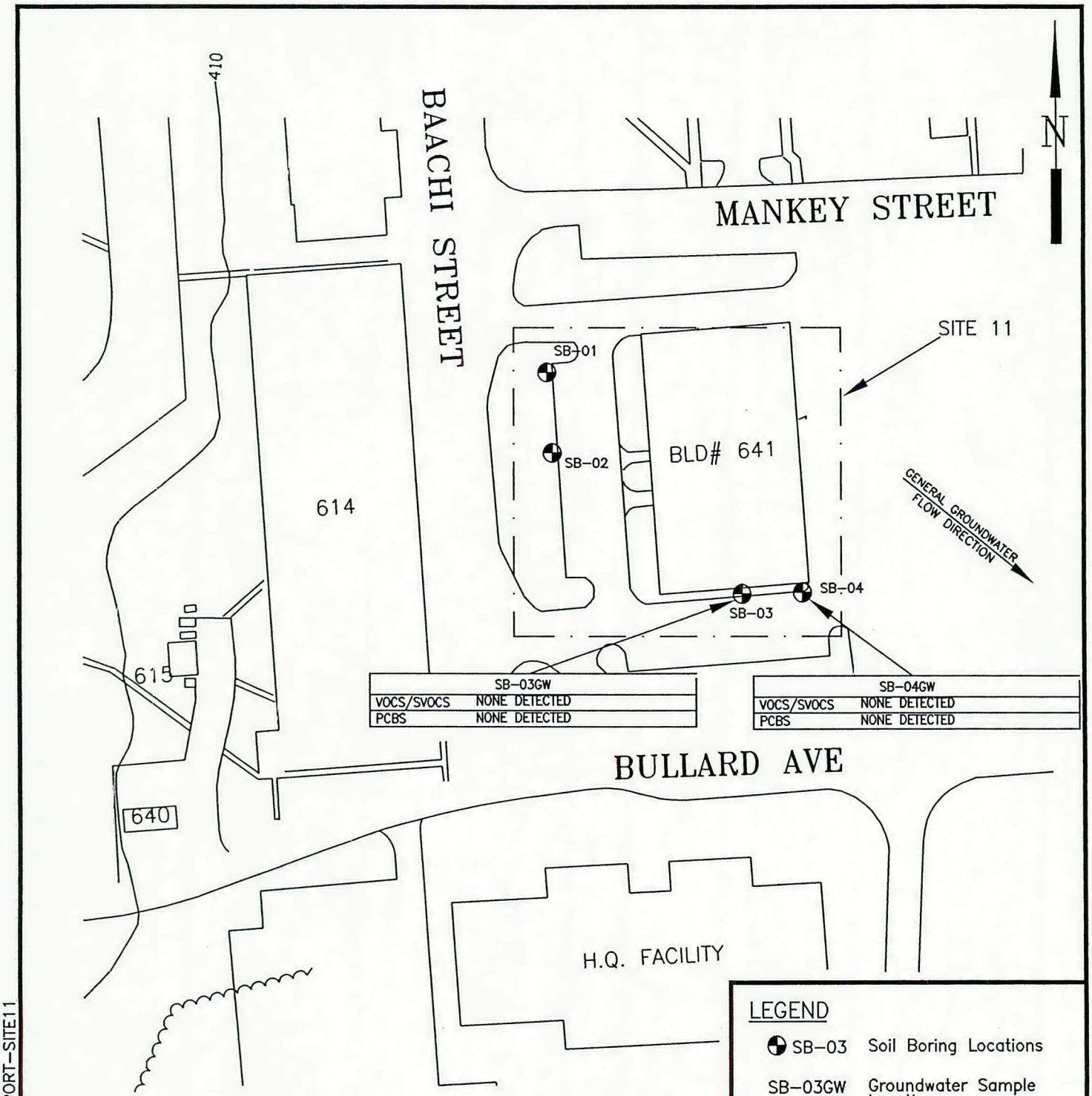
TABLE 5-13
GROUNDWATER SAMPLING RESULTS
HANCOCK ANGB - SITE 11
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC DWQS[1]	SAMPLE NUMBERS	
			SB-03 GW	SB-04 GW
VOC's (µg/kg)				
Xylenes (total)	0.5	5	<0.5	<0.5
SVOC's (µg/kg)	5		ND	ND
PCBs (µg/kg)	0.05	0.09	ND	ND

ABBREVIATIONS:
DWQS - Drinking Water Quality Standards
µg/L - micrograms per liter
mg/L- milligrams per liter
NA - Not Available
ND - Not Detected above listed detection limit
NYSDEC - New York State Department of Environmental Conservation
PCB's - Polychlorinated Biphenyls
SVOC's - Semi-Volatile Organic Compounds
VOC's - Volatile Organic Compounds

NOTES:
1) NYSDEC Water Quality Standards and guidance values, June 1988. Unless otherwise noted, the value listed is the State promulgated standard for the protection of drinking water from a ground water source
2) SB-44 GW is a duplicate sample of SB-04GW

DATA QUALIFIERS:
UJ - The analyte was not detected above the reported sample limit. However, the reported quantitation limit is approximate and may or may or may not precisely measure the analyte in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed for but not detected.
102 Indicates concentration that



HANCOCK ANG BASE

SITE 11 GROUNDWATER SAMPLING ANALYTICAL RESULTS

SYRACUSE, NEW YORK

ANEPTEK CORPORATION
Analytic, Environmental and Process Technologies

FIGURE: 5-11

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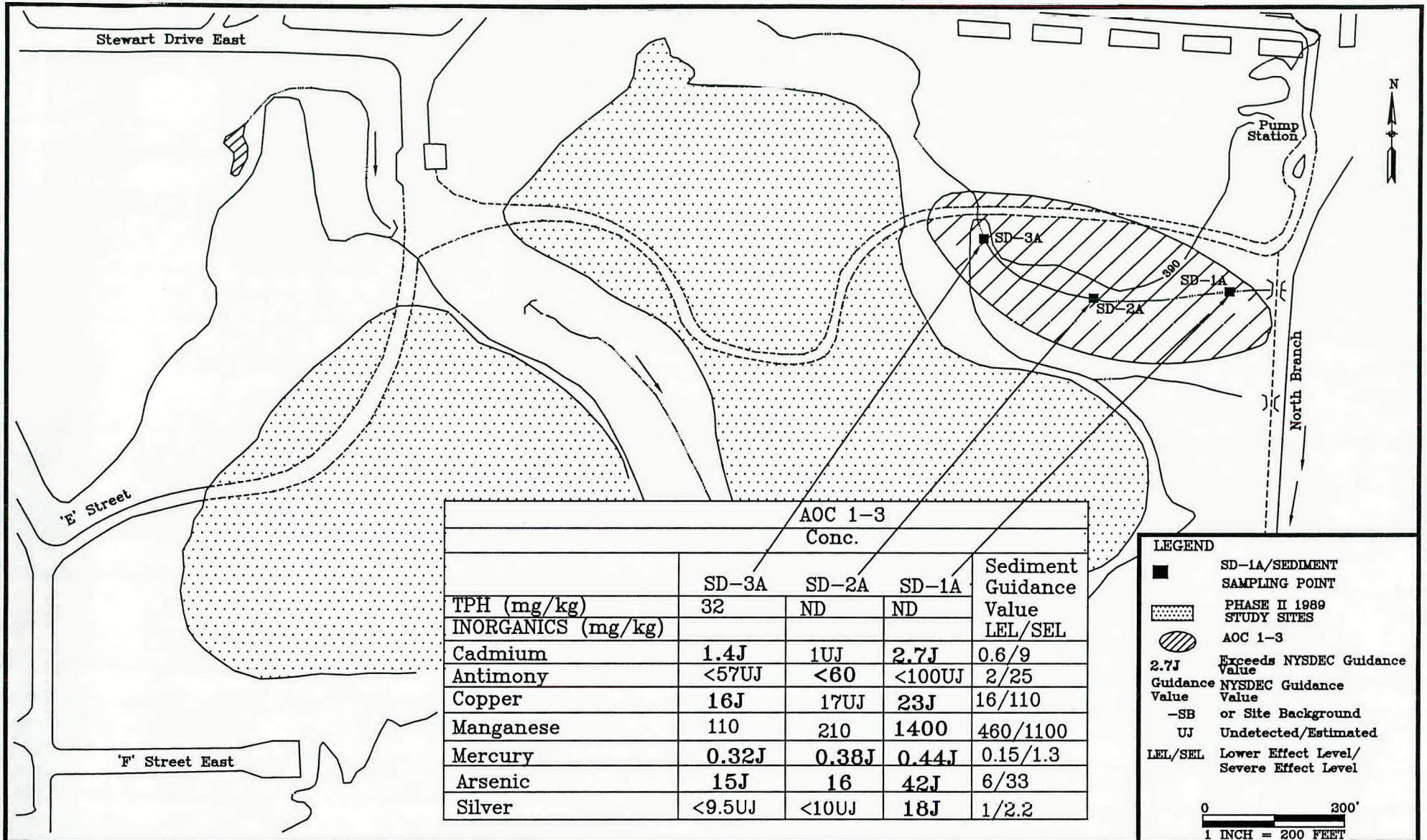
TABLE 5-14
SEDIMENT SOIL SAMPLE RESULTS
HANCOCK ANGB - AOC 1-3
SYRACUSE, NEW YORK

ANALYTE	DETECTION LIMIT	NYSDEC SEDIMENT CRITERIA[1] LEL/SEL	SAMPLE NUMBERS							
			SD-1A		SD-2A		SD-3A		SD-22A[2]	
TPH (mg/kg)		NA	32		ND		ND		20	J
INORGANICS (mg/kg)										
Aluminum	200	NL	4500		4500		4300		3700	
Antimony	60	2/25	<100	UJ	<60		<57	UJ	<56	UJ
Arsenic	2	6/33	42	J	16		15	J	23	J
Barium	200	NL	110	J	<60	UJ	<57	UJ	<56	UJ
Beryllium	1	NL	0.33	UJ	0.20	J	0.19	UJ	0.19	UJ
Cadmium	1	0.6/9	2.7	J	1	UJ	1.4	J	1.1	J
Calcium	5,000	NL	13,000	J	11,000	UJ	22,000	J	10,000	J
Chromium	2	26/110	<17	UJ	<10	J	<9.5	UJ	<9.3	UJ
Cobalt	50	NL	54		32	J	25		31	
Copper	25	16/110	23	J	17	UJ	16	J	15	J
Iron	100	2%/4%	17,000	J	10,000	J	8800	J	8500	J
Lead	3	31/110	<33	UJ	<20	UJ	<19	UJ	<19	UJ
Magnesium	5,000	NL	3000		4200		6000		3700	
Manganese	15	460/1100	1400		210		110		210	
Mercury	0.1	0.15/1.3	0.44	J	0.38	J	0.32	J	0.24	J
Nickel	40	16/50	<10	UJ	<6	UJ	<5.7	UJ	<5.6	UJ
Potassium	5,000	NL	550	J	510	J	550	J	440	J
Selenium	2	NL	0.52	J	<0.2	R	0.21	J	0.29	J
Silver	2	1/2.2	18	J	<10	UJ	<9.5	UJ	<9.3	UJ
Sodium	5,000	NL	1000	J	580	J	660	J	470	J
Thallium	10	NL	<0.4		<0.4		<0.4		<0.4	
Vanadium	50	NL	<100	UJ	<60	UJ	<57	UJ	<56	UJ
Zinc	20	120/270	95	J	54	J	110	J	49	J

ABBREVIATIONS:
mg/kg - milligrams per kilogram
ND - Not Detected
NL - Not Listed
NYSDEC - New York State Department of Environmental Conservation
LEL-Lowest Effect Level
SEL- Severe Effect Level

NOTES:
1) NYSDEC Division of Fish and Wildlife, Technical Guidance for Screening Contaminated Sediment, November 22, 1993.
2) SD-22A is a duplicate sample of SD-2A

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not precisely measure the anaylate in the sample.
J - The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
U - Indicates the compound was analyzed but not detected.
102 Indicates concentration that exceeds State regulatory limits.



	AOC 1-3 Conc.			
	SD-3A	SD-2A	SD-1A	Sediment Guidance Value LEL/SEL
TPH (mg/kg)	32	ND	ND	
INORGANICS (mg/kg)				
Cadmium	1.4J	1UJ	2.7J	0.6/9
Antimony	<57UJ	<60	<100UJ	2/25
Copper	16J	17UJ	23J	16/110
Manganese	110	210	1400	460/1100
Mercury	0.32J	0.38J	0.44J	0.15/1.3
Arsenic	15J	16	42J	6/33
Silver	<9.5UJ	<10UJ	18J	1/2.2

HANCOCK AIR NATIONAL GUARD BASE
SITE AOC 1-3
SEDIMENT SOIL SAMPLING ANALYTICAL RESULTS
SYRACUSE, NEW YORK

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FIGURE: 5-12

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SECTION 6.0

6.0 CONCLUSIONS

The following section presents the conclusions for Site 1, Site 4, Site 9, Site 11, and AOC 1-3. It should be noted that for soils, the NYSDEC Cleanup Objectives for inorganics list a quantitative numerical value, site background levels, or both, as the cleanup objective. No site background samples were collected during this SA. Therefore, a sample result could be reported as an exceedance only in those instances where the cleanup objective contained a numerical value which could then be compared to the sample result. In cases where the cleanup objective was listed as site background (only), it could not be stated with certainty wether these analytes were in exceedance or not. This is an apparent data gap which exists at each of the sites investigated during this SA.

Nature and extent of Contamination.

Site 1

Surface Soils: Surface soils at Site 1 were generally free of contamination. Although a number of VOCs were detected, all had low concentrations and did not exceed their respective NYSDEC Cleanup Objectives or did not have a standard listed in the guidance document (NYSDEC TAGM #4046, January 24, 1994). Only two SVOCs, flouranthene and pyrene, were detected at low concentrations (each at 5,400 µg/kg) and not above their respective NYSDEC Cleanup Objective (50,000 µg/kg). One pesticide, BHC-a, was detected at a concentration of 5.3 µg/kg in sample SS-02, below the Cleanup Objective of 110 µg/kg. Low to moderate levels of TPH were detected ranging from non-detect in SS-03 to 3,500 mg/kg in SS-01. No PCBs were detected in any of the surface samples collected. Of the inorganic compounds detected above their respective Cleanup Objectives, only iron was detected at relatively high concentrations. All other inorganics were detected at relatively low concentrations with respect to their individual cleanup standards.

Subsurface Soils: Site 1 subsurface soils were generally free of contamination. Only two VOCs, xylene and toluene, were detected above their respective NYSDEC Cleanup Objectives of 1,200 µg/kg and 1,500 µg/kg. Concentrations of xylenes were detected in SB-06 in the 4 to 8 foot interval at 3,594 µg/kg and in SB-07 at 2,579 µg/kg in the 0 to 2 ft interval. Toluene was detected in SB-07 at 4,700 µg/kg in the 4 to 8 foot interval. No SVOCs, pesticides, or PCBs were detected. Low levels of TPH were detected in ten of the samples collected, with concentrations ranging from 383 mg/kg in SB-03, 0 to 2 ft, to 6.6 mg/kg in SB-02, 2 to 4 ft. Each sample collected had some inorganic compounds which exceeded their respective Cleanup Objectives. All inorganic exceedances were only slightly above their respective regulatory standards with the exception of iron, which in two of the samples (SB-05, 0 to 2ft at 20,000 mg/kg and SB-06, 0 to 2 ft at 26,800 mg/kg) was an order of magnitude higher than its Cleanup Objective of 2,000 mg/kg or site background.

Concrete Samples: Unlike other media sampled at Site 1, there are no NYSDEC Cleanup Objectives associated with concrete with which to compare sample results. The results were reported to give a general idea of the contaminants present in the top few inches of the concrete pad.

Concrete samples collected at Site 1 had relatively moderate to high concentrations of VOCs, the exception being sample CS-01, which had no detections above the reported detection limit of 25 µg/kg.

No SVOCs were detected above the reported detection limit, however the reported detection limit of 3400 µg/kg was elevated due to matrix interference. One pesticide, BHC-a, was detected at low levels (5.3 µg/kg) in one sample. No PCBs were detected. TPH was detected in low concentrations (38 mg/kg to 530 mg/kg) in three of the four samples collected sample, the exception being CS-03, which reported an concentration of 2,600 mg/kg. Inorganic concentrations were relatively low, with the exception of calcium, which present in each sample in relatively high concentrations.

Groundwater: Groundwater at Site 1 is generally free of contamination. There were no VOCs, SVOCs, pesticides, PCBs, or TPH, detected in any of the groundwater samples collected. Of the inorganic compounds detected above their respective NYSDEC Drinking Water Quality Standards (DWQS), only aluminum and iron were detected at moderate to high concentrations.

Conclusion - Site 1

Based upon the results of confirmatory sample analysis and under current land use scenarios, there is currently no risk to human health associated with soils or groundwater at Site 1. With the exception of three subsurface soil samples collected beneath the concrete pad (which effectively eliminates the human receptor pathway) which contained concentrations of xylene and/or toluene above their respective NYSDEC Cleanup Objectives, no other VOCs were detected above regulatory standards in either surface or subsurface soil samples. There were no regulatory exceedances for SVOCs, pesticides, PCBs, and TPH, in either surface or subsurface soil samples. However, as previously stated, there is an apparent data gap with regards to reporting the inorganic sample results for soils due to the lack of background concentrations against which the sample results can be compared.

Groundwater samples were non-detect for all VOCs, SVOCs, pesticides, PCBs, and TPH. Any residual contaminants in the soils at Site 1 do not appear to be impacting the groundwater.

Site 4

Subsurface Soils: Subsurface soils at Site 4 were generally free of VOC contamination. VOCs detected were at relatively low levels and none above their respective NYSDEC Cleanup Objectives. Several SVOCs were detected in two of the five samples collected at concentrations exceeding their respective Cleanup Objectives. The highest concentrations were detected in the two to four foot sample intervals collected at SB-03 and SB-04. These two borings are located behind and relatively close (170 and 40 ft, respectively) to the Base jet engine test facility (Bld. No. 40024). The elevated concentrations of SVOCs in these two borings may be caused by the incomplete combustion of jet fuel and residual jet fuel constituents vented out the back of the building during engine tests. PCBs were undetected in all samples. Relatively few inorganics were detected above their respective Cleanup Objectives. Most exceedances were at, or slightly above, regulatory standards. However, as previously stated, there is an apparent data gap with regards the inorganics analysis for soils due to the lack of background concentrations against which the sample results can be compared.

Groundwater: Groundwater at Site 4 appears to be free of any organic contamination. No VOCs, SVOCs, or PCBs were detected in the groundwater samples. Several inorganic compounds were detected at concentrations exceeding NYSDEC DWQS. This sample was collected from a temporary well which had been neither developed or purged prior to sampling. The resulting sample had a high concentration of particulates in suspension. Inorganics adhering to these particulates is the most likely

reason for the elevated inorganic concentrations.

Conclusion - Site 4

Based upon the results of confirmatory sample analysis and under current land use scenarios, there is currently no risk to human health associated with the soils or groundwater at Site 4. No VOCs were detected above their respective NYSDEC regulatory standards in either soils or groundwater. Although several SVOCs were detected above regulatory limits in subsurface soil samples, these contaminants were found in the 2 to 4 foot and 4 to 6 foot sample intervals, effectively eliminating the contaminant pathway to human receptors. Also, Site 4 is located near the Base flight line which is patrolled by Base security and surrounded by a perimeter fence, prohibiting access to the site.

However, risk to the environment may be a concern at Site 4. Although groundwater at Site 4 does not appear to have been impacted by any residual soil contamination (no VOCs, SVOCs, or PCBs were detected in any of the groundwater samples collected), given the contaminant concentrations (SVOCs) and the relatively shallow groundwater table, soil contaminants could potentially migrate to groundwater. Also, as previously stated, there is an apparent data gap with regards to reporting the inorganic sample results for soils due to the lack of background concentrations against which the sample results can be compared.

Site 9

Subsurface Soils: Site 9 subsurface soils are relatively free of contamination. Although VOCs were detected in four of the eleven samples collected, only one, xylene, at 2268 µg/kg in sample SB-01 in the 4 to 8 ft interval, exceeded the NYSDEC Cleanup Objective of 1200 µg/kg. The two samples with the majority of VOC detections were collected from soil boring SB-01 in the 2 to 4 ft and 4 to 8 ft intervals. SB-01 is located close the site access road and relatively close to an elevated vehicle parking lot. Vehicular travel on the access road and surface run-off from the parking lot may have led to these elevated concentrations. Sample SB-04, in the 2 to 4 foot interval, also had VOCs detected although none above their listed NYSDEC Cleanup Objectives. All other sample results were reported at less than the detection limit (30 µg/kg). No SVOCs or PCBs were detected in any of the samples collected. Inorganics detected above their respective regulatory standards were generally at or just above NYSDEC Cleanup Objectives.

Groundwater: No VOCs, SVOCs, or PCBs were detected in the groundwater sample collected at Site 9. Several inorganics were detected at concentrations above their respective NYSDEC DWQS. This sample was collected from a temporary well which had been neither developed or purged prior to sampling. The resulting sample had a high concentration of particulates in suspension. Inorganics adhering to these particulates may be the reason for the elevated inorganic concentrations.

Conclusion - Site 9

Based upon the results of confirmatory sample analysis and under current land use scenarios, there is currently no risk to human health associated with the soils or groundwater at Site 11. Of the eleven subsurface soil samples collected at Site 9, only one sample reported an exceedance, xylene, detected at 2,268 µg/kg, above the NYSDEC Cleanup Objective of 1,200 µg/kg. No SVOCs or PCBs were detected in any of the samples. Inorganic compounds detected were generally low level concentrations.

However, as previously stated, there is an apparent data gap with regards to reporting the inorganic sample results for soils due to the lack of background concentrations against which the sample results can be compared.

Groundwater samples at Site 9 were all non-detect for VOCs, SVOCs, and PCBs. Any residual subsurface soil contamination does not appear to be impacting the groundwater at Site 9. Inorganics that were detected in the groundwater sample were most likely caused by high levels of particulate matter in the sample, the result of collecting the sample from a temporary well.

Site 11:

Subsurface Soils: Subsurface soils at Site 11 appear to be free of any significant contamination. Only one VOC, xylene, was detected at low concentrations (32 µg/kg and 67 µg/kg) in two of the samples collected. These samples were both from the six to eight foot bgs interval in borings SB-01 and SB-02. There were no SVOCs or PCBs detected in any of the samples collected. A number of inorganic compounds were detected at concentrations exceeding their respective NYSDEC Cleanup Objectives. Most of these concentrations were only slightly above the regulatory standards, the exception being iron, which had moderate to high concentrations.

Groundwater: There were no VOCs, SVOCs, or PCBs detected in groundwater samples collected at Site 11. Inorganic compounds detected above NYSDEC DWQS contained relatively low concentrations with respect to their regulatory standards. This sample was collected from a temporary well which had been neither developed or purged prior to sampling. The resulting sample had a high concentration of particulates in suspension. Inorganics adhering to these particulates may be the reason for the elevated inorganic concentrations.

Conclusion - Site 11

Based upon the results of confirmatory sample analysis and under current land use scenarios, there is currently no risk to human health associated with the soils or groundwater at Site 11. Only two samples out of the ten collected had any detectable VOCs, both of these low concentrations not exceeding their respective NYSDEC Cleanup Objectives. There were no SVOCs, or PCBs detected. Inorganic compounds detected above their respective Cleanup Objectives were generally low level concentrations. However, as previously stated, there is an apparent data gap with regards to reporting the inorganic sample results for soils due to the lack of background concentrations against which the sample results can be compared.

Groundwater samples at were all non-detect for VOCs, SVOCs, and PCBs. Any residual, low level subsurface soil contamination does not appear to be impacting groundwater at Site 11. Inorganics that were detected in the groundwater samples were most likely the result of collecting the sample from a temporary well resulting in high levels of turbidity.

AOC 1-3

Sediment Soil: Four sediment samples were collected at AOC 1-3 and analyzed for TPH and inorganics. These samples were compared to the NYSDEC Technical Guidance for Screening Contaminated Sediments. Two of the samples, SD-22A and SD-1A, contained low levels (20 mg/kg

to 32 mg/kg) of TPH, the other two samples, SD-2A and SD-3A, were non-detect for TPH. Several inorganic compounds were detected above their respective NYSDEC guidance values. Among these was arsenic, detected in each of the samples collected at a levels ranging from 42 to 16 mg/kg. The LEL and SEL guidance values for arsenic are 6 mg/kg and 33 mg/kg, respectively. Mercury was also detected in each of the samples collected at a levels ranging from 0.24 to 0.44 mg/kg. The LEL and SEL guidance values for mercury are 0.15 mg/kg and 1.3 mg/kg, respectively. Cadmium was detected in SD-1A at 2.7 mg/kg, SD-3A at 1.4 mg/kg, and SD-22A at 1.1 mg/kg, respectively. The LEL and SEL guidance values for cadmium are 0.6 mg/kg and 9 mg/kg, respectively.

Conclusion - AOC 1-3

Based upon the results of confirmatory sample analysis and under current land use scenarios, sediments at AOC 1-3 do not pose a threat to human health. This conclusion is based on the nature of the contaminants (inorganics), which tend to adhere to soil particles and therefore would not generally migrate unless the sediment is disturbed. The remote location and inaccessibility of site AOC 1-3 would make this an un-likely scenario.

However, inorganic contaminants in site sediments may pose a risk to the environment. This risk is based on the nature of the contaminants (arsenic, cadmium, mercury), their respective concentrations, and the fact that these contaminants have been detected at AOC 1-3 during previous investigations.

SECTION 7.0

7.0 RECOMMENDATIONS

Based upon the investigative results presented in the SA report, the following recommendations for Site 1, Site 4, Site 9, Site 11, and AOC 1-3, are provided.

General Recommendations

For each of the sites investigated during this SA, additional soil sampling to establish inorganic background concentrations is recommended to address an apparent data gap with regards to reporting inorganic exceedances. As previously stated in Section 6.0 of this report, numerous NYSDEC cleanup concentrations for inorganics in soils list background values as the cleanup objective. It is also stated that no background soil samples were collected during this SA. To accurately determine if an inorganic analyte is, or is not, in exceedance of its regulatory standard for soils, subsurface inorganic background values must be established for comparison purposes. Due to the relatively close proximity of Sites 1, 4, and 11 to each other, it may be possible to collect two or three background samples from locations which are in relatively proximity to each site, the results of which could be used at each of these sites. However, Site 9 and AOC 1-3 are located a considerable distance from these other sites and each other, and may need site-specific background sampling programs. It is also recommended that for any future groundwater sampling, low flow sampling techniques be employed. Inorganic analytes tend to adhere to particulate matter in a groundwater sample. Using low flow sampling techniques would reduce the turbidity of the sample, thereby providing a more accurate measure of in-situ inorganic groundwater contaminants.

Site specific recommendations are presented below:

Site 1

Additional soil and groundwater sampling is recommended at Site 1. As previously stated, additional soil sampling to establish inorganic background concentrations at Site 1 is recommended. Background concentrations could then be compared to sample results from this SA and other previous investigations. Based on these comparisons, additional investigative measures may or may not be warranted. In addition to soil sampling, additional groundwater samples should be collected from monitoring wells MW-09, MW-11, MW-12, MW-13, and MW-13D (wells which were sampled during this SA) using low flow sampling techniques to reduce sample turbidity. As sample results for VOCs, SVOCs, Pesticides/PCBs, and TPH were all non-detect, wells should be re-sampled for inorganics only. Based on the results, additional investigative measures may or may not be warranted.

Site 4

Additional investigative measures are recommended at Site 4. Additional measures recommended include soil sampling, groundwater sampling, and possible test-pitting. This recommendation is based on the SA sampling results and the results of the electromagnetic geophysical survey conducted at Site 4. Soil sampling results revealed high concentrations of several SVOCs which were detected above their respective NYSDEC Cleanup Objectives. Also, numerous subsurface anomalies were detected during the geophysical survey. These anomalies should be investigated further, possibly through test-pitting or other intrusive measures.

As previously stated, additional soil sampling to establish inorganic background concentrations for Site 4 is also recommended.

Although groundwater sample results collected at the site indicate the contaminants in the subsurface have not impacted groundwater, additional groundwater sampling for inorganics (only) is recommended. Low flow sampling techniques are recommended for any additional sampling. It is also recommended that a groundwater elevation survey be conducted (using existing on-site wells) and site groundwater flow direction be defined. This recommendation is based on flow direction discrepancies between the results of this SA and previous investigations.

Site 9

Additional soil sampling to establish inorganic background concentrations is recommended at Site 9. Inorganic background sampling results could then be compared to sample results from this SA. Based on these comparisons, further investigative measures may or may not be warranted. Other than background sampling, no further action is recommended at Site 9 at this time. This recommendation is based on the confirmatory sample results which, with the exception of one sample out of the eleven collected, reported no exceedances for VOCs. No SVOCs or PCBs were detected in any of the samples collected. Inorganics that were detected were found at low level concentrations. Based on these results, there is no risk to human health or the environment associated with the soils or groundwater at Site 9.

Site 11

Addtional soil sampling to establish inorganic background concentrations is recommended at Site 11. Inorganic background sample results could then be compared to sample results from this SA. Based on these comparisons, further investigative measures may or may not be warranted. Other than background sampling, no further action is recommended at Site 11 at this time. This recommendation is based on the confirmatory sample results which reported one VOC detected below the NYSDEC Cleanup Objective. No SVOCs or PCBs were detected in any of the samples collected. Inorganics that were detected were found at low level concentrations. Based on these results, there is no risk to human health or the environment associated with the soils or groundwater at Site 9.

AOC 1-3

Additional sediment sampling is recommended at AOC 1-3. This recommendation is based on the results of sediment samples collected during this SA. Results indicate elevated concentrations of inorganics in each of the samples collected. Analytes exceeding their respective NYSDEC sediment screening criteria include arsenic, mercury, and cadmium. High concentrations of inorganics were also detected at AOC 1-3 during previous investigations. Samples collected during this SA were analyzed for inorganics and TPH only, any future sampling should also include VOC and SVOC analysis.

SECTION 8.0

8.0 REFERENCES

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APPENDIX A

BORING LOGS

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 1 SB-01 thru SB-04
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-27-00 @ 1550 / Date/Time Finished: 11-27-00 @ 1645
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 397.5 msl / Total Depth: 2 ft / Bedrock Depth:	Water Table Depth: / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0 – 2	0 to 2			24	**SB-01** Brown silt/fine to medium sand	SM	0
0 – 2	0 to 2			24	**SB-02** Brown silt/fine to medium sand	SM	0
0 – 2	0 to 2			24	**SB-03** Brown silt/fine to medium sand	SM	0
0 – 2	0 to 2			24	**SB-04** Brown silt/fine to medium sand	SM	0

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011			Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.			Boring/Well No.: Site 1 SB-05
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-27-00 @ 1042	Date/Time Finished: 11-29-00 @ 1100
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV	
Location (survey coord):	Ground El.: 397.8 msl / Total Depth: 12 ft / Bedrock Depth:	Water Table Depth: 5 ft	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	0 to 2			24	Gray fine/medium sand/silt 0 to 1 ft, petroleum odor Dk brn silt sand 1-2 ft	SM	24
4	NS			0	No Recovery		
8	8 to 10			46	Grayish silt/sand, slight petroleum odor. Saturated		7.4
12	10 to 12				Brown silt/sand. No odor. Saturated		0

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Petroleum odor 0-2 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011

Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.

Boring/Well No.: Site 1 SB-06

Drilling Contractor:	Drilling Rig Make/Model:	Date/Time Started	Date/Time Finished
BL Myers Bros.	Geoprobe	11-28-00 @ 1019	11-28-00 @ 1030

Logged By:	Drilling Method:	Screening Device (Type, make, model):
J. Donovan	Geoprobe	ThermoElectron FID 11.7 eV

Location (survey coord):	Ground El.:	Total Depth:	Bedrock Depth:	Water Table Depth:	Borehole Diameter:
	397.98 msl	12 ft		5 ft	2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	0 to 2			26	Gray fine/medium sand/silt, little clay, 2 to 3 ft, petroleum odo Dk brn silt/ sand 3-4 ft. No odor	CL SM	5
4	4 to 8			36	Grayish silt/sand, little clay, few cobbles, petroleum odor 4 to Brown silt/sand 5 to 8 ft	CL SM	59
8	8 to 10			36	Brown silt/sand, few cobbles. No odor. Saturated	SM	0
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Petroleum odor 0-2 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 1 SB-07
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-28-00 @ 0900 / Date/Time Finished: 11-28-00 @ 1000
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 397.98 msl / Total Depth: 10 ft / Bedrock Depth:	Water Table Depth: 5 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	0 to 2			26	Gray fine/medium sand/silt, little clay, 2 to 3 ft, petroleum odor Dk brn silt/ sand 3-4 ft. No odor	CL SM	17
4	4 to 8			48	Grayish silt/sand, little clay, few cobbles, petroleum odor 4 to 5 ft Brown silt/sand 5 to 8 ft	CL SM	54
8	8 to 10			40	Brown silt/sand, few cobbles, petro odor. Saturated	SM	149
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011			Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.			Boring/Well No.: Site 1 SB-08
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-28-00 @ 0800	Date/Time Finished: 11-28-00 @ 1030
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV	
Location (survey coord):	Ground El.: 397.36 msl / Total Depth: 10 ft / Bedrock Depth:	Water Table Depth: 6.5 ft	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	0 to 2			18	Gray fine/medium sand/silt, little clay, petroleum odor	CL	22
4	No Rec.						
8	6 to 8			48	Grayish silt/sand, little clay, petroleum odor Wet 6.5 to 7.5	CL	30
10	8 to 10				Brn silt/sand	SM	4.7

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%
Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 4 SB-01
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 0920 / Date/Time Finished: 11-29-00 @ 1000
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 395.92 msl / Total Depth: 12 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			36	Dk. brown silt/fine sand	OL	0
4	5 to 7			36	Dk. brown silt/fine sand to 6.5 Light red silt/medium sand to 7.9 Brn. clay/silt to 8 ft Wet at 6 ft	OL	0
8				0			
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Wood chips at 2 ft and 3.8 ft
Black burnt material at 3 ft
Small piece of metal at 3 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 4 SB-02
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 1015 / Date/Time Finished: 11-29-00 @ 1040
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 395.62 msl / Total Depth: 12 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			36	Dk. brown silt 2 to 3 ft	OL	0
4	4 to 6			24	Dk. brown silt/little fine sand Light redish silt/medium sand 5 to 6 ft Wet at 6 ft	OL	0
8	8 to 10			36	Saturated Silt/ some clay	OL	0
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Black burnt material 2 to 3 ft
Black material, pieces of wood, trace rock/fill material at 3 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011			Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.			Boring/Well No.: Site 4 SB-03
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 1100	Date/Time Finished: 11-29-00 @ 1130
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV	
Location (survey coord):	Ground El.: 395.02 msl	Total Depth: 12 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			24	Dk. brown silt/little fine sand	OL	0
4	4 to 6			48	Dk. brown trace clay/fine sand 4 to 4.5 ft Light brn sand/silt 4.5 to 7 ft Silt and clay 6-8 ft Wet at 4-4.5 ft	OL	0
8	NS			3	Saturated Silt/ some clay	OL	0
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Trace bits of black, burnt material, trace pieces of wood 2 to 4 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 4 SB-04
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 0824 / Date/Time Finished: 11-29-00 @ 0850
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 394.51 msl / Total Depth: 8 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			42	Fill material to 3.5, contains little burnt materia Silt/little fine/medium sand, some clay, bottom 5" Bottom 5" wet	OL	0
4	4 to 6			46	Brown trace clay/fine sand , tracen gravel/sand 4 to 6 ft Light brn Wet at 4 ft	OL	0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 9 SB-01
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-28-00 @ 1440 / Date/Time Finished: 11-28-00 @ 1536
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 406.63 msl / Total Depth: 12 ft / Bedrock Depth: / Water Table Depth:	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			36	Silt/fine to medium sand, reddish brown color	SM	0
4	4 to 8			36	Silt/fine to medium sand, reddish brown color Bottom 6 inchs medium to coarse sand	SM	0
8	10 to 12			32	Silt/coarse to medium sand Refusal at 12 ft	SM	0
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 9 SB-02
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-28-00 @ 1421 / Date/Time Finished: 11-28-00 @ 1435
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 405.89 msl / Total Depth: 10 ft / Bedrock Depth:	Water Table Depth: / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	Not Sampled			24	Top 12 " gravel/ stone fill Bottom 12 " silt/moderate, coarse sand	SM	0
4	6 to 8			36	Brown med/coarse sand/trace silt,	SM	0
8	8 to 10			32	8 to 9 ft gravel/fill, sand Refusal at 10 ft	SM	0
10							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 9 SB-03
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-28-00 @ 1330 / Date/Time Finished: 11-28-00 @ 1435
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 396.14 msl / Total Depth: 12 ft / Bedrock Depth: / Water Table Depth:	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	0 to 2			36	Brown silt/ little sand	SM	0
	2 to 4				Wet at 4 ft		
4					Saturated		
8					Saturated		
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 9 SB-04
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-28-00 @ 1230 / Date/Time Finished: 11-28-00 @ 1310
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 399.58 msl / Total Depth: 8 ft / Bedrock Depth:	Water Table Depth: 4 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	0 to 2			32	Brown silt/ little fine-medium sand	SM	0
	2 to 4				Wet at 4 ft		
4					Saturated at 4.5 ft		0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 11 SB-01
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 1250 / Date/Time Finished: 11-29-00 @ 1355
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 402.96 msl / Total Depth: 8 ft / Bedrock Depth:	Water Table Depth: 6.5 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			32	Brown silt/ little fine-medium sand	SM	0
4	4 to 6			30	Brown silt/ little fine-medium sand Wet at 6.5 ft	SM	0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 11 SB-02
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 1500 / Date/Time Finished: 11-29-00 @ 1535
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 402.04 msl / Total Depth: 10 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			32	Brown clayey silt	CL	0
4	4 to 6 6 to 8			30	Brown clayey silt Wet at 6.5 ft	CL	0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 11 SB-03
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 1355 / Date/Time Finished: 11-29-00 @ 1415
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 403.43 msl / Total Depth: 10 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			40	0-8" fill 8-36" dk brn silt/sand 36-40" light brn sand/silt	SM	0
4	5 to 6			30	Light Brown sand/silt Wet at 6.5 ft	SM	0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011					Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.					Boring/Well No.: Site 11 SB-04
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe			Date/Time Started: 11-29-00 @ 1250	Date/Time Finished: 11-29-00 @ 1345
Logged By: J. Donovan	Drilling Method: Geoprobe			Screening Device (Type, make, model): ThermoElectron FID 11.7 eV	
Location (survey coord):	Ground El.: 403.1 msl	Total Depth: 10 ft	Bedrock Depth:	Water Table Depth: 6 ft	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			40	0-15" fill 8-36" dk brn silt/sand 36-40" brn sand/silt	SM	0
4	4 to 6			48	Light Brown sand/silt Wet at 6.5 ft	SM	0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011					Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.					Boring/Well No.: Site 4 SB-01
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe			Date/Time Started: 11-29-00 @ 0920	Date/Time Finished: 11-29-00 @ 1000
Logged By: J. Donovan	Drilling Method: Geoprobe			Screening Device (Type, make, model): ThermoElectron FID 11.7 eV	
Location (survey coord):	Ground El.: 395.92 msl	Total Depth: 12 ft	Bedrock Depth:	Water Table Depth: 6 ft	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			36	Dk. brown silt/fine sand	OL	0
4	5 to 7			36	Dk. brown silt/fine sand to 6.5 Light red silt/medium sand to 7.9 Brn. clay/silt to 8 ft Wet at 6 ft	OL	0
8				0			
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Wood chips at 2 ft and 3.8 ft
Black burnt material at 3 ft
Small piece of metal at 3 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 4 SB-02
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 1015 / Date/Time Finished: 11-29-00 @ 1040
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 395.62 msl / Total Depth: 12 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			36	Dk. brown silt 2 to 3 ft	OL	0
4	4 to 6			24	Dk. brown silt/little fine sand Light redish silt/medium sand 5 to 6 ft Wet at 6 ft	OL	0
8	8 to 10			36	Saturated Silt/ some clay	OL	0
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Black burnt material 2 to 3 ft
Black material, pieces of wood, trace rock/fill material at 3 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011					Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.					Boring/Well No.: Site 4 SB-03
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe			Date/Time Started: 11-29-00 @ 1100	Date/Time Finished: 11-29-00 @ 1130
Logged By: J. Donovan	Drilling Method: Geoprobe			Screening Device (Type, make, model): ThermoElectron FID 11.7 eV	
Location (survey coord):	Ground El.: 395.02 msl	Total Depth: 12 ft	Bedrock Depth:	Water Table Depth: 6 ft	Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			24	Dk. brown silt/little fine sand	OL	0
4	4 to 6			48	Dk. brown trace clay/fine sand 4 to 4.5 ft Light brn sand/silt 4.5 to 7 ft Silt and clay 6-8 ft Wet at 4-4.5 ft	OL	0
8	NS				No recovery, full of water		
12							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:
Trace bits of black, burnt material, trace pieces of wood 2 to 4 ft

ANEPTEK CORPORATION
Boring Log

Client/Project/Contract No.: ANGB / Hancock SA / DAHA90-97-D-0011		Page 1 of 1
Sampler Type/Size: Geoprobe 4 ft Sampler- 2" Dia.		Boring/Well No.: Site 4 SB-04
Drilling Contractor: BL Myers Bros.	Drilling Rig Make/Model: Geoprobe	Date/Time Started: 11-29-00 @ 0824 / Date/Time Finished: 11-29-00 @ 0850
Logged By: J. Donovan	Drilling Method: Geoprobe	Screening Device (Type, make, model): ThermoElectron FID 11.7 eV
Location (survey coord):	Ground El.: 394.51 msl / Total Depth: 8 ft / Bedrock Depth:	Water Table Depth: 6 ft / Borehole Diameter: 2 inches

Depth (ft)	Sample Interval	Sample Number	Blows/ 6-in.	Rec. (in.)	Lithologic Description	USCS Class.	PID/FID (ppm)
0	2 to 4			42	Fill material to 3.5, contains little burnt materia Silt/little fine/medium sand, some clay, bottom 5" Bottom 5" wet	OL	0
4	4 to 6			46	Brown trace clay/fine sand , tracen gravel/sand 4 to 6 ft Light brn Wet at 4 ft	OL	0
8							

Penetration Resistance			
Granular Soils		Cohesive Soils	
Blows/ft	Density	Blows/ft	Density
<4	V. Loose	<2	V. Soft
4 - 10	Loose	2 - 4	Soft
10 - 30	M. Dense	4 - 8	M. Stiff
30 - 50	Dense	8 - 15	Stiff
>50	V. Dense	15 - 30	V. Stiff
		>50	Hard

Proportions
Trace: 0 - 10%
Little: 10 - 20%
Some: 20 - 35%
And: 35 - 50%

Water Content
D - Dry
M - Moist
W - Wet

Notes and Comments:

APPENDIX B

GEOPHYSICAL SURVEY DATA

GEOPHYSICS GPR INTERNATIONAL, INC.

190 Littleton Road, Unit G
Westford, MA 01886

Tel: (978) 589-8100
Fax: (978) 589-8102
Email: gprbos@earthlink.net

December 8, 2000

GPR Contract No. B00321

Mr. Jeff Donovan
Aneptek Corporation
209 West Central Street
Natick, MA 01760

Introduction

Geophysics GPR International, Inc., under a directive of Aneptek Corporation performed geophysical investigations at two sites at the Hancock Air National Guard Base, Syracuse, New York. The tasks were set out in our proposal SB99714, dated December 21, 1999.Metal detection (EM61) surveys were completed to locate subsurface metallic objects that may include buried drums.

Site and Area Conditions

The Hancock Air National Guard Base is located in Syracuse, New York; the surveys were performed on two sites, designated Site 4 and Site 9. Site 4 included a small portion of a paved area, and an adjacent wooded area including heavy brush requiring significant clearing. Site 9 included some brushy areas as well as heavily modified terrain (excavations, earth mounds, debris, etc.) Metallic objects (primarily debris) were visible at and near the surface at both sites. Movable metal debris was removed from each survey area prior to data acquisition.

Metal Detection (EM61) Method

The metal detection (EM61) method employs an electromagnetic (EM) energy source and sensors to measure the response of buried metals by generating an EM pulse 150 times per second and measuring during the off-time between pulses. After each pulse, secondary EM fields are briefly induced in the moderately conductive soils, and for a longer time in the surface and buried metallic objects.

During the measuring time between each EM pulse, the system waits until the response from the soils dissipates, and then measures the prolonged metal response. By sensing only the response from the buried metal, the EM61 detects targets that would be otherwise missed.

Equipment and Survey Procedure

The metal detection survey was accomplished using a Geonics EM61 metal detector. Each reading of the subsurface response, with one coil for near-surface response and another coil for deeper penetration, was automatically stored in the memory portion of the unit along with the coordinates of the station, time, date, and statistical error. The data were transferred to a computer for further processing.

The depth of penetration at a typical site for small objects, such as a single metallic drum, is about ten feet below ground surface. Larger objects, such as a UST, can be detected at greater depths, with the depths of penetration generally limited to about twenty feet. In general, the horizontal accuracy of the EM61 method is within one to two feet.

EM61 surveys were performed on November 16, 2000 (Site 9), and November 17, 2000 (Site 4). Grid systems were established in each of the two areas. Grids were referenced to fences and other site features. Grid nodes were marked on the ground at 10 foot intervals with paint and at 50 foot intervals with stakes and flagging. EM61 readings were made at 5 foot intervals along grid lines spaced 5 feet apart, in order to provide complete coverage (grid nodes shown on Figures 1 and 2 are spaced 5 feet apart, corresponding to EM61 stations).

Processing and Interpretation

EM61 readings were downloaded to a computer and processed. Differential calculations were performed to help exclude signals from near surface metallic objects. The resulting values were contoured at various intervals, and the contour maps were examined for significant anomalies. The contour maps show the variation of the measured parameter across each site: EM61 millivolt response. The EM61 response is plotted as millivolts, the standard value for this type of survey. High values of this parameter indicate the presence of buried metallic objects, with peak values located directly at source object locations. Higher values generally indicate larger masses of metallic material.

RESULTS

Site 4

The processed EM61 data from Site 4 are shown on Figure 1. Inspection of Figure 1 reveals the following features. The general character of the EM61 response at Site 4 suggests the presence of numerous subsurface metal objects.

A significant linear anomaly is located near the edge of the survey area (grid coordinates 13N, 5-60E); this anomaly most likely originates from a buried steel culvert, and an automobile parked at the edge of the survey area.

Fifteen individual and/or grouped anomalies are located throughout the survey area. The highest values of conductive concentrations are shown in yellow and red. The locations of peak values of these anomalies are shown on Figure 1 by circles. These locations correspond to the following grid coordinates:

(27N, 7W); (48N, 7E); (35N, 15E); (30N, 35E); (40N, 35E); (68N, 43E); (20N, 55E); (35N, 55E); (40N, 60E); (30N, 65E); (45N, 90E); (25N, 95E); (40N, 110E); (35N, 120E); (20N, 120E).

EM61 values on grid lines 50N through 65N exhibited extreme variations. It is possible that

these values represent a significant mass of metallic material buried at locations along these lines. However various considerations suggest that it is more likely that these values represent interference with the instrument from an exterior source, possibly high frequency transmissions from somewhere on the air base.

Site 9

The processed EM61 data from Site 9 are shown on Figure 2. The measured parameter and other characteristics of Figure 2 are identical to that shown on Figure 1. Inspection of Figure 2 reveals the following features. The general character of the EM61 response at Site 9 indicates that most of the site is free of significant concentrations of subsurface metallic objects. The anomalies that are present are located primarily in the easterly portion of the site.

Ten individual and/or grouped anomalies are located throughout the survey area. The highest values of conductive concentrations are shown in yellow and red. The locations of peak values of these anomalies are shown on Figure 2 by circles. These locations correspond to the following grid coordinates:

(57N, 207W); (0N, 128W); (8N, 97W); (90N, 97W); (100N, 87W); (65N, 80W); (100N, 65W); (58N, 40W); (50N, 20W); (70N, 10W).

CONCLUSIONS

- EM61 surveys were performed on two areas at the Hancock Air National Guard Base in Syracuse New York, to locate buried metallic objects that may include steel drums.

- EM61 results in Site 4 suggest the presence of numerous concentrations of metal objects in the subsurface. Fifteen separate EM anomalies were identified without visible source objects.

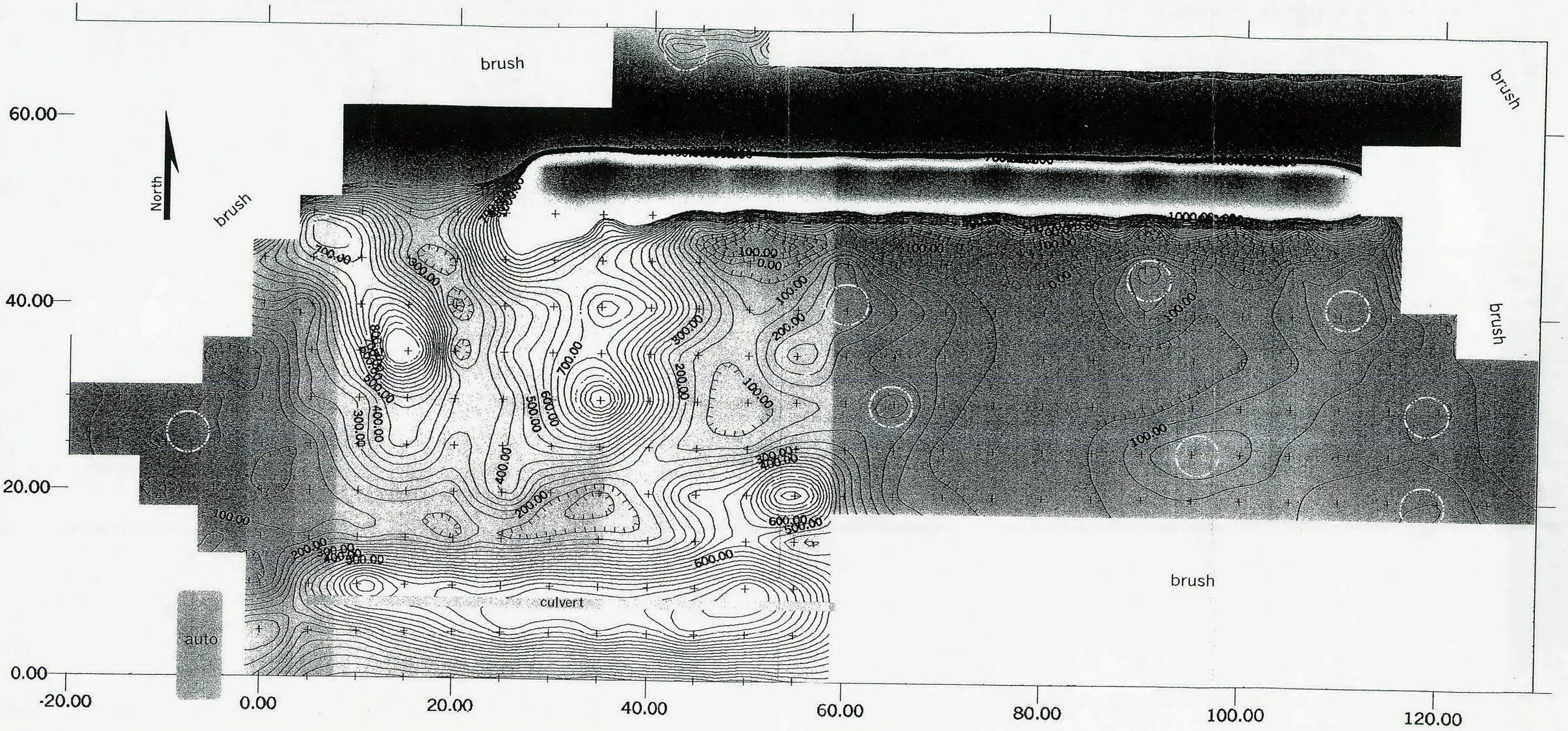
- EM61 results in Site 9 suggest the presence of a few scattered metal objects and also of several concentrations of buried metal. Ten separate EM anomalies were identified without visible source objects.

Geophysics GPR International is pleased to have performed this geophysical service and welcomes the opportunity to work again with your firm.

Sincerely,

Mark Kick

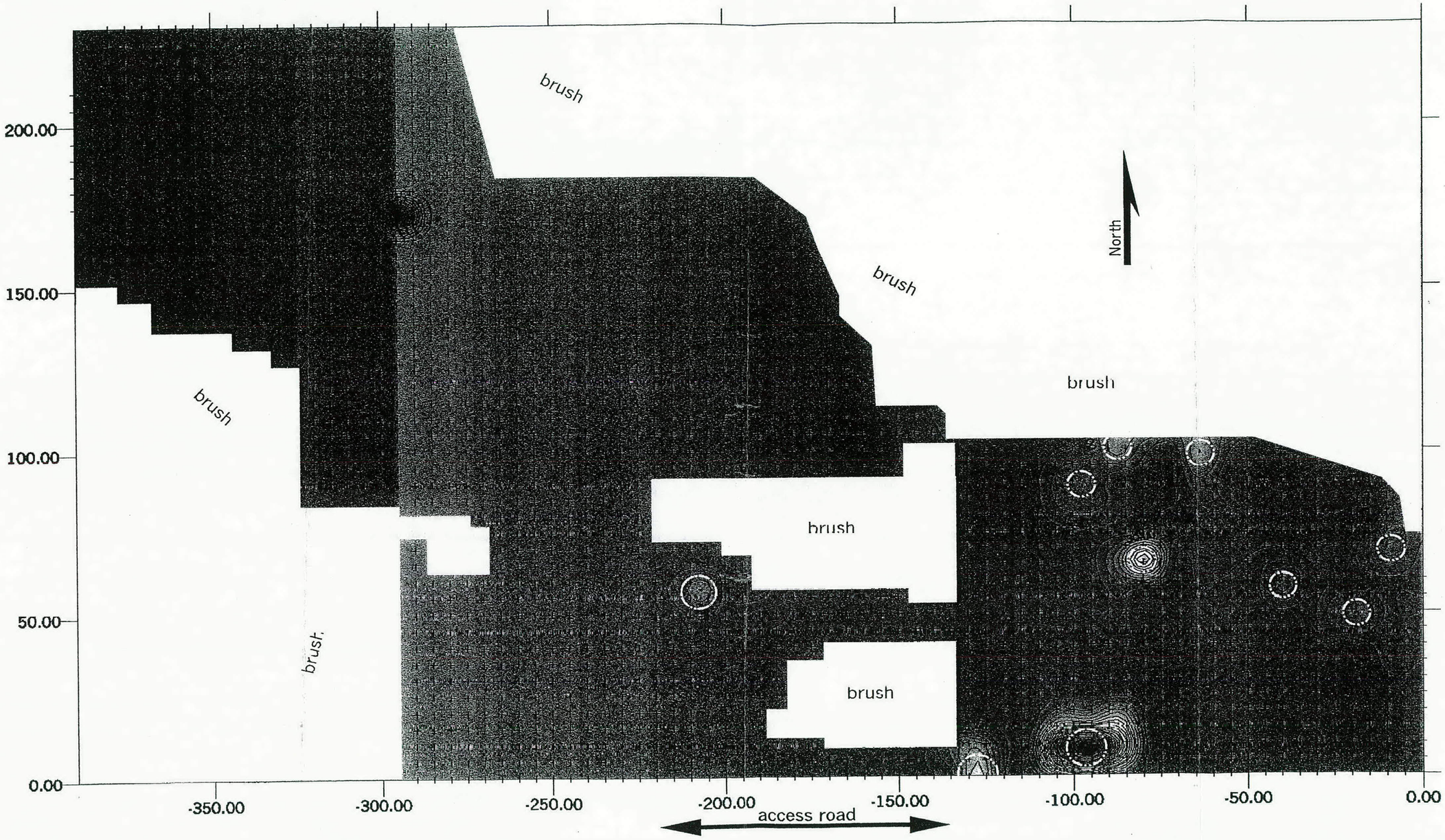
Mark Kick
Regional Manager



1 inch = 10 feet.
Contour interval: 50 millivolts
Grid coordinates are marked in the field.
Locations are approximate.
Circles indicate likely concentrations of subsurface metal.

Figure 1
Em61 Response
Site 4
Hancock Air National Guard Base
Syracuse, New York

Geophysics GPR International, Inc.
File: B00321 November 2000



1 inch = 30 feet.
Contour interval: 20 millivolts
Grid coordinates are marked in the field.
Locations are approximate.
Circles indicate likely concentrations of subsurface metal.

Figure 2
Em61 Response
Site 9
Hancock Air National Guard Base
Syracuse, New York

APPENDIX C

CHAIN OF CUSTODY

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: AMEMEK	Client Project # / Project Name: HANCOCK SA
Client Contact: JEFF [illegible]	Phone #: 508 650-1068
Site Location (city/state): HANCOCK ANGB	Special Turnaround Time: 24 HR (Lab Notification required)

Sample Location: HANCOCK ANGB	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1) SVOC 8270	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
SITE 4 MW-17 MS/MSD	4/12/01	1146	GW	GRAB		3	✓										MS/MSD
SITE 4 MW-117	↓	1155	↓	↓		1	✓										
SITE 9 SB-04 GW	↓	1606	↓	↓		1	✓										
SITE 11 SB-03 GW	↓	1710	↓	↓		1	✓										
SITE 11 SB-04 GW	4/13/01	0800	↓	↓		1	✓										

parameter and method	sample bottle: type	size	pres.
1) SVOC 8270	AMBER GLASS	LITER	NO
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) J. BOWMAN

Company: AMEMEK

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	4/13/01	0900	
	4/13/01	[illegible]	Rec'd for Lab by: (Signature) [signature]

Syracuse Rochester Buffalo Albany Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.

6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: ANDPTEK

Client Project # / Project Name: 99170,31 HANCOCK SA

Client Contact: JEFF DONOVAN

Phone #:

Site Location (city/state): HANCOCK AFB SYRACUSE NY

Sample Location: HANCOCK AFB	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
SITE 9 SB-01 2-4 FT	11/27/00	1450	SOIL	GRAB		2	X	X	X	X							MS/MSD
SITE 9 SB-01 4-7 FT		1500				2	X	X	X	X							
~~SITE 9 SB-01~~ DO NOT RUN																	
SITE 9 SB-11 4-8 FT		1510				2	X	X	X	X							
SITE 9 SB-01 10-12 FT		1515				2	X	X	X	X							
SITE 9 SB-02 6-7 FT	11/28/00	1430				2	X	X	X	X							
SITE 9 SB-02 8-10 FT		1435				2	X	X	X	X							
SITE 9 SB-03 0-2 FT		1350				2	X	X	X	X							
SITE 9 SB-03 2-4 FT		1355				2	X	X	X	X							

Special Turnaround Time_____ (Lab Notification required)

parameter and method	sample bottle: type	size	pres.
1) VOC (8021 - TCL)	GLASS	40Z	4°C
2) SVOC (8270C - TCL)	GLASS		
3) PCB (8082)			
4) TAL METALS (6010B)			
5)			
6)			
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print)

Company:

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC:_____

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	11/29/00	1230	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Rec'd for Lab by: (Signature)
	11/29/00	1230	[signature]

Upstate Laboratories, Inc.

6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client:	Client Project # / Project Name
Huotek	99170.31 Hancock

Client Contact:	Phone #	Site Location (city/state)
Jeff Donovan	3211 ext 1048	Syracuse, New York

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1) VOCs	2) SVOCs	3) PCBs	4) Metals	5)	6)	7)	8)	9)	10)	Special Turnaround Time ____ (Lab Notification required) Remarks
Site 11 SB-1 2-4 ft	11/29/00	1630	Soil	G		2	X	X	X	X							
Site 11 SB-1 4-6 ft	11/29/00	1635	Soil	G		2	X	X	X	X							
Site 11 SB-01 6-8 ft	11/29/00	1640	Soil	G		2	X	X	X	X							
Site 11 SB-02 2-4 ft	11/29/00	1600	Soil	G		2	X	X	X	X							
Site 11 SB-2 4-6 ft	11/29/00	1610	Soil	G		2	X	X	X	X							MS/MSD Also
Site 11 SB-02 6-8 ft	11/29/00	1620	Soil	G		2	X	X	X	X							
Site 11 SB-04 GW	11/29/00	1800	~~Soil~~ H2O	G		5	X	X	X	X							
Site 11 SB-03 GW	11/29/00	1700	H2O	G		5	X	X	X	X							
TB-113000	-	-	H2O	G		1	X										Trip Blank

parameter and method	sample bottle:	type	size	pres.
1) VOCs (TCL 8021)	Soil	Glass	4oz	—
	H2O	↓	40ml	HCL
2) SVOCs (TCL-8270C)		↓	8oz	—
		↓	1L	—
3) PCBs (Method 8082)		↓	8oz	—
		↓	1L	—
4) Metals (TAL Method 6010B)		↓	8oz	—
		Poly	500ml	HNO3
5)				
6)				
7)				
8)				
9)				
10)				

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) Jeff Donovan

Company: Ampotek

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ________

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[illegible signature]	11/30/00	4:35	

Relinquished by: (Signature)	Date	Time	Rec'd for Lab by: (Signature)
	11/30/00	[illegible]	[illegible signature]

Upstate Laboratories, Inc.

6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: AMEC

Client Project # / Project Name: 99170.31 HANCOCK AIR B

Client Contact: JEFF DONOVAN

Phone #: SAME

Site Location (city/state): SYRACUSE, NY

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
SITE 1 CS-01	11/28/00	10 45	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 CS-02	11/28/00	10 30	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 CS-03	11/28/00	10 15	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 CS-04	11/28/00	10 00	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 CS-22	11/28/00	1100	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 9 SB-04 02 FT	11/28/00	1500	SOIL	GRAB		2	X	X		X	X						
SITE 9 SB04 24 FT	11/28/00	1510	SOIL	GRAB		2	X	X		X	X						
SITE 9 SB-04 GW	11/28/00	1315	H2O	GRAB		5	X	X		X	X						
TB-112800	11/28/00	-	H2O	-		1	X										TPH Bottle

parameter and method	sample bottle: type	size	pres.
1) VOCs - (TCL 8021)	GLASS	40Z	4°C
2) SVOCs - (TCL - 8270C)		QT	
3) PESTICIDES (8081)			
4) PCBs (8082)			
5) TAL METALS (6010B)			
6) TPH (8015B)			
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Special Turnaround Time_____ (Lab Notification required)

Sampled by: (Please Print)

Company:

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC _____

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Donovan	11/29/00	1230	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date 11/29/00	Time 1230	Rec'd for Lab by: (Signature)

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: ANEPTEK
Client Project # / Project Name: 99170.31 HANCOCK ANG B
Client Contact: JEFF DONOVAN
Phone #: (508) 652 7348
Site Location (city/state): SYRACUSE, NY
Special Turnaround Time ______ (Lab Notification required)

Sample Location	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
SITE 1 SB-04 0-2 FT	11/27/00	1600	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SB-03 0-2 FT	11/27/00	1615	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SB-02 0-2 FT	11/27/00	1630	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SB-01 0-2 FT	11/27/00	1645	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SS-01	11/28/00	810	SOIL	GRAB		2	X	X	X	X	X	X					MS/MSD
SITE 1 SS-02	11/28/00	825	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SS-03	11/28/00	840	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SS-04	11/28/00	850	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SS-11	11/28/00	900	SOIL	GRAB		2	X	X	X	X	X	X					

parameter and method	sample bottle: type	size	pres.
1) VOCS (METHOD 8021 TCL)	GLASS	4 oz	4°C
2) SVOCS (METHOD 8270C-TCL)	GLASS	QT	4°C
3) PESTICIDES (METHOD 8081)	GLASS	QT	4°C
4) PCBS (METHOD 8082)	GLASS	QT	4°C
5) TAL METALS (METHOD 6010B)	GLASS	QT	4°C
6) TPH (METHOD 8015B)	GLASS	QT	4°C
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) JEFF DONOVAN
Company: ANEPTEK CORP

ULI Internal Use Only
Delivery (check one): ☐ ULI Sampled ☐ Pickup ☐ Dropoff ☐ CC ______

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Don[signature]	11/28/00	1140	
Relinquished by: (Signature)	11/28/00	1140	Rec'd for Lab by: (Signature) K Cuny[signature]

Syracuse Rochester Buffalo Albany Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client:	Client Project # / Project Name	Special Turnaround Time ______ (Lab Notification required)
ANGPTEC	99170.31 HANCOCK ANGB	

Client Contact:	Phone #	Site Location (city/state)
JEFF DONOVAN	768 6507148	SYRACUSE, NEW YORK

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
SITE 1 SB-05 0-2 FT	11/28/00	1146	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SB-05 8-10 FT	11/28/00	1150	SOIL	GRAB		2	X	X	X	X	X	X					
SITE 1 SB05 10-12 FT	11/28/00	1155	SOIL	GRAB		2	X	X	X	X	X	X					
TB-112800		—	H2O	—		1	X										

parameter and method	sample bottle: type	size	pres.
1) VOCS (METHOD 8021 TCL)	GLASS	4 OZ	4°C
2) SVOCS (METHOD 8270C)	↓	QT	↓
3) PESTICIDES (METHOD 8081)	↓	↓	↓
4) PCBS (METHOD 8082)	↓	↓	↓
5) TAL METALS (METHOD 6010B)	↓	↓	↓
6) TPH (METHOD 8015B)	↓	↓	↓
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print)

Company:

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ______

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Donovan	11/28/00	1140	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Rec'd for Lab by: (Signature)
	11/28/00	1140	K. Crump

Upstate Laboratories, Inc.

6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: HANCOCK

Client Project # / Project Name: 99170.31 HANCOCK

Client Contact: JEFF DONOVAN

Phone #: 552-1648

Site Location (city/state): SYRACUSE, NEW YORK

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1) VOCs	2) SVOCs	3) Pesticides	4) PCBs	5) Metals	6) TPH	7)	8)	9)	10)	Remarks
SITE 1 MW-09	12-01-00	1300	H2O	GRAB		7	X	X	X	X	X	X					
SITE 1 MW-11	12-01-00	1350				7	X	X	X	X	X	X					
SITE 1 MW-12	12-01-00	1120				7	X	X	X	X	X	X					MS/MSD here
SITE 1 MW-13	12-01-00	1000				7	X	X	X	X	X	X					
SITE 1 MW-13D	12-01-00	1130				7	X	X	X	X	X	X					
SITE 1 MW-113	12-01-00	1010				7	X	X	X	X	X	X					
FB-SB-120100	12-01-00	1250				7	X	X	X	X	X	X					Soil Waste
FB-GW-120100	12-01-00	1240				7	X	X	X	X	X	X					Groundwater
FB-120100	12-01-00	1230				7	X	X	X	X	X	X					Field Blank
TB-120100	—	—				17	X	X	X	X	X	X	18				VOCs only!

Special Turnaround Time_____ (Lab Notification required)

Remarks

parameter and method	sample bottle:	type	size	pres.
1) VOCs (Method 8021 - TCL)		GLASS	40mL	HCL
2) SVOCs (Method 8270C - TCL)			1 Liter	—
3) Pesticides (Method 8081)				—
4) PCBs (Method 8082)				—
5) Metals (Method 6010 - TAL)		Poly	500mL	HNO3
6) TPH (Method 8015 B)		GLASS	1 Liter	—
7)				
8)				
9)				
10)				

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) JEFF DONOVAN

Company: HANCOCK

ULI Internal Use Only

Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC_____

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	12/1/00	1010	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Rec'd for Lab by: (Signature)

Upstate Laboratories, Inc.

6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client:	Client Project # / Project Name	Phone #	Site Location (city/state)
Amstek	99170.31 Hancock ANGB	508 650-1048	Syracuse, New York

Client Contact: Jeff Donovan

Special Turnaround Time ______ (Lab Notification required)

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
Site 1 SB-08 0-2 Ft	11/28/00	820	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-08 6-8 Ft	11/28/00	830	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-08 8-10 Ft	11/28/00	845	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-07 0-2 Ft	11/28/00	900	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-07 4-8 Ft	11/28/00	945	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-07 8-10 Ft	11/28/00	1010	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-77 4-8 Ft	11/28/00	950	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-06 0-2 Ft	11/28/00	1019	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-06 4-8 Ft	11/28/00	1020	Soil	Grab		2	X	X	X	X	X	X					
Site 1 SB-06 8-10 Ft	11/28/00	1030	Soil	Grab		2	X	X	X	X	X	X					

parameter and method	sample bottle: type	size	pres.
1) VOCs (8021-TCL)	Glass	4 oz	4°C
2) SVOCs (8270C-TCL)	↓	QT	↓
3) Pesticides (Method 8081)	↓	↓	↓
4) PCBs (Method 8082)	↓	↓	↓
5) TAL Metals (Method 6010B)	↓	↓	↓
6) TPH (8015B)	↓	↓	↓
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print)

Company:

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ______

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	11/27/00	1140	

Relinquished by: (Signature)	Date	Time	Rec'd for Lab by: (Signature)
	11/29/00	1140	[signature]

Syracuse Rochester Buffalo Albany Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client:	Client Project # / Project Name	Site Location (city/state)
ANEPTEK	99170.31 HANCOCK ANG BASE	SYRACUSE, NEW YORK

Client Contact:	Phone #
JEFF DONOVAN	(528) 6501148

Special Turnaround Time________ (Lab Notification required)

Sample Location	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
SITE 4 SB-04 GW	11/29/00	950	H2O	G		5	X	X	X	X							
SITE 4 SB-44 GW	11/29/00	1015	H2O	G		5	X	X	X	X							
SITE 4 SB-04 2-4 FT	11/28/00	845	SOIL	G		2	X	X	X	X							
SITE 4 SB-04 4-6 FT	11/29/00	850	SOIL	G		2	X	X	X	X							
SITE 4 SB-01 2-4 FT	11/29/00	930	SOIL	G		2	X	X	X	X							
SITE 4 SB-01 5-7 FT	11/29/00	935	SOIL	G		2	X	X	X	X							
SITE 4 SB-02 2-4 FT	11/29/00	1015	SOIL	G		2	X	X	X	X							
SITE 4 SB-02 4-6 FT	11/29/00	1020	SOIL	G		2	X	X	X	X							
SITE 4 SB-02 8-10 FT	11/29/00	1030	SOIL	G		2	X	X	X	X							
SITE 4 SB-22 8-10 FT	11/29/00	1035	SOIL	G		2	X	X	X	X							

parameter and method	sample bottle:	type	size	pres.
1) VOCS (METHOD 8021 - TCL)	SOIL	GLASS	4 oz	4°C
	H2O	GLASS	40 mL	HCL
2) SVOCS (METHOD 8270C - TCL)	SOIL	GLASS	QT	4°C
	H2O	GLASS		4°C
3) PCBS (METHOD 8082)	SOIL	GLASS	QT	4°C
	H2O	GLASS		4°C
4) METALS (TAL - GC 11 B)	SOIL	GLASS	QT	4°C
	H2O	POLY	500 mL	HNO3
5)				
6)				
7)				
8)				
9)				
10)				

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) JEFF DONOVAN

Company: ANEPTEK CORP

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ____________

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Donovan	11/29/00	1230	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date 11/29/00	Time 1532	Rec'd for Lab by: (Signature) K Clancy

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client:		Client Project # / Project Name	
Aneptek		99170-31 / Hancock ANG Base	
Client Contact:	Phone #	Site Location (city/state)	
Jeff Donovan	(508) 6507048	Syracuse, New York	

Special Turnaround Time ______ (Lab Notification required)

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	Remarks
Site 4 SB-03 2-4 ft	11/29/00	1110	Soil	G		2	✓	✓	✓	✓							
Site 4 SB-03 4-6 ft	11/29/00	1130	Soil	G		2	✓	✓	✓	✓							

parameter and method	sample bottle: type	size	pres.
1) VOCs (method 8021-TCL)	Glass	4oz	4°C
2) SVOCs (method 8270C-TCL)	Glass	QT	↓
3) PCBs (method 8082)	Glass	QT	↓
4) Metals (method 6010B TAL)	Glass	QT	↓
5)			
6)			
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) Jeff Donovan
Company: Aneptek

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☒ Pickup ☐ Dropoff
☐ CC ______

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Donovan	11/29/00	1230	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date 11/29/00	Time 1130	Rec'd for Lab by: (Signature) KClump

Syracuse Rochester Buffalo Albany Binghamton Fair Lawn (NJ)

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: AMEPTEK
Client Project # / Project Name: 99170.31 HANCOCK ANGB
Client Contact: JEFF DONOVAN
Phone #: 518 650 4048
Site Location (city/state): SYRACUSE, NEW YORK

Sample Location:	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1) VOCS	2) SVOCS	3) PCBS	4) METALS	5) TPH	6)	7)	8)	9)	10)	Special Turnaround Time ____ (Lab Notification required) Remarks
SITE 9 SB-02 2-4 FT	11/30/00	830	SOIL	G		2	X	X	X	X	~~X~~						NO TPH
SITE AOC 1-3 SD-1A	11/30/00	1500	SOIL	G		1				X	X						1 - 8oz JAR
SITE AOC 1-3 SD-2A	11/30/00	1515	SOIL	G		1				X	X						1 - 8oz JAR
SITE AOC 1-3 SD-3A	11/30/00	1530	SOIL	G		1				X	X						1 - 8oz JAR
SITE AOC 1-3 SD-22A	11/30/00	1520	SOIL	G		1				X	X						1 - 8oz JAR
SITE 11 SB-03 5-6 FT	11/29/00	1314	SOIL	G		2	X	X	X	X							
SITE 11 SB-44 4-6 FT	11/29/00	1320	SOIL	G		2	X	X	X	X							
SITE 11 SB-04 2-4 FT	11/29/00	1310	SOIL	G		2	X	X	X	X							
SITE 11 SB-04 4-6 FT	11/29/00	1315	SOIL	G		2	X	X	X	X							
SITE 11 SB-03 2-4 FT	11/29/00	1400	SOIL	G		2	X	X	X	X							

parameter and method	sample bottle: type	size	pres.
1) VOCS (TCL - METHOD 8021)	G	4oz	4°C
2) SVOCS (METHOD 8270C)	↓	QT	↓
3) PCBS (METHOD 8082)	↓	↓	↓
4) METALS (TAL METHOD 6010B)	↓	↓	↓
5) TPH (METHOD 8015B)	↓	↓	↓
6)			
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) JEFF DONOVAN
Company: AMEPTEK

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ____

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Don[signature]	11/30/00	435	
Relinquished by: (Signature)	Date 11/30/00	Time [illegible]	Rec'd for Lab by: (Signature) [signature]

Upstate Laboratories, Inc.
6034 Corporate Drive • E. Syracuse, NY 13057-1017
(315) 437 0255 Fax 437 1209

Chain Of Custody Record

Client: ANGPTEK		Client Project # / Project Name: 99170.31 HANCOCK	
Client Contact: JEFF DONOVAN	Phone # 364 650-1048	Site Location (city/state): SYRACUSE, NEW YORK	

Sample Location	Date	Time	Matrix	Grab or Comp.	ULI Internal Use Only	No. of Containers	1) VOCS	2) SVOCS	3) PESTICIDES	4) PCBS	5) METALS	6) TPH	7)	8)	9)	10)	Special Turnaround Time ______ (Lab Notification required) Remarks
JDW-DECON	120100	1145	H2O	G		7	X	X	X	X	X	X					

parameter and method	sample bottle: type	size	pres.
1) VOCS (method 8021-TCL)	GLASS	40mL	HCL
2) SVOCS (method 8270C TCL)	↓	1 Liter	—
3) PESTICIDES (method 8081)	↓	↓	—
4) PCBS (method 8082)	↓	↓	—
5) TAL METALS (method 6010B)	Poly	500mL	HNO3
6) TPH (method 8015B)	Glass	1 Liter	—
7)			
8)			
9)			
10)			

Note: The numbered columns above cross-reference with the numbered columns in the upper right-hand corner.

Sampled by: (Please Print) JEFF DONOVAN

Company: ANGPTEK

ULI Internal Use Only
Delivery (check one):
☐ ULI Sampled
☐ Pickup ☐ Dropoff
☐ CC ______

Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Jeff Don[signature]	12/1/00	1410	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Relinquished by: (Signature)	Date 12/1/00	Time 1410	Rec'd for Lab by: (Signature) K[signature]

Syracuse Rochester Buffalo Albany Binghamton Fair Lawn (NJ)

APPENDIX D

DATA VALIDATION REPORTS

April 4, 2001

Mr. Jeff Donovan
Aneptek Corporation
209 West Central Street
Natick, MA 01760

Subject: Job 99170.31
Upstate Laboratories, Inc.
Hancock Air National Guard Base, Syracuse, NY
Data Validation

Semivolatiles:	59/Soil/	SITE 1 SB08(0-2), SITE1 SB08(4-8), SITE1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8), SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE 1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12), SITE 1 CS01, SITE 1 CS02, SITE 1 CS03, SITE 1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE 4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB04(2-4), SITE 4 SB01(5-7), SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE 4 SB03(4-6), SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)
	12/Aqueous/	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GW, SITE 11 SB04GW, SITE 11 SB03GW, SITE 1 MW09, SITE 1 MW11, SITE 1 MW12, SITE 1 MW13, SITE 1 MW13D, SITE 1 MW113, IDW-DECON
	3/Field Blanks/	RB-SB-120100, RB-CS-120100, FB-120100
	Field Duplicates:	(SB07(4-8)/SB77(4-8)), (SS-01/SS-11), (CS-02/CS-22), (MW13/MW113), (SB02(8-10)/SB22(8-10)), (SB04GW/SB44GW), (SB01(4-8)/SB11(4-8)) (SB04(4-6)/SB44(4-6))

99170.31

Dear Mr. Smith:

A data validation, in accordance with the National Functional Guidelines for Evaluating Organic Analyses, EPA 540/R-94/012, dated February 1993 was performed on the analytical data for fifty-nine soil samples and fifteen aqueous samples collected by Aneptek on November 27, 28, 29, 30 and December 1, 2000 from the Hancock Air National Guard Base in Syracuse, NY. The soil and aqueous samples were analyzed for semivolatiles (EPA method SW-846 8270).

Semivolatile

The organic data validation was based on the following parameters:

	• Data Completeness
	• Preservation and Technical Holding Times
*	• Gas Chromatograph/Mass Spectrometry (GC/MS) Tunes
	• Continuing Calibrations
	• Blanks
	• Surrogate Recoveries
	• Internal Standards
	• Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
	• Blank Spike
*	• Field Duplicate Results

* - All criteria were met.

Summary:

All semivolatile results are useable for project objectives with the exception of all results in samples SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GW, SITE 11 SB04GW and SITE 11 SB03GW which were rejected due to exceedance of extraction holding time. The result for 4-nitrophenol in sample SITE 1 MW12 was rejected due to matrix spike deficiencies. The results for hexachlorocyclopentadiene in samples SITE 1 SB08(0-2), SITE 1 SB08(6-8), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8) were rejected due to 0% recovery in the blank spike.

Data Completeness

The semivolatile continuing calibrations analyzed 12/19/00 and 1/7/01, instrument 15 and the calibrations analyzed 1/14/01 and 1/21/01, instrument 14, were not submitted with the data package. The calibrations were requested verbally and by fax from Upstate Laboratories, Inc. 4/4/01. The lab sent a requested continuing calibration analyzed 12/20/00, instrument 14. The calibration was received 4/20/01. The previously mentioned calibrations which were requested and not submitted, were associated with the following samples: SITE 1 SB7(4-8), SITE 1 SB7(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8), SITE 4 SB02(2-4), SITE 9 SB02(2-4), SITE 11 SB03(5-8), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6) and SITE 11 SB02(6-8).

Preservation and Technical Holding Times

The samples SITE1 CS01, SITE 1 CS02, SITE 1 CS03, SITE 1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4) were extracted three days outside of the required extraction holding time. The samples SITE 4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7) were extracted two days outside the required extraction holding time. The samples SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 4 SB03(2-4), SITE 4 SB03(4-6), SITE 9 SB02(2-4), were extracted five days outside the required extraction holding time. The samples SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8) were extracted six days outside of the required extraction holding time. Estimate the positive and nondetect results (Jh, UJh) for these samples.

The samples SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GW, SITE 11 SB04GW and SITE 11 SB03GW were extracted thirty-two to thirty-three days outside of the required extraction holding time. Estimate the positive and reject the nondetect results (Jh, Rh) for these samples.

Continuing Calibrations

Semivolatile:

Compounds that did not meet criteria in the continuing calibrations are summarized in the following tables.

Instrument ID	15	15	15	15
Compound	**CC 12/15/00**	**CC 12/18/00**	**CC 12/19/00**	**CC 1/7/01**
hexachlorobutadiene	X	X		
3-nitroaniline				
2,4-dinitrophenol	X			
2,4-dinitrotoluene				
diethylphthalate				
4-nitroaniline				
4-bromophenylphenylether	X			
hexachlorobenzene	X	X		
di-n-butylphthalate				
pyrene				
3,3'-dichlorobenzidine				
Samples Affected	**SITE 1 SB08(0-2), SITE 1 SB08(6-8), SITE 1 SB08(8-10), SITE 1 SB07(0-2)**	**QC samples**	**SITE 1 SB7(4-8)RE, SITE 1 SB7(8-10)RE, SITE 1 SB77(4-8)RE, SITE 1 SB6(0-2)RE, SITE 1 SB6(4-8)RE**	**SITE 4 SB02(2-4)**

Instrument ID	15	15	15	15
Compound	CC 1/11/01	CC 1/12/01	CC 1/14/01	CC 1/21/01
hexachlorobutadiene				
3-nitroaniline		X		
2,4-dinitrophenol	X			
2,4-dinitrotoluene		X		
diethylphthalate		X		
4-nitroaniline		X		
4-bromophenylphenylether				
hexachlorobenzene				
di-n-butylphthalate				
pyrene	X			
3,3'-dichlorobenzidine		X		
Samples Affected	**SITE 4 SB04GW**	**SITE 9 SB04GW, SITE 4 SB44GW, SITE 11 SB04GW, SITE 11 SB03GW**	**SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4)**	**SITE 11 SB02(4-6), SITE 11 SB02(6-8)**

The semivolatile continuing calibrations analyzed 12/19/00 and 1/7/01, instrument 15 and the calibrations analyzed 1/14/01 and 1/21/01, instrument 14, were not submitted with the data package. The calibrations were requested verbally and by fax from Upstate Laboratories, Inc. 4/4/01. The lab sent a requested continuing calibration analyzed 12/20/00, instrument 14. The calibration was received 4/20/01. The previously mentioned calibrations which were requested and not submitted, were associated with the following samples: SITE 1 SB7(4-8), SITE 1 SB7(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8), SITE 4 SB02(2-4), SITE 9 SB02(2-4), SITE 11 SB03(5-8), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6) and SITE 11 SB02(6-8). Estimate the positive and nondetected results (Jc,UJc) due to the lack of calibration data.

Blanks

The contaminants detected in the laboratory method , rinsate, field and trip blanks are summarized in the following table:

Compound	Blank Type	Associated Samples	Maximum Concentration	Action Level	CRQL (µg/L)
bis (2-ethylhexyl)phthalate	Method	All samples in this SDG	15 *u*g/L	150 *u*g/L	5

CRQL = Contract Required Quantitation Limit

Blank Actions:

- If the sample concentration was < the CRQL, qualify the compound as not detected (U) at the CRQL.
- If the sample concentration was > the CRQL and < the Action Level, qualify the compound as not detected (U) at the reported concentration.
- If the sample concentration was > the CRQL and > the Action Level, qualification of the data was not required.

Blank qualifications were not required.

Surrogate Recoveries

The following tables list the samples which yielded surrogate recoveries outside of control limits and the resulting validation actions:

Sample	Surrogate	Rec (%)	Control limits	Actions
SITE 1 SB77(4-8)	TBP	14%	19-122	No action required. Two base/neutral or acid surrogates need to be out of specification before qualifications are required.
SITE 1 CS01	2FP	0%	25-121	No action; reanalysis reported.
SITE 1 CS01	PHL-d5	12%	24-113	No action; reanalysis reported.
SITE 1 CS01	TBP	0%	19-122	No action; reanalysis reported.
SITE 1 CS01DL	2FP	0%	25-121	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS01DL	PHL-d5	13%	24-113	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS01DL	TBP	0%	19-122	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS02	2FP	0%	25-121	No action; reanalysis reported.
SITE 1 CS02	PHL-d5	12%	24-113	No action; reanalysis reported.
SITE 1 CS02	TBP	0%	19-122	No action; reanalysis reported.
SITE 1 CS02DL	2FP	0%	25-121	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS02DL	PHL-d5	16%	24-113	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.

SITE 1 CS02DL	TBP	0%	19-122	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS03	2FP	0%	25-21	No action; reanalysis reported.
SITE 1 CS03	PHL-d5	18%	24-113	No action; reanalysis reported.
SITE 1 CS03	TBP	0%	19-122	No action; reanalysis reported.
SITE 1 CS03DL	2FP	0%	25-121	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS03DL	TBP	0%	19-122	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS04	2FP	0%	25-121	No action; reanalysis reported.
SITE 1 CS04	PHL-d5	16%	24-113	No action; reanalysis reported.
SITE 1 CS04	TBP	0%	19-122	No action; reanalysis reported.
SITE 1 CS04DL	2FP	0%	25-121	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS04DL	PHL-d5	15%	24-113	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS04DL	TBP	0%	19-122	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS22	2FP	0%	25-121	No action; reanalysis reported.
SITE 1 CS22	PHL-d5	12%	24-113	No action; reanalysis reported.
SITE 1 CS22	TBP	0%	19-122	No action; reanalysis reported.

SITE 1 CS22DL	2FP	0%	25-121	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS22DL	PHL-d5	16%	24-113	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 1 CS22DL	TBP	0%	19-122	Estimate the positive and nondetected acid results (Js,UJs) associated with the (diluted) low surrogate recovery.
SITE 4 SB44GW	2FP	19%	21-110	No action required. Two base/neutral or acid surrogates need to be out of specification before qualifications are required.
SITE4 SB44GWRE	2FP	18%	21-110	No action required. Two base/neutral or acid surrogates need to be out of specification before qualifications are required.
SITE11 SB01(2-4)	TBP	17%	19-122	No action required. Two base/neutral or acid surrogates need to be out of specification before qualifications are required.
FBP = 2-Fluorobiphenyl TBP = 2,4,6-Tribromophenol 2FP = 2-Fluorophenol				

Internal Standards

The following table lists the internal standard recoveries found outside of control limits and the resulting validation actions:

Sample	Internal standard	Actions
SITE 1 SB08(0-2)	1,4-Dichlorobenzene-d4	No action; reanalysis reported.
SITE 1 SB08(0-2)	Naphthalene-d8	No action; reanalysis reported.
SITE 1 SB08(0-2)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB08(0-2)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB08(0-2)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB08(0-2)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB08(6-8)	1,4-Dichlorobenzene-d4	No action; reanalysis reported.

Sample	Internal standard	Actions
SITE 1 SB08(6-8)	Naphthalene-d8	No action; reanalysis reported.
SITE 1 SB08(6-8)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB08(6-8)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB08(6-8)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB08(6-8)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB08(8-10)	1,4-Dichlorobenzene-d4	No action; reanalysis reported.
SITE 1 SB08(8-10)	Naphthalene-d8	No action; reanalysis reported.
SITE 1 SB08(8-10)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB08(8-10)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB08(8-10)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB08(8-10)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB07(0-2)	1,4-Dichlorobenzene-d4	No action; reanalysis reported.
SITE 1 SB07(0-2)	Naphthalene-d8	No action; reanalysis reported.
SITE 1 SB07(0-2)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB07(0-2)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB07(0-2)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB07(0-2)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB7(4-8)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB7(4-8)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB7(4-8)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB7(4-8)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB07(4-8)RE	Phenanthrene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB07(4-8)RE	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).

Sample	Internal standard	Actions
SITE 1 SB07(4-8)RE	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB07(8-10)	Naphthalene-d8	No action; reanalysis reported.
SITE 1 SB07(8-10)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB07(8-10)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB07(8-10)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB07(8-10)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB07(8-10)RE	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB07(8-10)RE	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB77(4-8)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB77(4-8)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB77(4-8)RE	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB77(4-8)RE	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(0-2)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB06(0-2)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB06(0-2)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB06(0-2)RE	Acenaphthene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(0-2)RE	Phenanthrene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).

Sample	Internal standard	Actions
SITE 1 SB06(0-2)RE	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(0-2)RE	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(4-8)	1,4-Dichlorobenzene-d4	No action; reanalysis reported.
SITE 1 SB06(4-8)	Naphthalene-d8	No action; reanalysis reported.
SITE 1 SB06(4-8)	Acenaphthene-d10	No action; reanalysis reported.
SITE 1 SB06(4-8)	Phenanthrene-d10	No action; reanalysis reported.
SITE 1 SB06(4-8)	Chrysene-d12	No action; reanalysis reported.
SITE 1 SB06(4-8)	Perylene-d12	No action; reanalysis reported.
SITE 1 SB06(4-8)RE	1,4-Dichlorobenzene-d4	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(4-8)RE	Naphthalene-d8	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(4-8)RE	Acenaphthene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(4-8)RE	Phenanthrene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(4-8)RE	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SB06(4-8)RE	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS01	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).

Sample	Internal standard	Actions
SITE 1 SS01	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS11	1,4-Dichlorobenzene-d4	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS11	Naphthalene-d8	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS11	Acenaphthene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS11	Phenanthrene-d10	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS11	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 SS11	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 1 CS01	1,4-Dichlorobenzene-d4	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.
SITE 1 CS02	1,4-Dichlorobenzene-d4	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.
SITE 1 CS03	1,4-Dichlorobenzene-d4	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.
SITE 1 CS03	Chrysene-d12	No action; reanalysis reported.
SITE 1 CS03	Perylene-d12	No action; reanalysis reported.

Sample	Internal standard	Actions
SITE 1 CS22	1,4-Dichlorobenzene-d4	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.
SITE 4 SB44GW	Chrysene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 4 SB44GW	Perylene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 4 SB44GWRE	Chrysene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 4 SB44GWRE	Perylene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 9 SB03(0-2)	Chrysene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 9 SB03(0-2)	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 9 SB03(2-4)	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 4 SB03(4-6)	Perylene-d12	Estimate the positive and/or nondetect compounds associated with the internal standard (Ji/UJi).
SITE 11 SB04GW	1,4-Dichlorobenzene-d4	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GW	Naphthalene-d8	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GW	Acenaphthene-d10	Sample results previously rejected due to grossly exceeding extraction holding time.

Sample	Internal standard	Actions
SITE 11 SB04GW	Phenanthrene-d10	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GW	Chrysene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GW	Perylene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GWRE	1,4-Dichlorobenzene-d4	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GWRE	Naphthalene-d8	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GWRE	Acenaphthene-d10	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GWRE	Phenanthrene-d10	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GWRE	Chrysene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB04GWRE	Perylene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GWRE	1,4-Dichlorobenzene-d4	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GWRE	Naphthalene-d8	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GWRE	Acenaphthene-d10	Sample results previously rejected due to grossly exceeding extraction holding time.

Sample	Internal standard	Actions
SITE 11 SB03GWRE	Phenanthrene-d10	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GWRE	Chrysene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GWRE	Perylene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GW	Chrysene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.
SITE 11 SB03GW	Perylene-d12	Sample results previously rejected due to grossly exceeding extraction holding time.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Semivolatile:

Sample SITE 1 MW12 was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits in the MS/MSD analyses performed on sample SITE 1 MW12 and the resulting validation actions.

Compound	MS %Rec	MSD %Rec	MS/MSD RPD	Control Limits	Action
1,4-Dichlorobenzene	29	27	-	36-97	Estimate the nondetect result (UJm) in the unspiked sample.
N-nitroso-di-n-propylamine	30	27	-	41-116	Estimate the nondetect result (UJm) in the unspiked sample.
1,2,4-Trichlorobenzene	30	27	-	39-89	Estimate the nondetect result (UJm) in the unspiked sample.

4-Chloro-3-methylphenol	122	104	-	23-97	No action; compound not detected in unspiked sample.
Acenaphthene	38	33	-	46-118	Estimate the nondetect result (UJm) in the unspiked sample.
4-Nitrophenol	-	8	-	10-80	Reject the nondetect result (Rm) in the unspiked sample.
2,4-Dinitrotoluene	-	21	-	24-96	Estimate the nondetect result (UJm) in the unspiked sample.

Sample SITE 1 SS01 was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits in the MS/MSD analyses performed on sample SITE 1 SS01 and the resulting validation actions.

Compound	MS %Rec	MSD %Rec	MS/MSD RPD	Control Limits	Action
2,4-Dinitrotoluene	-	-	40	<38	Estimate the nondetect result (UJm) in the unspiked sample.
Pyrene	-	145	84	(26-127), <31	Estimate the nondetect result (UJm) in the unspiked sample.

Sample SITE 9 SB01(2-4) was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits in the MS/MSD analyses performed on sample SITE 9 SB01(2-4) and the resulting validation actions.

Compound	MS %Rec	MSD %Rec	MS/MSD RPD	Control Limits	Action
Phenol	111	-	-	26-90	No action; compound not detected in unspiked sample.
2-Chlcrophenol	128	-	-	25-102	No action; compound not detected in unspiked sample.

N-nitroso-di-n-propylamine	27	26	-	41-126	Estimate the nondetect result (UJm) in the unspiked sample.
1,2,4-Trichlorobenzene	30	27	-	38-107	Estimate the nondetect result (UJm) in the unspiked sample.
4-Chloro-3-methylphenol	105	-	-	26-103	No action; compound not detected in unspiked sample.
2,4-Dinitrotoluene	22	23	-	28-89	Estimate the nondetect result (UJm) in the unspiked sample.
Pyrene	-	33	-	35-142	Estimate the nondetect result (UJm) in the unspiked sample.

Sample SITE 11 SB02(4-6) was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits in the MS/MSD analyses performed on sample SITE 11 SB02(4-6) and the resulting validation actions.

Compound	MS %Rec	MSD %Rec	MS/MSD RPD	Control Limits	Action
Phenol	126	-	-	26-90	No action; compound not detected in unspiked sample.
2-Chlorophenol	154	-	46	25-102	Estimate the nondetect result (UJm) in the unspiked sample.
1,4-Dichlorobenzene	25	14	61	28-104	Estimate the nondetect result (UJm) in the unspiked sample.
N-nitroso-di-n-propylamine	29	18	46	41-126	Estimate the nondetect result (UJm) in the unspiked sample.
1,2,4-Trichlorobenzene	26	15	55	38-107	Estimate the nondetect result (UJm) in the unspiked sample.
4-Chloro-3-methylphenol	160	162	-	26-103	No action; compound not detected in unspiked sample.

4-Nitrophenol	150	146	-	11-114	No action; compound not detected in unspiked sample.

Blank Spike

The following table lists the blank spike, associated samples, compounds outside of the QC acceptance criteria and the resulting validation actions.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2699 RS1	hexachloroethane	33	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS2	phenol	15	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	nitrobenzene	34	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	1,2,4-trichlorobenzene	33	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	2,6-dinitrotoluene	40	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2699 RS1	acenaphthene	38	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	fluorene	39	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	4-bromophenylphenylether	49	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	phenanthrene	40	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2699 RS1	pyrene	41	SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GWRE, SITE 11 SB04GW, SITE 11 SB03GW	Sample results previously rejected due to grossly exceeding extraction holding time.
SA2670 RS1	hexachloroethane	34	SITE 1 MW09, SITE1 MW11, SITE1 MW12, SITE 1 MW13, SITE 1 MW13D, SITE 1 MW113, RB-SB-120100, RB-CS-120100, FB120100, IDW-DECON	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2671 RS1	1,3-dichlorobenzene	17	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	1,2-dichlorobenzene	17	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	hexachloroethane	17	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	nitrobenzene	20	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2671 RS1	isophorone	18	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	2-nitrophenol	21	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	2,4-dimethylphenol	22	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	bis(2-chloroethoxy)methane	22	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2671 RS1	2,4,6-trichlorophenol	25	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	acenaphthylene	21	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	2,6-dinitrotoluene	23	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	acenaphthene	23	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2671 RS1	2,4-dinitrotoluene	21	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	fluorene	22	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	4-chlorophenylphenylether	23	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	4-bromophenylphenylether	33	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2671 RS1	phenanthrene	27	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	anthracene	26	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	fluoranthene	24	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.
SA2671 RS1	pyrene	24	SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2673 RS1	acenaphthene	37	SITE 1 SB08(0-2), SITE 1 SB08(6-8), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8)	Estimate nondetect result (UJl) in associated samples.
SA2673 RS1	fluorene	39	SITE 1 SB08(0-2), SITE 1 SB08(6-8), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8)	Estimate nondetect result (UJl) in associated samples.
SA2673 RS1	phenanthrene	40	SITE 1 SB08(0-2), SITE 1 SB08(6-8), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8)	Estimate nondetect result (UJl) in associated samples.
SA2673 RS1	pyrene	39	SITE 1 SB08(0-2), SITE 1 SB08(6-8), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2676 RS1	1,3-dichlorobenzene	20	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	hexachloroethane	20	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	nitrobenzene	24	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	2-nitrophenol	25	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2676 RS1	2,4-dimethylphenol	27	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	bis(2-chloroethoxy)methane	26	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	2,4-dichlorophenol	29	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	1,2,4-trichlorobenzene	23	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2676 RS1	hexachlorobutadiene	20	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	2,4,6-trichlorophenol	32	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	acenaphthylene	27	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	2,6-dinitrotoluene	28	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2676 RS1	acenaphthene	29	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	2,4-dinitrotoluene	27	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	fluorene	28	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	4-bromophenylphenylether	44	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2676 RS1	phenanthrene	35	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	pyrene	32	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2676 RS1	benzo(a)anthracene	28	SITE 1 CS01, SITE1 CS02, SITE1 CS03, SITE1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(2-4), SITE 4 SB01(5-7)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	1,3-dichlorobenzene	27	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE 4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2679 RS1	hexachloroethane	27	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	nitrobenzene	30	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	2,4-dimethylphenol	28	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2679 RS1	2,4-dichlorophenol	34	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	1,2,4-trichlorobenzene	29	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	2,4,6-trichlorophenol	35	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2679 RS1	acenaphthylene	31	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	2,6-dinitrotoluene	31	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	acenaphthene	34	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2679 RS1	2,4-dinitrotoluene	30	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	fluorene	32	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679R S1	4-bromophenylphenylether	48	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2679 RS1	phenanthrene	37	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	pyrene	34	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.
SA2679 RS1	benzo(a)anthracene	31	SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE4 SB03(4-6)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS1	1,3-dichlorobenzene	23	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	hexachloroethane	23	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	nitrobenzene	23	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS1	2-nitrophenol	24	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	2,4-dimethylphenol	25	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	bis(2-chloroethoxy)methane	25	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS1	2,4-dichlorophenol	30	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	1,2,4-trichlorobenzene	24	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	hexachlorobutadiene	20	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS1	2,4,6-trichlorophenol	28	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	acenaphthylene	25	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	2,6-dinitrotoluene	32	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS1	acenaphthene	29	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	2,4-dinitrotoluene	37	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	fluorene	31	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS2	4,6-dinitro-2-methylphenol	26	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	4-bromophenylpheny ether	34	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	pentachlorophenol	13	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2681 RS1	phenanthrene	31	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	pyrene	31	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.
SA2681 RS1	benzo(a)anthracene	30	SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)	Estimate nondetect result (UJl) in associated samples.

99170.31

Please feel free to contact me if you have any questions.

Very truly yours,

Lisa McDonagh 4/20/01

Lisa McDonagh
Data Validator

NATIONAL FUNCTIONAL VALIDATION GUIDELINES FOOTNOTES

J/UJ/Rh	Holding times have been exceeded or samples were improperly preserved; estimate positive results and non-detects or reject results if holding times were grossly exceeded.
J/UJc/Rc	The initial %RSD was greater than 30% for semivolatile and volatiles or greater than 20% for pesticide/PCB or the continuing calibration %D was greater than 25%; estimate positive results and non-detects. RRF <0.05; estimate (Jc) all positive and reject (Rc) all nondetect results. For inorganics, the initial or continuing calibration verification standard was outside of control limits of 90 - 110% for metals, 80 - 120% for Mercury or 85 - 115% for Cyanide. The positive or non-detected results are estimated dependent on the recovery.
Um	Compound was present in the associated laboratory blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.
Uf	Compound was present in the associated field blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.
J/UJ/Rs	One or more of the surrogate standard % recoveries was found outside of established control limits: estimate positive and/or non-detected results dependent on recovery. For surrogate recoveries less than 10%, estimate positive results and reject non-detects. For semi-volatile samples 2 or more surrogates were outside of control limits within one fraction.
J/UJ/Rm	The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the control limits for this compound: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The MS and/or MSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results in the unspiked sample and reject non-detects. The %RPD were not within the control limits for this compound: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery.
J/UJ/Rl	The blank spike and/or blank spike duplicate % recoveries were not within the control limits of 60 - 140% for organics or 80 - 120% for inorganics for this analyte: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The BS and/or BSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results and reject non-detects. The blank spike %RPD was not within the control limits for this analyte: estimate positive and/or nondetected results in the associated samples.
J/UJ/Ri	One or more of the Internal standard (IS) areas were not within the required control limits: estimate positive results and/or non-detects for all compounds quantitated from that IS dependent on the area, or if one or more IS areas were grossly low: estimate positive results and reject non-detects for all compounds quantitated from that IS.

J/UJb	The ICS recovery of an element is outside of criteria. The reported results or detection limit is estimated or rejected based on the recovery.
J/UJd	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated.
Ja	The results of the ICP Serial Dilution analysis were outside of criteria. Positive sample results are estimated.
J/UJf	Field duplicate %RPD was high (greater than 50% for soils or greater than 30% for waters) for this compound: estimate positive results for this compound in the sample and duplicate. For results less than 5X RDL, a control limit of +/- 4XCRDL was used for inorganics and +/- 2XCRQL was used for organics.
Jq	Pesticide compounds which have concentration values differing by greater than 25% in its two analyses. Estimate positive results for the compounds. Concentration reported was less than the laboratory detection limit. Estimate the positive results for the compound.
J/UJk	The required project detection limit was lower than the laboratory detection limit. Estimate nondetect results and estimate positive results between the required project detection limit and the laboratory detection limit.

April 20, 2001

Mr. Jeff Donovan
Aneptek Corporation
209 West Central Street
Natick, MA 01760

Subject: ~~Severn Trent Laboratories~~ UPSTATE LABORATORIES
Report Number 33300088
Hancock Air National Guard Base, Syracuse, NY
Data Usability Validation

Field ID	Laboratory ID	Fractions Reviewed
Site 1 SB-08(0-2)	33300088	Pest/PCB, Metals, TPH
Site 1 SB-08(6-8)	33300089	Pest/PCB, Metals, TPH
Site 1 SB-08(8-10)	33300090	Pest/PCB, Metals, TPH
Site 1 SB-07(0-2)	33300091	Pest/PCB, Metals, TPH
Site 1 SB-07(4-8)	33300092	Pest/PCB, Metals, TPH
Site 1 SB-07(8-10)	33300093	Pest/PCB, Metals, TPH
Site 1 SB-77(4-8)	33300094	Pest/PCB, Metals, TPH
Site 1 SB-06(0-2)	33300095	Pest/PCB, Metals, TPH
Site 1 SB-06(4-8)	33300096	Pest/PCB, Metals, TPH
Site 1 SB-06(8-10)	33300097	Pest/PCB, Metals, TPH
Site 1 SB-04(0-2)	33300098	Pest/PCB, Metals, TPH
Site 1 SB-03(0-2)	33300099	Pest/PCB, Metals, TPH
Site 1 SB-02(0-2)	33300100	Pest/PCB, Metals, TPH
Site 1 SB-01(0-2)	33300101	Pest/PCB, Metals, TPH
Site 1 SS-01	33300102	Pest/PCB, Metals, TPH
Site 1 SS-02	33300103	Pest/PCB, Metals, TPH
Site 1 SS-03	33300104	Pest/PCB, Metals, TPH
Site 1 SS-04	33300105	Pest/PCB, Metals, TPH
Site 1 SS-11	33300106	Pest/PCB, Metals, TPH
Site 1 SB-05(0-2)	33300107	Pest/PCB, Metals, TPH
Site 1 SB-05(8-10)	33300108	Pest/PCB, Metals, TPH
Site 1 SB-05(10-12)	33300109	Pest/PCB, Metals, TPH
Site 1 CS-01	33500051	Pest/PCB, Metals, TPH
Site 1 CS-02	33500052	Pest/PCB, Metals, TPH
Site 1 CS-03	33500053	Pest/PCB, Metals, TPH
Site 1 CS-04	33500054	Pest/PCB, Metals, TPH
Site 1 CS-22	33500055	Pest/PCB, Metals, TPH
Site 9 SB-04(0-2)	33500056	PCB, Metals
Site 9 SB-04(2-4)	33500057	PCB, Metals
Site 9 SB-04 GW	33500058	PCB, Metals

Site 4 SB-04 GW	33500060	PCB, Metals
Site 4 SB-44 GW	33500061	PCB, Metals
Site 4 SB-04(2-4)	33500062	PCB, Metals, TPH*
Site 4 SB-04(4-6)	33500063	PCB, Metals, TPH*
Site 4 SB-01(2-4)	33500064	PCB, Metals, TPH*
Site 4 SB-01(5-7)	33500065	PCB, Metals, TPH*
Site 4 SB-02(2-4)	33500066	PCB, Metals, TPH*
Site 4 SB-02(4-6)	33500067	PCB, Metals, TPH*
Site 4 SB-02(8-10)	33500068	PCB, Metals, TPH*
Site 4 SB-22(8-10)	33500069	PCB, Metals, TPH*
Site 9 SB-01(2-4)	33500070	PCB, Metals
Site 9 SB-01(4-8)	33500071	PCB, Metals
Site 9 SB-11(4-8)	33500072	PCB, Metals
Site 9 SB-01(10-12)	33500073	PCB, Metals
Site 9 SB-02(6-8)	33500074	PCB, Metals
Site 9 SB-02(8-10)	33500075	PCB, Metals
Site 9 SB-03(0-2)	33500076	PCB, Metals
Site 9 SB-03(2-4)	33500077	PCB, Metals
Site 4 SB-03(2-4)	33500078	PCB, Metals
Site 4 SB-03(4-6)	33500079	PCB, Metals
Site 9 SB-02(2-4)	33600187	PCB, Metals, TPH*
Site AOC 1-3 SD-1A	33600188	Metals, TPH
Site AOC 1-3 SD-2A	33600189	Metals, TPH
Site AOC 1-3 SD-3A	33600190	Metals, TPH
Site AOC 1-3 SD-22A	33600191	Metals, TPH
Site 11 SB-03(5-6)	33600192	PCB, Metals
Site 11 SB-44(4-6)	33600193	PCB, Metals
Site 11 SB-04(2-4)	33600194	PCB, Metals
Site 11 SB-04(4-6)	33600195	PCB, Metals
Site 11 SB-03(2-4)	33600196	PCB, Metals
Site 11 SB-01(2-4)	33600197	PCB, Metals
Site 11 SB-01(4-6)	33600198	PCB, Metals
Site 11 SB-01(6-8)	33600199	PCB, Metals
Site 11 SB-02(2-4)	33600200	PCB, Metals
Site 11 SB-02(4-6)	33600201	PCB, Metals
Site 11 SB-02(6-8)	33600202	PCB, Metals
Site 11 SB-04 GW	33600203	PCB, Metals
Site 11 SB-03 GW	33600204	PCB, Metals
Site 1 MW-09	33900155	Pest, PCB, Metals, TPH

Site 1 MW-11	33900156	Pest, PCB, Metals, TPH
Site 1 MW-12	33900157	Pest, PCB, Metals, TPH
Site 1 MW-13	33900158	Pest, PCB, Metals, TPH
Site 1 MW-13D	33900159	Pest, PCB, Metals, TPH
Site 1 MW-113	33900160	Pest, PCB, Metals, TPH
RB-SB-120100	33900161	Pest, PCB, Metals, TPH
RB-CS-120100	33900162	Pest, PCB, Metals, TPH
FB-120100	33900163	Pest, PCB, Metals, TPH
IDW-DECON	33900165	Pest, PCB, Metals, TPH

* TPH analysis was not requested by Aneptek, but inadvertently analyzed and reported.

Associated Field QC Samples

Field Duplicate Pairs: Site 1 SB-07(4-8)/SB-77(4-8), Site 1 SS-01/SS-11, CS-02/CS-22, Site 4 SB-04 GW/SB-44 GW, Site 4 SB-02(8-10)/SB22(8-10), Site 9 SB-01(4-8)/SB-11(4-8), Site AOC SD-2A/SD-22A, Site 11 SB-04(4-6)/SB-44(4-6), Site 1 MW-13/MW113

Field Blank Samples: RB-SB-120100; Used in the evaluation of soil samples
RB-SB-CS-120100; Used in the evaluation of concrete samples
FB-120100; Used in the evaluation of aqueous samples

Dear Mr. Donovan:

A data usability validation, in accordance with the National Functional Guidelines for Evaluating Inorganic Analyses, EPA 540/R-94/013, dated February 1994 and the National Functional Guidelines for Evaluating Organic Analyses, EPA 540/R-94/012, dated February 1993 was performed on the analytical data for 63 soil samples, 15 aqueous samples collected by Aneptek on November 27, 28, 29, and 30 and December 1, 2000 from the Hancock Air National Guard Base in Syracuse, NY. The samples were analyzed for pesticides/PCBs (EPA method 8081/8082), TPH (EPA method 8150), and metals (EPA method 6000/7000 series). The data usability review was performed on all samples in this SDG.

Pesticides/PCBs and TPH

The organic data validation was based on the following parameters:

* • Data Completeness
• Holding Times
* • Gas Chromatograph/Electron Capture Detector (GC/ECD) Instrument Performance Checks
• Continuing Calibrations
* • Blanks

- Surrogate Recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Fortified Blank Results
- Field Duplicate Results

* - All criteria were met.

All quality control results were found to be acceptable with the following exceptions:

Holding Times

The following TPH samples were extracted one day outside of the holding time of fourteen days: Site 1: SB-08(0-2), SB-08(6-8), SB-08(8-10), SB-07(0-2), SB-07(4-8), SB-07(8-10), SB-77(8-10), SB-06(0-2), SB-06(4-8), SB-06(8-10), SB-04(0-2), SB-03(0-2), SB-02(0-2). The positive and nondetect TPH results for the samples were estimated (J/UJh). The results may be biased low.

The following TPH samples were extracted two days outside of the holding time of fourteen days: Site 1: CS-01, CS-02, CS-03, CS-04, and CS-22. The positive and nondetect TPH results for the samples were estimated (J/UJh). The results may be biased low.

The following Pest/PCB samples were extracted two days outside of the holding time of fourteen days for soil samples: Site 1: CS-01, CS-02, CS-03, CS-04, CS-22, Site 9: SB-04(0-2), and SB-04(2-4). The positive and nondetect pesticide and/or PCB results for the samples were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted fourteen days outside of the holding time of seven days for aqueous samples: Site 9: SB04 GW, Site 4 SB-04 GW, and SB-44 GW. The positive and nondetect PCB results for the samples were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted fifteen days outside of the holding time of seven days for aqueous samples: Site 11 SB-04 GW and SB-03 GW. The positive and nondetect PCB results for the samples were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted fourteen days outside of the holding time of seven days for aqueous samples: Site 9: SB04 GW, Site 4 SB-04 GW, and SB-44 GW, and Site 11 SB-04 GW and SB-03 GW. The positive and nondetect PCB results for the samples were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted one day outside of the holding time of fourteen days

for soil samples: Site 4: SB-04(2-4), SB-04(4-6), SB-01(2-4), SB-01(5-7), SB-02(2-4), SB-02(4-6), SB-02(8-10), SB-22(8-10), SB-03(2-4), and SB-03(4-6). The positive and nondetect PCB results for the samples were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted two days outside of the holding time of fourteen days for soil samples: Site 9: SB-01(2-4), SB-01(4-8), SB-11(4-8), SB-01(10-12), SB-02(6-8), SB-02(8-10), SB-03(0-2), and SB-03(2-4). The positive and nondetect PCB results for the samples were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted seven days outside of the holding time of fourteen days for soil sample Site 9 SB-02(2-4). The positive and nondetect PCB results for the sample were estimated (J/UJh). The results may be biased low.

The following PCB samples were extracted four days outside of the holding time of fourteen days for soil samples: Site 11: SB-03(5-6), SB-44(4-6), SB04(2-4), SB04(4-6), SB-03(2-4), SB-01(2-4), SB-01(4-6), SB-01(6-8), SB-02(2-4), SB-02(4-6), and SB-02(6-8). The positive and nondetect PCB results for the samples were estimated (J/UJh). The results may be biased low.

Continuing Calibrations

Compounds that did not meet criteria in the initial and continuing calibrations are summarized in the following table.

Compound	CC PEM 12/27 15:26	CC INDAB 12/27 16:01
Endrin	X (32.4%)	
4,4'-DDT		X (26.8%)
Samples Affected	**33300088 - 33300100**	**33300088 - 33300100**

Compound	CC PEM 01/16/01 23:33	CC INDAB 01/17/01 13:08	CC INDAB 01/17/01 22:34
Endrin	X (31.0%)		
4,4'-DDD			X (26%)
4,4'-DDT		X(86%)	X (93%)
methoxychlor		X (67%)	X (67%)
endrin ketone			X (40.8%)
Samples Affected	**33300101 - 33300109**		**33300101 - 33300109**

Compound	CC INDAB 01/24/01 13:04
Endrin	X (29%)
beta-BHC	X (33%)
Samples Affected	**33900155 - 33900165**

X = Continuing calibration (CC) %D > 25%; estimate (J/UJc) all positive and nondetect results.

Surrogate Recoveries

The following table lists the samples which yielded surrogate recoveries outside of control limits and the resulting validation actions.

Sample	Surrogate	Recovery (%)	Control limits	Actions
SS-02	DCB 1	I*	60 - 150	Estimate (J/UJs) positive and ND pest/PCB results.
SS-03	DCB 1	55	60 - 150	Estimate (J/UJs) positive and ND pest/PCB results.
Site 4 SB04(2-4)	DCB ½	I*/50	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 4 SB01(2-4)	DCB 1	55	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 4 SB01(5-7)	TCX ½ DCB ½	I*/I* I*/I*	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 4 SB-02(2-4)	TCX 2 DCB ½	50 I*/I*	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 4 SB03(2-4)	DCB1	I*	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 4 SB03(4-6)	DCB1	40	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 11 SB-03 GW	DCB	59	60 - 150	Estimate (J/UJs) positive and ND PCB results.
Site 1 MW09	DCB	51	60 - 150	Estimate (J/UJs) positive and ND pest/PCB results.
Site 1 MW11	DCB	51	60 - 150	Estimate (J/UJs) positive and ND pest/PCB results.
Site 1 MW13	TCX DCB	39/34	60 - 150	Estimate (J/UJs) positive and ND pest/PCB results.
FB-120100	DCB	157	60 - 150	No action required, results ND, high bias indicated.
Site 11 SB04(4-6)	TCX DCB	158 175	60 - 150	No action required, results ND, high bias indicated.

Sample	Surrogate	Recovery (%)	Control limits	Actions
Site 11 SB03(2-4)	TCX DCB	179 204	60 - 150	No action required, results ND, high bias indicated.
Site 11 SB01(4-6)	TCX DCB	170 162	60 - 150	No action required, results ND, high bias indicated.
Site 11 SB01(6-8)	TCX DCB	154 170	60 - 150	No action required, results ND, high bias indicated.
Site 11 SB02(2-4)	TCX DCB	167 179	60 - 150	No action required, results ND, high bias indicated.
Site 11 SB02(4-6)	TCX DCB	170 172	60 - 150	No action required, results ND, high bias indicated.
Site 11 SB02(6-8)	DCB	156	60 - 150	No action required, results ND, high bias indicated.

I* - An interference was noted.

Matrix Spike Results

A matrix spike was performed on sample SS-01. The following table lists the recoveries found outside of the control limits and the resultant actions.

Analyte	Recovery (%)	RPD (%)	Control Limits	Actions
Fuel #2 TPH	-	39	20	Estimate (UJm) the nondetect result for SS-01.
Heptachlor	35	29	40-131/20	Estimate (UJm) the nondetect result for SS-01.
Endrin	152, 215	35	56-121/21	Estimate (UJm) the nondetect result for SS-01.
4,4'-DDT	148, 189	-	38-127/27	No action required. High bias indicated and result nondetect.
Gamma-BHC	-	42	56-123/15	Estimate (UJm) the nondetect result for SS-01.
Aldrin	-	42	40-120/22	Estimate (UJm) the nondetect result for SS-01.
Dieldrin	145	37	52-126/18	Estimate (UJm) the nondetect result for SS-01.

A matrix spike was performed on sample SB-02(4-6). The following table lists the recoveries found outside of the control limits and the resultant actions.

Analyte	Recovery (%)	RPD (%)	Control Limits	Actions
Aroclor-1248	171	31	38-158/20	Estimate (UJm) the nondetect result for SB-02 (4-6).

A matrix spike was performed on sample MW-12. The following table lists the recoveries found outside of the control limits and the resultant actions.

Analyte	Recovery (%)	RPD (%)	Control Limits	Actions
Aroclor-1248	MSD 4.9	180	38-158/20	Reject (Rm) the nondetect result for MW-12.

- Within control limits.

Laboratory Fortified Blank Results

The following table lists the recoveries found outside of the control limits of 60 - 140% in the laboratory fortified blank (identified by the laboratory as RS) and the resultant actions.

Compound/ RS	Recovery (%)	Associated Samples	Actions
PA6381 RS BHC (a-isomer) BHC (g-isomer) Heptachlor Dieldrin Endrin 4,4'-DDD 4,4'-DDT	 20 20 36 18 36 30 12	33300101 - 33300104	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low.
PA6381 RS Endosulfan I	 8	33300101 - 33300104	Estimate (R_L) the nondetect endosulfan I results in the associated samples.
PA6378 RS BHC (d-isomer)	 141.4	33500051 - 33500057 33500062 - 33500067	No actions required. BHC (d-isomer) results nondetect and a high bias was indicated.
PA6380 RS BHC (b-isomer) BHC (d-isomer) aldrin heptachlor epoxide	 46 42 42 40	33900155 - 33900165	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low

Compound/ RS	Recovery (%)	Associated Samples	Actions
PA6380 RS BHC (g-isomer) Heptachlor	 l l	33900155 - 33900165	Estimate (R_L) the nondetect BHC(g-isomer) and heptachlor results in the associated samples.

Field Duplicate Results

The following table lists the analytes which exhibited RPDs outside of the control limit of 50% for soils and the resulting validation actions.

Analyte	Field Duplicate Pair	RPD (%)	Actions
Unidentified Hydrocarbons	CS-02/CS-22	200	Estimate (J/UJf) the positive and nondetect results for unidentified HCs in the field duplicate pair.
TPH	CS-02/CS-22	63.6%	Estimate (Jf) the positive results for TPH in the field duplicate pair.
Kerosene range TPH	CS-02/CS-22	200%	Estimate (J/UJf) the positive and nondetect results for TPH-kerosene range in the field duplicate pair.
4,4'-DDD	SS-01/SS-11	200%	Estimate (J/UJf) the positive and nondetect results for 4,4'-DDD in the field duplicate pair.
Unidentified Hydrocarbons	Site AOC SD-2A/ SD-22A	200	Estimate (J/UJf) the positive and nondetect results for unidentified HCs in the field duplicate pair.

All precision criteria were met in the aqueous field duplicate pairs.

Metals

The inorganic data were evaluated based on the following parameters:

* • Data Completeness
• Holding Times
NR • Instrument Calibration
• Blank Analysis Results
• Matrix Spike (MS) Results
• Laboratory Duplicate Results
• Field Duplicate Results

- Laboratory Control Sample (LCS) Results
- Furnace Atomic Absorption Results

NR • ICP Serial Dilution Results

* • Detection and Quantitation Limit Results

* - All criteria were met for this parameter.

NR - Not reviewed, quality control information was not submitted as part of the data package deliverables.

All quality control results were found to be acceptable with the following exceptions:

Holding Times

The following mercury samples were analyzed 21 and 20 days, respectively, outside of the holding time of 28 days: Site 9 SB-02(8-10) and Site 4 SB-03(4-6). The positive and/or nondetect mercury results for the samples were estimated (J/UJh). The results may be biased low.

The following mercury samples were analyzed six days outside of the holding time of 28 days: Site 9 SB-02(2-4), Site AOC 1-3: SD-1A, SD-2A, SD-3A, and SD-22A. The positive and/or nondetect mercury results for the samples were estimated (J/UJh). The results may be biased low.

The following mercury samples were analyzed seven days outside of the holding time of 28 days: Site 11: SB-03(5-6), SB-44 (4-6), SB-04(2-4), SB-04(4-6), SB-03(2-4), SB-01(2-4), SB-01(4-6), SB-01(6-8), SB-02(2-4), SB-02(4-6), and SB-02(6-8). The positive and/or nondetect mercury results for the samples were estimated (J/UJh). The results may be biased low.

Blank Results

The following tables list the contaminants detected in the laboratory method blanks associated with the field samples and the actions taken:

Value < Action Level; the value is qualified as non-detected and considered to be due to laboratory contamination (Um).
Value > Action Level; the value is reported unqualified.

Batch/Analyte	Level	Action Level	Actions
DB1196 Potassium Sodium	0.6 mg/l 1.2 mg/l	3.0 mg/l 6.0 mg/l	Qualify potassium result for sample FB-120100 and sodium result for sample RB-CS-120100 as nondetect (Um).

The following tables list the contaminants detected in the field blanks associated with the field samples and the actions taken:

For soil samples:

Soil Sample Value < Field Blank Action Level; the value is qualified as estimated (Jfb) and should be considered to be biased high due to field blank contamination seen.
Soil Sample Value > Field Blank Action Level; the value is reported unqualified.

Field blank RB-SB-120100; associated with all soil samples

Analyte	Field blank Level	Action Level	Actions
Aluminum	0.05 mg/l, 5 mg/kg	25 mg/kg	No actions required.
Calcium	0.8 mg/l, 80 mg/kg	400 mg/kg	No actions required.
Iron	0.04 mg/l, 4 mg/kg	20 mg/kg	No actions required.
Mercury	0.0005 mg/l, 0.25 mg/kg	1.25 mg/kg	Estimate (Jfb) mercury results for samples SS-01, Site 4 SB04(2-4), Site 4 SB01(2-4), Site 4 SB02(2-4), Site 9 SB02(8-10), Site 4 SB03(4-6), AOC1-3 SD-1A, SD-2A, SD-3A, SD-22A.

Field blank RB-CS-120100; associated with all concrete samples

Analyte	Field blank Level	Action Level	Actions
Aluminum	0.05 mg/l, 5 mg/kg	25 mg/kg	No actions required.
Calcium	0.8 mg/l, 80 mg/kg	400 mg/kg	No actions required.
Iron	0.07 mg/l, 7 mg/kg	35 mg/kg	No actions required.
Lead	0.002 mg/l, 0.2 mg/kg	1.0 mg/kg	No actions required.
Selenium	0.001mg/l, 0.1 mg/kg	0.5 mg/kg	No actions required.

Analyte	Field blank Level	Action Level	Actions
Sodium	2.9 mg/l, 290 mg/kg	1450 mg/kg	Estimate (Jfb) sodium results for samples CS-01, CS-02, CS-03, CS-04, CS-22.
Thallium	0.038 mg/l, 3.8 mg/kg	19 mg/kg	Estimate (Jfb) thallium results for sample CS-02.
Zinc	0.02 mg/l, 2.0 mg/kg	10.0 mg/kg	No actions required.

For aqueous samples:

Value < Action Level; the value is qualified as non-detected and considered to be due to field contamination (Uf).
Value > Action Level; the value is reported unqualified.

Field blank FB-120100; associated with all aqueous samples

Analyte	Field blank Level	Action Level	Actions
Aluminum	0.14 mg/l	0.70 mg/l	Qualify aluminum result for sample MW13D as nondetect (Uf).
Arsenic	0.002 mg/l	0.01 mg/l	Qualify arsenic results for samples Site 9 SB04 GW, Site 11 SB04 GW, MW09, MW13, MW13D, and MW113 as nondetect (Uf).
Calcium	44 mg/l	220 mg/l	Qualify calcium results for samples Site 11 SB04 GW, MW09, and MW13 as nondetect (Uf).
Copper	0.43 mg/l	2.15 mg/l	Qualify copper results for samples Site 4 SB04 GW, SB44 GW, Site 11 SB04 GW, SB03 GW, MW09, MW11, MW12, MW13, MW13D, and MW113 as nondetect (Uf).
Iron	0.06 mg/l	0.30 mg/l	No actions required.
Lead	0.021 mg/l	0.10 mg/l	Qualify lead results for samples MW09, MW11, MW12, MW13, MW13D, and MW113 as nondetect (Uf).
Magnesium	10 mg/l	50 mg/l	Qualify magnesium result for sample MW09 as nondetect (Uf).
Potassium	2.0 mg/l	10 mg/l	Qualify potassium results for samples Site 11 SB04 GW, SB03 GW, MW09, MW13, and MW113 as nondetect (Uf).

Analyte	Field blank Level	Action Level	Actions
Sodium	25 mg/l	125 mg/l	Qualify sodium results for samples Site 9 SB04GW, Site 4 SB04 GW, SB44 GW, Site 11 SB04 GW, SB03 GW, MW09, MW11, MW12, MW13, and MW113 as nondetect (Uf).
Zinc	0.03 mg/l	0.15 mg/l	Qualify zinc results for samples MW09, MW13, MW13D, and MW113 as nondetect (Uf).

Matrix Spike Results

The following table lists the recoveries found outside of the control limits of 75-125% in the matrix spike analyses and the resultant actions.

MS Sample/ Analyte	Recovery (%)	Associated Samples	Actions
SS-01 Antimony Manganese	 128 149	33300088- 33300109	Estimate (Jm) the positive results for the affected analytes in the associated samples. A high bias is indicated.
SS-01 sodium	73	33300088- 33300109	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. A low bias is indicated.
Site 9 SB04GW Antimony	23	33500058 - 3350061 3360203 - 33600204	Estimate (Jm) the positive antimony results and reject (Rm) the ND antimony results.
Site 9 SB04GW Barium Cadmium Chromium Cobalt Nickel Vanadium Potassium	 71 73 73 66 67 73 64	33500058 - 3350061 3360203 - 33600204	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. The results may be biased low.

MS Sample/ Analyte	Recovery (%)	Associated Samples	Actions
Site 1 MW12		33900155 - 33900165	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. The results may be biased low.
Antimony	39		
Barium	68		
Cadmium	73		
Chromium	71		
Cobalt	72		
Lead	70		
Nickel	67		
Silver	69		
Mercury	68		
Sodium	74		
Potassium	62		
Site 9 SB01(2-4)		33500051 - 33500057 33500062 - 33500070	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. The results may be biased low.
Antimony	74		
Cadmium	68		
Chromium	74		
Iron	69		
Lead	69		
Nickel	72		
Silver	74		
Zinc	72		
Potassium	72		
Site 9 SB01(2-4)		33500051 - 33500057 33500062 - 33500070	Estimate (Jm) the positive results for the affected analytes in the associated samples. The results may be biased high.
Calcium	459		
Magnesium	209		
Site 9 SB01(4-8)		33500071 - 33500079	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. The results may be biased low.
Antimony	63		
Cadmium	69		
Calcium	70		
Iron	65		
Lead	70		
Nickel	72		
Zinc	71		
Potassium	55		
Thallium	55		
Sodium	72		
Barium	71		
Site 9 SB01(4-8)		33500071 - 33500079	Estimate (Jm) the positive and reject (Rm) the nondetect results for the affected analytes in the associated samples. The results may be biased low.
Manganese	12		
Arsenic	20		
Cobalt	0		
Manganese	0		

MS Sample/ Analyte	Recovery (%)	Associated Samples	Actions
Site 1 MW12 Mercury	68	33900155 - 33900165	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. The results may be biased low.
Site 1 MW12 Lead	140	33900155 - 33900165	Estimate (J/UJm) the positive and blank-qualified nondetect results for the affected analytes in the associated samples. The results may be biased high.
Site 11 SB02(4-6) Antimony Beryllium Cadmium Chromium Iron Lead Nickel Zinc Arsenic Potassium Sodium	 69 74 65 71 63 67 69 71 45 51 71	33600187 - 33600202	Estimate (J/UJm) the positive and nondetect results for the affected analytes in the associated samples. The results may be biased low.
Site 11 SB02(4-6) Selenium	25	33600187 - 33600202	Estimate (Jm) the positive and reject (Rm) the nondetect results for the affected analytes in the associated samples. The results may be biased low.

Laboratory Duplicate Results

The following table lists the %RPDs found above the control limits of 35% for soils and 20% for waters in the laboratory duplicate analyses and the resultant actions.

Duplicate Sample/ Analyte	RPD (%)	Associated Samples	Actions
Site 9 SB01(2-4) Sodium	75	33500051 - 33500057 33500062 - 33500070	Estimate (J/UJd) the positive and nondetect sodium results for the affected analytes in the associated samples.
Site 9 SB01(4-8) Manganese	42.6	33500071 - 33500079	Estimate (J/UJd) the positive and nondetect manganese results for the affected analytes in the associated samples.
Site 11 SB02(4-6) Iron Nickel	 55.3 55	33600187 - 33600202	Estimate (J/UJd) the positive and nondetect iron and nickel results for the affected analytes in the associated samples.

Field Duplicate Results

The following table lists the analytes which exhibited RPDs outside of the control limit of 30% for waters and the resulting validation actions.

Analyte	Field Duplicate Pair	RPD (%)	Actions
Thallium Chromium Manganese	MW-13/MW-113	200 32.3 45	Estimate (J/UJf) the positive and nondetect thallium, chromium, and manganese results for samples MW-13 and MW-113.
Thallium	Site 4 SB-04GW/ SB-44GW	200	Estimate (J/UJf) the positive and nondetect thallium results for samples SB-04 GW and SB-44 GW.

The following table lists the analytes which exhibited RPDs outside of the control limit of 50% for soils and the resulting validation actions.

Analyte	Field Duplicate Pair	RPD (%)	Actions
Calcium	SB-07(4-8)/SB-77(4-8)	106.7	Estimate (Jf) the calcium results in the field duplicate pair.
Magnesium	SB-07(4-8)/SB-77(4-8)	89.8	Estimate (Jf) the magnesium results in the field duplicate pair.
Manganese	SB-07(4-8)/SB-77(4-8)	146	Estimate (Jf) the manganese results in the field duplicate pair.
Potassium	SB-07(4-8)/SB-77(4-8)	55.3	Estimate (Jf) the potassium results in the field duplicate pair.
Thallium	SB-07(4-8)/SB-77(4-8)	83.7	Estimate (Jf) the thallium results in the field duplicate pair.
Arsenic	SS-01/SS-11	58.4	Estimate (Jf) the arsenic results in the field duplicate pair.
Arsenic	CS-02/CS-22	82.3	Estimate (Jf) the arsenic results in the field duplicate pair.
Magnesium	CS-02/CS-22	127	Estimate (Jf) the magnesium results in the field duplicate pair.
Thallium	CS-02/CS-22	200	Estimate (J/UJf) the positive and nondetect thallium results for the field duplicate pair.
Manganese	SB-02(8-10)/ SB-22(8-10)	66.7	Estimate (Jf) the manganese results in the field duplicate pair.

Analyte	Field Duplicate Pair	RPD (%)	Actions
Thallium	SB-02(8-10)/ SB-22(8-10)	200	Estimate (J/UJf) the positive and nondetect thallium results for the field duplicate pair.
Manganese	SB-01(4-8)/SB-11(4-8)	72.2	Estimate (Jf) the manganese results in the field duplicate pair.
Calcium	SB-04(4-6)/SB-44(4-6)	55.8	Estimate (Jf) the calcium results in the field duplicate pair.
Copper	SB-04(4-6)/SB-44(4-6)	54.6	Estimate (Jf) the copper results in the field duplicate pair.

Laboratory Fortified Blank Results

The following table lists the recoveries found outside of the control limits of 80 - 120% in the laboratory fortified blank (identified by the laboratory as RS) and the resultant actions.

RS/Analyte	Recovery (%)	Associated Samples	Actions
DB1169/DB1170 Potassium Cadmium Lead	 60 76 65	33300088- 33300109	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low
DB1169/DB1170 Sodium Antimony	 122 162	33300088- 33300109	Estimate (J_L) the positive results for the affected compounds in the associated samples. Results may be biased high.
DB1176/DB1186 Potassium	 79	33500058 - 3350061 3360203 - 33600204	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low.
DB1180/DB1182/ DB1244 Lead Potassium	 79 72	33500051 - 33500057 33500062 - 33500070	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low.
DB1180/DB1182/ DB1244 Antimony Sodium Mercury	 250 154 152	33500051 - 33500057 33500062 - 33500070	Estimate (J_L) the positive results for the affected compounds in the associated samples. Results may be biased high.

RS/Analyte	Recovery (%)	Associated Samples	Actions
DB1181/DB1183/ DB1347		33500071 - 33500079	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low.
Cadmium	71		
Chromium	77		
Lead	65		
Nickel	76		
Zinc	78		
Potassium	73		
Aluminum	68		
Barium	63		
Silver	76		
DB1181/DB1183/ DB1347		33500071 - 33500079	Estimate (J_L) the positive results for the affected compounds in the associated samples. Results may be biased high.
Antimony	200		
Mercury	152		
Selenium	124		
Cobalt	200		
Manganese	887		
DB1188/DB1189		33600187 - 33600202	Estimate (J/UJ_L) the positive and nondetect results for the affected compounds in the associated samples. Results may be biased low.
Barium	77		
Beryllium	79		
Cadmium	65		
Calcium	77		
Chromium	74		
Copper	79		
Lead	65		
Nickel	72		
Silver	78		
Vanadium	75		
Zinc	75		
Potassium	79		
DB1188/DB1189		33600187 - 33600202	Estimate (J_L) the positive results for the affected compounds in the associated samples. Results may be biased high.
Antimony	191		
Thallium	132		
Sodium	156		

Furnace Atomic Absorption Results

The following table lists the recoveries found outside of the control limits of 85 -115% in the furnace post-digestion analytical spike and the resultant actions. It should be noted that although the recovery was not noted, the laboratory flagged the analytes recovered outside of control limits.

Analyte	Associated Sample	Actions
Selenium	Site 9 SB04 GW	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 4 SB04 GW	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 4 SB44 GW	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 11 SB04 GW	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 11 SB03 GW	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 1 MW09	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 1 MW11	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 1 MW12	Estimate (UJa) the selenium result in the affected sample.
Selenium	Site 1 MW13	Estimate (UJa) the selenium result in the affected sample.
Selenium Lead	Site 1 MW13D	Estimate (UJa) the selenium result in the affected sample. Estimate (Ja) the lead result in the affected sample.
Selenium	Site 1 MW113	Estimate (UJa) the selenium result in the affected sample.
Lead	RB-SB-120100	Estimate (UJa) the lead result in the affected sample.
Arsenic	RB-CS-120100	Estimate (UJa) the arsenic result in the affected sample.
Selenium	FB-120100	Estimate (UJa) the selenium result in the affected sample.
Selenium Arsenic	IDW-DECON	Estimate (UJa) the selenium result in the affected sample. Estimate (Ja) the arsenic result in the affected sample.

Please feel free to contact me if you have any questions.

Very truly yours,

Lorie MacKinnon
Data Validator

NATIONAL FUNCTIONAL VALIDATION GUIDELINES FOOTNOTES

J/UJ/Rh — Holding times have been exceeded or samples were improperly preserved; estimate positive results and non-detects or reject results if holding times were grossly exceeded.

J/UJc — The initial %RSD was greater than 30% for semivolatile and volatiles or greater than 20% for pesticide/PCB or the continuing calibration %D was greater than 25%; estimate positive results and non-detects. For inorganics, the initial or continuing calibration verification standard was outside of control limits of 90 - 110% for metals, 80 - 120% for Mercury or 85 - 115% for Cyanide. The positive or non-detected results are estimated dependent on the recovery.

Um — Compound was present in the associated laboratory blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.

Uf — Compound was present in the associated aqueous field blank. For aqueous samples only; organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.

Jfb — Compound was present in the associated aqueous field blank. For soil samples only: organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by Jfb, indicating that a high bias may be present. For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been estimated Jfb, indicating a possible high bias.

J/UJ/Rs — One or more of the surrogate standard % recoveries was found outside of established control limits: estimate positive and/or non-detected results dependent on recovery. For surrogate recoveries less than 10%, estimate positive results and reject non-detects. For semi-volatile samples 2 or more surrogates were outside of control limits within one fraction.

J/UJ/Rm — The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the control limits for this compound: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The MS and/or MSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results in the unspiked sample and reject non-detects.

J/UJ/Rl — The blank spike and/or blank spike duplicate % recoveries were not within the control limits of 60 - 140% for organics or 80 - 120% for inorganics for this analyte: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The BS and/or BSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results and reject non-detects.

J/UJ/Ri — One or more of the Internal standard (IS) areas were not within the required control limits: estimate positive results and/or non-detects for all compounds quantitated from that IS dependent on the area, or if one or more IS areas were grossly low: estimate positive results and reject non-detects for all compounds quantitated from that IS.

J/UJb	The ICS recovery of an element is outside of criteria. The reported results or detection limit is estimated or rejected based on the recovery.
J/UJd	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated.
Ja	The results of the ICP Serial Dilution analysis were outside of criteria. Positive sample results are estimated.
J/UJf	Field duplicate %RPD was high (greater than 50% for soils or greater than 30% for waters) for this compound: estimate positive results for this compound in the sample and duplicate. For results less than 5X RDL, a control limit of +/- 4XCRDL was used for inorganics and +/- 2XCRQL was used for organics.
Jq	Pesticide compounds which have concentration values differing by greater than 25% in its two analyses. Estimate positive results for the compounds. For inorganics, the result is estimated as the level is less than 2X the instrument detection limit and uncertainty is present at the low end of calibration.

April 21, 2001

Mr. Jeff Donovan
Aneptek Corporation
209 West Central Street
Natick, MA 01760

Subject: Job 99170.31
Upstate Laboratories, Inc.
Hancock Air National Guard Base, Syracuse, NY
Data Validation

Semivolatiles:	5/Aqueous/	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW
	Field Duplicates:	SITE 4 MW-17/SITE 4 MW-117

Dear Mr. Donovan:

A data validation, in accordance with the National Functional Guidelines for Evaluating Organic Analyses, EPA 540/R-94/012, dated February 1993 was performed on the analytical data for five aqueous samples collected by Aneptek on April 12 and 13, 2001 from the Hancock Air National Guard Base in Syracuse, NY. The aqueous samples were analyzed for semivolatiles (EPA method SW-846 8270).

Semivolatile

The organic data validation was based on the following parameters:

- Data Completeness
- * Preservation and Technical Holding Times
- * Gas Chromatograph/Mass Spectrometry (GC/MS) Tunes
- Continuing Calibrations
- Blanks
- Surrogate Recoveries
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

- Blank Spike
* • Field Duplicate Results

* - All criteria were met.

Summary:

All semivolatile results are useable for project objectives with the exception of 1,4-dichlorobenzene in all samples which was rejected due to 0% recovery in the associated blank spike.

Data Completeness

The semivolatile extraction logbook pages, surrogate recoveries, method blanks and blank spike recoveries associated with the samples were requested verbally and by fax from Upstate Laboratories, Inc. 4/20/01 and received 4/20/01.

Continuing Calibrations

Semivolatile:

Compounds that did not meet criteria in the continuing calibrations are summarized in the following tables.

Instrument ID	15
Compound	CC 4/14/01
4-nitroaniline	X
di-n-octylphthalate	X
Samples Affected	all samples in this report

X = Initial calibration (IC) percent relative standard deviation (%RSD) > 30% or continuing calibration (CC) percent difference (%D) > 25%; estimate (J/UJc) all positive and nondetect results.

+ = RRF <0.05; estimate (Jc) all positive and reject (Rc) all nondetect results.

Blanks

The contaminants detected in the laboratory method , rinsate, field and trip blanks are summarized in the following table:

Compound	Blank Type	Associated Samples	Maximum Concentration	Action Level	CRQL (µg/L)
bis (2-ethylhexyl)phthalate	Method	All samples in this report	13 ug/L	130 ug/L	5

CRQL = Contract Required Quantitation Limit

Blank Actions:

- If the sample concentration was < the CRQL, qualify the compound as not detected (U) at the CRQL.
- If the sample concentration was > the CRQL and < the Action Level, qualify the compound as not detected (U) at the reported concentration.
- If the sample concentration was > the CRQL and > the Action Level, qualification of the data was not required.

Blank qualifications were not required.

Surrogate Recoveries

The following tables list the samples which yielded surrogate recoveries outside of control limits and the resulting validation actions:

Sample	Surrogate	Rec (%)	Control limits	Actions
SITE 4 MW-17	2FBP	37%	43-116	No action required. Two base/neutral or acid surrogates need to be out of specification before qualifications are required.
FBP = 2-Fluorobiphenyl				

Internal Standards

The following table lists the internal standard recoveries found outside of control limits and the resulting validation actions:

Sample	Internal standard	Actions
SITE 4 MW-117	Chrysene-d12	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.
SITE 4 MW-117	Perylene-d12	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.
SITE 11 SB03GW	Chrysene-d12	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.

Sample	Internal standard	Actions
SITE 11 SB03GW	Perylene-d12	No action required; internal standard over-recovered and compounds associated with the internal standard were not detected.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Semivolatile:

Sample SITE 4 MW-17 was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits in the MS/MSD analyses performed on sample SITE 4 MW-17 and the resulting validation actions.

Compound	MS %Rec	MSD %Rec	MS/MSD RPD	Control Limits	Action
1,4-Dichlorobenzene	14	16	-	36-97	Estimate the nondetect result (UJm) in the unspiked sample.
N-nitroso-di-n-propylamine	25	26	-	41-116	Estimate the nondetect result (UJm) in the unspiked sample.
1,2,4-Trichlorobenzene	19	18	-	39-89	Estimate the nondetect result (UJm) in the unspiked sample.
Acenaphthene	25	22	-	46-118	Estimate the nondetect result (UJm) in the unspiked sample.
2,4-Dinitrotoluene	22	21	-	24-96	Estimate the nondetect result (UJm) in the unspiked sample.
Pyrene	-	24	-	26-127	Estimate the nondetect result (UJm) in the unspiked sample.

Blank Spike

The following table lists the blank spike, associated samples, compounds outside of the QC acceptance criteria and the resulting validation actions.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2810 RS1	1,3-dichlorobenzene	20	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	1,4-dichlorobenzene	0	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Reject nondetect result (Rl) in associated samples.
SA2810 RS1	hexachloroethane	22	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	nitrobenzene	24	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	bis(2-chloroethoxy)methane	30	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	1,2,4-trichlorobenzene	23	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	hexachlorobutadiene	20	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.

Blank Spike	Compound	% Rec	Associated Samples	Action
SA2810 RS1	acenaphthylene	30	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	2,6-dinitrotoluene	30	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	acenaphthene	35	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	2,4-dinitrotoluene	29	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	fluorene	33	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	4-bromophenylphenylether	36	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	phenanthrene	35	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.
SA2810 RS1	pyrene	36	SITE 4 MW-17, SITE 4 MW-117, SITE 9 SB04GW, SITE 11 SB03GW, SITE 11 SB04GW	Estimate nondetect result (UJl) in associated samples.

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Please feel free to contact me if you have any questions.

Very truly yours,

Lisa McDonagh
Data Validator

NATIONAL FUNCTIONAL VALIDATION GUIDELINES FOOTNOTES

J/UJ/Rh	Holding times have been exceeded or samples were improperly preserved; estimate positive results and non-detects or reject results if holding times were grossly exceeded.
J/UJc/Rc	The initial %RSD was greater than 30% for semivolatile and volatiles or greater than 20% for pesticide/PCB or the continuing calibration %D was greater than 25%; estimate positive results and non-detects. RRF <0.05; estimate (Jc) all positive and reject (Rc) all nondetect results. For inorganics, the initial or continuing calibration verification standard was outside of control limits of 90 - 110% for metals, 80 - 120% for Mercury or 85 - 115% for Cyanide. The positive or non-detected results are estimated dependent on the recovery.
Um	Compound was present in the associated laboratory blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.
Uf	Compound was present in the associated field blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.
J/UJ/Rs	One or more of the surrogate standard % recoveries was found outside of established control limits: estimate positive and/or non-detected results dependent on recovery. For surrogate recoveries less than 10%, estimate positive results and reject non-detects. For semi-volatile samples 2 or more surrogates were outside of control limits within one fraction.
J/UJ/Rm	The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the control limits for this compound: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The MS and/or MSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results in the unspiked sample and reject non-detects. The %RPD were not within the control limits for this compound: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery.

J/UJ/Rl	The blank spike and/or blank spike duplicate % recoveries were not within the control limits of 60 - 140% for organics or 80 - 120% for inorganics for this analyte: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The BS and/or BSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results and reject non-detects. The blank spike %RPD was not within the control limits for this analyte: estimate positive and/or nondetected results in the associated samples.
J/UJ/Ri	One or more of the Internal standard (IS) areas were not within the required control limits: estimate positive results and/or non-detects for all compounds quantitated from that IS dependent on the area, or if one or more IS areas were grossly low: estimate positive results and reject non-detects for all compounds quantitated from that IS.
J/UJb	The ICS recovery of an element is outside of criteria. The reported results or detection limit is estimated or rejected based on the recovery.
J/UJd	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated.
Ja	The results of the ICP Serial Dilution analysis were outside of criteria. Positive sample results are estimated.
J/UJf	Field duplicate %RPD was high (greater than 50% for soils or greater than 30% for waters) for this compound: estimate positive results for this compound in the sample and duplicate. For results less than 5X RDL, a control limit of +/- 4XCRDL was used for inorganics and +/- 2XCRQL was used for organics.
Jq	Pesticide compounds which have concentration values differing by greater than 25% in its two analyses. Estimate positive results for the compounds. Concentration reported was less than the laboratory detection limit. Estimate the positive results for the compound.
J/UJk	The required project detection limit was lower than the laboratory detection limit. Estimate nondetect results and estimate positive results between the required project detection limit and the laboratory detection limit.

April 27, 2001

Mr. Jeff Donovan
Aneptek Corporation
209 West Central Street
Natick, MA 01760

Subject: Job 99170.31
Upstate Laboratories, Inc.
Hancock Air National Guard Base, Syracuse, NY
Data Validation

Volatiles:

60/Soil/ SITE 1 SB08(0-2), SITE1 SB08(6-8), SITE1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB07(8-10), SITE1 SB77(4-8), SITE 1 SB06(0-2), SITE 1 SB06(4-8), SITE 1 SB06(8-10), SITE 1 SB04(0-2), SITE 1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SB01(0-2), SITE 1 SS01, SITE 1 SS02, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(8-10), SITE 1 SB05(10-12), SITE 1 CS01, SITE 1 CS02, SITE 1 CS03, SITE 1 CS04, SITE 1 CS22, SITE 9 SB04(0-2), SITE 9 SB04(2-4), SITE 4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB04(2-4), SITE 4 SB01(2-4), SITE 4 SB01(5-7), SITE 4 SB02(2-4), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 4 SB22(8-10), SITE 9 SB01(2-4), SITE 9 SB01(4-8), SITE 9 SB11(4-8), SITE 9 SB01(10-12), SITE 9 SB02(6-8), SITE 9 SB02(8-10), SITE 9 SB03(0-2), SITE 9 SB03(2-4), SITE 4 SB03(2-4), SITE 4 SB03(4-6), SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB01(4-6), SITE 11 SB01(6-8), SITE 11 SB02(2-4), SITE 11 SB02(4-6), SITE 11 SB02(6-8)

12/Aqueous/ SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB44GW, SITE 11 SB04GW, SITE 11 SB03GW, SITE 1 MW09, SITE 1 MW11, SITE 1 MW12, SITE 1 MW13, SITE 1 MW13D, SITE 1 MW113, IDW-DECON

3/Field Blanks/ RB-SB-120100, RB-CS-120100, FB-120100

3 /Trip Blanks/ TB112800, TB-112800, TB120100

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Field Duplicates: (SB07(4-8)/SB77(4-8)), (SS-01/SS-11), (CS-02/CS-22), (MW13/MW113), (SB02(8-10)/SB22(8-10)), (SB04GW/SB44GW), (SB01(4-8)/SB11(4-8)) (SB04(4-6)/SB44(4-6))

Dear Mr. Donovan:

A data validation, in accordance with the National Functional Guidelines for Evaluating Organic Analyses, EPA 540/R-94/012, dated February 1993 was performed on the analytical data for sixty soil samples and eighteen aqueous samples collected by Aneptek on November 27, 28, 29, 30 and December 1, 2000 from the Hancock Air National Guard Base in Syracuse, NY. The soil and aqueous samples were analyzed for volatiles (EPA method SW-846 8021).

Volatile

The organic data validation was based on the following parameters:

	• Data Completeness
	• Preservation and Technical Holding Times
	• Continuing Calibrations
	• Blanks
	• Surrogate Recoveries
NA	• Internal Standards
	• Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
	• Blank Spike
	• Field Duplicate Results

* - All criteria were met.

Summary:

All volatile results are useable for project objectives.

Data Completeness

The surrogate recoveries for samples SITE 1 SB08(6-8), SITE 1 SB07(4-8), SITE 1 SB03(0-2), SITE 1 SB02(0-2), SITE 1 SS02 and SITE 1 CS02 were requested March 8, 2001. The requested data was not received as of April 27, 2001.

The surrogates recoveries for batch VOC009, the continuing calibration, blank spike and/or matrix spike and method blank were requested from the laboratory March 8, 2001. The QC requested was partially received as of April 20, 2001.

The method blank and matrix spike and/or blank spike for batch VOC006 was requested from the laboratory March 8, 2001. The data was received April 20, 2001.

The method blank, continuing calibration and surrogate recoveries for batch VOC008 were requested from the laboratory March 8, 2001. The data was received April 20, 2001.

The method blank, continuing calibration, matrix spike and/or blank spike for batch VOC009 were requested from the laboratory March 8, 2001. The data was received April 20, 2001.

The method blank and matrix spike and/or blank spike for batch VOC140 were requested from the laboratory March 8, 2001. The data was received April 20, 2001.

The internal standard area recoveries for all samples were requested from the laboratory March 8, 2001. The requested data was not received as of April 27, 2001.

Preservation and Technical Holding Times

The samples SITE 4 SB04(2-4), SITE 4 SB04(4-6), SITE 4 SB01(5-7), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 11 SB01(4-6) and SITE 11 SB02(2-4) were analyzed one day outside of the required holding time. The samples SITE 1 SB08(6-8), SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SS02, SITE 1 SB05(8-10), SITE 1 CS02, SITE 1 CS04, SITE 9 SB04(0-4), SITE 9 SB01(2-4), SITE 9 SB02(6-8) and SITE 9 SB03(0-2) were analyzed two days outside the required holding time. The sample SITE 1 SB01(0-2) was analyzed three days outside the required holding time. Estimate the positive and nondetect results (Jh, UJh) for these samples.

Continuing Calibrations

Volatile:

Compounds that did not meet criteria (80-120%) in the continuing calibrations are summarized in the following tables.

Instrument ID	X1	X1	X1	X1
Compound	**VOC006 12/6/00**	**VOC110 12/8/00**	**VOC130 12/10/00**	**VOC130 12/10/00**
1,1-Dichloroethene			X (65%)	X (140%)
Hexachlorobutadiene		X (125%)		
Trichloroethene				X (140%)
Styrene				X (125%)
n-Propylbenzene			X (75%)	
1,2,4-Trimethylbenzene				X (125%)
1,3,5-Trimethylbenzene			X (75%)	
1,3-Dichlorobenzene			X (75%)	
1,4-Dichlorobenzene			X (75%)	
1,2-Dichlorobenzene			X (75%)	
1,2,4-Trichlorobenzene			X (75%)	
Naphthalene	X (160%)	X (200%)	X (130%)	
1,2,3-Trichlorobenzene			X (75%)	

Samples Affected	**TB112800, TB112800, TB113000, SITE 1 MW12, FB120100, TB120100**	**SITE 1 SB06(0-2), SITE 1 SB06(8-10), SITE 1 SB03(0-2), SITE1 CS03, SITE 9 SB04(2-4), SITE 4 SB02(2-4), SITE 4 SB22(8-10), SITE 9 SB01(4-8), SITE 9 SB01(10-12), SITE 4 SB03(2-4), SITE 4 SB03(4-6), SITE 11 SB01(6-8), SITE 11 SB02(4-6)**	**SITE 1 SB08(0-2), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB06(4-8), SITE 1 SB04(0-2), SITE 1 SB02(0-2), SITE 1 SS01, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(10-12), SITE 1 CS01, SITE 1 CS22, SITE 4 SB01(2-4), SITE 9 SB11(4-8), SITE 9 SB02(8-10), SITE 9 SB03(2-4), SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB02(6-8)**

Instrument ID	**X1**	**X1**
Compound	**VOC140 12/6/00**	**VOC140 12/6/00**
1,1-Dichloroethene	X (40%)	X (175%)
Tetrachloroethene	X (75%)	
Samples Affected	**SITE 1 SB08(6-8), SITE 1 SB01(0-2), SITE 1 SB05(8-10), SITE 1 CS04, SITE 9 SB04(0-2), SITE 4 SB04(4-6), SITE 4 SB01(5-7), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 9 SB02(6-8), SITE 9 SB03(0-2), SITE 11 SB02(2-4)**	

X = Continuing calibration (CC): %recovery of (80-120%);

%recovery > 120%, estimate the positive results (Jc),
%recovery < 80%, estimate the positive and nondetect results (Jc,UJc).

The continuing calibration associated with batch VOC009 was not reported. The continuing calibration was requested March 8, 2001. The laboratory responded April 20, 2001 that the continuing calibration was inadvertently missed. Estimate the positive and nondetect results (Jc,UJc) for all samples associated with the missed calibration. Samples associated: SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SS02, SITE 1 CS02, SITE 4 SB04(2-4), SITE 9 SB01(2-4), SITE 11 SB01(4-6) and IDW-DECON.

The continuing calibration associated with batch VOC008 was not reported and was requested March 8, 2001. The laboratory responded April 20, 2001 to cross reference the samples with the standard analyzed with batch VOC130. The samples associated with batch VOC008 were analyzed 12/8/00 and the samples associated with batch VOC130 were analyzed 12/10/00. The validator recommends the samples not be associated with the same continuing calibration. Estimate the positive and nondetect results (Jc,UJc) for all samples associated with the missing standard. Samples associated: SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB044GW, SITE 11 SB04GW, SITE 11 SB03GW, SITE 1 MW09, SITE 1 MW11, SITE 1 MW13, SITE 1 MW13D, SITE 1 MW113, RBSB120100 and RBCS120100.

Blanks

The contaminants detected in the laboratory method , rinsate, field and trip blanks are summarized in the following table:

Batch: VOC110

Compound	Blank Type	Associated Samples	Maximum Concentration	Action Level	CRQL (ug/L)
benzene	Method	All samples in batch VOC110	1 ug/L	5 ug/L	
naphthalene	Method	All samples in batch VOC110	2 ug/L	10 ug/l	

Qualifications were not required.

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Batch: VOC140

The method blank submitted for batch VOC140 was reported by the laboratory with compounds listed as *, with the comment: contamination between 1 ppb and 25 ppb with a definite petroleum interference, suspect dirty purge vessel. The method blank was originally not submitted and was requested March 8, 2001. The data was received April 20, 2000. The validator used 25 ppb as the maximum level of contamination for all the compounds.

Compound	Blank Type	Associated Samples	Maximum Concentration	Action Level
benzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
toluene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
chlorobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
ethylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
m,p-xylenes	Method	All samples in batch VOC140	25 ug/L	125 ug/L
o-xylene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
styrene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
isopropylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
n-propylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
bromobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,3,5-trimethylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
2-chlorotoluene	Method	All samples in batch VOC140	25 ug/L	125 ug/L

4-chlorotoluene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
t-butylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,2,4-trimethylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
s-butylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
p-isopropyltoluene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,3-dichlorobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,4-dichlorobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
n-butylbenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,2-dichlorobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,2,4-trichlorobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
hexachlorobutadiene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
naphthalene	Method	All samples in batch VOC140	25 ug/L	125 ug/L
1,2,3-trichlorobenzene	Method	All samples in batch VOC140	25 ug/L	125 ug/L

CRQL = Contract Required Quantitation Limit

Blank Actions:

- If the sample concentration was < the CRQL, qualify the compound as not detected (Um) at the CRQL.
- If the sample concentration was > the CRQL and < the Action Level, qualify the compound as not detected (Um) at the reported concentration.
- If the sample concentration was > the CRQL and > the Action Level,

qualification of the data was not required.

Based on the action levels determined above, the positive results for m,p-xylenes in samples SITE 1 SB08(6-8), SITE 1 SB01(0-2) and SITE 1 CS04, o-xylene in samples SITE 1 SB08(6-8), SITE 1 SB01(0-2), SITE 1 SB05(8-10) and SITE 1 CS04, isopropylbenzene in samples SITE1 SB08(6-8) and SITE1 SB01(0-2), 1,3,5-trimethylbenzene in samples SITE 1 SB08(6-8), SITE 1 SB01(0-2) and SITE1 SB05(8-10), tert-butylbenzene in samples SITE 1 SB08(6-8), SITE 1 SB05(8-10) and SITE 1 CS04, 1,2,4-trimethylbenzene in samples SITE 1 SB08(6-8), SITE 1 SB01(0-2), SITE 1 SB05(8-10) and SITE 1 CS04, sec-butylbenzene in samples SITE 1 SB08(6-8), SITE 1 SB01(0-2) and SITE 1 SB05(8-10), 4-isopropyltoluene in samples SITE 1 SB08(6-8), SITE 1 SB01(0-2) and SITE 1 CS04, toluene in samples SITE 1 SB01(0-2) and SITE 1 CS04 , ethylbenzene and n-propylbenzene in samples SITE 1 SB01(0-2) and SITE 1 CS04, n-butylbenzene in samples SITE 1 SB01(0-2), SITE 1 SB05(8-10) and SITE CS04, styrene in samples SITE 1 SB05(8-10) and SITE 1 CS04 and isopropylbenzene in sample SITE 1 CS04 were qualified as nondetects (Um) due to contamination found in the method blanks.

Surrogate Recoveries

The following tables list the samples which yielded surrogate recoveries outside of control limits of 60-140% and the resulting validation actions:

Sample	Surrogate 1 (Rec%)	Actions
SITE 1 SB08(6-8)	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 SB07(4-8)	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 SB07(8-10)	374%	Estimate the positive results (Js) associated with the surrogate.
SITE 1 SB77(4-8)	CFC-351, surrogate recovery not reported.	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 SB03(0-2)	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 SB02(0-2)	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 SS02	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 SS04	23%	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.

SITE 1 CS02	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 1 CS03	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE1 CS04	727%	Estimate the positive results (Js) associated with the surrogate.
SITE1 CS22	326%	Estimate the positive results (Js) associated with the surrogate.
SITE 9 SB04(2-4)	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 9 SB01(4-8)	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 9 SB02(2-4)	36%	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 11 SB03(5-6)	36%	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 11 SB44(4-6)	41%	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 11 SB01(4-6)	15%	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.
SITE 11 SB04GW	144%	Positive results not detected, qualification not required.
SITE 1 MW13	147%	Positive results not detected, qualification not required.
RBSB120100	141%	Positive results not detected, qualification not required.
IDW-DECON	REQUESTED NOT RECEIVED	Estimate the positive and nondetect results (Js, UJs) associated with the surrogate.

Internal Standards

Internal standard areas for all samples were requested from the laboratory March 8, 2000 and were not received as of 4/27/01. Qualifications were not able to be performed based on internal standard results.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Volatile:

Sample SITE 1 MW12 was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits of 60-140% in the MS/MSD analyses performed on sample SITE 1 MW12 and the resulting validation actions.

Spike level: 40 ppb

Compound	MS %Rec	MSD %Rec	Action
Benzene	158	-	Positive result not detected in unspiked sample, qualification not required.
1,2-Dichlorobenzene	140	-	Positive result not detected in unspiked sample, qualification not required.

Spike level: 20 ppb

Compound	MS %Rec	MSD %Rec	Action
Ethylbenzene	-	145	Positive result not detected in unspiked sample, qualification not required.
Styrene	-	145	Positive result not detected in unspiked sample, qualification not required.
s-Butylbenzene	-	145	Positive result not detected in unspiked sample, qualification not required.
n-Butylbenzene	-	145	Positive result not detected in unspiked sample, qualification not required.
Naphthalene	-	170	Positive result not detected in unspiked sample, qualification not required.

Sample SITE 1 SB08(8-10) was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits of 60-140% in the MS/MSD analyses performed on sample SITE 1 SB08(8-10) and the resulting validation actions.
Spike level: 40 ppb

Compound	MS %Rec	MSD %Rec	Action
cis-1.2-Dichloroethene	-	145	Positive result not detected in unspiked sample, qualification not required.
m,p-Xylenes	-	141	Positive result not detected in unspiked sample, qualification not required.
Styrene	-	158	Positive result not detected in unspiked sample, qualification not required.
n-Butylbenzene	-	148	Positive result not detected in unspiked sample, qualification not required.
Hexachlorobutadiene	-	145	Positive result not detected in unspiked sample, qualification not required.

Sample SITE 4 SB01(2-4) was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits of 60-140% in the MS/MSD analyses performed on sample SITE 4 SB01(2-4) and the resulting validation actions.

Spike level: 20 ppb

Compound	MS %Rec	MSD %Rec	Action
Naphthalene	-	355	Positive result not detected in unspiked sample, qualification not required.

Sample SITE 9 SB02(6-8) was submitted for MS/MSD analyses with this SDG. The following table lists the results which were outside of control limits of 60-140% in the MS/MSD analyses performed on sample SITE 9 SB02(6-8) and the resulting validation actions.

Spike level: 50 ppb

Compound	MS %Rec	MSD %Rec	Action
Naphthalene	-	228	Positive result not detected in unspiked sample, qualification not required.

Blank Spike

The following table lists the blank spike, associated samples, compounds outside of the QC acceptance criteria (60-140%) and the resulting validation actions.

Blank Spike	Compound	% Rec	Action
VOC009 RS	styrene	150	Estimate the positive result (Jl) in associated samples.
VOC009 RS	4-chlorotoluene	1200	Estimate the positive result (Jl) in associated samples.
VOC009 RS	bromobenzene	nd	Estimate the positive and/or nondetect result (Jl,UJl) in the associated samples.
VOC009 RS	2-chlorotoluene	nd	Estimate the positive and/or nondetect result (Jl,UJl) in the associated samples.
VOC009 RS	hexachlorobutadiene	nd	Estimate the positive and/or nondetect result (Jl,UJl) in the associated samples.
VOC009 RS	naphthalene	nd	Estimate the positive and/or nondetect result (Jl,UJl) in the associated samples.

Blank Spike	Compound	% Rec	Action
VOC110 RS	bromobenzene	nd	Estimate the positive and/or nondetect result (Jl,UJl) in the associated samples.
VOC110 RS	2-chlorotoluene	nd	Estimate the positive and/or nondetect result (Jl,UJl) in the associated samples.

It should be noted blank spike VOC009 reported bromobenzene, 2-chlorotoluene, hexachlorobutadiene and naphthalene as non-detect and the %recovery was not reported. The blank spike VOC110 reported bromobenzene and 2-chlorotoluene as 0% recovery without reporting a result in the concentration column for these compounds. It is unclear whether the compounds were in the spiking solution. Since the reporting of the data is vague, it is recommended to estimate the positive and nondetected results (Jl, UJl) for these compounds in the associated samples.

Samples associated with the blank spike VOC009RS: SITE 1 SB07(8-10), SITE 1 SB77(4-8), SITE 1 SS02, SITE 1 CS02, SITE 4 SB04(2-4), SITE 9 SB01(2-4), SITE 11 SB01(4-6), IDW-DECON, SITE 1 SB08(6-8), SITE 1 SB01(0-2), SITE 1 SB05(8-10), SITE 1 CS04, SITE 9 SB04(0-4), SITE 4 SB04(4-6), SITE 4 SB01(5-7), SITE 4 SB02(4-6), SITE 4 SB02(8-10), SITE 9 SB02(6-8), SITE 9 SB03(0-2), SITE 11 SB02(2-4), TB112800, TB112800, TB113000, SITE 1 MW12, FB120100 and TB120100.

Samples associated with the blank spike VOC110RS: SITE 1 SB06(0-2), SITE 1 SB06(8-10), SITE 1 SB03(0-2), SITE 1 CS03, SITE 9 SB04(2-4), SITE 4 SB02(2-4), SITE 4 SB22(8-10), SITE 9 SB01(4-8), SITE 9 SB01(10-12), SITE 4 SB03(2-4), SITE 4 SB03(4-6), SITE 11 SB01(6-8), SITE 11 SB02(4-6), SITE 1 SB08(0-2), SITE 1 SB08(8-10), SITE 1 SB07(0-2), SITE 1 SB07(4-8), SITE 1 SB06(4-8), SITE 1 SB04(0-2), SITE 1 SB02(0-2), SITE 1 SS01, SITE 1 SS03, SITE 1 SS04, SITE 1 SS11, SITE 1 SB05(0-2), SITE 1 SB05(10-12), SITE 1 CS01, SITE 1 CS22, SITE 4 SB01(2-4), SITE 9 SB11(4-8), SITE 9 SB02(8-10), SITE 9 SB03(2-4), SITE 9 SB02(2-4), SITE 11 SB03(5-6), SITE 11 SB44(4-6), SITE 11 SB04(2-4), SITE 11 SB04(4-6), SITE 11 SB03(2-4), SITE 11 SB01(2-4), SITE 11 SB02(6-8), SITE 9 SB04GW, SITE 4 SB04GW, SITE 4 SB044GW, SITE 11 SB04GW, SITE 11 SB03GW, SITE 1 MW09, SITE 1 MW11, SITE 1 MW13, SITE 1 MW13D, SITE 1 MW113, RBSB120100 and RBCS120100.

Field Duplicate Results

Samples SITE 1 SB07(4-8) and SITE 1SB77(4-8) were submitted as a field duplicate pair with this SDG. The following table lists the RPDs which were outside of control limits in the field duplicate analyses and the resulting validation actions.

Compound	Sample conc. (µg/kg)	Duplicate conc. (µg/kg)	RPD (%)	Control Limits	Action
toluene	4900	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
Ethylbenzene	5500	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
M,p-xylenes	1700	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
Styrene	7000	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
isopropylbenzene	1200	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
n-propylbenzene	260	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
1,3,5-trimethylbenzene	411	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
tert-butylbenzene	1800	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
1,2,4-trimethylbenzene	3200	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.

4-isopropyltoluene	1500	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.

Samples SITE 1 SS01 and SITE 1 SS11 were submitted as a field duplicate pair with this SDG. The following table lists the RPDs which were outside of control limits in the field duplicate analyses and the resulting validation actions.

Compound	Sample conc. (µg/kg)	Duplicate conc. (µg/kg)	RPD (%)	Control Limits	Action
toluene	149	81	59	RPD <50	Estimate positive results (Jf) in field duplicate pair.
1,2,4-trimethylbenzene	nd	99	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
n-butylbenzene	nd	225	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.

Samples SITE 1 CS02 and SITE 1 CS22 were submitted as a field duplicate pair with this SDG. The following table lists the RPDs which were outside of control limits in the field duplicate analyses and the resulting validation actions.

Compound	Sample conc. (µg/kg)	Duplicate conc. (µg/kg)	RPD (%)	Control Limits	Action
ethylbenzene	100	265	90	RPD <50	Estimate positive results (Jf) in field duplicate pair.
m,p-xylenes	169	342	68	RPD <50	Estimate positive results (Jf) in field duplicate pair.
o-xylene	218	775	112	RPD<50	Estimate positive results (Jf) in field duplicate pair.
styrene	272	655	83	RPD<50	Estimate positive results (Jf) in field duplicate pair.

isopropylbenzene	47	186	119	RPD<50	Estimate positive results (Jf) in field duplicate pair.
t-butylbenzene	441	1300	99	RPD<50	Estimate positive results (Jf) in field duplicate pair.
1,2,4-trimethylbenzene	670	1300	64	RPD<50	Estimate positive results (Jf) in field duplicate pair.
sec-butylbenzene	215	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
4-isopropyltoluene	265	482	58	RPD<50	Estimate positive results (Jf) in field duplicate pair.
n-butylbenzene	690	1300	61	RPD<50	Estimate positive results (Jf) in field duplicate pair.
n-propylbenzene	nd	147	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.

Samples SITE 9 SB01(4-8) and SITE 9 SB11(4-8) were submitted as a field duplicate pair with this SDG. The following table lists the RPDs which were outside of control limits in the field duplicate analyses and the resulting validation actions.

Compound	Sample conc. (µg/kg)	Duplicate conc. (µg/kg)	RPD (%)	Control Limits	Action
toluene	398	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
ethylbenzene	227	nd	*	RPD <50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
m,p-xylene	568	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
o-xylene	1700	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.

styrene	568	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
isopropylbenzene	454	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
1,3,5-trimethylbenzene	57	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
tert-butylbenzene	1700	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
1,2,4-trimethylbenzene	1400	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
sec-butylbenzene	454	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
4-isopropyltoluene	511	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.
n-butylbenzene	1310	nd	*	RPD<50	Estimate positive and nondetect results (Jf, UJf) in field duplicate pair.

* RPD not calculated.

99170.31

Please feel free to contact me if you have any questions.

Very truly yours,

Lisa McDonagh
Data Validator

NATIONAL FUNCTIONAL VALIDATION GUIDELINES FOOTNOTES

J/UJ/R	Holding times have been exceeded or samples were improperly preserved; estimate positive results and non-detects or reject results if holding times were grossly exceeded.
J/UJc/Rc	The initial %RSD was greater than 30% for semivolatile and volatiles or greater than 20% for pesticide/PCB or the continuing calibration %D was greater than 25%; estimate positive results and non-detects. RRF <0.05; estimate (Jc) all positive and reject (Rc) all nondetect results. For inorganics, the initial or continuing calibration verification standard was outside of control limits of 90 - 110% for metals, 80 - 120% for Mercury or 85 - 115% for Cyanide. The positive or non-detected results are estimated dependent on the recovery.
Um	Compound was present in the associated laboratory blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.
Uf	Compound was present in the associated field blank. For organic results greater than the reported detection limit but lower than the action level: report the sample concentration followed by "U". For inorganics, the analyte was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank and has been qualified as nondetected.
J/UJ/Rs	One or more of the surrogate standard % recoveries was found outside of established control limits: estimate positive and/or non-detected results dependent on recovery. For surrogate recoveries less than 10%, estimate positive results and reject non-detects. For semi-volatile samples 2 or more surrogates were outside of control limits within one fraction.
J/UJ/Rm	The matrix spike (MS) and/or matrix spike duplicate (MSD) % recoveries were not within the control limits for this compound: estimate positive and/or non-detected results in the unspiked sample dependent on the recovery. The MS and/or MSD % recoveries were less than 10% (for organics) or less than 30% (for inorganics) for this analyte: estimate positive results in the unspiked sample and reject non-detects.