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**Final
PADEP Act 2 Final Report**

**Soil Sampling Efforts
Installation Restoration Program Site 11
Naval Air Station Joint Reserve Base
Pennsylvania**

Contract No. N62472-92-1296
Contract Task Order Number 0074

Prepared for

Department of the Navy
Engineering Field Activity, Northeast
Naval Facilities Engineering Command
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March 2004

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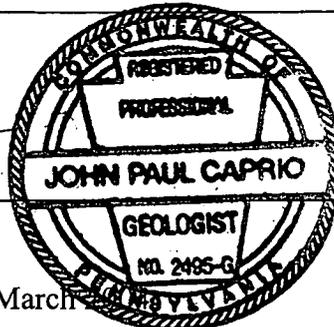
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Date



March

CONTENTS

	<u>Page</u>
LIST OF FIGURES	Figure-1
LIST OF TABLES	Table-1
1.0 INTRODUCTION	1
1.1 Objective	2
1.2 Report Organization	2
2.0 SITE DESCRIPTION	4
2.1 Base/Site Location	4
2.2 Physical Features	4
2.2.1 Topography	4
2.2.2 Soil	5
2.2.3 Geology	5
2.2.4 Hydrology	5
2.2.5 Hydrogeology	6
2.3 Site History	7
3.0 FIELD METHODOLOGY	8
3.1 Sampling Methodology	8
3.1.1 Soil Sampling	8
3.2 Monitoring Well Installation and Development	10
3.2.1 Monitoring Well Development	12
3.2.2 Ground-water Purging and Sampling	12
3.3 Sample Handling/Chain-of-Custody	13
3.4 Quality Control (QC) Samples	14
3.5 Data Validation	14
3.6 Decontamination	15
3.7 Investigation-Derived Material (IDM)	15
4.0 SITE CHARACTERIZATION	18
4.1 Subsurface Conditions	18
4.2 Soil Sample Results	19
4.3 Ground-water Sample Results	20
5.0 ECOLOGICAL SCREENING	22
6.0 DEMONSTRATION OF ATTAINMENT	23
6.1 Regulatory Overview	23
6.2 Remedial Activities Performed at the Site	23
6.3 Demonstration of Attainment for Soil	23
6.3.1 Point of Compliance	23
6.3.2 Demonstration of Attainment	24
6.4 Supporting Analytical Results	24
6.4.1 Soil Analytical Results	24
6.4.2 Ground-water Analytical Results	24
7.0 CONCLUSIONS	26

CONTENTS (continued)

REFERENCES

APPENDIX A:	PAST SAMPLE LOCATION MAP
	PAST ANALYTICAL RESULTS
APPENDIX B:	2003 BORE LOGS; 2003 USGS E-LOGS
APPENDIX C:	2003 GROUND-WATER MONITORING WELL CONSTRUCTION DIAGRAMS
APPENDIX D:	2003 WELL PURGING AND SAMPLING RECORDS
APPENDIX E:	CHAIN OF CUSTODIES
	VALIDATED ANALYTICAL RESULTS
APPENDIX F:	2003 WASTE MANIFESTS

LIST OF FIGURES

<u>Number</u>	<u>Title</u>
1	NASJRB Location Map
2	IR Site 11 Location Map
3	Soil Boring and Ground-water Monitoring Well Locations
4	Ground-water Flow at IR Site 11 and the Surrounding Area based on 2003 Sampling Event

LIST OF TABLES

<u>Number</u>	<u>Title</u>
1	Surface Soil Analytical Results- TCL VOC
2	Subsurface Soil Analytical Results- TCL VOC
3	Surface Soil Analytical Results- TCL SVOC
4	Subsurface Soil Analytical Results- TCL SVOC
5	Surface Soil Analytical Results- TAL Metals
6	Subsurface Soil Analytical Results- TAL Metals
7	Quality Control Analytical Results Associated with Soil- TCL VOC
8	Quality Control Analytical Results Associated with Soil- TCL SVOC
9	Quality Control Analytical Results Associated with Soil- TAL Metals
10	Ground-water Analytical Results – TCL VOC
11	Ground-water Analytical Results- TCL SVOC
12	Ground-water Analytical Results- TAL Metals
13	Quality Control Analytical Results Associated with Ground-water- TCL VOC
14	Quality Control Analytical Results Associated with Ground-water- TCL SVOC
15	Quality Control Analytical Results Associated with Ground-water- TAL Metals

1.0 INTRODUCTION

This Pennsylvania Department of Environmental Protection (PADEP) Act 2 Final Report has been prepared by EA Engineering, Science, and Technology, Inc. (EA) under Contract Number N62472-92-D-1296, as authorized by Engineering Field Activity Northeast, EFA Northeast, Naval Facilities Engineering Command. Note that portions of the administrative process of the PADEP Act 2 Final Report were not required for this site. Since the entire NASJRB Installation is designated as a National Priority List (NPL) site a modified form of Act 2 that does not consider the administrative component is appropriate. The administrative components that are not considered appropriate are:

- Submittal of a transmittal sheet
- Submittal of a Notice of Intent to Remediate (NIR)
- Payment of report review fees
- Publication of the NIR and report submission in a newspaper of local distribution
- Notification to the local municipality regarding submission of the NIR and any reports
- Provision for 30-day public comment period for NIRs submitted under the site-specific standard or develop a public involvement plan
- Attachment of a Professional Geologist and/or Engineering seal when geologic/hydrogeologic and/or engineering tasks are completed within the submitted report.
- Completion an electronic or hardcopy submission of a Final Report Summary for each Final Report submitted.

EA has been tasked with the investigation of the IR Program Site 11 at the Naval Air Station Joint Reserve Base (NASJRB), PA. IR Program Site 11 consists of an aircraft staging area where petroleum contaminated soil was detected during grading activities in the early

1990s. Although soil samples were analyzed and the soil was excavated, confirmation sampling was not conducted. Therefore, PADEP requested that confirmation soil samples be collected and evaluated to determine if attainment for Act 2 liability protection for closure can be demonstrated for the area of concern (the former excavated area). In addition, PADEP requested that ground water be sampled downgradient of the site to determine if the petroleum contaminated soil had affected the ground water at IR Program Site 11.

1.1 OBJECTIVE

The objective of this investigation is to adequately characterize the soil and confirm or deny the presence of petroleum product contaminants in soil to determine if the site can demonstrate attainment for Act 2 liability protection. The investigation was performed in accordance with the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2 of 1995).

Field activities conducted during this investigation included the sampling of surface and subsurface soil by direct push methods and the drilling of bore holes for the installation of wells for ground-water sampling. Field activities were performed in accordance with the PADEP approved *Final Work Plan for Various Fieldwork Efforts, Installation Restoration Program Sites 10 and 11, Naval Air Station Joint Reserve Base, Pennsylvania* dated March 2003.

Soil sampling was conducted on the 5 and 7 May 2003. The ground-water sampling was conducted on the 2 and 3 June 2003. Sampling of the drums of Investigation Derived Material (IDM) generated during this sampling event occurred on 10 June 2003. The soil sample locations and the new ground-water monitoring wells longitude and latitude were recorded in the field on the 9 June 2003 utilizing the Trimble Backpack GPS. The elevations of the top of casing at the new ground-water monitoring wells were surveyed on 5 June 2003. Offsite disposal of the drums of extra soil cuttings, decontamination water, and PPE occurred on 2 July 2003.

1.2 REPORT ORGANIZATION

This report provides a detailed overview of historic investigations, the approach for field activities, sample analysis results and data interpretation. The report is organized as follows:

- **Section 1 – Introduction:** Includes the objective of the project and the report organization.

- **Section 2 – Site Description:** Presents a description of NASJRB and IR Site 11 including: site description, physical features, and site history.
- **Section 3 – Field Methodology:** Presents a brief description of activities performed, description of soil boring and advancement, sample handling/chain of custody, quality control, decontamination, and investigation-derived material (IDM).
- **Section 4 – Site Characterization:** Presents the results of the sampling program, including surface and subsurface conditions and soil and ground-water quality hydrogeology, are discussed. Development of the appropriate regulatory limits for data comparison is presented. In addition, the current sample results are compared to the regulatory standard. Data validation is also discussed.
- **Section 5- Ecological Screening:** Provides a comparison of site conditions to the regulatory criteria to demonstrate that ecological screening is not required.
- **Section 6- Demonstration of Attainment:** Provides an overview of the current regulatory status. Section 6 along with Section 5 fulfills the attainment requirements of the Statewide Health Standard in accordance with Act 2.
- **Section 7– Conclusions:** Conclusions and a discussion of the regulatory context are presented.

2.0 SITE DESCRIPTION

2.1 BASE/SITE LOCATION

The NASJRB, Pennsylvania (PA) is located in Horsham Township, Montgomery County in southeastern PA, approximately 15 miles northwest of Philadelphia, PA (Figure 1). NASJRB occupies approximately 1,000 acres bordered on the east by PA Route 611, on the southwest by PA Route 463 and on the north by Keith Valley Road. NASJRB's current mission is to provide support for operations involving aviation and to train reservists. The base provides facilities, services, and materials and training to directly support assigned military units.

IR Site 11 (Figure 2), an aircraft staging area, is bordered to the south by the Navy's Aircraft Apron; to the north by two above ground storage tanks (AST) and the U.S. Air Force Area; to the east by a parking lot; to the west by grass. Located to the north of IR Site 11 are Air Force buildings. Several other base facilities exist within 1,000 ft of the site. IR Site 11 consists of a grass covered area.

2.2 PHYSICAL FEATURES

2.2.1 Topography

The NASJRB area lies in the Triassic Lowlands Section of the Piedmont Physiographic Province. This section is characterized by rolling topography. Broad northeast-southwest trending ridges in the area reflect resistant sandstone beds and diabase dikes. NASJRB occupies a relative topographic high, which precludes surface water from flowing onto the base. Surface elevations range from 240 feet (ft) above mean sea level (MSL) to approximately 370 ft above MSL. Natural slopes are less than three percent, however, where a re-grading has occurred they can be steeper. IR Site 11 is flat adjacent to the Aircraft Parking Area, with a steep gradient between the parking area and the U.S. Air Force Area.

2.2.2 Soil

Previous drilling activities at the NASJRB indicate the overburden thickness varies from 4 to 15 ft thick. On average, the soil consists of brown, yellowish-brown, and reddish-brown, and orange mixtures of silt, clay, and sand. The drilling and direct push activities during this investigation at IR Site 11 also consisted of mixtures of silt, clay, and sand.

The Soil Survey of Montgomery County (United States Department of Agriculture, 1967) indicates that five major soil series are found within the boundaries of NASJRB. These series include the Landsdale, Lawrenceville, Chalfont, and Readington silt loams and the Landsdale loam. In addition, Made land consisting of shale and sandstone materials is found within NASJRB. Readington silt loam and Made land shale and sandstone are found within IR Site 11. On average, the soil exhibits moderate to slow permeability that encourages rapid runoff during normal precipitation events.

2.2.3 Geology

The geology of NASJRB has been characterized based on geologic logs of past and current soil borings. Depth to bedrock varies from 4 to 15 feet depending on whether the area has undergone construction activities. Competent sandstone overlies shale or siltstone units. The recent borings at IR Site 11 indicated bedrock consisting of sandstone was encountered approximately 10 ft below ground surface (bgs). Regional bedrock formation dip ranges from 5 to 15 degrees with strike to the north-northwest. Rock beds vary in thickness, often pinching out or grading into other facies, making stratigraphic correlation difficult.

The Middle Arkosic Member of the Late Triassic Stockton Formation underlies unconsolidated materials. This member consists of interbedded red shale, siltstone, and gray-tan, medium-grained, arkosic sandstone, which were deposited as part of a coalescing fluvial channel system. Red shale and siltstone are predominant along the southern edge of the site, whereas the arkosic sandstone underlies the remainder of the site.

2.2.4 Hydrology

The NASJRB lies within an upland area that forms a local drainage divide between the Little Neshaminy Creek drainage basin to the north and the Pennypack Creek drainage basin to the

south. These local basins lie within the regional Delaware River drainage basin. Runoff from base surface areas is primarily channeled through open drainage swales and enclosed storm sewers to five primary outfall areas. Three of these outfall to the Park Creek. The fourth outfall flows in an intermittent stream into the Pennypack Creek and the fifth outfall is connected to the Northern Storm Sewer System.

2.2.5 Hydrogeology

Water levels in existing monitoring wells can fluctuate several feet annually due to seasonal influences. In most cases, ground water is observed within the bedrock fractures or within the weathered zone immediately overlying competent bedrock. Static water levels not only reflect the regional potentiometric surface, but also the composite head resulting from the different water-yielding zones that the wells intercept. For this reason, water levels may show marked differences between nearby wells depending on the number, location, and size of the fractures intercepted by each well.

A topographic ridge exists on NASJRB that acts as a ground and surface water divide (USGS, 2001). This divide trends southwest to northeast and is found in the southern portion of the installation in the vicinity of the Fire Training Area. Ground water north of this divide flows in a northwest direction and that to the south flows in a northeast direction.

Therefore, since IR Site 11 lies north of this divide, flow is predominantly to the northwest. However, because flow is predominantly through rock fractures within the bedrock or weathered bedrock, localized flow direction may vary. Ground-water flow through arkosic sandstone is more rapid than through shale/siltstone as evidenced by more rapid recharge rates during well development and purging prior to sampling. This may also be due to the greater size and density of fractures present within the sandstone.

The average hydraulic conductivity has been calculated to be approximately 4.05×10^{-5} centimeters per second (cm/sec). The average ground-water velocity has been calculated to be approximately 30 ft/year, assuming an effective porosity of 7 percent and a hydraulic gradient of 0.029 ft. EA has conducted aquifer tests during low and high water table conditions and results

of the remedial system operations indicate that wells previously installed at IR Site 10 (adjacent site to IR Site 11) are low yielding. These wells typically yield 0 to 2 gal per minute (gpm) during low water table conditions and 5 to 10 gpm during high water table conditions.

2.3 SITE HISTORY

In the early 1990s during grading activities, petroleum contaminated soil was encountered. Fifteen soil samples were collected in an effort to delineate the extent of soil contamination. The soil samples were analyzed for benzene, toluene, ethylbenzene, xylene, and petroleum oil fingerprint. The method of analysis is unknown and the units were questionable. The samples consisted of soil, however, the units indicate aqueous samples. In addition, the only known documentation of the sampling event and results are a map showing the sample locations and the laboratory analytical tables. Remediation consisted of the removal of contaminated soil based on sample results, however, no confirmation soil sampling (sampling soil after excavation to confirm complete removal) was conducted. In addition, no ground-water samples were collected. The soil sample location map along with the analytical results are provided in Appendix A.

3.0 FIELD METHODOLOGY

The following investigative activities were performed at IR Site 11 from May through July 2003:

- Advancement of 9 soil borings to assess the soil quality along IR Site 11 to confirm the removal of the petroleum contaminated soil.
- Installation of two ground-water monitoring wells downgradient of IR Site 11 to determine the possibility of ground-water contamination from the petroleum contaminated soil. Soil samples were collected from the monitoring well bore holes to evaluate the possibility of petroleum contaminated soil downgradient of the excavated area.
- Soil and ground-water sampling for the PADEP required parameters.

Field activities and laboratory analysis were performed in accordance with the PADEP approved *Final Work Plan for Various Fieldwork Efforts, Installation Restoration Program Site 10 and 11, Naval Air Station Joint Reserve Base, Pennsylvania* dated March 2003 which includes both a Sampling and Analysis Plan, Quality Assurance Project Plan, and a Safety, Health, and Emergency Response Plan.

3.1 SAMPLING METHODOLOGY

3.1.1 Soil Sampling

On 5 and 7 May 2003, 9 soil borings were advanced within the area of concern along with two additional soil borings (well locations discussed below) downgradient of the area of concern. Soil borings within the area of concern were advanced to depths ranging from 11 to 19 ft bgs. The two soil borings (well locations) downgradient of the area of concern were advanced to depths of 45 ft bgs and 70 ft bgs. Surface and subsurface soil samples were collected from the borings. The soil borings within the area of concern were advanced by direct push methodologies using a Geoprobe[®]. Northeast Regional Probing performed the direct push activities. The Geoprobe[®] was advanced continuously below grade and samples were collected using 4-ft long, 2-in. outside diameter sampling rods. Rods were lined with 48-in. poly-tubing which allowed for discrete sampling.

The soil borings (well locations) downgradient of the area of concern were accomplished by advancing a 10-inch or 12-inch diameter bore hole through the overburden to the top of desired sample intervals by air rotary drill. Sampling was conducted by advancing a 2-ft long, 2-inch outside diameter split spoon continuously throughout the overburden. Eichelbergers, Inc. of Mechanicsburg, Pennsylvania performed the drilling. No ground water was encountered in the soil borings along the area of concern. Ground water was encountered at both locations within bedrock. Soil boring locations are presented on Figure 3 and soil bore logs are included in Appendix B. An e-log produced by the United States Geological Survey (USGS) of a bore hole that was drilled for a ground-water monitoring well is also included in Appendix B followed by the bore logs. The bore logs provide the longitude and latitude for each sample location and/or well location. The table below summarizes the identification, collection date, sampling interval, and sample type for each soil sample.

Summary of Soil Sampling

Sample Identification	Collection Date	Sampling Interval (ft)	Sample Type
11SB010304	5/5/03	3-4	Subsurface Soil
11SB011819	5/5/03	18-19	Subsurface Soil
11SB020203	5/5/03	2-3	Subsurface Soil
11SB021819	5/5/03	18-19	Subsurface Soil
*11DUP01 (11SB021819)	5/5/03	18-19	Subsurface Soil
11SB030304	5/5/03	3-4	Subsurface Soil
11SB030405	5/5/03	4-5	Subsurface Soil
11SB040102	5/5/03	1-2	Surface Soil
11SB041415	5/5/03	14-15	Subsurface Soil
11SB050102	5/5/03	1-2	Surface Soil
11SB051819	5/5/03	18-19	Subsurface Soil
11SB060102	5/5/03	1-2	Surface Soil
11SB061011	5/5/03	10-11	Subsurface Soil
11SB070102	5/5/03	1-2	Surface Soil
11SB071011	5/5/03	10-11	Subsurface Soil
11SB080304	5/5/03	3-4	Subsurface Soil
11SB080708	5/5/03	7-8	Subsurface Soil
11SB090304	5/5/03	3-4	Subsurface Soil
11SB091112	5/5/03	11-12	Subsurface Soil
**11SB22010	5/7/03	1-4	Surface Soil

4 (ms/msd)			
11SB220810	5/7/03	8-10	Subsurface Soil
11SB230102	5/7/03	1-2	Surface Soil
11SB230810	5/7/03	8-10	Subsurface Soil

* Duplicate Sample

** includes MS/MSD- Matrix Spike/ Matrix Spike Duplicate

Soil recovered from the continuous sampler was initially screened for VOC in the field using a photoionization detector (PID); the PID readings were recorded on the soil boring logs. A representative soil sample was collected from each boring based on PID readings and/or visual environmental concern. If no environmental concerns were noted in a soil boring, the subsurface soil interval sent for analysis was collected directly above the bedrock and/or refusal. In order to reduce the loss of contaminants due to volatilization, VOC samples were collected first using Encore™ samplers. The remaining soil was homogenized and placed in appropriate laboratory sample jars.

Soil samples were submitted to Lionville Laboratory, Inc. of Lionville, Pennsylvania for laboratory analysis of the following parameters:

- Target Compound List (TCL) Volatile Organic Compound (VOC) by EPA Method 8260 B
- Ethylene Dibromide (EDB) and Cumene by EPA Method 8260 B
- TCL Semivolatile Organic Compound (SVOC) by EPA Method 8270C
- Target Analyte List (TAL) Metals by EPA Method 6010B/7000

3.2 MONITORING WELL INSTALLATION AND DEVELOPMENT

In May 2003, three ground-water monitoring wells (11MW22, 11MW23, and 11MW23s) were installed at the site. These monitoring wells are located north and downgradient of the area of concern. As detailed below there were two monitoring wells installed within the 11MW23 bore hole because 11MW22 did not produce a sufficient amount of water. Ground-water monitoring wells were installed in order to determine the possibility of ground-water contamination from the petroleum contaminated soil. Ground-water monitoring well

locations are presented on Figure 3. The ground-water monitoring well construction diagrams are provided in Appendix C. The ground elevations and top of casing elevations are provided on the well construction diagrams. A brief description of the monitoring wells are as follows:

- 11MW22 is a shallow open bore hole well that was drilled to a maximum of 45 ft bgs;
- 11MW23 is an intermediate well that was drilled to 70 ft bgs, however a 2-inch well was installed to 50 ft bgs due to the absence of high yielding water bearing zones at a depth of 70 ft bgs; and
- 11MW23s is a shallow 2-inch well installed in the same bore hole as 11MW23 to 32 ft bgs to replace 11MW22.

Note that 11MW23s was installed to replace 11MW22 monitoring well since ground-water infiltration was not observed to the maximum drilling depth of 45 ft bgs within 11MW22. Therefore, 11MW22 was not sampled or e-logged.

Ground-water monitoring wells were installed using air rotary drill techniques. Well construction was performed in accordance with PADEP Bureau of Watershed Management Ground-water Monitoring Guidance Manual, 1 December 2001.

The newly installed ground-water monitoring wells (11MW23 and 11MW23s) were constructed using 2-in. inside diameter, flush-threaded PVC screen (0.020 slot) and PVC riser. 11MW23 and 11MW23s was completed with 10 ft of screen each. The annular space between the well and bore hole was backfilled with chemically inert sand to a depth 2-3 ft above the top of the screen. Soundings of the depth to the top of the sand were made continuously during well installation to minimize bridging. A bentonite seal was tremied above the filter pack and was composed of commercially available coarse-grade bentonite. The bentonite seal was placed at the top of bedrock to prevent seepage. The bentonite was hydrated following placement. Remaining annular space was backfilled to grade with cement-bentonite grout.

The top of PVC casing at each 11MW23 and 11MW23s was terminated at an elevation of 311.29 ft and 311.35 ft, respectively, and construction was completed with well cover and locked. In addition, the top of steel casing at 11MW22 was terminated at an elevation of 312.61 ft and was also completed with a well cover and locked. 11MW23 and 11MW23s was capped with a vented, expanding well cap.

3.2.1 Monitoring Well Development

The newly installed monitoring wells were developed in May 2003 by personnel from Eichelbergers, Inc. Each well was first mechanically surged using a submersible pump and pumped clear of sediment. Surging continued until little or no sediment entered the well. Following the surging process, each well was continuously pumped using a submersible pump. Pumping continued until the water was visibly clear and free of fines, and a minimum removal of three times the standing water volume in the well (to include the well screen and casing plus saturated annulus, assuming 30 percent porosity).

3.2.2 Ground-water Purging and Sampling

On 2 and 3 June 2003, a two-person field team gauged and sampled each of the 2 newly installed ground-water monitoring wells at IR Site 11 NASJRB. Water levels were gauged using an oil and water interface probe (IFP).

The wells were purged and then sampled using low-flow sampling methodology. The wells were purged by continuously pumping the monitoring well using a submersible pump equipped with dedicated 3/8-in. inside diameter polyethylene tubing. Temperature, pH, specific conductivity, redox potential (ORP), dissolved oxygen (DO), and turbidity were monitored in-line utilizing a Horiba U-22 water quality meter. Ground water was withdrawn at a rate of 200 ml/min and water quality measurements were collected at 5-minute intervals. Pumping continued until the following criteria were met: water quality parameters had stabilized (± 0.1 for pH units, $\pm 3\%$ for temperature and conductivity, ± 10 mv for redox potential (ORP), and $\pm 10\%$ for turbidity and DO). Appendix D presents the Well Purging and Sampling Records. Gauging data for the wells are presented on the Well Purging and Sampling Records. The table below summarizes the identification and collection date for each ground-water sample.

Summary of Ground-water Sampling

Sample Identification	Collection Date
*11MW23 (ms/msd)	6/3/03
11MW23s	6/2/03
**11DUP01 (11MW23s)	6/2/03

* includes MS/MSD- Matrix Spike/ Matrix Spike Duplicate

****Duplicate Sample**

The ground-water samples were submitted to Lionville Laboratory, Inc. for analysis of the following parameters:

- TCL VOC by EPA Method 8260 B
- Bromoform, Dibromochloromethane, and Cumene by EPA Method 8260B with 25 ml purge.
- EDB by Method 504
- Methane (natural attenuation parameter) by Method RSK 175
- TCL SVOC by EPA Method 8270C
- Benzo(a)pyrene by Method 8310
- TAL Metals by EPA Method 6010B/7000

In addition to methane, temperature, pH, dissolved oxygen, and Eh, ground-water samples were analyzed for the following additional natural attenuation parameters in the field:

- Ferrous Iron by HACH Color Disc Kit
- Sulfate by HACH Colorimeter
- Hydrogen Sulfide by HACH Color Chart Kit

3.3 SAMPLE HANDLING/CHAIN-OF-CUSTODY

The samples were sent via Federal Express and/or hand delivered to Lionville Laboratory, Inc. for analysis. Samples were analyzed within the turn-around time of 14 days from sampling. Chain of custody forms were initiated at the time samples were collected for laboratory analysis by the sampler. Following sample collection, containers were sealed and placed in a cooler with bagged ice and cooled to 4°C or less. The chain of custody was placed in a plastic bag and taped to the inside of the cooler lid. The cooler was sealed with adhesive tape, labeled, and secured

with custody seals. Copies of the chain of custody for each sampling event and laboratory analytical reports are included in Appendix E.

Samples collected for analysis were recorded in the soil boring logs, well purging and sampling records, and/or project field notebooks. These notebooks will be kept on file for reference. Each sample collected during field activities was given a unique sample designation. The sample identification (ID) was used to establish each discrete sampling point. The sample ID was included on the chain of custody and bottle label. The information contained in the sample container was entered into the appropriate data tables and appended to the laboratory electronic data deliverables (EDD).

3.4 QUALITY CONTROL (QC) SAMPLES

During the soil sampling event, two rinsate blanks, one field blank, and two trip blanks were collected. During the ground-water sampling event, one rinsate blank, one field blank, and three trip blanks were collected. The QC samples were analyzed for the same constituents as discussed above depending on the media analyzed.

The results of the field duplicates were compared to the actual sample to determine laboratory consistency in the results. QC samples were preserved, handled, transported, and analyzed in a manner identical to the actual samples. The duplicate samples are listed in the tables discussed above.

3.5 DATA VALIDATION

An independent third-party validator performed the data validation on the laboratory data excluding the Full TCLP, reactivity, corrosivity, and ignitability analysis. The procedure followed the U.S. EPA Region III's data validation procedures: "Region III Modifications to the Laboratory Data Validation Functional Guidelines for Organic Data Review, Multimedia, Multi-Concentration" (dated September 1994); "Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (dated April 1993). The results of the data validation are provided in Appendix E. No major problems were noted.

3.6 DECONTAMINATION

The primary objective of the decontamination process was to prevent the accidental introduction of potential contaminants to non-contaminated areas and/or samples.

A decontamination pad was constructed adjacent to the EA remediation shed at IR Site 10. The pad consisted of three layers of heavy-gauge plastic and was bounded by hay bales. The dimensions of the pad were sufficient to accommodate the back of the drill rig and was deep enough to contain and store sediment and water from the decontamination procedure. Potable water for the decontamination was drawn from the truck wash station located adjacent to Building 78 at NASJRB, PA. Down-hole equipment (including bits and rods) related to drilling was pressure washed between each well location.

Other non-dedicated sampling equipment including split spoons, submersible pumps, interface probes (IFPs), etc. were decontaminated as described below:

1. Cleaned thoroughly with potable water and detergent (alconox or liquinox), using a brush, if necessary, to remove particulate matter and surface films.
2. Rinsed thoroughly with potable water supplied by NASJRB.
3. Rinsed with isopropyl alcohol followed by a nitric acid rinse.
4. Rinsed thoroughly with distilled or de-ionized water.
5. The equipment was allowed to air dry before reuse.

3.7 INVESTIGATION-DERIVED MATERIAL (IDM)

IDM, consisting of soil cuttings, rock cuttings, decontamination water, and purged water generated during field activities, were contained in 55-gal drums that were suitable for storage of hazardous materials [U.S. Department of Transportation (DOT) 17-H or 17-E 55-gal drums] and staged adjacent to the EA remediation shed at IR Site 10. In addition, used personal protective equipment (PPE) was placed in plastic garbage bags along with the decon pad plastic sheets and contained in 55-gallon drums. However, soil cuttings from the Geoprobe® during soil sampling at IR Site 11 was backfilled into the appropriate bore hole followed by bentonite to the surface. The drums were labeled with weather-resistant labels with indelible marker. The labels provided the following information: site number, well number, contents of drums, point-of-contact, date,

and telephone number. The soil and water contained within the drums were sampled for the following disposal parameters for offsite disposal:

- TCLP VOC
- TCLP SVOC
- TCLP Herbicides
- TCLP Pesticides
- TCLP Metals

In addition, the water contained within the drums was sampled for reactive cyanide, reactive sulfide, corrosivity, and ignitability.

Based on laboratory analytical results (Appendix E) of thirteen representative samples collected from the soil cuttings and water were characterized as a non-hazardous waste and were removed for disposal on 2 July 2003 by Capitol Environmental Services, Inc. The waste manifests are included in Appendix F. Analytes detected above the reporting limit in the drum composite are shown in the below table.

DETECTED ANALYTES IN THE DRUM COMPOSITE

Analyte	*RL	IDW-1	IDW-2	IDW-3	IDW-4	IDW-5	IDW-6	IDW-7	IDW-8	IDW-9	IDW-10	IDW-11	IDW-12	IDW-13
Matrix		AQ	AQ	AQ	AQ	AQ	SO							
Sample Date		6/9/03	6/9/03	6/9/03	6/9/03	6/9/03	6/10/03	6/10/03	6/10/03	6/10/03	6/10/03	6/10/03	6/10/03	6/10/03
TCLP METALS (µg/L)														
Barium	1.2	297	395	32.5	125	306	743	311	974	483	1260	1410	1290	1210
Cadmium	2.4	ND	ND	ND	ND	ND	ND	ND	3.7	ND	ND	2.7	ND	ND
Chromium	6.0	ND	ND	ND	ND	ND	ND	46.4	ND	ND	ND	ND	ND	ND
Lead	13.8	ND	ND	15.5	ND	ND	ND	ND	ND	ND	25.7	ND	ND	ND
TCLP VOC (mg/L)														
Butanone	0.010		0.048	0.053	0.035	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	0.005		0.011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*RL- reporting limit

ND-Not Detected above the laboratory detection limit

AQ- Aqueous

SO- Solid (Soil and/or Rock Cuttings)

4.0 SITE CHARACTERIZATION

4.1 SUBSURFACE CONDITIONS

Field observations during the soil boring and ground-water monitoring well installation phase were generally consistent with the above-documented lithology of the site. Soil generally consisted of silt, clay, and/or sand throughout NASJRB. The bore logs from the fill area (former excavated area, 11SB01 through 11SBO9) and downgradient of the excavated area (well locations, 11MW22, 11 MW23, and 11MW23s) are included in Appendix B. The material encountered in the filled in area consisted generally of sand. The approximate area directly downgradient of the excavated area consisted of on average of fine sand and hard clay followed by sandstone at approximately 10 ft bgs.

Hydrogeologic water levels in existing monitoring wells throughout NASJRB can fluctuate several feet annually due to seasonal influences and different water-yielding zones that the wells intercept. The IR Site 11 newly installed wells (11MW22, 11MW23, and 11MW23 on Figure 3) were gauged during the ground-water sampling event after drilling. Ground water was surveyed at depths ranging from 8.10 ft to 10.95 ft bgs at IR Site 11. Figure 4 illustrates the ground-water flow direction of IR Site 11 and the surrounding area (IR Site 10).

The remediation standard was selected as per the guidance in the PADEP Act 2 Technical Guidance Manual, Section II Remediation Standard, Section B Statewide Health Standard, dated 4 May 2002.

The soil sample analytical results were compared to the calculated remediation standard. The guidance provides the following procedure for evaluation of soil samples collected between 0 to 15 ft bgs. The soil standard involves comparing two numerical standards: the direct contact number versus the greater of the two soil-to-ground-water numbers (the generic value versus the 100 X the ground-water Medium-Specific Concentration (MSC)). The appropriate standard is the lowest value which is either the direct contact number or the greater of the two soil-to-groundwater numbers. The direct contact number for IR Site 11 in determining the appropriate standard is the non-residential surface soil (0-2 feet bgs) and the nonresidential subsurface soil (2 ft to 15 ft bgs). The soil-to-groundwater number for IR Site 11 in determining the appropriate

standard is a used aquifer with total dissolved solids less than or equal to 2500 mg/L for non-residential. Note that the past soil sample analytical results provided in Appendix A were not compared to the applicable MSCs because the units are in question.

The ground-water analytical results were compared to the MSC for ground water using the non-residential values for a used aquifer with Total Dissolved Solids (TDS) $\leq 2,500$ mg/L.

4.2 SOIL SAMPLE RESULTS

A total of 22 soil samples and 1 duplicate were submitted for laboratory analysis for TCL VOC, TCL SVOC, and TAL Metals from the soil borings completed in May 2003. Validated laboratory data results are provided in Appendix E.

No TCL VOC concentrations exceeded the applicable calculated MSCs as shown on Table 1 and Table 2 for surface and subsurface soil, respectively. It should be noted that the detection limit for 1,2-dibromoethane (EDB) is marginally higher than the MSC. However, it would be unlikely for EDB to occur in the samples given the absence of any other contaminants. Other than the common laboratory contaminants methylene chloride and acetone, the only results above the detection limits are at very low levels and are of limited occurrence.

No TCL SVOC concentrations exceeded the applicable calculated MSCs as shown on Table 3 and Table 4 for surface and subsurface soil, respectively. The detection limit for bis(2-chloroethyl)ether, n-nitroso-di-n-phenylamine, 2-nitroaniline, 3-nitroaniline, and 4-nitroaniline are greater than the applicable MSCs. However, as described above for VOC results, examination of the analysis results shows only a small number of SVOC results were reported above the detection limit and at very low levels. In addition, none of the compounds for which the detection limit exceeded the MSC are found on the list of contaminants of concern for jet fuel, diesel fuel, and used motor oil in the table titled *NASJRB Willow Grove Contaminants of Concern* (portion of *Table IV-9 Short List of Petroleum Products, PADEP Act 2, Technical Guidance Manual, Section IV General Guidance*) emailed to EA by PADEP on 13 February 2003. The subject of the email was *Site 10/Site 11 SAP and QAPP Review Comments*. Therefore, the fact that the detection limit exceeds the MSC for the VOC and SVOC compounds listed above is not considered to be an issue of concern.

No TAL Metal concentrations exceeded the applicable calculated MSCs as shown on Table 5 and Table 6 for surface and subsurface soil, respectively.

The quality control analytical results associated with the soil samples are provided in Table 7, Table 8, and Table 9 for TCL VOC, TCL SVOC, and TAL Metals, respectively. There were a few quality control analytical results slightly above the laboratory detection limit. However, the majority of these results were qualified as B, R, or K. The B qualifier for inorganics signifies that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit. The B qualifier for organics signifies the analyte was found in the associated blank as well as in the sample. This indicates possible/probable blank contamination. The R qualifier signifies that the analyte may or may not be present in the sample, therefore, the result is unusable. The K qualifier signifies that the reported value may be biased high and the actual value is expected to be lower.

4.3 GROUND-WATER SAMPLE RESULTS

A total of 2 ground-water samples and 1 duplicate were submitted for laboratory analysis for TCL VOC, TCL SVOC, TAL Metals, and methane (natural attenuation parameter) from the new ground-water monitoring wells installed in May 2003 and sampled in June 2003. Validated laboratory data results are provided in Appendix E and summarized on the tables as described below. In addition, ferrous iron, sulfate, and hydrogen sulfide were analyzed in the field for natural attenuation purposes. Note that this report is to determine if the site can demonstrate attainment for soil. Ground-water analytical and field results were collected for supporting documentation alone.

No TCL VOC concentrations exceeded the applicable calculated MSCs as shown on Table 10 (includes methane).

No TCL SVOC concentrations exceeded the applicable calculated MSCs as shown on Table 11.

TAL Metal concentrations exceeded the applicable calculated MSCs as shown on Table 12. Iron and manganese exceeded applicable calculated MSCs in three of the three ground-water samples. However, iron and manganese are not related to the type of release (petroleum) that occurred on the site. There were a few TCL VOC, TCL SVOC, and TAL Metals concentrations slightly above the laboratory detection limit.

The quality control analytical results associated with the soil samples are provided in Table 13, Table 14, and Table 15 for TCL VOC (includes methane), TCL SVOC, and TAL Metals, respectively. There were a few quality control analytical results slightly above the laboratory detection limit. However, the majority of these results were qualified as B, L, or R. The B qualifier for inorganics signifies that the parameter was between the Instrument Detection Limit and the Contract Required Detection Limit. The B qualifier for organics signifies the analyte was found in the associated blank as well as in the sample. This indicates possible/probable blank contamination. The L qualifier signifies that the reported value may be biased low and the actual value is expected to be higher. The R qualifier signifies that the analyte may or may not be present in the sample, therefore, the result is unusable.

The field results of the natural attenuation parameters including ferrous iron, sulfate and hydrogen sulfide are indicated on the below table.

NATURAL ATTENUATION PARAMETERS

Natural Attenuation Parameters	11MW23	11MW23s
Ferrous Iron	4.6 mg/L	4 mg/L
Sulfate	2 mg/L	22 mg/L
Hydrogen Sulfide	0.1 mg/L	0.5 mg/L

5.0 ECOLOGICAL SCREENING

The ecological screening is not required as based on the PADEP ACT 2 Chapter 250.311 Evaluation of Ecological Receptors because the criteria listed in Chapter 250.311(b) paragraph (1), (2), or (3) were met. The criteria states "no additional evaluation is required if the remediation attains a level equal to 1/10th of the value in Appendix A, Tables 3 and 4, except for constituents of potential ecological concern identified in Table 8, or if the criteria in paragraph (1), (2), or (3) are met."

- (1) "Jet fuel, gasoline, kerosene, number two fuel oil or diesel fuel are the only constituents detected onsite."
- (2) "The area of contaminated soil is less than 2 acres and the area of contaminated sediment is less than 1,000 square feet."
- (3) "The site has features, such as buildings, parking lots or graveled paved areas, which would obviously eliminate the specific exposure pathways, such as soil exposure."

IR Site 11 soil demonstrates attainment in regulation with the attainment level equal to 1/10th of the value in Appendix A, Tables 3 and 4 in that there are no contaminants of concern for IR Site 11 soil as discussed in Section 4 and 6. In addition, IR Site 11 falls under paragraph (1) and (2) based on that the past release consisted of petroleum products alone and that the area of concern for soil is less than 0.5 acre.

6.0 DEMONSTRATION OF ATTAINMENT

6.1 REGULATORY OVERVIEW

As outlined in Section 1, the objective of this investigation is to adequately characterize the soil and confirm or deny the presence of petroleum product at IR Site 11 in accordance with PADEP Act 2 in order obtain liability protection for IR Site 11 soil for closure. In addition, if needed, an identification of any additional remedial actions and/or investigations will be required to support regulatory closure. Given the past investigation performed at the site, the following actions were completed in order to realize the objective:

1. Assessment of soil in the area of former contamination for the current applicable PADEP parameters as listed above to confirm the remediation that occurred in the past. In addition, assessment of ground water and soil downgradient of site was conducted as supporting information.
2. Evaluation of the soil quality data to determine if a demonstration of attainment has been achieved. This demonstration consists of an analysis of the soil quality data, through direct comparison that the standard has been achieved at the point of compliance (defined as the entire area of former excavation).

6.2 REMEDIAL ACTIVITIES PERFORMED AT THE SITE

As summarized in Section 2, the remedial action taken at the site consisted of the past removal of petroleum-impacted soil.

6.3 DEMONSTRATION OF ATTAINMENT FOR SOIL

6.3.1 Point of Compliance

In accordance with Act 2, the point of compliance (POC) for soil consists of the entire area of the former excavation.

6.3.2 Demonstration of Attainment

Nine soil sampling locations were selected in accordance with PADEP as documented in the PADEP approved *Final Work Plan for Various Fieldwork Efforts, Installation Restoration Program Site 10 and 11, Naval Air Station Joint Reserve Base, Pennsylvania* dated March 2003. Each prescribed soil sample was submitted for laboratory analysis of the approved PADEP parameters as listed in Section 3. As identified in Section 4, none of the required analytes were identified in soil samples above the applicable calculated MSCs. Therefore, in accordance with Act 2, current site conditions support a demonstration of attainment for soil at the site.

6.4 SUPPORTING ANALYTICAL RESULTS

6.4.1 Soil Analytical Results

Soil samples were collected from the two newly installed well locations (11MW23/11MW23s and 11MW22) downgradient of the area of concern (former excavated area). Each prescribed soil sample was submitted for laboratory analysis of the approved PADEP parameters as listed in Section 3. As identified in Section 4, none of the required analytes were identified in soil samples above the applicable calculated MSCs. Therefore, these soil analytical results support the demonstration of attainment of the area of concern.

6.4.2 Ground-water Analytical Results

Two ground-water samples were collected from the two water producing newly installed wells (11MW23 and 11MW23s) downgradient of the area of concern. Each prescribed ground-water sample was submitted for laboratory analysis of the approved PADEP parameters as listed in Section 3. As identified in Section 4, only iron and manganese exceeded applicable calculated MSCs in three of the three ground-water samples. However, iron and manganese would not be associated with petroleum when neither SVOCs nor VOCs were found above scattered trace amounts. Therefore, these ground-water analytical results support the demonstration of attainment of the area of concern. In addition, iron and manganese have been detected above the current MSCs in ground water sampled in May and June 2003 on another site on base, IR Site 10 (former fuel farm). Iron and manganese results above the current URS at IR

Site 10 ranged from 4,000 $\mu\text{g/L}$ to 25,700 $\mu\text{g/L}$ for iron and from 61.1 $\mu\text{g/L}$ to 32,900 $\mu\text{g/L}$ for manganese.

7.0 CONCLUSIONS

This report provides a synopsis of the area of concern, available previous investigation results, and field activities performed by EA from May 2003 to July 2003. Field activities completed during this time included the advancement of 9 soil borings for the collection of surface and subsurface soil samples within the area of concern, the advancement of 2 soil borings for the collection of soil samples (at monitoring wells locations) downgradient of the area of concern, installation of 3 monitoring wells downgradient of the area of concern, and ground-water monitoring well sampling from 2 of 3 monitoring wells.

Based on the results of this investigation, site conditions appear to support a demonstration of attainment for soil at the site. EA requests on behalf of EFA Northeast that PADEP accept the above soil results to complete the demonstration of attainment requirements for soil at the site. EA on behalf of EFA Northeast requests PADEP Act 2 liability release for closure of IR Site 11 soil.

REFERENCES

EA Engineering, Science, and Technology. *Final Work Plan for Various Fieldwork Efforts, Installation Restoration Program Site 10 and 11, Naval Air Station Joint Reserve Base, Pennsylvania*. March 2003.

EA Engineering, Science, and Technology. Memorandum. *IR Site 10 and 11, NASJRB, PA, Meeting Notes of 13 August 2003 Phone Call between PADEP and EA Engineering*. 13 August 2003.

Commonwealth of Pennsylvania. Land Recycling and Environmental Remediation Standards Act 2 of 1995. 19 March 2002.

Pelepko, Seth. Pennsylvania Department of Environmental Protection. Email Correspondence. *PADEP Table of NASJRB Willow Grove Contaminants of Concern*. 13 February 2003.

Pelepko, Seth. Pennsylvania Department of Environmental Protection. Email Correspondence. *Final Work Plan for Various Fieldwork Efforts at IR Site 10 and 11 (NASJRB Willow Grove) Approval*. 21 April 2003.

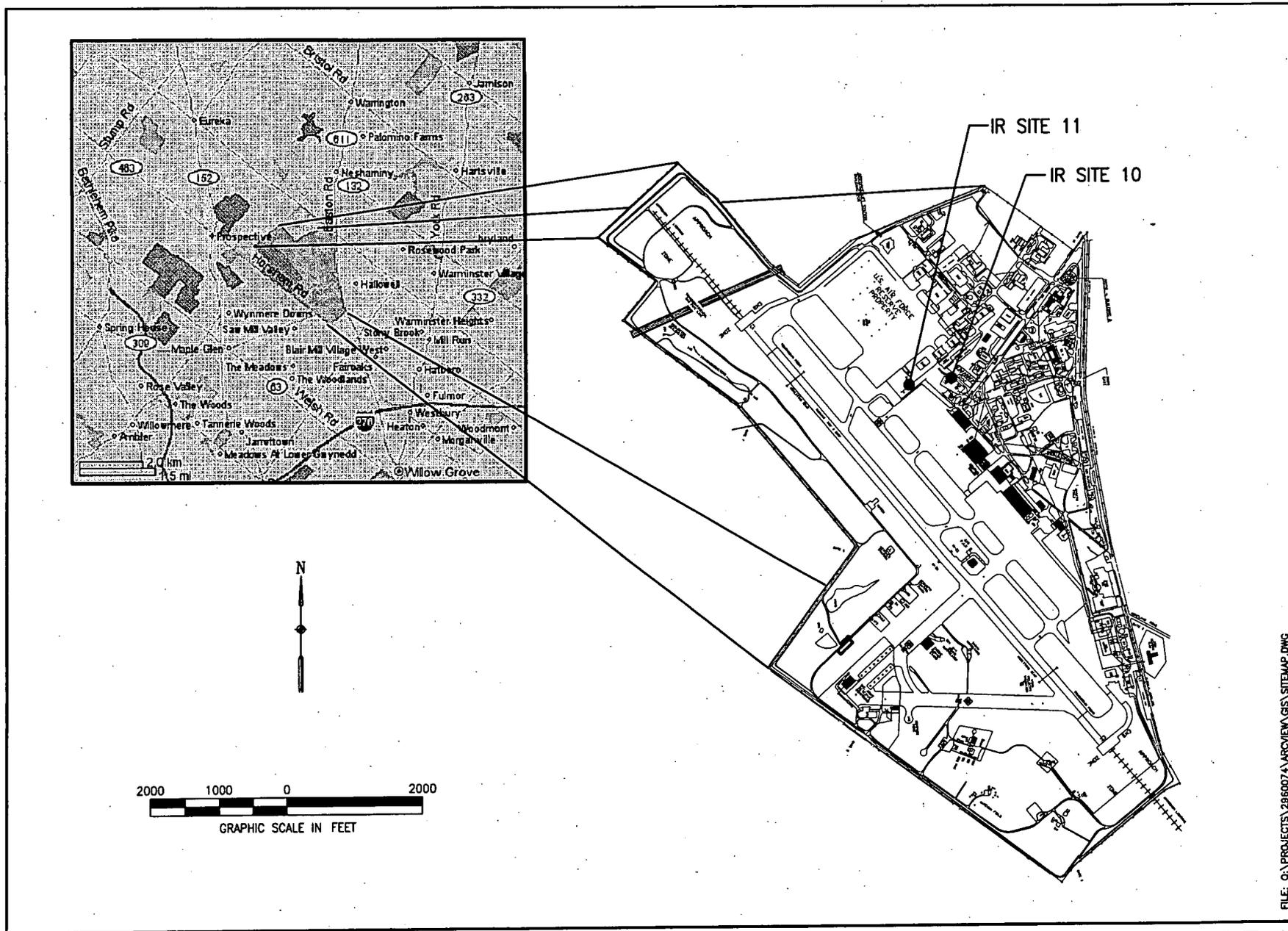
Pelepko, Seth. Pennsylvania Department of Environmental Protection. Memorandum. *NASJRB Willow Grove IR Site 10 and IR Site 11 Comments*. 22 August 2003.

Pelepko, Seth. Pennsylvania Department of Environmental Protection. Email Correspondence. *NASJRB Willow Grove IR Site 10 and IR Site 11 Comments*. 10 October 2003.

Pennsylvania Department of Environmental Protection (PADEP) Bureau of Watershed Management. *Groundwater Monitoring Guidance Manual*. 1 December 2001.

Pennsylvania Department of Environmental Protection (PADEP). *Pennsylvania Land Recycling Program Technical Guidance Manual*. 4 May 2002.

FIGURES

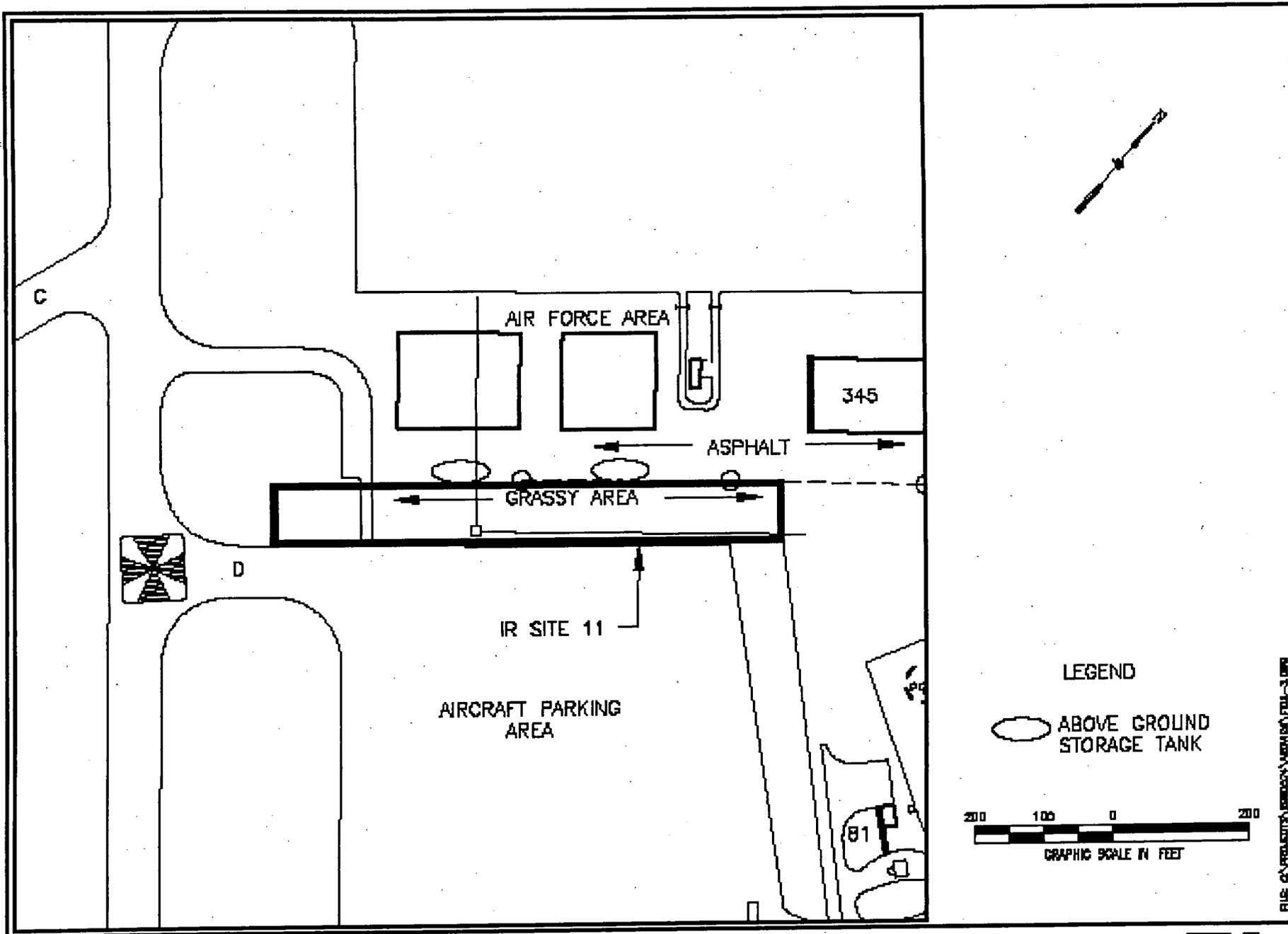


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Figure 1. NASJRB INSTALLATION MAP





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Figure 2. IR Site 11 Location Map



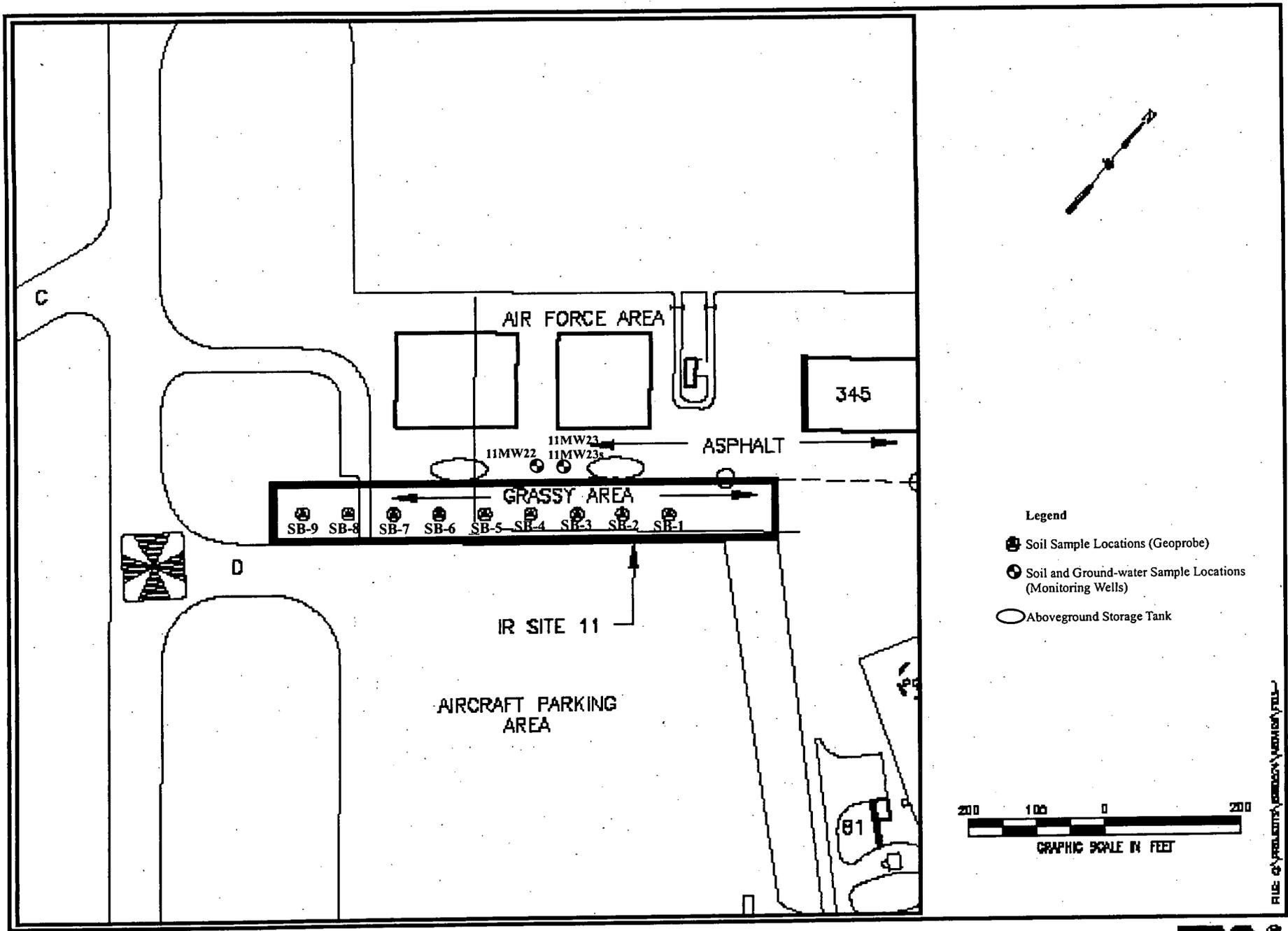


Figure 3. IR Site 11 Sample Location Map



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TABLES

IR Site 11 NASJRB, PA

Surface Soil Analytical Summary

Sample ID Lab Batch Number Sample Date Units	mg/kg	11SB040102 0305L350 5/5/03 mg/kg	***11SB040102RE 0305L350 5/5/03 mg/kg	11SB050102 0305L350 5/5/03 mg/kg	***11SB050102RE 0305L350 5/5/03 mg/kg	11SB060102 0305L350 5/5/03 mg/kg	***11SB060102RE 0305L350 5/5/03 mg/kg	11SB070102 0305L350 5/5/03 mg/kg	***11SB070102RE 0305L350 5/5/03 mg/kg	11SB220104 0305L363 5/7/03 mg/kg	11SB230102 0305L363 5/7/03 mg/kg	***11SB230102RE 0305L363 5/7/03 mg/kg
VOC	*MSC											
Chloromethane	0.3	<0.018	<0.015	<0.015	<0.016	<0.02	<0.016	<0.014	<0.014	<0.015	<0.012	<0.014
Bromomethane	1	<0.018	<0.015	<0.015	<0.016	<0.02	<0.016	<0.014	<0.014	<0.015	<0.012	<0.014
Vinyl Chloride	0.2	<0.018	<0.015	<0.015	<0.016	<0.02	<0.016	<0.014	<0.014	<0.015	<0.012	<0.014
Chloroethane	90	<0.018	<0.015	<0.015	<0.016	<0.02	<0.016	<0.014	<0.014	<0.015	<0.012	<0.014
Methylene Chloride	0.5	0.016 B	0.005 B	0.005 B	0.004 B	0.03 B	0.009 B	0.021 B	0.011 B	0.009 B	0.006 B	0.004 B
Acetone	1000	0.074 J	<0.015	0.055 J	<0.016	0.23 J	0.017	0.15 J	0.031	0.027 B	0.12 B	0.019 B
Carbon Disulfide	410	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	0.003 J	<0.007	<0.008	<0.006	<0.007
1,1-Dichloroethene	0.7	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
1,1-Dichloroethane	11	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
1,2-Dichloroethene (total)	**7/10	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Chloroform	10	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
1,2-Dichloroethane	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
2-Butanone	580	<0.018	<0.015	0.006 J	<0.016	0.032 J	<0.016	0.012 J	<0.014	<0.015	0.018	<0.014
1,1,1-Trichloroethane	20	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Carbon Tetrachloride	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Bromodichloromethane	10	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
1,2-Dichloropropane	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
cis-1,3-Dichloropropene	2.6	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Trichloroethene	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Dibromochloromethane	NC	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
1,1,2-Trichloroethane	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Benzene	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Trans-1,3-Dichloropropene	2.6	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Bromoform	10	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
4-Methyl-2-pentanone	41	<0.018	<0.015	<0.015	<0.016	<0.02	<0.016	<0.014	<0.014	<0.015	<0.012	<0.014
2-Hexanone	NC	<0.018	<0.015	<0.015	<0.016	<0.02	<0.016	<0.014	<0.014	<0.015	<0.012	<0.014
Tetrachloroethene	0.5	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	0.039 J	0.2	<0.007
1,1,2,2-Tetrachloroethane	0.03	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Toluene	100	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Chlorobenzene	10	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Ethylbenzene	70	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Styrene	24 E	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Xylene (total)	1,000	<0.009	<0.008	0.002 J	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
1,2-Dibromoethane	0.005	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007
Isopropylbenzene	1,600 E	<0.009	<0.008	<0.008	<0.008	<0.01	<0.008	<0.007	<0.007	<0.008	<0.006	<0.007

Notes:

*MSC-calculated Medium-Specific Concentrations; Direct Contact Numeric Values for Non-Residential Surface Soil or Soil to Groundwater Numeric Values for Non-Residential Used Aquifers with TDS less than or equal to 2500 for either 100 X Groundwater MSC or Generic Value

E- Number calculated by the soil to groundwater equation in Section 250.308

**7- cis and 10-trans

***- Not Valid. Refer to original results.

<- Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

NC- No Criteria

Concentrations above calculated *MSC are bolded and shaded

J- Indicates an estimated value

B- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

DL- Identifies all compounds identified in an analysis at a secondary dilution factor.

IR Site 11 NASJRB, PA

Subsurface Soil Analytical Summary

Sample ID Lab Batch Number Sample Date Units	mg/kg	11SB010304 0305L350 5/5/03 mg/kg	11SB011819 0305L350 5/5/03 mg/kg	***11SB011819RE 0305L350 5/5/03 mg/kg	11SB020203 0305L350 5/5/03 mg/kg	11SB021819 0305L350 5/5/03 mg/kg	11DUP01 (11SB021819) 0305L352 5/5/03 mg/kg	***11DUP01RE (11SB021819) 0305L352 5/5/03 mg/kg	11SB030304 0305L350 5/5/03 mg/kg	***11SB030304DL 0305L350 5/5/03 mg/kg	11SB030405 0305L350 5/5/03 mg/kg	***11SB030405DL 0305L350 5/5/03 mg/kg	11SB041415 0305L350 5/5/03 mg/kg
VOC	*MSC												
Chloromethane	0.3	<0.011	<0.015	<0.019	<0.014	<0.014	<0.014	<0.017	<0.015	<1.3	<0.013	<1.3	<0.015
Bromomethane	1	<0.011	<0.015	<0.019	<0.014	<0.014	<0.014	<0.017	<0.015	<1.3	<0.013	<1.3	<0.015
Vinyl Chloride	0.2	<0.011	<0.015	<0.019	<0.014	<0.014	<0.014	<0.017	<0.015	<1.3	<0.013	<1.3	<0.015
Chloroethane	90	<0.011	<0.015	<0.019	<0.014	<0.014	<0.014	<0.017	<0.015	<1.3	<0.013	<1.3	<0.015
Methylene Chloride	0.5	0.009 B	0.034 B	0.002 B	0.005 B	0.016 B	0.048 B	0.011 B	0.032 B	0.48 J	0.005 B	<0.64	0.033 B
Acetone	1000	0.052	0.033 J	0.009 J	0.13	0.02	0.049 J	0.013 J	0.25 J	<1.3	0.069 J	<1.3	0.038
Carbon Disulfide	410	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,1-Dichloroethene	0.7	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,1-Dichloroethane	11	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,2-Dichloroethene (total)	**7/10	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Chloroform	10	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,2-Dichloroethane	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
2-Butanone	580	<0.011	<0.015	<0.019	0.014	<0.014	<0.014	<0.017	0.024 J	<1.3	0.016 J	<1.3	<0.015
1,1,1-Trichloroethane	20	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Carbon Tetrachloride	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Bromodichloromethane	10	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,2-Dichloropropane	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
cis-1,3-Dichloropropene	2.6	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Trichloroethene	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Dibromochloromethane	NC	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,1,2-Trichloroethane	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Benzene	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Trans-1,3-Dichloropropene	2.6	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Bromoform	10	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
4-Methyl-2-pentanone	41	<0.011	<0.015	<0.019	<0.014	<0.014	<0.014	<0.017	<0.015	<1.3	<0.013	<1.3	<0.015
2-Hexanone	NC	<0.011	<0.015	<0.019	<0.014	<0.014	<0.014	<0.017	<0.015	<1.3	<0.013	<1.3	<0.015
Tetrachloroethene	0.5	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
1,1,2,2-Tetrachloroethane	0.03	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	0.004 J	<0.63	0.002 J	<0.64	<0.008
Toluene	100	<0.006	<0.008	<0.01	0.002 J	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Chlorobenzene	10	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	0.19 J	0.97 J	0.25 J	0.88 K	<0.008
Ethylbenzene	70	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Styrene	24 E	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Xylylene (total)	1,000	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	0.29 J	1.5 J	0.74 J	3.4 K	<0.008
1,2-Dibromoethane	0.005	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	<0.008	<0.63	<0.006	<0.64	<0.008
Isopropylbenzene	1,600 E	<0.006	<0.008	<0.01	<0.007	<0.007	<0.007	<0.008	0.069 J	0.58 J	0.12 J	0.53 K	<0.008

Notes:

*MSC-calculated Medium-Specific Concentrations; Direct-Contact Numeric Values for Non-Residential Subsurface Soil or Soil to Groundwater Numeric Values for Non-Residential Used Aquifers with TDS less than or equal to 2500 for either 100 X Groundwater MSC or Generic Value

E- Number calculated by the soil to groundwater equation in Section 250.308

**7- cis and 10-trans

***- Not Valid. Refer to original results.

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

NC- No Criteria

Concentrations above calculated MSC are bolded and shaded

J- Indicates an estimated value

B- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

DL- Identifies all compounds identified in an analysis at a secondary dilution factor.

K- Analyte present. Reported value may be biased high. Actual value is expected to be lower.

IR Site 11 NASJRB, PA
Subsurface Soil Analytical Summary

Sample ID Lab Batch Number Sample Date Units	mg/kg	11SB051819 0305L350 5/5/03 mg/kg	11SB061011 0305L350 5/5/03 mg/kg	11SB071011 0305L350 5/5/03 mg/kg	11SB080304 0305L350 5/5/03 mg/kg	11SB080708 0305L350 5/5/03 mg/kg	11SB090304 0305L350 5/5/03 mg/kg	11SB091112 0305L352 5/5/03 mg/kg	***11SB091112RE 0305L352 5/5/03 mg/kg	11SB220810 0305L363 5/7/03 mg/kg	***11SB220810RE 0305L363 5/7/03 mg/kg	11SB230810 0305L363 5/7/03 mg/kg	***11SB230810RE 0305L363 5/7/03 mg/kg
VOC	*MSC												
Chloromethane	0.3	<0.013	<0.015	<0.015	<1.5	<1.5	<1.2	<0.014	<1.6	<0.012	<0.014	<0.013	<0.014
Bromomethane	1	<0.013	<0.015	<0.015	<1.5	<1.5	<1.2	<0.014	<1.6	<0.012	<0.014	<0.013	<0.014
Vinyl Chloride	0.2	<0.013	<0.015	<0.015	<1.5	<1.5	<1.2	<0.014	<1.6	<0.012	<0.014	<0.013	<0.014
Chloroethane	90	<0.013	<0.015	<0.015	<1.5	<1.5	<1.2	<0.014	<1.6	<0.012	<0.014	<0.013	<0.014
Methylene Chloride	0.5	0.014 B	0.043 B	0.026 B	0.39 J	0.42 J	0.083 B	0.036 B	<0.81	0.005 B	0.005 B	0.01 B	<0.007
Acetone	1000	0.013 J	0.049	0.047	<1.5	<1.5	<1.2	0.076 J	<1.6	0.020 B	0.034 B	0.014 B	0.011 B
Carbon Disulfide	410	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	0.002 J	<0.81	<0.006	<0.007	<0.006	<0.007
1,1-Dichloroethene	0.7	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
1,1-Dichloroethane	11	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
1,2-Dichloroethene (total)	**7/10	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Chloroform	10	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
1,2-Dichloroethane	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
2-Butanone	580	<0.013	<0.015	<0.015	<1.5	<1.5	<1.2	<0.014	<1.6	<0.012	<0.014	<0.013	<0.014
1,1,1-Trichloroethane	20	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Carbon Tetrachloride	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Bromodichloromethane	10	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
1,2-Dichloropropane	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
cis-1,3-Dichloropropene	2.6	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Trichloroethene	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Dibromochloromethane	NC	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
1,1,2-Trichloroethane	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Benzene	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Trans-1,3-Dichloropropene	2.6	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Bromoform	10	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
4-Methyl-2-pentanone	41	<0.013	<0.015	0.012 J	<1.5	<1.5	<1.2	<0.014	<1.6	<0.012	<0.014	<0.013	<0.014
2-Hexanone	NC	<0.013	<0.015	<0.015	<1.5	<1.5	<1.2	<0.014	<1.6	0.012	<0.007	0.073	<0.007
Tetrachloroethene	0.5	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
1,1,2,2-Tetrachloroethane	0.03	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Toluene	100	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Chlorobenzene	10	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Ethylbenzene	70	<0.006	<0.008	<0.008	<0.76	<0.74	0.24 J	0.024 J	<0.81	<0.006	<0.007	<0.006	<0.007
Styrene	24 E	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Xylene (total)	1,000	<0.006	<0.008	<0.008	<0.76	<0.74	0.35 J	0.034 J	<0.81	<0.006	<0.007	<0.006	<0.007
1,2-Dibromoethane	0.005	<0.006	<0.008	<0.008	<0.76	<0.74	<0.62	<0.007	<0.81	<0.006	<0.007	<0.006	<0.007
Isopropylbenzene	1,600 E	<0.006	<0.008	<0.008	<0.76	<0.74	0.34 J	0.025 J	<0.81	<0.006	<0.007	<0.006	<0.007

Notes:

*MSC-calculated Medium-Specific Concentrations; Direct Contact Numeric Values for Non-Residential Subsurface Soil or Soil to Groundwater Numeric Values for Non-Residential Used Aquifers with TDS less than or equal to 2500 for either 100 X Groundwater MSC or Generic Value

E- Number calculated by the soil to groundwater equation in Section 250.308

**7- cis and 10-trans

***- Not Valid. Refer to original results.

<- Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

NC- No Criteria

J- Indicates an estimated value

B- This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

DL- Identifies all compounds identified in an analysis at a secondary dilution factor.

K- Analyte present. Reported value may be biased high. Actual value is expected to be lower.

Concentrations above calculated MSC are bolded and shaded.

IR Site 11 NASJRB, PA

Surface Soil Analytical Summary

Sample ID Lab Batch Number Sample Date Units	11SB040102 0305L350 5/5/03 mg/kg	11SB050102 0305L350 5/5/03 mg/kg	11SB060102 0305L350 5/5/03 mg/kg	11SB070102 0305L350 5/5/03 mg/kg	11SB220104 0305L363 5/7/03 mg/kg	11SB230102 0305L363 5/7/03 mg/kg
SVOC	*MSC					
Phenol	400	<0.38	<0.37	<0.37	<0.37	<0.4
bis(2-Chloroethyl)ether	0.055	<0.38	<0.37	<0.37	<0.37	<0.4
2-Chlorophenol	4.4 E	<0.38	<0.37	<0.37	<0.37	<0.4
1,3-Dichlorobenzene	61 E	<0.38	<0.37	<0.37	<0.37	<0.4
1,4-Dichlorobenzene	10 E	<0.38	<0.37	<0.37	<0.37	<0.4
1,2-Dichlorobenzene	60	<0.38	<0.37	<0.37	<0.37	<0.4
2-Methylphenol	510	<0.38	<0.37	<0.37	<0.37	<0.4
2,2'-oxybis(1-Chloropropane)	NC	<0.38	<0.37	<0.37	<0.37	<0.4
4-Methylphenol	51	<0.38	<0.37	<0.37	<0.37	<0.4
N-Nitroso-di-n-propylamine	0.037	<0.38	<0.37	<0.37	<0.37	<0.4
Hexachloroethane	0.58 E	<0.38	<0.37	<0.37	<0.37	<0.4
Nitrobenzene	5.1	<0.38	<0.37	<0.37	<0.37	<0.4
Isophorone	10	<0.38	<0.37	<0.37	<0.37	<0.4
2-Nitrophenol	82	<0.38	<0.37	<0.37	<0.37	<0.4
2,4-Dimethylphenol	200	<0.38	<0.37	<0.37	<0.37	<0.4
bis(2-Chloroethoxy)methane	NC	<0.38	<0.37	<0.37	<0.37	<0.4
2,4-Dichlorophenol	2	<0.38	<0.37	<0.37	<0.37	<0.4
1,2,4-Trichlorobenzene	27 E	<0.38	<0.37	<0.37	<0.37	<0.4
Naphthalene	25 E	<0.38	0.043 J	<0.37	<0.37	<0.4
4-Chloroaniline	52 E	<0.38	<0.37	<0.37	<0.37	<0.4
Hexachlorobutadiene	1.2 E	<0.38	<0.37	<0.37	<0.37	<0.4
4-Chloro-3-methylphenol	NC	<0.38	<0.37	<0.37	<0.37	<0.4
2-Methylnaphthalene	8,000 E	<0.38	0.1 J	0.066 J	<0.37	<0.4
Hexachlorocyclopentadiene	91 E	<0.38	<0.37	<0.37	<0.37	<0.4
2,4,6-Trichlorophenol	8.8 E	<0.38	<0.37	<0.37	<0.37	<0.4
2,4,5-Trichlorophenol	8,100 E	<0.95	<0.92	<0.93	<0.92	<1
2-Chloronaphthalene	18,000 E	<0.38	<0.37	<0.37	<0.37	<0.4
2-Nitroaniline	0.58	<0.95	<0.92	<0.93	<0.92	<1
Dimethylphthalate	NC	<0.38	<0.37	<0.37	<0.37	<0.4
Acanaphthylene	8,900 E	<0.38	<0.37	<0.37	0.019 J	<0.4
2,6-Dimethyltoluene	10	<0.38	<0.37	<0.37	<0.37	<0.4
3-Nitroaniline	0.58	<0.95	<0.92	<0.93	<0.92	<1
Acanaphthylene	4,700 E	<0.38	<0.37	<0.37	<0.37	<0.4
2,4-Dinitrophenol	4.1	<0.95	<0.92	<0.93	<0.92	<1
4-Nitrophenol	6	<0.95	<0.92	<0.93	<0.92	<1
Dibenzofuran	NC	<0.38	<0.37	<0.37	<0.37	<0.4
2,4-Dinitrotoluene	0.84	<0.38	<0.37	<0.37	<0.37	<0.4
Diethylphthalate	500	<0.38	<0.37	<0.37	<0.37	<0.4
4-Chlorophenyl-phenylether	NC	<0.38	<0.37	<0.37	<0.37	<0.4
Fluorene	3,800 E	<0.38	<0.37	<0.37	<0.37	<0.4
4-Nitroaniline	0.58	<0.95	<0.92	<0.93	<0.92	<1
4,6-Dinitro-2-methylphenol	NC	<0.95	<0.92	<0.93	<0.92	<1
N-Nitrosodiphenylamine (1)	83 E	<0.38	<0.37	<0.37	<0.37	<0.4
4-Bromophenyl-phenylether	NC	<0.38	<0.37	<0.37	<0.37	<0.4
Hexachlorobenzene	0.98 E	<0.38	<0.37	<0.37	<0.37	<0.4
Pentachlorophenol	5 E	<0.95	<0.92	<0.93	<0.92	<1
Phenanthrene	10,000 E	<0.38	<0.37	0.024 J	0.070 J	<0.4
Anthracene	350 E	<0.38	<0.37	<0.37	0.027 J	<0.4
Carbazole	83 E	<0.38	<0.37	<0.37	<0.37	<0.4
Di-n-butylphthalate	4,100 E	<0.38	<0.37	<0.37	<0.37	<0.4
Fluoranthene	3,200 E	<0.38	<0.37	<0.37	0.45	0.027 J
Pyrene	2,200 E	<0.38	0.019 J	0.019 J	0.032 J	0.58
Butylbenzylphthalate	10,000 C	0.042 J	<0.37	<0.37	0.023 J	<0.4
3,3'-Dichlorobenzidine	32 E	<0.38	<0.37	<0.37	<0.37	<0.4
Benzo(a)anthracene	110 G	<0.38	<0.37	<0.37	0.25 J	0.033 J
Chrysene	230 E	<0.38	<0.37	<0.37	0.32 J	0.039 J
bis(2-Ethylhexyl)phthalate	130 E	0.021 J	0.02 J	0.02 J	0.031 J	0.052 J
Di-n-octyl phthalate	10,000 C	<0.38	<0.37	<0.37	<0.37	<0.4
Benzo(b)fluoranthene	110 G	<0.38	<0.37	<0.37	0.23 J	0.055 J
Benzo(k)fluoranthene	610 E	<0.38	<0.37	<0.37	0.28 J	0.036 J
Benzo(a)pyrene	110 G	<0.38	<0.37	<0.37	0.29 J	0.042 J
Indeno(1,2,3-cd)pyrene	110 G	<0.38	<0.37	<0.37	0.2 J	0.033 J
Dibenzo(a,h)anthracene	11 G	<0.38	<0.37	<0.37	0.047 J	<0.4
Benzo(g,h,i)perylene	180 E	<0.38	<0.37	<0.37	0.2 J	0.038 J

*MSC-calculated Medium-Specific Concentrations; Direct Contact Numeric Values for Non-Residential Surface Soil or Soil to Groundwater Numeric Values for Non-Residential Used Aquifers with TDS less than or equal to 2500 for either 100 X Groundwater MSC or Generic Value

< - Indicates that the parameter was not detected at or above the reported limit.
The associated numerical value is the sample detection limit.

NC- No Criteria

C- Cap

E- Number calculated by the soil to groundwater equation in Section 250.308

G- Ingestion

J- Indicates an estimated value

Concentrations above calculated *MSC are bolded and shaded

IR Site 11 NASJRB, PA

Subsurface Soil Analytical Summary

Sample ID Lab Batch Number Sample Date Units	11SB010304 0305L350 5/5/03 mg/kg	11SB011819 0305L350 5/5/03 mg/kg	11SB020203 0305L350 5/5/03 mg/kg	11SB021819 0305L350 5/5/03 mg/kg	11DUP01 (11SB021819) 0305L352 5/5/03 mg/kg	11SB030304 0305L350 5/5/03 mg/kg	11SB030405 0305L350 5/5/03 mg/kg	11SB041415 0305L350 5/5/03 mg/kg	11SB051819 0305L350 5/5/03 mg/kg	11SB061011 0305L350 5/5/03 mg/kg	11SB071011 0305L350 5/5/03 mg/kg	11SB080304 0305L350 5/5/03 mg/kg	11SB080708 0305L350 5/5/03 mg/kg	11SB090304 0305L350 5/5/03 mg/kg	11SB091112 0305L352 5/5/03 mg/kg	11SB220810 0305L363 5/7/03 mg/kg	11SB230810 0305L363 5/7/03 mg/kg
SVOC	*MSC																
Phenol	400	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
bis(2-Chloroethyl)ether	0.055	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2-Chlorophenol	4.4 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
1,3-Dichlorobenzene	61 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
1,4-Dichlorobenzene	10 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
1,2-Dichlorobenzene	60	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2-Methylphenol	510	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,2'-oxybis(1-Chloropropane)	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Methylphenol	51	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
N-Nitroso-di-n-propylamine	0.037	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Hexachloroethane	0.56 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Nitrobenzene	5.1	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Isophorone	10	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2-Nitrophenol	82	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,4-Dimethylphenol	200	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
bis(2-Chloroethoxy)methane	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,4-Dichlorophenol	2	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
1,2,4-Trichlorobenzene	27 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Naphthalene	25 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Chloroaniline	52 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Hexachlorobutadiene	1.2 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Chloro-3-methylphenol	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2-Methylnaphthalene	8,000 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Hexachlorocyclopentadiene	91 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,4,6-Trichlorophenol	8.9 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,4,5-Trichlorophenol	8,100 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2-Chloronaphthalene	18,000 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2-Nitroaniline	0.58	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Dimethylphthalate	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Acenaphthylene	8,900 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,8-Dinitrotoluene	10	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
3-Nitroaniline	0.58	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Acenaphthene	4,700 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,4-Dinitrophenol	4.1	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Nitrophenol	8	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Dibenzofuran	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
2,4-Dinitrotoluene	0.84	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Diethylphthalate	500	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Chlorophenyl-phenylether	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Fluorene	3,600 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Nitroaniline	0.58	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4,6-Dinitro-2-methylphenol	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
N-Nitrosodiphenylamine (1)	83 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
4-Bromophenyl-phenylether	NC	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Hexachlorobenzene	0.98 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Pentachlorophenol	5 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Phenanthrene	10,000 E	<0.40	<0.39	0.033 J	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Anthracene	350 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Carbazole	83 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Di-n-butylphthalate	4,100 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Fluoranthene	3,200 E	<0.40	<0.39	<0.38	<0.38	<0.35	<0.39	<0.38	<0.37	<0.37	<0.38	<0.38	<0.39	<0.75	<0.39	<0.39	<0.38
Pyrene	2,200 E	0.021 J	<0.39	0.13 J	<0.38	<0.3											

IR Site 11 NASJRB, PA

Surface Soil Analytical Summary Report

Sample ID Lab Batch Number Sample Date Units		11SB040102 0305L350 5/5/03 mg/kg	11SB050102 0305L350 5/5/03 mg/kg	11SB060102 0305L350 5/5/03 mg/kg	11SB070102 0305L350 5/5/03 mg/kg	11SB220104 0305L363 5/7/03 mg/kg	11SB230102 0305L363 5/7/03 mg/kg
Metals	*MSC						
Aluminum	190,000	20,000	16,000	18,600	17,500	19,100	21,600
Antimony	27	<0.22 L	<0.23 L	<0.22 L	<0.21 L	<0.28 L	<0.29 L
Arsenic	53	7.2	5.2	6.2	4.8	2.5	2.9
Barium	8200	97.2	103	99.6	121	98.5	215
Beryllium	320	1.2	1.3	1.3	1.1	1.3	2
Cadmium	38	<0.04	0.27	0.49	0.61	<0.05	0.11
Calcium	NC	3,460	7,410	8,240	4,190	761	1,110
Chromium	**190	28	25.2	25.9	21.6	29.5	28.2
Cobalt	200	10.4	10.9	11.2	10.4	11.6	13.1
Copper	36,000	20.3	19.6	22	16.7	19.2 K	16.2 K
Iron	190,000	29,300	25,800	27,000	24,500	29,400	43,900
Lead	450	17.4	17.7	18.8	27.8	14.7 J	26.9 J
Magnesium	NC	3,280	3,970	4,920	2,990	1,180	3,890
Manganese	190,000	776	674	639	890 B	670	938
Mercury	10	<0.02	<0.02	<0.02	0.03	<0.02 L	<0.02 L
Nickel	650	16.3	17.3	17.2	13.7	13.8	23.7
Potassium	NC	1,380	1,490	1,560	913	936	4,370
Selenium	26	<0.42	<0.44	0.47	0.47	<0.41	<0.41
Silver	84	<0.12	<0.12	<0.12	<0.11	<0.09	<0.09
Sodium	NC	105	138	138	107	92.6	128
Thallium	14	<0.45 L	<0.47 L	0.9 B	<0.42	0.57 B	<0.41
Vanadium	20,000	43.6	36.5	40.8	35.5	46.7	52
Zinc	12,000	41.4 J	39.9 J	46.6 J	41 J	26.3	54.6

Notes:

***MSC**-calculated Medium-Specific Concentrations; Direct Contact Numeric Values for Non-Residential Surface Soil or Soil to Groundwater Numeric Values for Non-Residential Used Aquifers with TDS less than or equal to 2500 for either 100 X Groundwater MSC or Generic Value

NC- No Criteria

** - Chromium IV calculated MSC

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

B- Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL).

K- Analyte present. Reported value may be biased high. Actual value is expected to be lower.

J- Indicates an estimated value

L- Analyte present. Reported value may be biased low. Actual value is expected to be higher.

Concentrations above calculated *MSC are bolded and shaded

IR Site 11 NASJRB, PA

Subsurface Soil Analytical Summary

Sample ID Lab Batch Number Sample Date Units	11SB010304 0305L350 5/5/03 mg/kg	11SB011819 0305L350 5/5/03 mg/kg	11SB020203 0305L350 5/5/03 mg/kg	11SB021819 0305L350 5/5/03 mg/kg	11DUP01 (11SB021819) 0305L352 5/5/03 mg/kg	11SB030304 0305L350 5/5/03 mg/kg	11SB030405 0305L350 5/5/03 mg/kg	11SB041415 0305L350 5/5/03 mg/kg	11SB051819 0305L350 5/5/03 mg/kg	11SB061011 0305L350 5/5/03 mg/kg	11SB071011 0305L350 5/5/03 mg/kg	11SB080304 0305L350 5/5/03 mg/kg	11SB080708 0305L350 5/5/03 mg/kg	11SB090304 0305L350 5/5/03 mg/kg	11SB091112 0305L352 5/5/03 mg/kg	11SB220810 0305L363 5/7/03 mg/kg	11SB230810 0305L363 5/7/03 mg/kg	
Metals	*MSC																	
Aluminum	190,000	16,000	7,360	19,500	16,500	18,200	7,810	18,300	8,880	14,800	9,430	8,670	19,800	18,100	18,900	17,100	15,300	16,300
Antimony	27	<0.24 L	<0.24 L	<0.22 L	0.28 L	0.36 L	<0.22 L	<0.25 L	<0.24 L	0.44 L	<0.23 L	<0.23 L	<0.22 L	<0.23 L	<0.23 L	<0.28 L	0.39 L	0.33 L
Arsenic	150	3	1.8 B	5.6	2.2 B	2.3	2.8	2.9	0.75 B	1.5 B	2.7 B	1.3 B	3.4	3.7	1.2 B	2.9	2.4	2.2
Barium	8,200	156	248	84.7	432	178	106	117	190	107	75.8	205	85	89.7	61.8	54.6	410	146
Beryllium	320	1.3	1.7	1.2	3.1	3.2	1	1.6	0.7	1.6	0.86	0.81	1.1	1.2	0.76	1	2.1	1.9
Cadmium	38	0.14	<0.04	<0.04	<0.04	0.15 B	<0.04	<0.05	0.1 B	0.37	<0.04	<0.04	<0.04	0.07 B	<0.04	<0.05	0.13	0.09
Calcium	NC	1,140	291	1,400	951	902	1,550	887	214	600	181	276	1,710	1,410	356	654	1,100	1,090
Total Chromium	**190	28.4	23.3	23.6	28.1	24.6	27.8	29.7	26.9	27.5	20	15.4	22.5	20.5	11.8	30.3	29.4	28.7
Cobalt	200	13	20.7	9.6	23.6	11.3	9	12.9	24.3	8.5	10.8	17.8	9.7	9.2	7.4	7.6	11.7	11.9
Copper	38,000	17.8	1.5 B	22.4	0.36 B	0.2 K	25.4	24.9	0.62 B	0.96	1.4	2.9	11.8	12	2.9	13.1 K	1.5 K	0.66 K
Iron	190,000	26,600	23,100	23,300	44,800	40,500	25,100	32,500	22,200	39,300	18,500	19,900	23,800	24,200	14,500	23,600	47,700	46,000
Lead	450	64.9	5.6	24.2	22.7	19.9	11.7	19.9	8.2	34.1	4.6	3.3	10.4	11.1	2.2	8.2 J	45.1 J	33.6 J
Magnesium	NC	1,690	433	2,080	3,390	4,090	1,200	2,250	270	2,850	343	365	1,430	1,570	639	1,100	2,560	2,800
Manganese	190,000	1,060	3,270	606	1,980	124	570	916	1,410	82.3	1,390	1,930	608	625	339	441	1,700	482
Mercury	10	<0.02	<0.02	0.02 B	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01 L	<0.02 L
Nickel	650	16.1	19.4	14.7	27.1	20.2	15.7	17.5	29.1	14.6	12.6	21.7	12.9	12.9	8	11	20.2	15.4
Potassium	NC	1070	99.7	1,060	6,040	8,380	629	2,370	163	4,420	197	104	877	1,010	365	805	4,260	4,610
Selenium	26	<0.46	<0.46	<0.43	<0.4	<0.38	<0.42	<0.47	<0.46	<0.42	<0.43	<0.44	<0.42	<0.45	<0.44	<0.41	<0.41	<0.34
Silver	84	<0.13	<0.13	<0.12	<0.12	<0.08	<0.12	<0.14	<0.13	<0.12	<0.12	<0.13	<0.12	<0.13	<0.13	<0.09	<0.09	<0.08
Sodium	NC	113	132	90.1	223	220	122	109	123	162	131	90.5	91.9	89.3	84.6	131	158	169
Thallium	14	<0.49 L	<0.49 L	<0.46 L	<0.43 L	<0.38	<0.45 L	<0.51 L	0.94 B	<0.45	0.62 B	<0.47	0.76 B	0.75 B	0.65 B	<0.41	<0.41	0.76 B
Vanadium	72,000	35.2	37	35	20.7	16.6	31.5	36.9	33.4	21.5	37.2	29	39.1	33.5	18.6	46.6	29.6	20.9
Zinc	12,000	32.7 J	49.6 J	38.4 J	49.8 J	54.5	19.2 J	27 J	19.6 J	38.7 J	18.5 J	24.4 J	27.1 J	28.5 J	13.9 J	18.9	48.9	44.5

Notes:
 *MSC-calculated Medium-Specific Concentrations; Direct Contact Numeric Values for Non-Residential Subsurface Soil or Soil to Groundwater Numeric Values for Non-Residential Used Aquifers with TDS less than or equal to 2500 for either 100 X Groundwater MSC or Generic Value

NC- No Criteria
 ** Chromium IV calculated MSC
 <- Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
 B- Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL).
 K- Analyte present. Reported value may be biased high. Actual value is expected to be lower.
 J- Indicates an estimated value
 L- Analyte present. Reported value may be biased low. Actual value is expected to be higher.
Concentrations above calculated MSC are bolded and shaded.

IR Site 11 NASJRB, PA

Blank Analytical Report

Sample ID Lab Batch Number Sample Date Units	11FB01050703 0305L363 5/7/03 ug/L	11RB01050503 0305L350 5/5/03 ug/L	11RB02050503 0305L350 5/5/03 ug/L	11TB01050503 0305L350 5/5/03 ug/L	11TB02050703 0305L363 5/7/03 ug/L
VOC					
Chloromethane	<2	<2	<2	<2	<2
Bromomethane	<2	<2	<2	<2	<2
Vinyl Chloride	<2	<2	<2	<2	<2
Chloroethane	<2	<2	<2	<2	<2
Methylene Chloride	<2	<2	<2	9 J	12 J
Acetone	<5	<5	<5	<5	<5
Carbon Disulfide	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	<1	<1	<1	<1	<1
Chloroform	2	2	2	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1
2-Butanone	5 R	5 R	5 R	5 R	5 R
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon Tetrachloride	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1
Dibromochloromethane	0.2 J	<1	0.1 J	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
Bromoform	0.4 J	0.2 J	0.3 J	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5
2-Hexanone	5 R	5 R	5 R	5 R	5 R
Tetrachloroethene	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Toluene	<1	<1	0.1 J	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Xylene (total)	<1	<1	<1	<1	<1
1,2-Dibromoethane	<1	<1	<1	<1	<1
Isopropylbenzene	<1	<1	<1	<1	<1
Dibenzofuran	<1	<1	<1	<1	<1

Notes:

J- Indicates an estimated value.

B- This flag is used when the analyte is found in the associated blank as well as in the sample.

It indicates possible/probable blank contamination.

R- Unusable results. Analyte may or may not be present in the sample.

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

IR Site 11 NASJRB, PA

Blank Analytical Summary Report

Sample ID Lab Batch Number Sample Date Units	11FB01050703 0305L363 5/7/03 ug/L	11RB01050503 0305L350 5/5/03 ug/L	11RB02050503 0305L350 5/5/03 ug/L
SVOC			
Phenol	<10	<11	<10
bis(2-Chloroethyl)ether	<10	<11	<10
2-Chlorophenol	<10	<11	<10
1,3-Dichlorobenzene	<10	<11	<10
1,4-Dichlorobenzene	<10	<11	<10
1,2-Dichlorobenzene	<10	<11	<10
2-Methylphenol	<10	<11	<10
2,2'-oxybis(1-Chloropropane)	<10	<11	<10
4-Methylphenol	<10	<11	<10
N-Nitroso-di-n-propylamine	<10	<11	<10
Hexachloroethane	<10	<11	<10
Nitrobenzene	<10	<11	<10
Isophorone	<10	<11	<10
2-Nitrophenol	<10	<11	<10
2,4-Dimethylphenol	<10	<11	<10
bis(2-Chloroethoxy)methane	<10	<11	<10
2,4-Dichlorophenol	<10	<11	<10
1,2,4-Trichlorobenzene	<10	<11	<10
Naphthalene	<10	<11	<10
4-Chloroaniline	<10	<11	<10
Hexachlorobutadiene	<10	<11	<10
4-Chloro-3-methylphenol	<10	<11	<10
2-Methylnaphthalene	<10	<11	<10
Hexachlorocyclopentadiene	<10	<11	<10
2,4,6-Trichlorophenol	<10	<11	<10
2,4,5-Trichlorophenol	<26	<27	<26
2-Chloronaphthalene	<10	<11	<10
2-Nitroaniline	<26	<27	<26
Dimethylphthalate	<10	<11	<10
Acenaphthylene	<10	<11	<10
2,6-Dinitrotoluene	<10	<11	<10
3-Nitroaniline	<26	<27	<26
Acenaphthene	<10	<11	<10
2,4-Dinitrophenol	<26	<27	<26
4-Nitrophenol	<26	<27	<26
Dibenzofuran	<10	<11	<10
2,4-Dinitrotoluene	<10	<11	<10
Diethylphthalate	<10	<11	<10
4-Chlorophenyl-phenylether	<10	<11	<10
Fluorene	<10	<11	<10
4-Nitroaniline	<26	<27	<26
4,6-Dinitro-2-methylphenol	<26	<27	<26
N-Nitrosodiphenylamine (1)	<10	<11	<10
4-Bromophenyl-phenylether	<10	<11	<10
Hexachlorobenzene	<10	<11	<10
Pentachlorophenol	<26	<27	<26
Phenanthrene	<10	<11	<10
Anthracene	<10	<11	<10
Carbazole	<10	<11	<10
Di-n-butylphthalate	<10	<11	<10
Fluoranthene	<10	<11	<10
Pyrene	<10	<11	<10
Butylbenzylphthalate	<10	<11	<10
3,3'-Dichlorobenzidine	<10	<11	<10
Banzo(a)anthracene	<10	<11	<10
Chrysene	<10	<11	<10
bis(2-Ethylhexyl)phthalate	<10	0.6 B	<10
Di-n-octyl phthalate	<10	<11	<10
Benzo(b)fluoranthene	<10	<11	<10
Benzo(k)fluoranthene	<10	<11	<10
Benzo(a)pyrene	<10	<11	<10
Indeno(1,2,3-cd) pyrene	<10	<11	<10
Dibenz(a,h)anthracene	<10	<11	<10
Benzo(g,h,i)perylene	<10	<11	<10

Notes:

- B- This flag is used when the analyte is found in the associated blank as well as in the sample.
It indicates possible/probable blank contamination.
- < - Indicates that the parameter was not detected at or above the reported limit.
The associated numerical value is the sample detection limit.

IR Site 11 NASJRB, PA

Blank Analytical Summary Report

Sample ID	11FB01050703	11RB01050503	11RB02050503
Lab Batch Number	0305L363	0305L350	0305L350
Sample Date	5/7/03	5/5/03	5/5/03
Units	ug/L	ug/L	ug/L
Metals			
Aluminum	<20	123 B	155 B
Antimony	<2.5	<2.2	<2.2
Arsenic	<3.5	<3.3	<3.3
Barium	0.52 B	<5.6	<5.6
Beryllium	<0.1	<0.1	<0.1
Cadmium	<0.4	<0.4	<0.4
Calcium	56 B	101 B	86.1 B
Total Chromium	<0.6	<1	<1
Cobalt	<0.7	<1	<1
Copper	<0.6	0.79 B	0.8 B
Iron	<19.7	52.8 B	83.4 B
Lead	<2.6	<2.3	<2.3
Magnesium	24.5 B	45.2 B	93.6 B
Manganese	<0.2	0.52 B	0.89
Mercury	<0.1	<0.1	<0.1
Nickel	<1.8	<1.3	1.3 K
Potassium	<20.8	84.1 B	<40
Selenium	<3.6	<4.2	<4.2
Silver	<0.8	<1.2	<1.2
Sodium	75.2 B	97.5 B	261 B
Thallium	<3.6	<4.5	7.6
Vanadium	0.37 B	<0.1	0.37 B
Zinc	<1.4	2.3 B	2.9 B

Notes:

- < - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- B- Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL).
- K- Analyte present. Reported value may be biased high. Actual value is expected to be lower.

IR Site 11 NASJRB, PA

Groundwater Analytical Summary

Sample ID Lab Batch Number Sample Date Units	ug/L	11MW23s 0306L551 6/2/03 ug/L	*11MW23sRE 0306L551 6/2/03 ug/L	11DUP01 (11MW23s) 0306L551 6/2/03 ug/L	*11DUP01RE (11MW23s) 0306L551 6/2/03 ug/L	11MW23 0306L567 6/3/03 ug/L
VOC	**MSC					
***Methane	NC	9,800	NA	12,000	NA	6,000
Chloromethane	3 H	<2	<10	<2	<10	<2
Bromomethane	10 H	<2	<10	<2	<10	<2
Vinyl Chloride	2 M	<2	<10	<2	<10	<2
Chloroethane	900 G	<2	<10	<2	<10	<2
Methylene Chloride	5 M	<2	<10	<2	<10	<2
Acetone	10,000 G	<5	<25	<5	<25	<5
Carbon Disulfide	4,100 N	<1	<5	<1	<5	<1
1,1-Dichloroethene	7 M	<1	<5	<1	<5	<1
1,1-Dichloroethane	110 N	0.2 J	<5	0.2 J	<5	0.3 J
1,2-Dichloroethene (total)	****70 M/100 M	0.2 J	<5	0.2 J	<5	<1
Chloroform	100 M	<1	<5	<1	<5	<1
1,2-Dichloroethane	5 M	<1	<5	<1	<5	<1
2-Butanone	5,800 N	5 R	25 R	5 R	25 R	5 R
1,1,1-Trichloroethane	200 M	<1	<5	<1	<5	<1
Carbon Tetrachloride	5 M	<1	<5	<1	<5	<1
Bromodichloromethane	100 M	<1	<5	<1	<5	<1
1,2-Dichloropropane	5 M	<1	<5	<1	<5	<1
cis-1,3-Dichloropropene	26 G	<1	<5	<1	<5	<1
Trichloroethene	5 M	0.5 J	<5	0.5 J	0.5 J	0.1 J
Dibromochloromethane	NC	<1	<5	<1	<5	0.1 B
1,1,2-Trichloroethane	5 M	<1	<5	<1	<5	<1
Benzene	5 M	0.7 J	<5	0.7 J	0.7 J	0.4 J
Trans-1,3-Dichloropropene	26 G	<1	<5	<1	<5	<1
Bromoform	100 M	<1	<5	<1	<5	<1
4-Methyl-2-pentanone	410 N	<5	<25	<5	<25	<5
2-Hexanone	NC	5 R	25 R	5 R	25 R	5 R
Tetrachloroethene	5 M	<1	<5	<1	<5	<1
1,1,2,2-Tetrachloroethane	0.3 H	<1	<5	<1	<5	<1
Toluene	1,000 M	<1	<5	<1	<5	<1
Chlorobenzene	100 M	<1	<5	<1	<5	<1
Ethylbenzene	700 M	13 J	13	12 J	14	2 J
Styrene	100 M	<1	<5	<1	<5	<1
Xylene (total)	10,000 M	1 J	2 J	2 J	2 J	<1
1,2-Dibromoethane	0.05 M	<1	<5	<1	<5	<1
*****1,2-Dibromoethane	0.05 M	<0.018	NA	<0.018	NA	<0.018 L
Isopropylbenzene	2,300N	8 J	8	8 J	8	4 J

Notes:

*. Results are not valid based on Data Validation Report.

**MSC-calculated Medium-Specific Concentrations for Groundwater, Non-residential, Used Aquifer with TDS =< 2500 mg/L

MSC H- Lifetime health advisory level

MSC M- Maximum Contaminant Level

MSC G- Ingestion

MSC N- Inhalation

***- Analyzed by Method RSK 175

****70- cis and 100-trans

*****- Analyzed by Method 504

<- Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

NA- Not Applicable

NC- No Criteria

J- Indicates an estimated value.

R- Unusable results. Analyte may or may not be present in the sample.

B- This flag is used when the analyte is found in the associated blank as well as in the sample.

It indicates possible/probable blank contamination.

L- Analyte present. Reported value may be biased low. Actual value is expected to be higher.

Concentrations above calculated MSC are bolded and shaded.

IR Site 11 NASJRB, PA

Groundwater Analytical Summary

Sample ID Lab Batch Number Sample Date Units		11MW23s 0306L551 6/2/03 ug/L	11DUP01 (11MW23s) 0306L551 6/2/03 ug/L	11MW23 0306L567 6/3/03 ug/L
SVOC	*MSC			
Phenol	4,000 H	<11	<11	<10
bis(2-Chloroethyl)ether	0.55 N	<11	<11	<10
2-Chlorophenol	40 H	<11	<11	<10
1,3-Dichlorobenzene	600 H	<11	<11	<10
1,4-Dichlorobenzene	75 M	<11	<11	<10
1,2-Dichlorobenzene	600 M	<11	<11	<10
2-Methylphenol	5100 G	<11	<11	<10
2,2'-oxybis(1-Chloropropane)	NC	<11	<11	<10
4-Methylphenol	510 G	<11	<11	<10
N-Nitroso-di-n-propylamine	0.37 G	<11	<11	<10
Hexachloroethane	1 H	<11	<11	<10
Nitrobenzene	51 G	<11	<11	<10
Isophorone	100 H	<11	<11	<10
2-Nitrophenol	820 G	<11	<11	<10
2,4-Dimethylphenol	2000 G	<11	<11	<10
bis(2-Chloroethoxy)methane	NC	<11	<11	<10
2,4-Dichlorophenol	20 H	<11	<11	<10
1,2,4-Trichlorobenzene	70 M	<11	<11	<10
Naphthalene	100 H	3 J	2 J	<10
4-Chloroaniline	410 G	<11	<11	<10
Hexachlorobutadiene	1 H	<11	<11	<10
4-Chloro-3-methylphenol	NC	<11	<11	<10
2-Methylnaphthalene	2000 G	4 J	3 J	0.8 J
Hexachlorocyclopentadiene	50 M	<11	<11	<10
2,4,6-Trichlorophenol	31 G	<11	<11	<10
2,4,5-Trichlorophenol	10,000 G	<27	<27	<26
2-Chloronaphthalene	8200 G	<11	<11	<10
2-Nitroaniline	5.8 G	<27	<27	<26
Dimethylphthalate	NC	<11	0.9 J	<10
Acenaphthylene	3800 S	<11	<11	<10
2,6-Dinitrotoluene	100 G	<11	<11	<10
3-Nitroaniline	5.8 G	<27	<27	<26
Acenaphthene	3800 S	<11	<11	<10
2,4-Dinitrophenol	41 N	<27	<27	<26
4-Nitrophenol	60 H	<27	<27	<26
Dibenzofuran	NC	<11	<11	<10
2,4-Dinitrotoluene	8.4 G	<11	<11	<10
Diethylphthalate	5000 H	<11	<11	<10
4-Chlorophenyl-phenylether	NC	<11	<11	<10
Fluorene	1900 S	<11	<11	<10
4-Nitroaniline	5.8 G	<27	<27	<26
4,6-Dinitro-2-methylphenol	NC	<27	<27	<26
N-Nitrosodiphenylamine (1)	530 G	<11	<11	<10
4-Bromophenyl-phenylether	NC	<11	<11	<10
Hexachlorobenzene	1 M	<11	<11	<10
Pentachlorophenol	1 M	<27	<27	<26
Phenanthrene	1100 S	<11	<11	<10
Anthracene	66 S	<11	<11	<10
Carbazole	130G	<11	<11	<10
Di-n-butylphthalate	10,000 G	0.8 B	0.8 B	<10
Fluoranthene	260 S	<11	<11	<10
Pyrene	130 S	<11	<11	<10
Butylbenzylphthalate	2700 S	<11	<11	<10
3,3'-Dichlorobenzidine	5.8 G	<11	<11	<10
Benzo(a)anthracene	3.6 G	<11	<11	<10
Chrysene	1.9 S	<11	<11	<10
bis(2-Ethylhexyl)phthalate	6 M	1 B	0.6 B	<10
Di-n-octyl phthalate	2000 G	<11	<11	<10
Benzo(b)fluoranthene	1.2 S	<11	<11	<10
Benzo(k)fluoranthene	0.55 S	<11	<11	<10
Benzo(a)pyrene	0.2 M	<11	<11	<10
**Benzo(a)pyrene	0.2 M	<0.23	<0.23	<0.23
Indeno(1,2,3-cd) pyrene	3.6 G	<11	<11	<10
Dibenz(a,h)anthracene	0.36 G	<11	<11	<10
Benzo(g,h,i)perylene	0.26 S	<11	<11	<10

Notes:

*MSC-calculated Medium-Specific Concentrations for Groundwater, Non-residential,
 Used Aquifer with TDS =< 2500 mg/L

MSC H- Lifetime health advisory level

MSC M- Maximum Contaminant Level

MSC G- Ingestion

MSC N- Inhalation

MSC S- Aqueous solubility cap

** - Analyzed by Method 8310

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

NC- No Criteria

J- Indicates an estimated value.

B- This flag is used when the analyte is found in the associated blank as well as in the sample.

It indicates possible/probable blank contamination.

Concentrations above calculated *MSC are bolded and shaded

IR Site 11 NASJRB, PA

Groundwater Analytical Summary

Sample ID Lab Batch Number Sample Date Units	ug/L	11MW23s 0306L551 6/2/03 ug/L	11DUP01 (11MW23s) 0306L551 6/2/03 ug/L	11MW23 0306L567 6/3/03 ug/L
Metals	*MSC			
Aluminum	**200	71.2 B	59 B	60.6 B
Antimony	6 M	<2.2	<2.2	<2.2
Arsenic	50 M	<3.3	<3.3	4
Barium	2,000 M	401	488	761
Beryllium	4 M	0.34 B	0.32 B	0.3 B
Cadmium	5 M	<0.4	<0.4	<0.4
Calcium	NC	30,300	30,900	39,900
Chromium	***100 M	1.8	2.1	<1
Cobalt	2,000 G	8.4	6.6	11.5
Copper	1,000 M	0.66 B	<0.6	<0.6
Iron	**300	3,630	4,510	12,300
Lead	5 M	3.7 B	<2.3	4.5 B
Magnesium	NC	12,500	12,900	15,200
Manganese	**50	11,100	12,600	21,000
Mercury	2 M	<0.1	<0.1	<0.1 L
Nickel	100 H	9.4	34.7	7.8
Potassium	NC	1,760	1,730	1640 B
Selenium	50 M	<4.2	<4.2	<4.2
Silver	100 H	<1.2	<1.2	<1.2
Sodium	NC	17,200	17,300	17,700
Thallium	2 M	<4.5	<4.5	<4.5
Vanadium	720 G	0.66 B	0.33 B	0.66 B
Zinc	2,000 H	19.7 B	50.4 B	16.8 B

Notes:

***MSC**-calculated Medium-Specific Concentrations for Groundwater,
Non-residential, Used Aquifer with TDS =< 2500 mg/L

MSC H- Lifetime health advisory level

MSC M- Maximum Contaminant Level

MSC G- Ingestion

** - Secondary Maximum Contaminant Level (**SMCL**)

*** - Total Chromium MSC

< - Indicates that the parameter was not detected at or above the reported limit.
The associated numerical value is the sample detection limit.

L - Analyte present. Reported value may be biased low. Actual value is expected to be higher.

B - Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL).

NC - No Criteria

Concentrations above calculated MSC and/or SMCL are bolded and shaded

IR Site 11 NASJRB, PA

Blanks Analytical Summary

Sample ID Lab Batch Number Sample Date Units	11FB01060303 0306L567 6/3/03 ug/L	11RB01060303 0306L567 6/3/03 ug/L	11TB04060203 0306L551 6/2/03 ug/L	11TB05060303 0306L567 6/3/03 ug/L	11TB06060303 0306L567 6/3/03 ug/L
VOC					
*Methane	<5	<5	<5	<5	<5
Chloromethane	<2	<2	<2	<2	<2
Bromomethane	<2	<2	<2	<2	<2
Vinyl Chloride	<2	<2	<2	<2	<2
Chloroethane	<2	<2	<2	<2	<2
Methylene Chloride	<2	<2	8	11	10
Acetone	<5	<5	<5	<5	<5
Carbon Disulfide	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)	<1	<1	<1	<1	<1
Chloroform	2	1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1
2-Butanone	5 R	5 R	5 R	5 R	5 R
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
Carbon Tetrachloride	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1
Dibromochloromethane	0.2 J	0.2 J	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
Benzene	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
Bromoform	0.5 J	0.4 J	<1	<1	<1
4-Methyl-2-pentanone	<5	<5	<5	<5	<5
2-Hexanone	5 R	5 R	5 R	5 R	5 R
Tetrachloroethene	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	0.1 J
Chlorobenzene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
Xylene (total)	<1	<1	<1	<1	<1
1,2-Dibromoethane	<1	<1	<1	<1	<1
**1,2-Dibromoethane	<0.019	<0.018	<0.018	<0.018	<0.018
Isopropylbenzene	<1	<1	<1	<1	<1

Notes:

*- Analyzed by Method RSK 175

**- Analyzed by Method 504

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

R- Unusable results. Analyte may or may not be present in the sample.

J- Indicates an estimated value.

IR Site 11 NASJRB, PA

Blanks Analytical Summary

Sample ID Lab Batch Number Sample Date Units	11FB01060303 0306L567 6/3/03 ug/L	11RB01060303 0306L567 6/3/03 ug/L
SVOC		
Phenol	<11	<10
bis(2-Chloroethyl)ether	<11	<10
2-Chlorophenol	<11	<10
1,3-Dichlorobenzene	<11	<10
1,4-Dichlorobenzene	<11	<10
1,2-Dichlorobenzene	<11	<10
2-Methylphenol	<11	<10
2,2'-oxybis(1-Chloropropane)	<11	<10
4-Methylphenol	<11	<10
N-Nitroso-di-n-propylamine	<11	<10
Hexachloroethane	<11	<10
Nitrobenzene	<11	<10
Isophorone	<11	<10
2-Nitrophenol	<11	<10
2,4-Dimethylphenol	<11	<10
bis(2-Chloroethoxy)methane	<11	<10
2,4-Dichlorophenol	<11	<10
1,2,4-Trichlorobenzene	<11	<10
Naphthalene	<11	<10
4-Chloroaniline	<11	<10
Hexachlorobutadiene	<11	<10
4-Chloro-3-methylphenol	<11	<10
2-Methylnaphthalene	<11	<10
Hexachlorocyclopentadiene	<11	<10
2,4,6-Trichlorophenol	<11	<10
2,4,5-Trichlorophenol	<27	<26
2-Chloronaphthalene	<11	<10
2-Nitroaniline	<27	<26
Dimethylphthalate	<11	<10
Acenaphthylene	<11	<10
2,6-Dinitrotoluene	<11	<10
3-Nitroaniline	<27	<26
Acenaphthene	<11	<10
2,4-Dinitrophenol	<27	<26
4-Nitrophenol	<27	<26
Dibenzofuran	<11	<10
2,4-Dinitrotoluene	<11	<10
Diethylphthalate	<11	<10
4-Chlorophenyl-phenylether	<11	<10
Fluorene	<11	<10
4-Nitroaniline	<27	<26
4,6-Dinitro-2-methylphenol	<27	<26
N-Nitrosodiphenylamine (1)	<11	<10
4-Bromophenyl-phenylether	<11	<10
Hexachlorobenzene	<11	<10
Pentachlorophenol	<27	<26
Phenanthrene	<11	<10
Anthracene	<11	<10
Carbazole	<11	<10
Di-n-butylphthalate	<11	<10
Fluoranthene	<11	<10
Pyrene	<11	<10
Butylbenzylphthalate	<11	<10
3,3'-Dichlorobenzidine	<11	<10
Banzo(a)anthracene	<11	<10
Chrysene	<11	<10
bis(2-Ethylhexyl)phthalate	<11	0.7 J
Di-n-octyl phthalate	<11	<10
Benzo(b)fluoranthene	<11	<10
Benzo(k)fluoranthene	<11	<10
Benzo(a)pyrene	<11	<10
*Benzo(a)pyrene	<0.23	<0.23
Indeno(1,2,3-cd) pyrene	<11	<10
Dibenz(a,h)anthracene	<11	<10
Benzo(g,h,i)perylene	<11	<10

Notes:

*- Analyzed by Method 8310

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

J- Indicates an estimated value.

IR Site 11 NASJRB, PA

Blanks Analytical Summary

Sample ID Lab Batch Number Sample Date Units	11FB01060303 0306L567 6/3/03 ug/L	11RB01060303 0306L567 6/3/03 ug/L
Metals		
Aluminum	35.3 B	47.1 B
Antimony	<2.2	<2.2
Arsenic	<3.3	<3.3
Barium	0.21 B	0.64 B
Beryllium	0.23 B	0.21 B
Cadmium	<0.4	<0.4
Calcium	73.4	47.5
Chromium	<1	1.4
Cobalt	<1	<1
Copper	<0.6	<0.6
Iron	<25.8	<25.8
Lead	<2.3	<2.3
Magnesium	11.5 B	13.1 B
Manganese	0.26 B	0.44 B
Mercury	<0.1 L	<0.1 L
Nickel	<1.3	<1.3
Potassium	343	56.5 B
Selenium	<4.2	<4.2
Silver	<1.2	<1.2
Sodium	33.7 B	62.2 B
Thallium	<4.5	<4.5
Vanadium	0.48 B	0.4 B
Zinc	10.8 B	2.5 B

Notes:

< - Indicates that the parameter was not detected at or above the reported limit.

The associated numerical value is the sample detection limit.

L- Analyte present. Reported value may be biased low. Actual value is expected to be higher.

B- Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL).