

**DELINEATION PHASE II SITE ASSESSMENT**

**NORTHROP GRUMMAN CORPORATION**

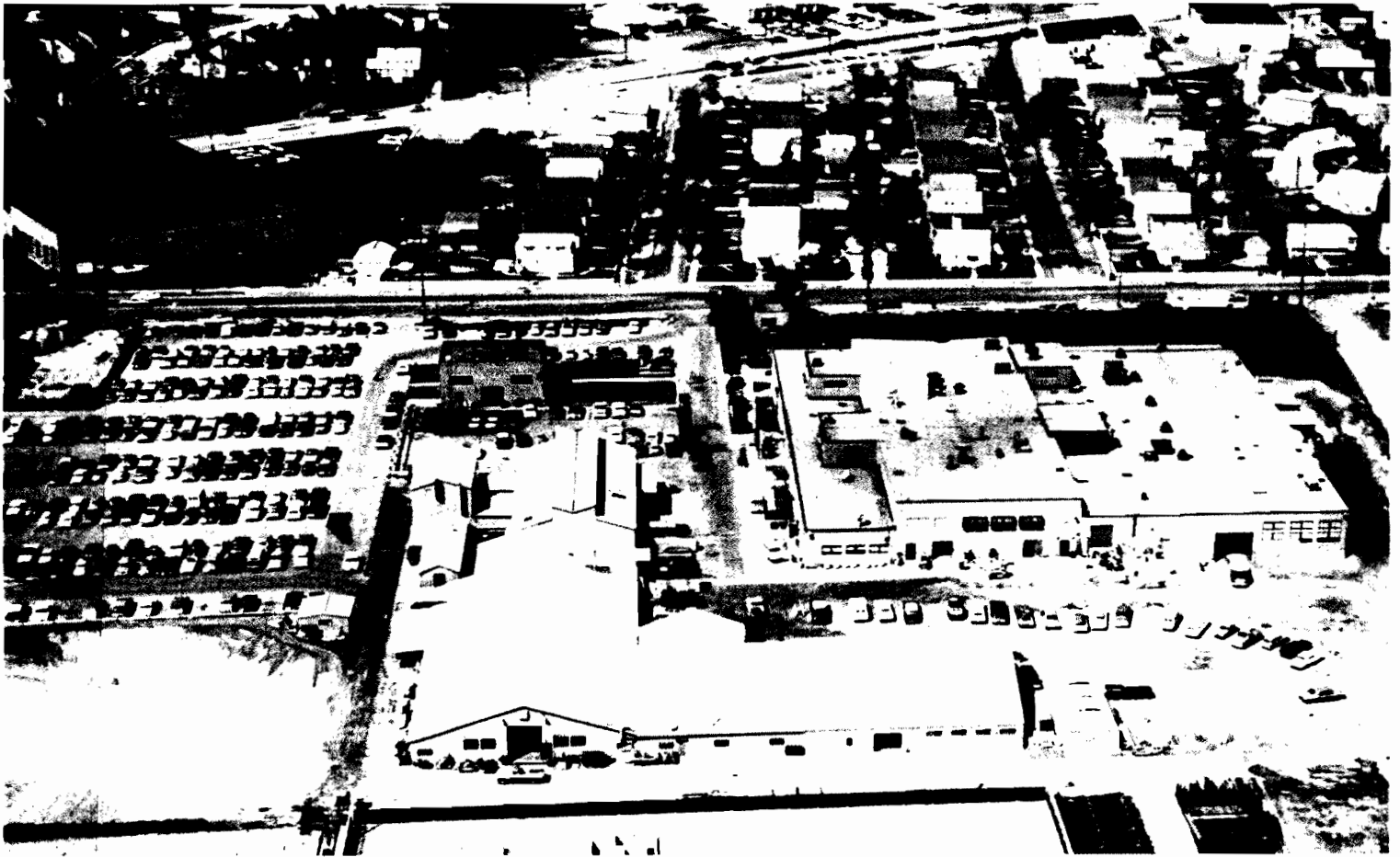
**PLANT 12  
HICKSVILLE, NEW YORK**

**PREPARED BY**

**DVIRKA AND BARTILUCCI  
CONSULTING ENGINEERS  
WOODBURY, NEW YORK**

**FEBRUARY 1999**

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**DELINEATION PHASE II SITE ASSESSMENT - PLANT 12**

FEBRUARY 1999



**Dvirka and Bartilucci**

CONSULTING ENGINEERS

A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

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NORTHROP GRUMMAN CORPORATION  
PLANT 12  
HICKSVILLE, NEW YORK**

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# Section 1

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## 1.0 INTRODUCTION

This document presents the findings of a Delineation Phase II Site Assessment undertaken at the Northrop Grumman Corporation (NGC) property known as "Plant 12," located on the east side of New South Road and north of Mulberry Street, Hicksville, New York. A site location map is presented on Figure 1-1.

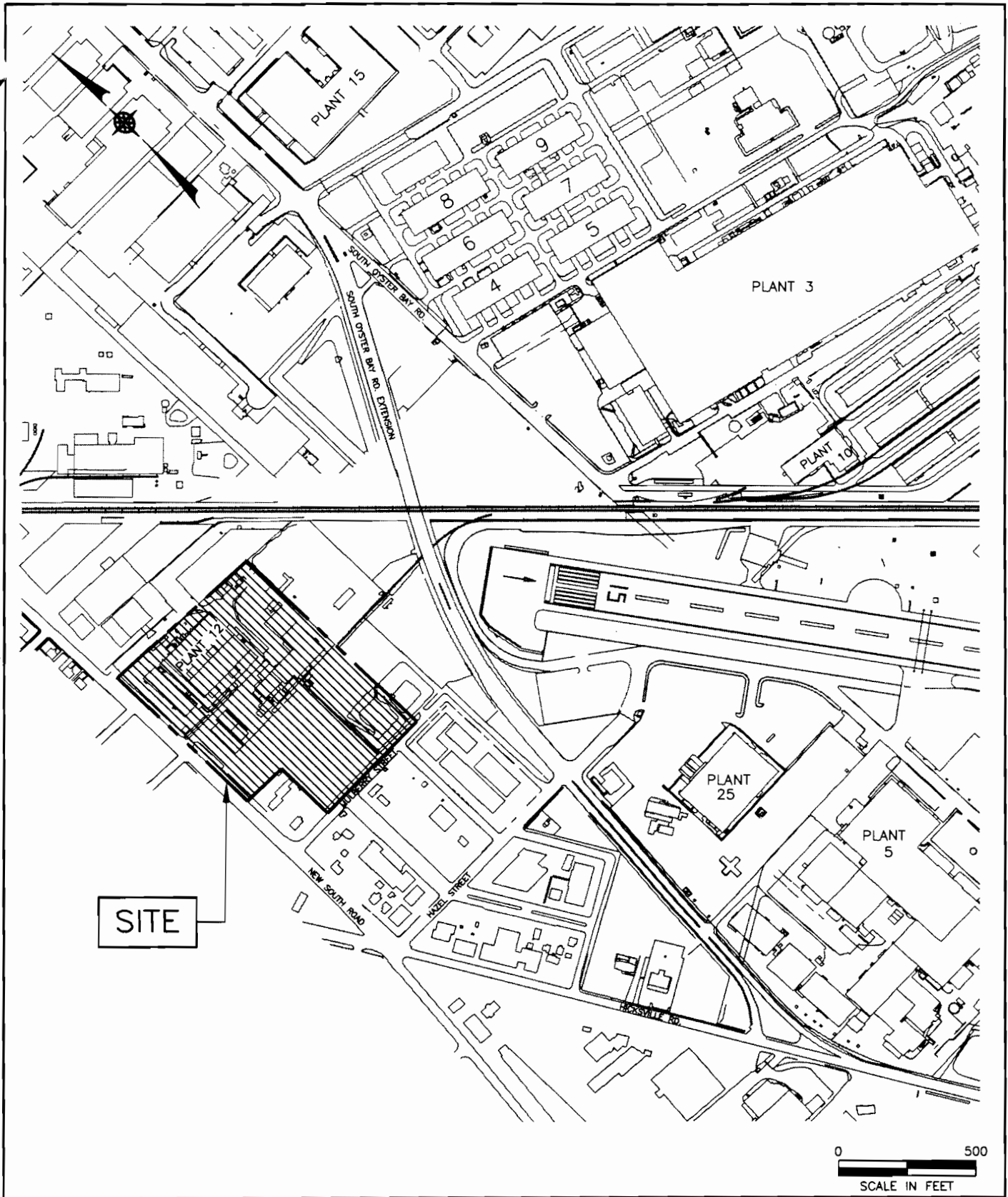
The Plant 12 property is zoned "Industrial H." Zoning to the north, east and south is also industrial. Zoning to the northwest is high density residential, while zoning to the immediate west along New South Road is a combination of commercial and high density residential zoning.

The Plant 12 site comprises approximately 11.4 acres (current Tax I.D. Number: Section 46, Block 504, Lots 131 and 133) and is currently owned by NGC (formerly known as Grumman Aerospace Corporation or Grumman). The site is occupied by a number of buildings: Plant 12 (approximately 60,000 square feet); Plant 12A (approximately 30,000 square feet); Boiler House (approximately 2,000 square feet); Guard Booth (approximately 400 square feet); and the Megapound Test Lab (approximately 1,000 square feet). The Plant 12 property is generally level and ground elevation is approximately 100 feet above mean sea level. The depth to groundwater is approximately 60 feet below grade. A site plan is presented on Figure 1-2.

The objective of this report is to document the investigation activities conducted during the Delineation Phase II Site Assessment, present the analytical results of soil and groundwater samples collected during this field program, provide an interpretation of the analytical results of these samples with respect to appropriate environmental standards and guidance values and delineate areas of possible environmental concern. Based upon the findings of the investigation, conclusions are also provided.

Section 2 of this document presents an overview of the findings of the Supplemental Phase II Site Assessment. Section 3 provides the scope of work for the Delineation Phase II Site Assessment based on the findings of the Supplemental Phase II Site Assessment.

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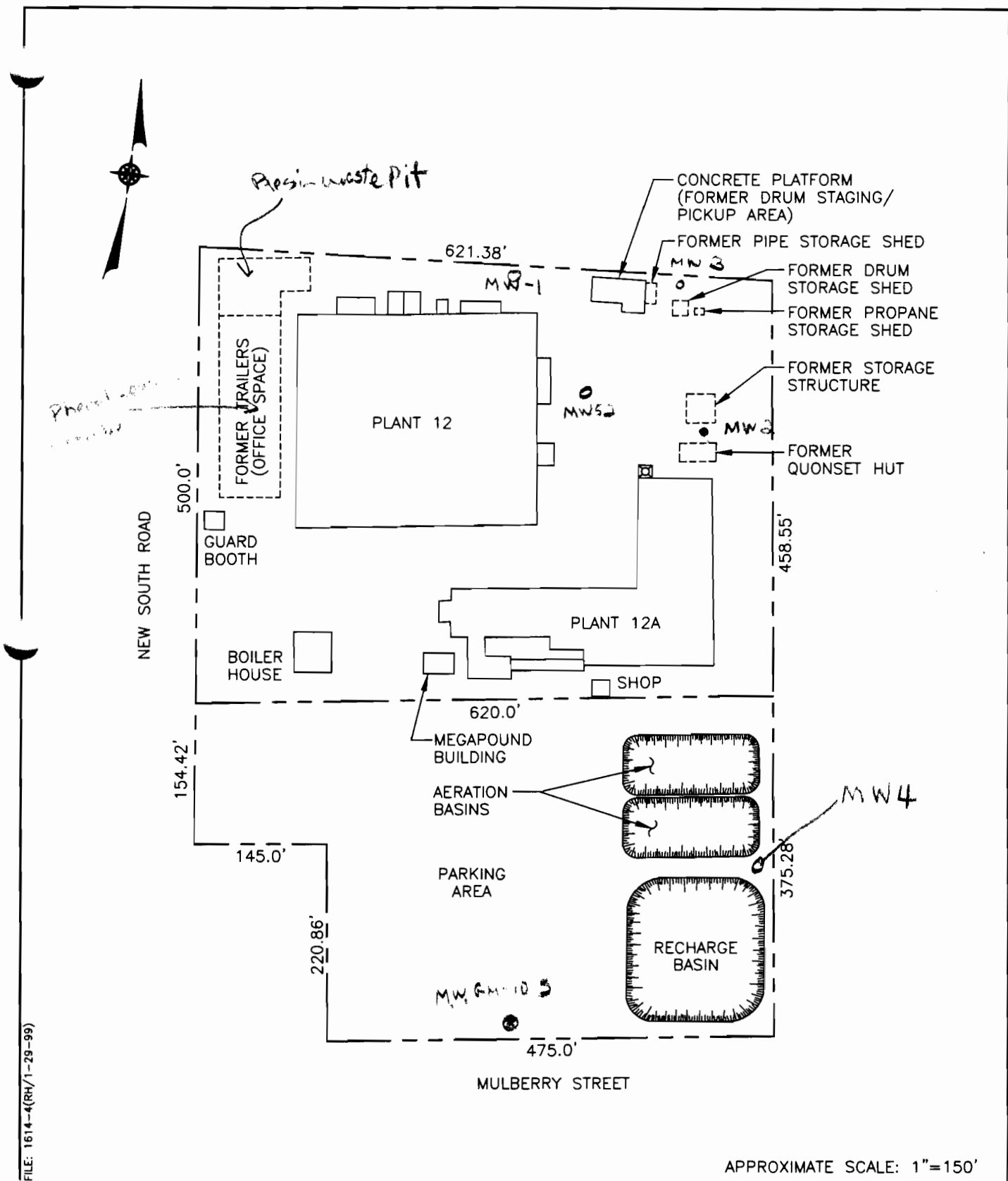
NORTHROP GRUMMAN CORPORATION  
BETHPAGE, NEW YORK  
PLANT 12 - DELINEATION PHASE II SITE ASSESSMENT



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### SITE LOCATION MAP

FIGURE 1-1



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APPROXIMATE SCALE: 1"=150'

NORTHROP GRUMMAN CORPORATION  
 BETHPAGE, NEW YORK  
 PLANT 12 - DELINEATION PHASE II SITE ASSESSMENT

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**SITE PLAN**

FIGURE 1-2

A discussion of the field activities, including the procedures followed throughout the course of the Delineation Phase II Site Assessment field activities, are described in Section 4. The findings of the Delineation Phase II Site Assessment field activities are presented in Section 5. Based on the findings of this investigation, the conclusions of the Delineation Phase II Site Assessment are provided in Section 6. A summary of the conclusions of both the Supplemental and Delineation Phase II Site Assessments is provided in Section 7.

It is important to note that several previous investigations have been conducted for the Plant 12 site. The first study entitled, "Phase I/Phase II Environmental Baseline Study," prepared by Dvirka and Bartilucci Consulting Engineers (D&B), was conducted at the Plant 12 site between September 1994 and January 1995. The Environmental Baseline Study report was initially prepared as part of an effort to satisfy the requirements for delisting the Plant 12 property from the New York State Registry of Inactive Hazardous Waste Disposal Sites. However, based upon the findings of the analytical sampling program, it was determined that further investigation activities were warranted prior to continuing with the delisting effort. As a result, the objective of the Environmental Baseline Study was limited to documenting the Phase I and Phase II investigation activities to establish baseline environmental conditions with regard to soil and groundwater. Subsequent to the Phase I/Phase II Environmental Baseline Study, several parcels of the NGC Bethpage facility, including the Plant 12 site, were delisted by the New York State Department of Environmental Conservation (NYSDEC) on October 1, 1996. However, the findings of the Phase I/Phase II Environmental Baseline Study, indicated that several potential areas of environmental concern warranted further investigation.

Subsequent to the Phase I/Phase II Environmental Baseline Study, an ASTM Phase I Site Assessment including a Phase I update was conducted at the Plant 12 site between April 1996 and February 1997, and the combined Phase I report was finalized in March 1997. The ASTM Phase I Site Assessment, prepared by D&B, was conducted to document up-to-date environmental conditions in support of future real estate transactions. The findings of the ASTM Phase I Site Assessment also identified several areas of concern (AOCs) that warranted further investigation.

A Supplemental Phase II Site Assessment was conducted in order to further investigate the findings of the Phase I/Phase II Environmental Baseline Study and the ASTM Phase I Site Assessment. The Supplemental Phase II Site Assessment, conducted by D&B, consisted of two field programs. Field program No. 1, which was initially conducted during April and May 1996 with subsequent activities completed in July 1996, addressed the recommendations of the Environmental Baseline Study. Field program No. 2, which was conducted during April and May of 1997, was based on the findings of the ASTM Phase I Site Assessment.

The findings of the Supplemental Phase II Site Assessment (presented in Section 2.0 of this report) indicate that additional investigation was needed to determine the horizontal and vertical extent of impacted soils and to further characterize on-site groundwater quality. This report was therefore prepared to document the results of the "delineation" testing conducted at the Plant 12 site.

Provided below is a reference list of investigations conducted at the Plant 12 site:

"Phase I/Phase II Environmental Baseline Study, Plant 12, Grumman Aerospace Corporation, Hicksville, New York," Dvirka and Bartilucci Consulting Engineers, March 1996.

"Phase I Site Assessment, Plant 12, Northrop Grumman Corporation, Hicksville, New York," Dvirka and Bartilucci Consulting Engineers, March 1997.

"Supplemental Phase II Site Assessment, Plant 12, Northrop Grumman Corporation, Hicksville, New York," Dvirka and Bartilucci Consulting Engineers, December 1997.

"Dry Well and Leaching Pool Closure Report - Plant 12, Northrop Grumman Corporation, Hicksville, New York," Dvirka and Bartilucci Consulting Engineers, May 1998.

In addition, provided below is a reference list of investigations, conducted by the Northrop Grumman Corporation, on properties adjacent to the Plant 12 site:

“New York State Site Registry Delisting Petition – Site 8 (Plant 12/East), Grumman Aerospace Corporation, Hicksville, New York,” Dvirka and Bartilucci Consulting Engineers, February 1993.

“Phase I Site Assessment, Plant 12 East, Grumman Aerospace Corporation, Hicksville, New York,” Dvirka and Bartilucci Consulting Engineers, June 1996.

“Phase II Site Assessment, Site 8 (Plant 12/East), Grumman Aerospace Corporation, Hicksville, New York,” Dvirka and Bartilucci Consulting Engineers, August 1996.

“Site 8 (Plant 12/East), Scrap Metal Storage Areas, Remediation Services, Grumman Aerospace Corporation, Hicksville, New York,” D&B Environmental Services, Inc., December 11, 1996.

“Underground Storage Tank Site Assessment, Plant 12/East, Tank No. 12-05-01, Grumman Aerospace Corporation, Hicksville, New York,” Dvirka and Bartilucci Consulting Engineers, December 1996.

“Geophysical Survey, Soil and Drum Excavation, Sampling and Remediation Activities, Plant 12 East - Parcel K1, Northrop Grumman Corporation, Hicksville, New York,” Dvirka and Bartilucci Consulting Engineers, June 27, 1997.

“Phase I Site Assessment, Plant 12 “Panhandle,” Northrop Grumman Corporation, Hicksville, New York,” Dvirka and Bartilucci Consulting Engineers, October 1997.



## Section 2

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## 2.0 FINDINGS OF THE SUPPLEMENTAL PHASE II SITE ASSESSMENT

The findings of the Supplemental Phase II Site Assessment were presented in a report to Northrop Grumman Corporation dated December 1997. This section also presents the findings of the Supplemental Phase II Site Assessment including a summary of the analytical results of the concrete core and soil samples obtained during Field Program Nos. 1 and 2. Field Program No. 1 was conducted during April and May 1996 with subsequent activities completed in July 1996. Field Program No. 2 was conducted during April and May of 1997. Figure 2-1 illustrates the approximate location of the soil borings and concrete corings advanced during Field Program Nos. 1 and 2.

Soil sample results from each field program are compared to the criteria included in Appendix A of the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) No. 4046 (referred to in this document as "NYSDEC TAGM criteria"), as well as the typical Eastern USA background soil contaminant concentration ranges included in the TAGM (referred to in this document as "Eastern USA background levels").

Also, as presented in the TAGM, in addition to the criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were utilized for comparison. In addition, although there is no NYSDEC TAGM criterion for TPHCs, a screening threshold level of 250 mg/kg was approved by NYSDEC for the Plant 12 site, as described below.

In an effort to optimize the sampling and analytical requirements associated with petroleum and petroleum-related products including lubricating oil, fuel oil and hydraulic oil, NGC entered into discussions with NYSDEC, Region 1 to develop an appropriate methodology for the Plant 12 site. As a result of these discussions, the following protocol was agreed to. First, all applicable samples would be subjected to analysis for TPHCs by Method 418.1. If the results of the TPHCs analysis indicated a "detect" for TPHCs, then the sample would be analyzed for

fuel-related constituents (fuel fingerprint) by Method 310-13. If the fuel fingerprint analysis indicates the presence of a fuel-related constituent, then the sample would be further analyzed in accordance with the protocol established pursuant to NYSDEC's Spill Technology and Remediation Series (STARS) Memo #1, provided that the initial TPHCs analytical results were >250 ppm (mg/kg). If, on the other hand, the TPHCs concentration of a sample in the above scenario were <250 ppm, then no further action would be taken. This level of 250 mg/kg would not be considered a standard but rather a concentration that is believed to be representative of a realistic screening threshold. Therefore, the TPHCs concentration of 250 mg/kg would be used as a screening threshold level for application at the Plant 12 site only.

In addition, for screening purposes, the analytical results of the concrete core samples obtained during Field Program Nos. 1 and 2 are compared to the results of a study published by the Portland Cement Association (PCA) entitled, "An Analysis of Trace Metals in Cement and Cement Kiln Dust." The study presents a "normal" or average concentration range of total trace metals in a "typical" cement. The table that follows presents the results of the study. In addition, the results of the PCA study were converted to estimated total trace metal concentrations in concrete based on an assumed density and cement content of concrete (i.e., 4,000 lbs/cy and 650 lbs/cy, respectively).

<u>Trace Metals</u>	<u>Range of Concentrations in Cement (mg/kg)</u>	<u>Estimated Range of Concentrations in Concrete (mg/kg)</u>
Antimony	0.7 - 4	0.1 - 0.6
Arsenic	5 - 71	0.8 - 11.4
Beryllium	91 - 1,402	14.6 - 224.3
Cadmium	0.32 - 3.05	0.051 - 0.49
Chromium	25 - 422	4 - 67.4
Lead	1 - 75	0.16 - 12
Mercury	<0.001 - 0.04	<0.0002 - 0.006
Nickel	10 - 129	1.6 - 20.6
Selenium	0.62 - 2.23	0.10 - 0.36
Silver	6.75 - 19.9	1.08 - 3.2
Thallium	0.01 - 2.58	0.002 - 0.41

It should be noted that the results of the PCA study presented above do not represent any type of regulatory threshold; and, the study results are used in the discussion of the findings which follow only as a benchmark with respect to “typical” contaminant ranges in concrete.

The Supplemental Phase II Site Assessment consisted of two Field Programs. Field Program No. 1 investigation activities were conducted in April/May 1996 and July 1996 at the following areas of concern (AOCs) at the site:

Plant 12

Interior

- Primary Pressure Lab
- Fluid Calibration (Fluid Flow) Lab
- Autoclave Room (Pump Room)

Plant 12A

Interior

- Basement and Sub-basement Areas

Megapound Test Lab

Interior

- Machine Pit Sump

Exterior

- Surrounding Areas

Exterior Areas

- Petroleum/Chemical Storage Areas

Field Program No. 2 investigation activities were conducted in April/May 1997 at the following AOCs at the site:

## Plant 12

### Interior

- Fluid Calibration (Fluid Flow) Lab
- Liquid Flow Lab
- Machine Shop
- Tank Room
- Comp Saw Room
- Polishing Room
- Trench in EMT Lab No. 1
- Trench in Staffed Machine Shop
- Engineering Development Lab
- Trench in Repair Lab No. 2
- Autoclave Room (Pump Room)
- Resin Transfer Molding Lab (Autoclave Lay-up Area)
- External Pump House

### Exterior

- Northern Leaching Chambers
- Chemical Storage Area/Concrete Platform
- Former Fuel USTs East of Plant 12
- Area Outside of Machine Shop
- Tank Room Leaching Pool
- Sanitary Leaching Pools (West)
- Sanitary Leaching Pools (North and South)
- Unknown Buried Structures (North)
- Former Sump #2
- Former Pit East of Sump #2
- Former Trenches to Resin Waste Pit (Sump #1)
- Former Dry Well in Vicinity of Trenches
- Dry Well Northeast of Plant 12

## Plant 12A

### Interior

- Basement/Sub-basement Areas
- Floor Drains in Facilities Maintenance Room and Maintenance Equipment Area
- Point of Generation/Hazardous Waste Accumulation Area
- Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop
- Leaching Chamber Beneath Carpentry Shop
- Former Fuel Tanks at Carpentry Shop

### Exterior

- Leaching Chamber North of Carpentry Shop
- Dry Well/Manhole West of Carpentry Shop
- Center Courtyard Area
- Dry Well South of Plant 12A
- Drainage Chamber North of Lobby/Loading Area
- Dry Well in Stairwell Between Megapound and Plant 12A
- Former Drainage Trench East of Plant 12A
- Dry Wells East of Plant 12A

### Megapound Test Lab

#### Interior

- Former Leaching Pool Beneath Megapound
- Sanitary Leaching Pool (South) Beneath Megapound

### Boiler House

#### Interior

- Sump Pit/Trenches

#### Exterior

- Leaching Pool West of Boiler House

### Exterior Areas

- Southern Parking Lot
- Existing and Former Recharge Basins
- Former Drainage Basin

The findings of the Supplemental Phase II Site Assessment Field Program Nos. 1 and 2 are presented below.

## **2.1 Field Program No. 1**

An area by area discussion of the Supplemental Phase II Site Assessment Field Program No. 1 findings is presented below.

### **2.1.1 Plant 12 Interior - Primary Pressure Lab**

A total of six concrete core samples and 12 soil samples were collected at concrete coring/soil boring locations PPL-A and PPL-B during the April/May 1996 and July 1996 field investigations. The July 1996 confirmatory mercury sampling activities were conducted immediately adjacent to the concrete corings/soil borings advanced during the April/May 1996 field investigation. The analytical results are summarized as follows:

- Mercury

- Mercury was detected at concentrations of 1.0 mg/kg, 0.22 mg/kg and 0.48 mg/kg in concrete core samples PPL-2AC, PPL-BC and PPL-2BC, respectively which were above the PCA study range of <0.0002 - 0.006 mg/kg. It is important to note that sample PPL-2AC was split and analyzed by two separate laboratories and mercury was not detected in one sample while being detected at 1.0 mg/kg in the other sample. These samples were collected to confirm the results of sample PPL-AC in which mercury was not detected. Similarly, sample PPL-2BC was split and analyzed by two separate laboratories and mercury was not detected in one sample while being detected at 0.48 mg/kg in the other sample. These samples were collected to confirm the results of sample PPL-BC in which mercury was detected at 0.22 mg/kg.
- Mercury was detected at concentrations of 1 mg/kg, 2.1 mg/kg, 0.71 mg/kg and 0.84 mg/kg in soil samples PPL-A (0-2'), PPL-A (2'-4'), PPL-B (0-2') and PPL-B (2'-4'), respectively which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. It is important to note that samples PPL-2A1 (0-2') and PPL-2A2 (2'-4') were collected, split and analyzed by two separate laboratories in order to confirm the results of samples PPL-A (0-2') and PPL-A (2'-4'), respectively, in which mercury was detected at 1.0 mg/kg and 2.1 mg/kg, respectively. However, mercury was not detected in "confirmatory" samples PPL-2A1 (0-2') and PPL-2A2 (2'-4'). Similarly, samples PPL-2B1 (0-2') and PPL-2B2 (2'-4') were collected, split and analyzed by two separate laboratories in order to confirm the results of samples PPL-B (0-2') and PPL-B (2'-4'), respectively, in which mercury was detected at 0.71 mg/kg and 0.84 mg/kg, respectively. However, mercury was not detected in "confirmatory" samples PPL-2B1 (0-2') and PPL-2B2 (2'-4').

#### 2.1.2 Plant 12 Interior - Fluid Calibration (Fluid Flow) Lab

A total of two concrete core samples and four soil samples were collected at concrete coring/soil boring locations FFL-A and FFL-B during the April/May 1996 field investigation. No confirmatory mercury sampling activities (i.e., July 1996 field investigation) were conducted at the Fluid Calibration (Fluid Flow) Lab. The analytical results are summarized as follows:

- Semivolatile Organic Compounds

- Phenol, di-n-butylphthalate and butylbenzylphthalate were detected in concrete core sample FFL-AC at 1,800 ug/kg, 23,000 ug/kg and 5,600 ug/kg, respectively.

- Phenol was detected at a concentration of 600 ug/kg in soil sample FFL-A (0-2') which exceeded the NYSDEC TAGM criterion of 30 ug/kg. Di-n-butylphthalate, butylbenzylphthalate and bis(2-Ethylhexyl)phthalate were also detected in soil sample FFL-A (0-2') but at concentrations below NYSDEC TAGM criteria for these compounds.
  - Di-n-butylphthalate and butylbenzylphthalate were detected in soil sample FFL-A (2'-4') but at concentrations below NYSDEC TAGM criteria.
  - SVOCs were not detected in core sample FFL-BC.
  - Diethylphthalate and pyrene were detected in soil sample FFL-B (0-2') but at concentrations below NYSDEC TAGM criteria.
  - SVOCs were not detected in soil sample FFL-B (2'-4').
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* polycyclic aromatic hydrocarbons (PAHs) of 100,000 ug/kg, and the criterion for *total* carcinogenic polycyclic aromatic hydrocarbons (CaPAHs) of 10,000 ug/kg were not exceeded.
- **TPHCs and Fuel-Related Constituents**
    - TPHCs were detected in concrete core sample FFL-AC, soil samples FFL-A (0-2') and FFL-A (2'-4'), and concrete core sample FFL-BC at concentrations of 52 mg/kg, 42 mg/kg, 130 mg/kg and 66 mg/kg, respectively. TPHCs were not detected in soil samples FFL-B (0-2') and FFL-B (2'-4'). There is no NYSDEC TAGM criterion for TPHCs; however, the levels were below the screening threshold level of 250 mg/kg which was approved by NYSDEC for the Plant 12 site.
    - TPHCs, identified as 10W40 motor oil, were detected at estimated concentrations of 7 mg/kg and 85 mg/kg in concrete core samples FFL-AC and FFL-BC, respectively. In addition, 10W40 motor oil was detected at estimated concentrations of 8 mg/kg, 35 mg/kg and 27 mg/kg in soil samples FFL-A (0-2'), FFL-A (2'-4') and FFL-B (0-2'), respectively. However, as discussed, these levels are below the screening threshold level of 250 mg/kg which was approved by NYSDEC for the Plant 12 site.

### 2.1.3 Plant 12 Interior - Autoclave Room (Pump Room)

A total of three concrete core samples and six soil samples were collected at concrete coring/soil boring location PR-B during the April/May 1996 and July 1996 field investigations. The July 1996 confirmatory mercury sampling activities were conducted immediately adjacent to



the concrete corings/soil borings advanced during the April/May 1996 field investigation. The analytical results are summarized as follows:

- Priority Pollutant Metals
  - Mercury was detected at concentrations of 0.37 mg/kg and 0.46 mg/kg in soil samples PR-B (0-2') and PR-B (2'-4'), respectively which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. However, mercury was not detected during the July 1996 confirmatory mercury sampling activities in soil samples PR-2B1 (0-2') and PR-2B2 (2'-4'), which were split and analyzed by two separate laboratories.
  - Cadmium, chromium, copper, lead, nickel, silver, thallium and zinc were detected in concrete core sample PR-BC, but at levels that were within the PCA study concentration ranges for these constituents. Mercury was detected in concrete core sample PR-BC at a concentration of 0.27 mg/kg which was above the PCA study concentration range of <0.0002 - 0.006 mg/kg for this constituent. It is important to note that concrete core sample PR-2BC was collected, split and analyzed by two separate laboratories in order to confirm the mercury results of sample PR-BC; however, the results of both split samples indicated that mercury was not detected.
  
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 280 mg/kg in concrete core sample PR-BC. TPHCs were not detected in soil samples PR-B (0-2') and PR-B (2'-4').
  - TPHCs, identified as 10W40 motor oil, were detected at a concentration of 390 mg/kg in soil sample PR-B (0-2'), which exceeded the screening threshold level of 250 mg/kg.

#### 2.1.4 Plant 12 Interior - Basement and Sub-basement Areas

A total of two soil samples were collected in the Basement Area at soil boring location BA-A during the April/May 1996 field investigation. In addition, four soil samples were collected immediately adjacent to soil boring location BA-A during the July 1996 confirmatory mercury sampling activities. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples BA-A (16'-18') and BA-A (20'-22').

- Methylene chloride and acetone were detected in soil samples BA-A (16'-18') and BA-A (20'-22') but at estimated concentrations which were below the NYSDEC TAGM criteria. Furthermore, methylene chloride and acetone were also detected in the method blanks associated with these samples. Therefore, these compounds were qualified as nondetect due to laboratory contamination (see Section 2.3).
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both soil samples.
- Priority Pollutant Metals
  - Mercury and zinc were detected at concentrations of 1.9 mg/kg and 55.4 mg/kg, respectively in soil sample BA-A (16'-18') which are above the Eastern USA background levels of 0.2 mg/kg and 50 mg/kg for these constituents. Mercury and zinc were also detected at concentrations of 0.35 mg/kg and 67.2 mg/kg, respectively in soil sample BA-A (20'-22') which are also above the Eastern USA background levels of 0.2 mg/kg and 50 mg/kg for these constituents. However, mercury was not detected in soil samples BA2-A1 (16'-18') and BA2-A2 (20'-22') during the July 1996 confirmatory mercury sampling activities. These samples were split and analyzed by two separate laboratories in order to confirm the mercury results of samples BA-A (16'-18') and BA-A (20'-22'); however, the results of both sets of split samples indicated that mercury was not detected.

Two soil samples were also collected in the Sub-basement Area at soil boring location MSA-B during the April/May 1996 field investigation. In addition, four soil samples were collected immediately adjacent to soil boring MSA-B during the July 1996 confirmatory mercury sampling activities. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples MSA-B (22'-24') and MSA-B (26'-28').
- Semivolatile Organic Compounds
  - SVOCs were not detected in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples MSA-B (22'-24') and MSA-B (26'-28'). Also, mercury was

not detected in soil samples MSA-2B1 (22'-24') and MSA-2B2 (26'-28') during the July 1996 confirmatory mercury sampling activities.

#### 2.1.5 Megapound Test Lab Interior - Machine Pit Sump

A total of three concrete core samples and six soil samples were collected at concrete coring/soil boring location MTL-B during the April/May 1996 and July 1996 field investigations. The July 1996 confirmatory mercury sampling activities were conducted immediately adjacent to concrete coring/soil boring advanced during the April/May 1996 field investigation. The analytical results are summarized as follows:

- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples MTL-B (0'-2') and MTL-B (2'-4') with the exception of mercury.
  - Mercury was detected at concentrations of 0.21 mg/kg and 0.23 mg/kg in soil samples MTL-B (0-2') and MTL-B (2'-4'), respectively, which were above the Eastern USA background level of 0.2 mg/kg for this constituent. However, mercury was not detected in soil samples MTL-2B1 (0-2') and MTL-2B2 (2'-4') during the July 1996 confirmatory mercury sampling activities. These samples were split and analyzed by two separate laboratories in order to confirm the mercury results of samples MTL-B (0-2') and MTL-B (2'-4'); however, the results of both sets of split samples indicated that mercury was not detected.
  - Metals were not detected above the PCA study concentration ranges in concrete core sample MTL-BC. Also, mercury was not detected in concrete core sample MTL-2BC which was split and analyzed by two separate laboratories.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected in concrete core sample MTL-BC at a concentration of 16,000 mg/kg. TPHCs were detected in soil samples MTL-B (0-2') and MTL-B (2'-4') at concentrations of 7,700 mg/kg and 10,000 mg/kg, respectively, which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs, identified as 10W40 motor oil, were detected at a concentration of 2,800 mg/kg in concrete core sample MTL-BC. TPHCs, identified as 10W40 motor oil, were also detected at concentrations of 12,000 mg/kg and 15,000 mg/kg in soil samples MTL-B (0-2') and MTL-B (2'-4'), respectively, which exceeded the screening threshold level of 250 mg/kg.

### 2.1.6 Megapound Test Lab Interior - Surrounding Area

A total of six soil samples were collected at soil boring location MTL-A during the April/May 1996 and July 1996 field investigations. The July 1996 confirmatory mercury sampling activities were conducted immediately adjacent to the soil boring advanced during the April/May 1996 field investigation. The analytical results are summarized as follows:

- Priority Pollutant Metals
  - Mercury was detected in soil sample MTL-A (0-2') but at a concentration that was below the Eastern USA background level for this constituent.
  - Mercury was detected at a concentration of 1.1 mg/kg in soil sample MTL-A (2'-4') which is above the Eastern USA background level of 0.2 mg/kg for this constituent. Mercury was detected in soil sample MTL-A (0-2') but at a concentration that was below the Eastern USA background level for this constituent. However, mercury was not detected in soil samples MTL-2A1 (0-2') and MTL-2A1 (2'-4') during the July 1996 confirmatory mercury sampling activities. These samples were split and analyzed by two separate laboratories in order to confirm the mercury results of samples MTL-A (0-2') and MTL-A (2'-4'); however, the results of both sets of split samples indicated that mercury was not detected.
- TPHCs and Fuel-Related Constituents
  - TPHCs and fuel-related constituents were not detected in soil samples MTL-A (0-2') and MTL-A (2'-4').

### 2.1.7 Exterior Areas - Petroleum/Chemical Storage Areas

A total of 13 soil samples were collected at soil boring locations PCS-A, PCS-B, PCS-C, PCS-D, PCS-E, PCS-F and PCS-G during the April/May 1996 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in all of the soil samples.

- **TPHCs and Fuel-Related Constituents**

- TPHCs were detected in soil samples PCS-A (2'-4'), PCS-B (0-2'), PCS-C (2'-4'), PCS-D (0-2'), PCS-D (2'-4'), PCS-E (2'-4'), PCS-F (2'-4'), PCS-G (0-2') and PCS-G (2'-4') at concentrations of 290 mg/kg, 24 mg/kg, 45 mg/kg, 32 mg/kg, 63 mg/kg, 12 mg/kg, 16 mg/kg, 290 mg/kg and 2,400 mg/kg, respectively. The concentrations of TPHCs detected in soil samples PCS-A (2'-4'), PCS-G (0-2') and PCS-G (2'-4') exceeded the screening threshold level of 250 mg/kg.
- TPHCs, identified as 10W40 motor oil, were detected in soil samples PCS-A (0-2'), PCS-A (2'-4'), PCS-B (0-2'), PCS-C (2'-4'), PCS-D (0-2'), PCS-D (2'-4'), PCS-F (0-2'), PCS-F (2'-4'), PCS-G (0-2') and PCS-G (2'-4') at concentrations of 170 mg/kg, 7 mg/kg, 18 mg/kg, 48 mg/kg, 24 mg/kg, 200 mg/kg, 27 mg/kg, 28 mg/kg, 25 mg/kg and 18 mg/kg, respectively.

## **2.2 Field Program No. 2**

An area by area discussion of the Supplemental Phase II Site Assessment Field Program No. 2 findings is presented below.

### **2.2.1 Plant 12 Interior - Fluid Calibration (Fluid Flow) Lab**

Two soil samples were collected at soil boring location B-1A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- **Volatile Organic Compounds**

- VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-1A (0-2') and B-2A (2'-4').

### **2.2.2 Plant 12 Interior - Liquid Flow Lab**

One concrete core and two soil samples were collected at concrete coring/soil boring location B-2A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-2A (0-2') and B-2A (2'-4').
  
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 400 ug/kg, 490 ug/kg, 440 ug/kg and 67 ug/kg, respectively in soil sample B-2A (0-2') which were above the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg, and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
  - Phenol and 4-Methylphenol were detected in concrete core sample B-2A (C-1).
  
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 34.1 mg/kg in soil sample B-2A (2'-4'); however, this was below the screening threshold level of 250 mg/kg.
  - TPHCs were detected at a concentration of 89.7 mg/kg in concrete core sample B-2A (C-1).
  - Fuel-related constituents were not identified.
  
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both soil samples.
  - Metals were detected in the concrete core sample, but at levels that were within the PCA study concentration ranges.

### 2.2.3 Plant 12 Interior - Machine Shop

One concrete core sample and two soil samples were collected at concrete coring/soil boring location B-3A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-3A (0-2') and B-3A (2'-4').
  
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 530 ug/kg, 600 ug/kg, 500 ug/kg and 75 ug/kg, respectively in soil sample B-3A (0-2') were above the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. In addition, benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were also detected at concentrations of 440 ug/kg, 440 ug/kg, 440 ug/kg and 58 ug/kg, respectively in soil sample B-3A (2'-4') which were also above the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
  - Benzo(a)pyrene and 4-Methylphenol was detected in concrete core sample B-3A (C-1).
  
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 54.0 mg/kg and 28.1 mg/kg in soil samples B-3A (0-2') and B-3A (2'-4'), respectively. These levels did not exceed the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-3A (0-2') and B-3A (2'-4').
  - TPHCs were detected in concrete core sample B-3A (C-1) at concentration of 888 mg/kg; however, fuel-related constituents were not identified.
  
- Priority Pollutant Metals
  - Arsenic, chromium and nickel were detected at concentrations of 13.2 mg/kg, 59.9 mg/kg and 32 mg/kg, respectively in soil sample B-3A (0-2') which were above the Eastern USA background levels of 12 mg/kg, 50 mg/kg and 25 mg/kg for these constituents.
  - Several metals were detected in concrete core sample B-3A (C-1) but within the PCA study concentration ranges for these constituents.

#### 2.2.4 Plant 12 Interior - Tank Room

Two soil samples were collected at soil boring location B-4A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-4A (0-2') and B-4A (6'-7').
  
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 1,200 ug/kg, 1,200 ug/kg, 1,500 ug/kg, 1,200 ug/kg and 210 ug/kg, respectively in soil sample B-4A (0-2') which were above the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. In addition, benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 570 ug/kg, 570 ug/kg, 490 ug/kg and 77 ug/kg, respectively in soil sample B-4A (6'-7') which were above the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
  
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 52.9 mg/kg and 29.7 mg/kg in soil samples B-4A (0-2') and B-4A (6'-7'), respectively; however, these levels did not exceed the screening threshold level of 250 mg/kg.
  - Fuel-related constituents were not identified.
  
- Priority Pollutant Metals
  - Zinc was detected at a concentration of 63.7 mg/kg in soil sample B-4A (0-2') which is above the Eastern USA background level of 50 mg/kg for this constituent.



### 2.2.5 Plant 12 Interior - Comp Saw Room

A total of three soil samples were collected in the Comp Saw Room during the April/May 1997 field investigation. One soil sample was collected at soil boring location B-5A and two soil samples were collected at soil boring location B-5B. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-5A (0-2'), B-5B (0-2') and B-5B (2'-4').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 31.5 mg/kg in soil sample B-5A (0-2'); however, this level did not exceed the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-5A (0-2').
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels.

### 2.2.6 Plant 12 Interior - Polishing Room

Based upon the findings of the dye and flush testing activities conducted in this area during the April/May 1997 field investigation, no concrete core and/or soil sampling activities were conducted in this area during the April/May 1997 field investigation.

### 2.2.7 Plant 12 Interior - Trench in EMT Lab No. 1

Two soil samples were collected at soil boring location B-7A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-7A (0-2') and B-7A (2'-4').
- Semivolatile Organic Compounds
  - SVOCs were not detected in both soil samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 1,440 mg/kg and 365 mg/kg in soil samples B-7A (0-2') and B-7A (2'-4'), respectively, which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-7A (0-2') and B-7A (2'-4').
- Priority Pollutant Metals
  - Mercury was detected at the same concentration of 1.2 mg/kg in soil samples B-7A (0-2') and B-7A (2'-4') which is above the Eastern USA background level of 0.2 mg/kg for this constituent.

#### 2.2.8 Plant 12 Interior - Trench in Staffed Machine Shop

A total of four soil samples were collected at soil boring locations B-8A and B-8B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-8A (0-2'), B-8A (2'-4'), B-8B (0-2') and B-8B (2'-4').
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 340 ug/kg, 440 ug/kg, 270 ug/kg and 47 ug/kg, respectively in soil sample B-8A (2'-4') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. Also, di-n-butylphthalate was detected at a concentration of 8,100 ug/kg which was the same as the NYSDEC TAGM criterion for this compound.
  - Di-n-butylphthalate was detected at a concentration of 66,000 ug/kg in soil sample B-8B (0-2') which exceeded the NYSDEC TAGM criterion of 8,100 ug/kg.

- As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 83.4 mg/kg and 72.3 mg/kg in soil samples B-8A (2'-4') and B-8B (0-2'), respectively. These levels did not exceed the screening threshold level of 250 mg/kg. TPHCs were not detected in soil samples B-8A (0-2') and B-8B (2'-4').
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-8A (2'-4') and B-8B (0-2').
- Priority Pollutant Metals
  - Mercury was detected at concentrations of 1.8 mg/kg and 2.3 mg/kg in soil samples B-8A (2'-4') and B-8B (0-2'), respectively which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. In addition, zinc was detected at a concentration of 50.9 mg/kg in soil sample B-8A (2'-4') which was above the Eastern USA background level of 50 mg/kg for this constituent.

#### 2.2.9 Plant 12 Interior - Engineering Development Lab

Based upon the findings of the dye and flush testing activities conducted in this area during the April/May 1997 field investigation, no concrete core and/or soil sampling activities were conducted in this area during the April/May 1997 field investigation.

#### 2.2.10 Plant 12 Interior - Trench in Repair Lab No. 2

Two soil samples were collected at soil boring location B-10A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-10A (0-2') and B-10A (2'-4').

- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-10A (0-2').
  - Benzo(a)pyrene was detected at a concentration of 64 ug/kg in soil sample B-10A (2'-4') which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound. However, the criteria for *total* SVOCs, *total* PAHs and *total* CaPAHs were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were not detected in soil sample B-10A (0-2').
  - TPHCs were detected at a level of 32.2 mg/kg in soil sample B-10A (2'-4'). However, this level did not exceed the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-10A (2'-4').
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.

#### 2.2.11 Plant 12 Interior - Autoclave Room (Pump Room)

Two soil samples were collected at soil boring location B-11A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-11A (0-2') and B-11A (2'-4').
- Semivolatile Organic Compounds
  - Di-n-butylphthalate was detected at a concentration of 8,800 ug/kg in soil sample B-11A (0-2') which exceeded the NYSDEC TAGM criteria of 8,100 ug/kg for this compound.
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-11A (2'-4').
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total*

PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.

- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 29.7 mg/kg and 41.4 mg/kg in soil samples B-11A (0-2') and B-11A (2'-4'), respectively; however, these levels were below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.
- Polychlorinated Biphenyls
  - PCBs were not detected in both soil samples.

#### 2.2.12 Plant 12 Interior - Resin Transfer Molding Lab (Autoclave Lay-up Area)

Two soil samples were collected at soil boring location B-12A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-12A (0-2') and B-12A (2'-4').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 45.0 mg/kg in soil sample B-12A(0-2'). However, this level did not exceed the screening threshold level of 250 mg/kg. Also, TPHCs were not detected in soil sample B-12A (2'-4').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-12A (0-2').

- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both soil samples with the exception of lead.
  - Lead was detected at concentrations of 3,140 mg/kg and 2,770 mg/kg in soil samples B-12A (0-2') and B-12A (2'-4'), respectively which exceeded the Eastern USA background level of 500 mg/kg for this constituent.
- Polychlorinated Biphenyls
  - PCBs were not detected in both soil samples.

### 2.2.13 Plant 12 Interior - External Pump House

A total of four soil samples were collected at soil boring locations B-13A and B-13B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-13A (0-2'), B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4').
- Semivolatile Organic Compounds
  - Benzo(a)anthracene was detected at concentrations of 240 ug/kg, 1,700 ug/kg, 1,800 ug/kg and 1,000 ug/kg in soil samples B-13A (0-2'), B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound. In addition, benzo(a)pyrene was detected at concentrations of 240 ug/kg, 1,600 ug/kg, 2,200 ug/kg and 970 ug/kg in soil samples B-13A (0-2'), B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound.
  - Dibenzo(a,h)anthracene was detected at concentrations of 36 ug/kg, 270 ug/kg, 290 ug/kg and 140 ug/kg in soil samples B-13A (0-2'), B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound. In addition, chrysene was detected at concentrations of 1,700 ug/kg, 2,100 ug/kg and 1,000 ug/kg in soil samples B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 400 ug/kg for this compound.
  - Benzo(b)fluoranthene was detected at concentrations of 2,100 ug/kg and 1,200 ug/kg in soil samples B-13A (2'-4') and B-13B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound.

- As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 149 mg/kg, 106 mg/kg, 140 mg/kg and 42.7 mg/kg in soil samples B-13A (0-2'), B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4'), respectively. However, these levels did not exceed the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-13A (0-2'), B-13A (2'-4'), B-13B (0-2') and B-13B (2'-4').

#### 2.2.14 Plant 12A Interior - Basement/Sub-basement Areas

Two soil samples were collected at soil boring location B-23A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-23A (1.5'-3.5') and B-23A (5.5'-7.5').
- Semivolatile Organic Compounds
  - SVOCs were not detected in both soil samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were not detected in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both soil samples.
- Polychlorinated Biphenyls
  - PCBs were not detected in both soil samples.

### 2.2.15 Plant 12A Interior - Floor Drains in Facilities Maintenance Room and Maintenance Equipment Area

Based upon the findings of the dye and flush testing activities conducted in this area during the April/May 1997 field investigation, no concrete core and/or soil sampling activities were conducted in this area during the April/May 1997 field investigation.

### 2.2.16 Plant 12A Interior - Point of Generation/Hazardous Waste Accumulation Area

One soil sample was collected at soil boring location B-25A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-25A (4'-6').
- Semivolatile Organic Compounds
  - Benzo(a)pyrene was detected at a concentration of 96 ug/kg in soil sample B-25A (4'-6') which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound. However, the criteria for *total* SVOCs, *total* PAHs and *total* CaPAHs were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 183 mg/kg in soil sample B-25A (4'-6'); however, this level did not exceed the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-25A (4'-6').
- Priority Pollutant Metals
  - Zinc was detected at a concentration of 84.3 mg/kg in soil sample B-25A (4'-6') which exceeded the Eastern USA background level of 50 mg/kg.
- Polychlorinated Biphenyls
  - PCBs were detected at a concentration of 11,000 ug/kg in soil sample B-25A (4'-6') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.



### 2.2.17 Plant 12A Interior - Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop

A total of six soil samples were collected at soil boring locations B-26A, B-26B and B-26C during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-26A (5'-7'), B-26A (7'-9'), B-26B (5'-7'), B-26B (7'-9'), B-26C (5'-7') and B-26C (9'-11').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-26A (5'-7'), B-26B (5'-7'), B-26B (7'-9'), B-26C (5'-7') and B-26C (9'-11').
  - Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 99 ug/kg and 15 ug/kg, respectively in soil sample B-26A (7'-9') which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg for these compounds.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 232 mg/kg, 27.2 mg/kg, 226 mg/kg, 82.6 mg/kg and 29.0 mg/kg in soil samples B-26A (5'-7'), B-26A (7'-9'), B-26B (5'-7'), B-26B (7'-9') and B-26C (5'-7'). However, TPHCs were not detected in soil sample B-26C (9'-11'). As discussed previously, there is no NYSDEC TAGM criterion for TPHCs; however, a screening threshold level of 250 mg/kg has been agreed to by NYSDEC.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-26A (5'-7'), B-26A (7'-9'), B-26B (5'-7'), B-26B (7'-9') and B-26C (5'-7').
- Priority Pollutant Metals
  - Zinc was detected at concentrations of 271 mg/kg, 160 mg/kg, 54.2 mg/kg and 67.5 mg/kg in soil samples B-26A (5'-7'), B-26B (5'-7'), B-26B (7'-9') and B-26C (5'-7'), respectively which exceeded the Eastern USA background level of 50

mg/kg for this constituent. In addition, mercury was detected at a concentration of 3.3 mg/kg in soil sample B-26A (7'-9') which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent.

#### 2.2.18 Plant 12A Interior - Leaching Chamber Beneath Carpentry Shop

Two soil samples were collected at soil boring location B-15A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-15A (8'-10') and B-15A (12'-14').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 73.5 mg/kg in soil sample B-15A (8'-10') which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-15A (12'-14').
  - Fuel-related constituents were not identified in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in both soil samples.

#### 2.2.19 Plant 12A Interior - Former Fuel Tanks at Carpentry Shop

A geophysical survey was conducted in this area in order to locate the former fuel USTs beneath the Carpentry Shop. The results of the geophysical survey were inconclusive and

therefore, the placement of boring B-40A was based upon the review of historical site plans and construction drawings.

Two soil samples were collected at soil boring location B-40A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-40A (6'-8') and B-40A (8'-10').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both soil samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were not detected in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both soil samples.

#### 2.2.20 Megapound Test Lab Interior - Former Leaching Pool Beneath Megapound

Two soil samples were collected at soil boring location B-32A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-32A (10'-12') and B-32A (12'-14').
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 240 ug/kg, 220 ug/kg and 39 ug/kg, respectively in soil sample B-32A (10'-12') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 61 ug/kg and 14 ug/kg, respectively for these compounds.

- SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-32A (12'-14').
- As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criteria for *total* SVOCs of 500,000 ug/kg, *total* PAHs of 100,000 ug/kg and *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 777 mg/kg in soil sample B-32A (10'-12'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were detected at a concentration of 93.3 mg/kg in soil sample B-32A (12'-14'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-32A (10'-12') and B-32A (12'-14').
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both soil samples.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in both soil samples.

2.2.21 Megapound Test Lab Interior - Sanitary Leaching Pool (South) Beneath Megapound

A total of two soil samples were collected at soil boring location B-22D during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-22D (12'-14') and B-22D (18'-20').
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected in soil sample B-22D (12'-14') at concentrations of 400 ug/kg, 440 ug/kg, 340 ug/kg and 69 ug/kg, respectively which exceeded the NYSDEC

TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg, respectively for these compounds.

- SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-22D (18'-20').
- As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criteria for *total* SVOCs of 500,000 ug/kg, *total* PAHs of 100,000 ug/kg and *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 373 mg/kg in soil sample B-22D (12'-14'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-22D (18'-20').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-22D (12'-14').
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both soil samples.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion.

#### 2.2.22 Boiler House Exterior - Sump/Pit/Trenches

Two soil samples were collected at soil boring location B-33A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-33A (20'-22') and B-33A (24'-26').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both soil samples.

- TPHCs and Fuel-Related Constituents
  - TPHCs were not detected in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.

### 2.2.23 Plant 12 Exterior - Northern Leaching Chambers

A total of four soil samples were collected at soil boring locations B-14A and B-14B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-14A (11'-13'), B-14A (17'-19'), B-14B (6'-8') and B-14B (12'-14') but at concentrations that were below the NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - Phenol and butylbenzylphthalate were detected at concentrations of 320 ug/kg and 77,000 ug/kg, respectively in soil samples B-14B (12'-14') and B-14A (17'-19') which exceeded the NYSDEC TAGM criteria of 30 ug/kg and 50,000 ug/kg, respectively for these compounds.
  - Benzo(a)anthracene was detected at concentrations of 860 ug/kg, 7,100 ug/kg and 1,100 ug/kg in soil samples B-14A (11'-13'), B-14A (17'-19') and B-14B (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound.
  - Chrysene was detected at concentrations of 1,100 ug/kg, 7,700 ug/kg and 1,100 ug/kg in soil samples B-14A (11'-13'), B-14A (17'-19') and B-14B (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 400 ug/kg for this compound. In addition, benzo(a)pyrene was detected at concentrations of 800 ug/kg, 6,200 ug/kg and 950 ug/kg in soil samples B-14A (11'-13'), B-14A (17'-19') and B-14B (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound.
  - Dibenzo(a,h)anthracene was detected at concentrations of 140 ug/kg, 1,200 ug/kg and 150 ug/kg in soil samples B-14A (11'-13'), B-14A (17'-19') and B-14B (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound. In addition, benzo(b)fluoranthene was detected at concentrations of 1,400 ug/kg and 7,500 ug/kg in soil samples B-14A (11'-13') and B-14A (17'-

19'), respectively which are above the NYSDEC TAGM criterion of 1,100 ug/kg for this compound.

- Benzo(k)fluoranthene and indeno(1,2,3-cd)pyrene were detected at concentrations of 2,900 ug/kg and 3,600 ug/kg, respectively in soil sample B-14A (17'-19') which exceeded the NYSDEC TAGM criteria of 1,100 ug/kg and 3,200 ug/kg for these compounds.
  - Total CaPAHs were detected at a concentration of 36,200 ug/kg in soil sample B-14A (17'-19') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for total CaPAHs.
  - As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, and one sample that exceeded the criterion for total CaPAHs of 10,000 ug/kg. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for total SVOCs of 500,000 ug/kg and total PAHs of 100,000 ug/kg.
- TPHCs and Fuel-Related Constituents
    - TPHCs were detected at a concentration of 990 mg/kg in soil sample B-14A (11'-13'), which exceeded the screening threshold level of 250 mg/kg.
    - TPHCs were detected at concentrations of 59.1 mg/kg, 127 mg/kg and 59.1 mg/kg in soil samples B-14A (17'-19'), B-14B (6'-8') and B-14B (12'-14'), respectively, which were below the screening threshold level of 250 mg/kg.
    - TPHCs, as lubricating oil, were identified as "present" in soil samples B-14A (11'-13'), B-14B (6'-8') and B-14B (12'-14').
  - Priority Pollutant Metals
    - Copper and zinc were detected at concentrations of 50.3 mg/kg and 94.5 mg/kg; 72.0 mg/kg and 76.5 mg/kg and; 83.7 mg/kg and 214 mg/kg, respectively in soil samples B-14A (11'-13'), B-14A (17'-19') and B-14B (6'-8') which exceeded the Eastern USA background level of 50 mg/kg for both constituents. In addition, mercury was detected at concentrations of 0.90 mg/kg and 0.23 mg/kg in soil samples B-14A (11'-13') and B-14B (6'-8'), respectively which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent. Also, zinc was detected at a concentration of 109 mg/kg in soil sample B-14B (12'-14') which exceeded the Eastern USA background level of 50 mg/kg for this constituent.
  - Polychlorinated Biphenyls
    - PCBs were detected at concentrations of 100,000 ug/kg and 15,000 ug/kg in soil samples B-14A (11'-13') and B-14B (6'-8'), respectively which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg. However, PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in samples B-14A (17'-19') and B-14B (12'-14').

#### 2.2.24 Plant 12 Exterior - Chemical Storage Area/Concrete Platform

A total of six soil samples were collected at soil boring locations B-17A, B-17B and B-17C during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-17A (0-2'), B-17A (2'-4'), B-17B (0-2'), B-17B (2'-4'), B-17C (0-2'), B-17C (2'-4'), but at concentrations that were below NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - Di-n-butylphthalate and butylbenzylphthalate were detected at concentrations of 110,000 ug/kg and 190,000 ug/kg, respectively in soil sample B-17A (2'-4') which exceeded the NYSDEC TAGM criteria of 8,100 ug/kg and 50,000 ug/kg, respectively, for these compounds. In addition, benzo(a)anthracene, chrysene and benzo(a)pyrene were detected at concentrations of 400 ug/kg, 420 ug/kg and 370 ug/kg, respectively in soil sample B-17B (0-2') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg and 61 ug/kg for these compounds.
  - As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* CaPAHs of 10,000 ug/kg, *total* PAHs of 100,000 ug/kg and *total* SVOCs of 500,000 ug/kg.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 251 mg/kg and 4,200 mg/kg in soil samples B-17A (2'-4') and B-17B (0-2'), respectively, which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were detected at concentrations of 48.9 mg/kg, 114 mg/kg and 81.2 mg/kg in soil samples B-17A (0-2'), B-17B (2'-4') and B-17C (0-2'), respectively, which were below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-17A (0-2'), B-17B (0-2'), B-17B (2'-4') and B-17C (0-2').
- Priority Pollutant Metals
  - Zinc was detected at a concentration of 65.2 mg/kg in soil sample B-17A (0-2') which exceeded the Eastern USA background level of 50 mg/kg for this



constituent. In addition, arsenic, cadmium, chromium, copper, mercury, nickel and zinc were detected at concentrations of 33.9 mg/kg, 15.9 mg/kg, 95.4 mg/kg, 411 mg/kg, 2.8 mg/kg, 57.3 mg/kg and 1,550 mg/kg, respectively in soil sample B-17B (0-2') which exceeded the Eastern USA background levels of 12 mg/kg, 10 mg/kg, 50 mg/kg, 50 mg/kg, 0.20 mg/kg, 25 mg/kg and 50 mg/kg, respectively for these constituents.

- Arsenic, mercury and zinc were detected at concentrations of 13.7 mg/kg, 0.23 mg/kg and 147 mg/kg, respectively in soil sample B-17B (2'-4') which exceeded the Eastern USA background levels of 12 mg/kg, 0.20 mg/kg and 50 mg/kg, respectively for these constituents. In addition, zinc was detected at a concentration of 262 mg/kg in soil sample B-17C (0-2') which is above the Eastern USA background level 50 mg/kg for this constituent.

#### 2.2.25 Plant 12 Exterior - Former Fuel UST's East of Plant 12

A geophysical survey was conducted in this area in order to locate the former USTs east of Plant 12. The results of the geophysical survey were inconclusive and therefore, the placement of borings B-18A and B-18B were based upon the review of historical site plans, utility maps and construction drawings.

A total of four soil samples were collected at soil boring locations B-18A and B-18B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-18A (4'-6'), B-18A (6'-8'), B-18B (0-2') and B-18B (4'-6'), but at concentrations that were below the NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - Benzo(a)anthracene was detected at concentrations of 230 ug/kg, 300 ug/kg and 440 ug/kg in soil samples B-18A (4'-6'), B-18B (0-2') and B-18B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 224 ug/kg. Also, chrysene was detected at a concentration of 500 ug/kg in soil sample B-18B (2'-4'), which exceeded the NYSDEC TAGM criterion 400 ug/kg for this compound
  - Benzo(a)pyrene was detected at concentrations of 220 ug/kg, 180 ug/kg, 310 ug/kg and 440 ug/kg in soil samples B-18A (4'-6'), B-18A (6'-8'), B-18B (0-2') and B-18B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound. Also, dibenzo(a,h)anthracene was detected at

concentrations of 51 ug/kg and 76 ug/kg in soil samples B-18B (0-2') and B-18B (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound.

- As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criteria for *total* SVOCs of 500,000 ug/kg, *total* PAHs of 100,000 ug/kg and *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 649 mg/kg and 252 mg/kg in soil samples B-18A (6'-8') and B-18B (4'-6'), respectively, which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were detected at concentrations of 198 mg/kg and 101 mg/kg in soil samples B-18A (4'-6'), and B-18B (0-2'), respectively, which were below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-18B (0-2'). Also, TPHCs, as #2 Fuel Oil, were detected in soil samples B-18A (4'-6'), B-18A (6'-8') and B-18B (4'-6') at concentrations of 193 mg/kg, 667 mg/kg and 602 mg/kg, respectively.
- Priority Pollutant Metals
  - Arsenic was detected at concentrations of 20.3 mg/kg and 19.4 mg/kg in soil samples B-18B (0-2') and B-18B (4'-6'), respectively which exceeded the Eastern USA background level of 12 mg/kg for this constituent. In addition, zinc was detected at concentrations of 53.2 mg/kg and 70.5 mg/kg in soil samples B-18A (4'-6') and B-18B (0-2'), respectively which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

#### 2.2.26 Plant 12 Exterior - Area Outside of Machine Shop

Two soil samples were collected at soil boring location B-19A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - 1,1,1-trichloroethane was detected at a concentration of 3,600 ug/kg in soil sample B-19A (2'-4') which exceeded the NYSDEC TAGM criterion of 800 ug/kg for this compound.

- Semivolatile Organic Compounds

- Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 1,500 ug/kg, 2,300 ug/kg, 5,800 ug/kg, 1,900 ug/kg, 3,900 ug/kg, 6,200 ug/kg and 1,200 ug/kg, respectively in soil sample B-19A (0-2') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 1,100 ug/kg, 61 ug/kg, 3,200 ug/kg and 14 ug/kg for these compounds.
- *Total* CaPAHs were detected at a concentration of 22,800 ug/kg in soil sample B-19A (0-2') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for *total* CaPAHs.
- Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 130 ug/kg and 32 ug/kg, respectively in soil sample B-19A (2'-4') which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg for these compounds.
- As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as one sample that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* PAHs of 100,000 ug/kg and *total* SVOCs of 500,000 ug/kg.

- TPHCs and Fuel-Related Constituents

- TPHCs were detected at a concentration of 1,470 mg/kg in soil sample B-19A (0-2'), which exceeded the screening threshold level of 250 mg/kg.
- TPHCs were detected at a concentration of 202 mg/kg in soil sample B-19A (2'-4'), which was below the screening threshold level of 250 mg/kg.
- Fuel-related constituents were not identified in both samples.

- Priority Pollutant Metals

- Arsenic, chromium, lead, mercury and zinc were detected at concentrations of 23.0 mg/kg, 60.2 mg/kg, 2,400 mg/kg, 1.1 mg/kg and 137 mg/kg, respectively in soil sample B-19A (0-2') which exceeded the Eastern USA background levels of 12 mg/kg, 50 mg/kg, 500 mg/kg, 0.20 mg/kg and 50 mg/kg for these constituents. However, metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-19A (2'-4').

### 2.2.27 Plant 12 Exterior - Tank Room Leaching Pool

A geophysical survey was conducted in this area in order to locate buried leaching chambers between the north side of the Plant 12 building and the Plant 12 site boundary in the vicinity of the Tank Room. The location of boring B-20A was selected based upon the findings of the geophysical survey and the review of historical site plans and construction drawings.

Two soil samples were collected at soil boring location B-20A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-20A (10'-12') and B-20A (18'-20'), but at concentrations that were below the NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 640 ug/kg, 510 ug/kg, 550 ug/kg and 81 ug/kg, respectively in soil sample B-20A (10'-12') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. However, SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-20A (18'-20').
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criteria for *total* SVOCs of 500,000 ug/kg, *total* CaPAHs of 10,000 ug/kg and *total* PAHs of 100,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 26.9 mg/kg and 76.6 mg/kg in soil samples B-20A (10'-12') and B-20A (18'-20'), respectively, which were below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-20A (18'-20').
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.

### 2.2.28 Plant 12 Exterior - Sanitary Leaching Pools (West)

A geophysical survey was conducted in this area in order to locate the former leaching pools west of the Plant 12 building. The locations of borings B-21A and B-21B were selected based upon the findings of the geophysical survey and the review of historical site plans, utility maps and construction drawings.

A total of four soil samples were collected at soil boring locations B-21A and B-21B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-21A (10'-12'), B-21A (14'-16'), B-21B (12'-14') and B-21B (16'-18').
- Semivolatile Organic Compounds
  - Benzo(a)anthracene and dibenzo(a,h)anthracene were detected at concentrations of 310 ug/kg and 53 ug/kg, respectively in soil sample B-21B (12'-14') which exceeded the NYSDEC TAGM criteria of 224 ug/kg and 14 ug/kg, respectively for these compounds. In addition, benzo(a)pyrene was detected at concentrations of 160 ug/kg and 260 ug/kg in soil samples B-21A (14'-16') and B-21B (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criteria for *total* SVOCs of 500,000 ug/kg, *total* CaPAHs of 10,000 ug/kg and *total* PAHs of 100,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 25.5 mg/kg and 42.1 mg/kg in soil samples B-21A (10'-12') and B-21B (12'-14'), respectively, which were below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil samples B-21A (14'-16') and B-21B (16'-18').
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-21A (10'-12') and B-21B (12'-14').

- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in the soil samples.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion.

#### 2.2.29 Plant 12 Exterior - Sanitary Leaching Pools (North and South)

Geophysical surveys were conducted in these areas in order to locate buried former leaching pools north and south, respectively of the Plant 12 building. The locations of borings B-22A, B-22B, B-22C, B-22E and B-22F were selected based on the findings of the geophysical surveys and a review of historical site plans, utility maps and construction drawings.

In addition, the locations of soil borings B-22K and B-22L were selected based on the review of historical site plans and construction drawings. A test boring program was also conducted in order to select boring locations B-22K and B-22L, as well as B-22E and B-22F.

A total of 16 soil samples were collected at soil boring locations B-22A, B-22B, B-22C, B-22E, B-22F, B-22K and B-22L during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in the soil samples with the exception of 1,1-dichloroethane, 1,1,1-trichloroethane and toluene in soil samples B-22K (10'-12') and B-22K (12'-14').
  - 1,1-dichloroethane and 1,1,1-trichloroethane were detected at concentrations of 1,200 ug/kg and 6,400 ug/kg, respectively in soil sample B-22K (10'-12') which exceeded the NYSDEC TAGM criteria of 200 ug/kg and 800 ug/kg, respectively for these compounds. In addition, 1,1,1-trichloroethane and toluene were detected at concentrations of 7,100 ug/kg and 1,800 ug/kg, respectively in soil sample B-22K (12'-14') which exceeded the NYSDEC TAGM criteria of 800 ug/kg and 1,500 ug/kg, respectively for these compounds.

- *Total VOCs* were detected at a concentration of 10,380 ug/kg in soil sample B-22K (10'-12') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for *total VOCs*.
- **Semivolatile Organic Compounds**
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-22A (10'-12'), B-22A (14'-16'), B-22B (10'-12'), B-22C (10'-12'), B-22C (12'-14'), B-22F (18'-20'), B-22K (18'-20') and B-22L (16'-18').
  - Benzo(a)anthracene was detected at concentrations of 640 ug/kg, 990 ug/kg, 360 ug/kg, 4,800 ug/kg, 810 ug/kg, 3,900 ug/kg and 1,400 ug/kg in soil samples B-22E (4'-6'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22K (10'-12'), B-22K (12'-14') and B-22L (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound. In addition, chrysene was detected at concentrations of 660 ug/kg, 990 ug/kg, 440 ug/kg, 5,200 ug/kg, 610 ug/kg and 1,600 ug/kg in soil samples B-22E (4'-6'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22K (10'-12') and B-22L (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 400 ug/kg for this compound.
  - Benzo(b)fluoranthene was detected at concentrations of 1,200 ug/kg, 6,200 ug/kg, 3,300 ug/kg and 2,000 ug/kg in soil samples B-22E (10'-12'), B-22F (10'-12'), B-22K (12'-14') and B-22L (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound. In addition, benzo(a)pyrene was detected at concentrations of 560 ug/kg, 900 ug/kg, 320 ug/kg, 4,500 ug/kg, 400 ug/kg, 3,000 ug/kg and 1,500 ug/kg in soil samples B-22E (4'-6'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22K (10'-12'), B-22K (12'-14') and B-22L (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound.
  - Dibenzo(a,h)anthracene was detected at concentrations of 120 ug/kg, 140 ug/kg, 58 ug/kg, 830 ug/kg, 530 ug/kg and 230 ug/kg in soil samples B-22E (4'-6'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22K (12'-14') and B-22L (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound. Also, benzo(k)fluoranthene was detected at concentrations of 2,200 ug/kg and 1,500 ug/kg in soil samples B-22F (10'-12') and B-22K (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound.
  - Phenol was detected at concentrations of 2,400 ug/kg, 1,500 ug/kg and 770 ug/kg in soil samples B-22K (10'-12'), B-22K (12'-14') and B-22L (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 30 ug/kg for this compound. Also, 4-Methylphenol was detected at concentrations of 33,000 ug/kg and 31,000 ug/kg in soil samples B-22K (10'-12') and B-22K (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 900 ug/kg for this compound.

- 1,4-dichlorobenzene was detected at concentrations of 40,000 ug/kg and 17,000 ug/kg in soil samples B-22K (10'-12') and B-22K (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 8,500 ug/kg for this compound.
  - *Total* CaPAHs were detected at concentrations of 26,630 ug/kg and 17,130 ug/kg in soil samples B-22F (10'-12') and B-22K (12'-14'), respectively which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for *total* CaPAHs.
  - As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as two samples that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* PAHs of 100,000 ug/kg and *total* SVOCs of 500,000 ug/kg.
- TPHCs and Fuel-Related Constituents
    - TPHCs were detected at concentrations of 3,480 mg/kg, 253 mg/kg, 572 mg/kg, 499 mg/kg, 837 mg/kg and 557 mg/kg in soil samples B-22A (10'-12'), B-22B (10'-12'), B-22C (10'-12'), B-22C (12'-14'), B-22K (10'-12') and B-22K (12'-14'), respectively, which exceeded the screening threshold level of 250 mg/kg.
    - TPHCs were detected at concentrations of 30.6 mg/kg, 124 mg/kg, 44.2 mg/kg, 50.3 mg/kg, 134 mg/kg, 126 mg/kg, 25.0 mg/kg and 35.9 mg/kg in soil samples B-22A (14'-16'), B-22B (12'-14'), B-22E (4'-6'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22K (18'-20') and B-22L (12'-14'), respectively, which were below the screening threshold level of 250 mg/kg.
    - TPHCs, as lubricating oil, were identified as "present" in soil samples B-22A (10'-12'), B-22B (10'-12'), B-22B (12'-14'), B-22C (10'-12'), B-22C (12'-14'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22K (10'-12'), B-22K (12'-14') and B-22L (12'-14').
  - Priority Pollutant Metals
    - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples B-22A (10'-12'), B-22A (14'-16'), B-22B (12'-14'), B-22E (4'-6'), B-22E (10'-12'), B-22F (18'-20'), B-22K (18'-20'), B-22L (12'-14') and B-22L (16'-18').
    - Chromium was detected at concentrations of 108 mg/kg, 54.6 mg/kg and 70.9 mg/kg in soil samples B-22B (10'-12'), B-22C (10'-12') and B-22C (12'-14'), respectively which exceeded the Eastern USA background level of 50 mg/kg for this constituent. In addition, copper was detected at concentrations of 121 mg/kg, 959 mg/kg, 104 mg/kg and 102 mg/kg in soil samples B-22B (10'-12'), B-22C (10'-12'), B-22C (12'-14') and B-22E (20'-22'), respectively which exceeded the Eastern USA background level of 50 mg/kg for this constituent.
    - Mercury was detected at concentrations of 2.1 mg/kg, 4.1 mg/kg, 0.69 mg/kg and 0.45 mg/kg in soil samples B-22C (10'-12'), B-22E (20'-22'), B-22K (10'-12')



and B-22K (12'-14'), respectively which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. Also, zinc was detected at concentrations of 96.1 mg/kg, 205 mg/kg and 66.8 mg/kg in soil samples B-22C (10'-12'), B-22E (20'-22') and B-22K (10'-12'), respectively which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

- Polychlorinated Biphenyls
  - PCBs were detected at concentrations of 15,000 ug/kg, 12,000 ug/kg and 27,000 ug/kg in soil samples B-22E (10'-12'), B-22E (20'-22') and B-22F (10'-12'), respectively which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in the other soil samples.

#### 2.2.30 Plant 12 Exterior - Anomalous Features/Unknown Buried Structures (North)

A geophysical survey was conducted in this area in order to locate buried former leaching pools/chambers and other unknown structures north of the Plant 12 building. The locations of borings B-22G, B-22H, B-22I and B-22J were selected based on the findings of the geophysical survey and a review of historical site plans and construction drawings.

A total of eight soil samples were collected at soil boring locations B-22G, B-22H, B-22I and B-22J during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in all of the soil samples.
- Semivolatile Organic Compounds
  - SVOCs were not detected in soil samples B-22G (4'-6') and B-22H (12'-14'), and not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-22I (6'-8') and B-22I (10'-12').
  - Butylbenzylphthalate was detected at a concentration of 100,000 ug/kg in soil sample B-22J (2'-4') which exceeded the NYSDEC TAGM criterion of 50,000 ug/kg for this compound.

- Benzo(a)anthracene was detected at concentrations of 590 ug/kg, 9,100 ug/kg, 2,700 ug/kg and 1,000 ug/kg in soil samples B-22G (0-2'), B-22H (0-2'), B-22J (0-2') and B-22J (2'-4'), respectively which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound. Also, chrysene was detected at concentrations of 560 ug/kg, 8,400 ug/kg, 3,200 ug/kg and 880 ug/kg in soil samples B-22G (0-2'), B-22H (0-2'), B-22J (0-2') and B-22J (2'-4'), respectively which exceeded the NYSDEC TAGM criterion of 400 ug/kg for this compound.
  - Benzo(b)fluoranthene was detected at concentrations of 9,100 ug/kg, 3,500 ug/kg and 1,800 ug/kg in soil samples B-22H (0-2'), B-22J (0-2') and B-22J (2'-4'), respectively which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound. Also, benzo(k)fluoranthene was detected at concentrations of 4,000 ug/kg, 1,200 ug/kg and 980 ug/kg in soil samples B-22H (0-2'), B-22J (0-2') and B-22J (2'-4'), respectively which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound.
  - Benzo(a)pyrene was detected at concentrations of 540 ug/kg, 7,700 ug/kg, 2,500 ug/kg and 1,100 ug/kg in soil samples B-22G (0-2'), B-22H (0-2'), B-22J (0-2') and B-22J (2'-4'), respectively which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound. Also, dibenzo(a,h)anthracene was detected at concentrations of 130 ug/kg, 1,200 ug/kg and 420 ug/kg in soil samples B-22G (0-2'), B-22H (0-2') and B-22J (0-2'), respectively which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound.
  - Indeno(1,2,3-cd)pyrene was detected at a concentration of 4,500 ug/kg in soil sample B-22H (0-2') which exceeded the NYSDEC TAGM criterion of 3,200 ug/kg.
  - *Total* CaPAHs were detected at concentrations of 44,000 ug/kg and 15,020 ug/kg in soil samples B-22H (0-2') and B-22J (0-2'), respectively which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for *total* CaPAHs.
  - As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as two samples that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* SVOCs of 500,000 ug/kg and total PAHs of 100,000 ug/kg.
- TPHCs and Fuel-Related Constituents
    - TPHCs were detected at concentrations of 97.3 mg/kg, 138 mg/kg and 104 mg/kg in soil samples B-22H (0-2'), B-22J (0-2') and B-22J (2'-4'), respectively, which were below the screening threshold level of 250 mg/kg.
    - TPHCs, as lubricating oil, were identified as "present" in soil samples B-22J (0-2') and B-22J (2'-4').

- Priority Pollutant Metals

- Arsenic was detected at concentrations of 19.4 mg/kg, 35.7 mg/kg and 17.0 mg/kg in soil samples B-22G (0-2'), B-22H (0-2') and B-22J (0-2'), respectively which exceeded the Eastern USA background level of 12 mg/kg for this constituent. In addition, copper was detected at a concentration of 53.0 mg/kg in soil sample B-22J (2'-4') which exceeded the Eastern USA background level of 50 mg/kg for this constituent.
- Mercury was detected at concentrations of 0.79 mg/kg and 0.29 mg/kg in soil samples B-22G (0-2') and B-22J (0'-2'), respectively which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. Also, zinc was detected at concentrations of 54.0 mg/kg and 60.8 mg/kg in soil samples B-22H (0-2') and B-22J (0-2'), respectively which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

- Polychlorinated Biphenyls

- PCBs were detected at a concentration of 74,000 ug/kg in soil sample B-22J (0-2') which exceeded the NYSDEC TAGM Criterion of 10,000 ug/kg. PCBs were either not detected or detected at concentrations that did not exceed the NYSDEC TAGM criterion in the other soil samples.

#### 2.2.31 Plant 12 Exterior - Phenol Leaching Chamber

During the Supplemental Phase II Site Assessment field programs, NGC was in the process of evaluating the need for further investigation of the phenol leaching chamber. Therefore, soil borings were not conducted in this area during the April/May 1997 field investigation. In addition, a geophysical survey was conducted during the April/May 1997 field investigation to identify the locations of underground structures or buried objects along the north side of Plant 12 including the area in the vicinity of the phenol leaching chamber. The findings of the geophysical survey for this area confirmed the location of the former phenol leaching chamber.

#### 2.2.32 Plant 12 Exterior - Former Sump #2

A total of four soil samples were collected at soil boring locations B-41A and B-41B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-41A (2'-4'), B-41A (10'-12'), B-41B (8'-10') and B-41B (14'-16'); however, the concentrations of these compounds were below NYSDEC TAGM criteria.
  
- Semivolatile Organic Compounds
  - SVOCs were either not detected or detected at concentrations that did not exceed NYSDEC TAGM criteria in the soil samples with the exception of butylbenzylphthalate in sample B-41B (14'-16').
  - Butylbenzylphthalate was detected at a concentration of 410,000 ug/kg in soil sample B-41B (14'-16') which exceeded the NYSDEC TAGM criterion of 50,000 ug/kg for this compound.
  - As indicated above, one SVOC was detected at a concentration that exceeded the NYSDEC TAGM criterion for an *individual* compound; however, the criteria for *total* CaPAHs of 10,000 ug/kg, *total* PAHs of 100,000 ug/kg and *total* SVOCs of 500,000 ug/kg were not exceeded.
  
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 50.8 mg/kg, 55.2 mg/kg and 48.3 mg/kg in soil samples B-41A (2'-4'), B-41B (8'-10') and B-41B (14'-16'), respectively, which were below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-41A (2'-4') and B-41B (8'-10').
  
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in the soil samples.
  
- Polychlorinated Biphenyls
  - PCBs were either not detected or detected at concentrations that did not exceed the NYSDEC TAGM criterion of 10,000 ug/kg in the soil samples.

### 2.2.33 Plant 12 Exterior - Former Pit East of Sump #2

Two soil samples were collected at soil boring location B-42A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both soil samples.
- Semivolatile Organic Compounds
  - SVOCs were not detected in both soil samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were not detected in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples with the exception of mercury.
  - Mercury was detected at concentrations of 0.21 mg/kg and 0.72 mg/kg in soil samples B-42A (2'-4') and B-42A (10'-12'), respectively which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent.
- Polychlorinated Biphenyls
  - PCBs were not detected in both soil samples.

#### 2.2.34 Plant 12 Exterior - Resin Waste Pit (Sump #1)

During the Supplemental Phase II Site Assessment field programs, NGC was in the process of evaluating the need for further investigation of the resin waste pit. Therefore, soil borings and sampling were not conducted in this area during the April/May 1997 field investigation. However, a geophysical survey was conducted to investigate the locations of possible underground structures or buried objects in the vicinity of the resin waste pit. The findings of the geophysical survey for this area indicated the presence of anomalies, “depression-type” features, “disturbed” and “trough-like” zones, and an apparent trench with a pipeline within the survey area.

### 2.2.35 Plant 12 Exterior - Former Trenches to Resin Waste Pit (Sump #1)

A total of four soil samples were collected at soil boring locations B-43A and B-43B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-43A (0-2'), B-43A (4'-6'), B-43B (4'-6') and B-43B (8'-10'); however, the concentrations of these compounds were below NYSDEC TAGM criteria.
  
- Semivolatile Organic Compounds
  - Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 170 ug/kg and 36 ug/kg, respectively in soil sample B-43A (0-2') which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg, respectively for these compounds. In addition, di-n-butylphthalate was detected at concentrations of 20,000 ug/kg and 8,600 ug/kg in soil samples B-43B (4'-6') and B-43B (8'-10'), respectively which exceeded the NYSDEC TAGM criterion of 8,100 ug/kg for this compound.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion of 100,000 ug/kg for total PAHs, and the criterion for *total* CaPAHs of 10,000 ug/kg.
  
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected a concentration of 431 mg/kg in soil sample B-43A (0-2'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were detected at concentrations of 125 mg/kg, 60.6 mg/kg and 51.1 mg/kg in soil samples B-43A (4'-6'), B-43B (4'-6') and B-43B (8'-10'), respectively, which were below the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-43A (0-2'), B-43A (4'-6'), B-43B (4'-6') and B-43B (8'-10').
  
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in the soil samples.
  
- Polychlorinated Biphenyls
  - PCBs were detected at a concentration of 18,000 ug/kg in soil sample B-43A (0-2') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg. PCBs

were either not detected or detected at a concentration that did not exceed the NYSDEC TAGM criterion in the other soil samples.

#### 2.2.36 Plant 12 Exterior - Former Dry Well in the Vicinity of Trenches

Two soil samples were collected at soil boring location B-44A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- Semivolatile Organic Compounds
  - Phenol was detected at a concentration of 45 ug/kg in soil sample B-44A (16'-18') which exceeded the NYSDEC TAGM criterion of 30 ug/kg for this compound. However, as noted, phenol was found below the detection limit and therefore, its value is estimated. SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-44A (18'-20').
  - As indicated above, one SVOC was detected at a concentration that exceeded the NYSDEC TAGM criterion for an *individual* compound; however, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 99.4 mg/kg in soil sample B-44A (16'-18'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-44A (18'-20').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-44A (16'-18').
- Priority Pollutant Metals
  - Mercury and zinc were detected at concentrations of 0.32 mg/kg and 95.5 mg/kg, respectively in soil sample B-44A (16'-18') which exceeded the Eastern USA background levels of 0.2 mg/kg and 50 mg/kg for these constituents. Metals were not detected at concentrations exceeding Eastern USA background levels in sample B-44A (18'-20').

- Polychlorinated Biphenyls
  - PCBs were either not detected or detected at a concentration that did not exceed the NYSDEC TAGM criterion of 10,000 ug/kg in the samples.

#### 2.2.37 Plant 12 Exterior - Dry Well Northeast of Plant 12

Two soil samples were collected at soil boring location B-45A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 230 ug/kg, 230 ug/kg and 46 ug/kg, respectively in soil sample B-45A (4'-6') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. In addition, benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 480 ug/kg, 550 ug/kg, 460 ug/kg and 74 ug/kg, respectively in soil sample B-45A (6'-8') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion of 100,000 ug/kg for *total* PAHs and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 325 mg/kg and 727 mg/kg in soil samples B-45A (4'-6') and B-45A (6'-8'), respectively, which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-45A (4'-6') and B-45A (6'-8').
- Priority Pollutant Metals
  - Zinc was detected at a concentration of 66.2 mg/kg in soil sample B-45A (4'-6') which exceeded the Eastern USA background level of 50 mg/kg for this



constituent. Metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-45A (6'-8').

- Polychlorinated Biphenyls
  - PCBs were detected at a concentration of 16,000 ug/kg in soil sample B-45A (4'-6') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
  - PCBs were not detected at a concentration in soil sample B-45A (6'-8') exceeding the NYSDEC TAGM criterion.

#### 2.2.38 Plant 12A Exterior - Leaching Chamber North of Carpentry Shop

Two soil samples were collected at soil boring location B-16A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-16A (12'-14') and B-16A (18'-20'), but at concentrations that were below NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - 2-Methylphenol, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 120 ug/kg, 1,200 ug/kg, 1,200 ug/kg, 1,400 ug/kg, 1,000 ug/kg and 170 ug/kg, respectively in soil sample B-16A (12'-14') which exceeded the NYSDEC TAGM criteria of 100 ug/kg, 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-16A (18'-20')
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion of 100,000 ug/kg for *total* PAHs and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 117 mg/kg in soil sample B-16A (12'-14'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-16A (18'-20').

- TPHCs, as lubricating oil, were identified as “present” in soil sample B-16A (12’-14’).
- Priority Pollutant Metals
  - Chromium, copper, mercury and zinc were detected at concentrations of 84.5 mg/kg, 58.3 mg/kg, 0.24 mg/kg and 129 mg/kg, respectively in soil sample B-16A (12’-14’) which exceeded the Eastern USA background levels of 50 mg/kg, 50 mg/kg, 0.20 mg/kg and 50 mg/kg, respectively for these constituents.
- Polychlorinated Biphenyls
  - PCBs were either not detected or detected at concentrations that did not exceed the NYSDEC TAGM criterion of 10,000 ug/kg in the soil samples.

#### 2.2.39 Plant 12A Exterior - Dry Well/Manhole West of Carpentry Shop

Two soil samples were collected at soil boring location B-27A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- Semivolatile Organic Compounds
  - SVOCs were not detected in both soil samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 51.9 mg/kg in soil sample B-27A (8’-10’), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-27A (6’-8’).
  - TPHCs, as lubricating oil, were identified as “present” in soil sample B-27A (8’-10’).
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.
- Polychlorinated Biphenyls
  - PCBs were not detected in both soil samples.

#### 2.2.40 Plant 12A Exterior - Center Courtyard Area

Two soil samples were collected at soil boring location B-28A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 750 ug/kg, 1,000 ug/kg, 1,400 ug/kg, 820 ug/kg and 85 ug/kg, respectively in soil sample B-28A (4'-6') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg, respectively for these compounds.
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil sample B-28B (6'-8').
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion of 100,000 ug/kg for *total* PAHs and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 824 mg/kg in soil sample B-28B (4'-6'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-28A (6'-8').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-28A (4'-6').
- Priority Pollutant Metals
  - Copper and mercury were detected at concentrations of 167 mg/kg and 0.39 mg/kg, respectively in soil sample B-28A (4'-6') which exceeded the Eastern USA background levels of 50 mg/kg and 0.2 mg/kg for these constituents. In addition, zinc was detected at a concentration of 1,340 mg/kg in soil sample B-28A (4'-6') which exceeded the Eastern USA background level 50 mg/kg for this constituent.

- Metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-28A (6'-8').
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in soil sample B-28A (4'-6'). PCBs were not detected in soil sample B-28A (6'-8').

#### 2.2.41 Plant 12A Exterior - Dry Well South of Plant 12A

A geophysical survey was conducted in this area in order to locate the dry well south of Plant 12A. The location of boring B-29A was selected based upon the findings of the geophysical survey and the review of historical site plans and utility maps.

Two soil samples were collected at soil boring location B-29A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-29A (5'-7') and B-29A (9'-11').
- Semivolatile Organic Compounds
  - SVOCs were not detected in both soil samples.
- TPHCs and Fuel-Related Constituents
  - TPHCs were not detected in both soil samples.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.
- Polychlorinated Biphenyls
  - PCBs were not detected in both soil samples.

## 2.2.42 Plant 12A Exterior - Drainage Chamber North of Lobby/Loading Area

Two soil samples were collected at soil boring location B-30A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 1,400 ug/kg, 3,200 ug/kg, 2,900 ug/kg, 1,200 ug/kg, 380 ug/kg and 260 ug/kg, respectively in soil sample B-30A (4'-6') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg, respectively for these compounds.
  - *Total* CaPAHs were detected at a concentration of 10,070 ug/kg in soil sample B-30A (4'-6') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for *total* CaPAHs.
  - SVOCs were not detected in soil sample B-30A (10'-12').
  - As indicated above, several SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds and the criterion for *total* CaPAHs of 10,000 ug/kg; however, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* SVOCs of 500,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 4,290 mg/kg in soil sample B-30A (4'-6'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-30A (10'-12').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-30A (4'-6').
- Priority Pollutant Metals
  - Cadmium, chromium, copper, mercury, nickel and zinc were detected at concentrations of 14.8 mg/kg, 76.7 mg/kg, 171 mg/kg, 2.7 mg/kg, 27.0 mg/kg and 741 mg/kg, respectively in soil sample B-30A (4'-6') which exceeded the Eastern USA background levels of 10 mg/kg, 50 mg/kg, 50 mg/kg, 0.2 mg/kg, 25 mg/kg and 50 mg/kg, respectively for these constituents.

- Metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-30A (10'-12').

#### 2.2.43 Plant 12A Exterior - Dry Well in Stairwell Between Megapound and Plant 12A

Two soil samples were collected at soil boring location B-31A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.
- Semivolatile Organic Compounds
  - Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 140 ug/kg and 27 ug/kg, respectively in soil sample B-31A (1'-3') which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg, respectively for these compounds.
  - SVOCs were not detected in soil sample B-31A (5'-7').
  - As indicated above, two SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds; however, the criterion for *total* CaPAHs of 10,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* SVOCs of 500,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 138 mg/kg in soil sample B-31A (1'-3'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-31A (5'-7').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-31A (1'-3').
- Priority Pollutant Metals
  - Arsenic, chromium, copper, mercury, nickel and zinc were detected at concentrations of 20.9 mg/kg, 98.6 mg/kg, 89.5 mg/kg, 1.1 mg/kg, 33.7 mg/kg and 884 mg/kg, respectively in soil sample B-31A (1'-3') which exceeded the Eastern USA background levels of 12 mg/kg, 50 mg/kg, 50 mg/kg, 0.2 mg/kg, 25 mg/kg and 50 mg/kg for these constituents. In addition, zinc was detected at a concentration of 78.7 mg/kg in soil sample B-31A (5'-7') which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

#### 2.2.44 Plant 12A Exterior - Former Drainage Trench East of Plant 12A

A total of four soil samples were collected at soil boring locations B-38A and B-38B during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-38A (4'-6'), B-38A (6'-8'), B-38B (1'-3') and B-38B (3'-5'); however, the concentrations detected were below NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-38A (4'-6') and B-38A (6'-8'). Di-n-butylphthalate was detected in sample B-38A (4'-6') at a concentration that was the same as the NYSDEC TAGM criterion of 8,100 ug/kg for this compound.
  - Benzo(a)anthracene was detected at a concentration of 280 ug/kg in soil sample B-38B (1'-3'), which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound. SVOCs were not detected in soil sample B-38B (3'-5').
  - As indicated above, one SVOC was detected at a concentration that exceeded the NYSDEC TAGM criterion for an *individual* compound; however, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 915 mg/kg in soil sample B-38B (1'-3'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil samples B-38A (4'-6'), B-38A (6'-8') and B-38B (3'-5').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-38B (1'-3').
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples B-38A (4'-6'), B-38A (6'-8') and B-38B (3'-5').
  - Zinc was detected at a concentration of 217 mg/kg in soil sample B-38B (1'-3') which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion of 10,000 ug/kg in the soil samples.

#### 2.2.45 Plant 12A Exterior - Dry Wells East of Plant 12A

A geophysical survey was conducted in this area in order to locate former dry wells east of the Plant 12A building. The location of boring B-39C was selected based upon the findings of the geophysical survey and the review of historical site plans, utility maps and construction drawings.

A total of six soil samples were collected at soil boring locations B-39A, B-39B and B-39C during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected in soil samples B-39A (6'-8'), B-39A (10'-12'), B-39B (3'-5'), B-39B (13'-15'), B-39C (8'-10') and B-39C (14'-16'); however, the concentrations detected were below NYSDEC TAGM criteria.
- Semivolatile Organic Compounds
  - Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 690 ug/kg, 910 ug/kg, 650 ug/kg and 130 ug/kg, respectively in soil sample B-39A (6'-8'), which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg, respectively, for these compounds. In addition, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 170 ug/kg and 36 ug/kg, respectively in soil sample B-39B (3'-5'), which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg for these compounds.
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-39A (10'-12'), B-39B (13'-15'), B-39C (8'-10') and B-39C (14'-16').
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion of



100,000 ug/kg for *total* PAHs and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.

- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 521 mg/kg in soil sample B-39A (6'-8'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were detected at a concentration of 173 mg/kg in soil sample B-39B (3'-5'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil samples B-39A (10'-12'), B-39B (13'-15'), B-39C (8'-10') and B-39C (14'-16').
  - TPHCs, as lubricating oil, were identified as "present" in soil samples B-39A (6' 8') and B-39B (3'-5').
  
- Priority Pollutant Metals
  - Copper, mercury and zinc were detected at concentrations of 50.6 mg/kg, 0.65 mg/kg and 447 mg/kg, respectively in soil sample B-39A (6'-8') which exceeded the Eastern USA background levels of 50 mg/kg, 0.2 mg/kg and 50 mg/kg, respectively for these constituents.
  - Copper, nickel and zinc were detected at concentrations of 348 mg/kg, 31.8 mg/kg and 360 mg/kg, respectively in soil sample B-39B (3'-5') which exceeded the Eastern USA background levels of 25 mg/kg, 0.2 mg/kg and 50 mg/kg for these constituents.
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples B-39A (10'-12'), B-39B (13'-15'), B-39C (8'-10') and B-39C (14'-16').

#### 2.2.46 Boiler House Exterior - Leaching Pool West of Boiler House

Two soil samples were collected at soil boring location B-34A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both soil samples.

- Semivolatile Organic Compounds
  - Benzo(a)pyrene was detected at a concentration of 87 ug/kg in soil sample B-34A (12'-14'), which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound. However, SVOCs were not detected in soil sample B-34A (18'-20').
  - As indicated above, one SVOC was detected at a concentration that exceeded the NYSDEC TAGM criterion for an *individual* compound; however, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 2,460 mg/kg in soil sample B-34A (12'-14'), which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-34A (18'-20').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-34A (12'-14').
- Priority Pollutant Metals
  - Copper, mercury, nickel and zinc were detected at concentrations of 985 mg/kg, 3.9 mg/kg, 78.4 mg/kg and 394 mg/kg, respectively in soil sample B-34A (12'-14') which exceeded the Eastern USA background levels of 50 mg/kg, 0.2 mg/kg, 25 mg/kg and 50 mg/kg for these constituents.
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-34A (18'-20').

#### 2.2.47 Exterior Areas - Southern Parking Lot

Two soil samples were collected at soil boring location B-35A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected in soil samples B-35A (0-2') and B-35A (2'-4').
- Semivolatile Organic Compounds
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both samples.

- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at concentrations of 3,860 mg/kg and 713 mg/kg in soil samples B-35A (0-2') and B-35A (2'-4'), respectively, which exceeded the screening threshold level of 250 mg/kg.
  - TPHCs, as #4 Fuel Oil, were detected at concentrations of 6,240 mg/kg and 1,070 mg/kg in soil samples B-35A (0-2') and B-35A (2'-4'), respectively.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in both samples.

#### 2.2.48 Exterior Areas - Existing and Former Recharge Basins

A total of six soil samples were collected at the Existing and Former Recharge Basins during the April/May 1997 field investigation. Three soil samples were collected adjacent to the former recharge basin at soil boring location B-36A and; three soil samples were collected within the existing recharge basin at soil boring location B-36B. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-36A (24'-26'), B-36A (34'-36'), B-36A (40'-42'), B-36B (0-2'), B-36B (12'-14') and B-36B (18'-20').
- Semivolatile Organic Compounds
  - Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 160 ug/kg and 34 ug/kg, respectively in soil sample B-36A (24'-26') which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg, respectively for these compounds.
  - SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in the other soil samples.
  - As indicated above, two SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds; however, the criterion for *total* CaPAHs of 10,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* SVOCs of 500,000 ug/kg were not exceeded.

- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 56.3 mg/kg in soil sample B-36A (24'-26'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in the other soil samples.
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-36A (24'-26').
- Priority Pollutant Metals
  - Copper was detected at a concentration of 88.5 mg/kg in soil sample B-36B (0-2') which exceeded the Eastern USA background level of 50 mg/kg for this constituent.
  - Metals were not detected at concentrations exceeding Eastern USA background levels in the other soil samples.
- Polychlorinated Biphenyls
  - PCBs were detected at a concentration of 11,000 ug/kg in soil sample B-36A (24'-26') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in the other soil samples.

#### 2.2.49 Exterior Areas - Former Drainage Basin

Two soil samples were collected at soil boring location B-37A during the April/May 1997 field investigation. The analytical results are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in both soil samples.
- Semivolatile Organic Compounds
  - Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 210 ug/kg and 37 ug/kg, respectively in soil sample B-37A (4'-6'), which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg, respectively for these compounds. In addition, benzo(a)pyrene and dibenzo(a,h)anthracene were also detected at concentrations of 87 ug/kg and 17 ug/kg, respectively in soil sample B-37A (6'-8'), which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg, respectively for these compounds.

- As indicated above, two SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds; however, the criterion for *total* CaPAHs of 10,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* SVOCs of 500,000 ug/kg were not exceeded.
- TPHCs and Fuel-Related Constituents
  - TPHCs were detected at a concentration of 138 mg/kg in B-37 (4'-6'), which was below the screening threshold level of 250 mg/kg.
  - TPHCs were not detected in soil sample B-37A (6'-8').
  - TPHCs, as lubricating oil, were identified as "present" in soil sample B-37A (4'-6').
- Priority Pollutant Metals
  - Copper and zinc were detected at concentrations of 125 mg/kg and 54.7 mg/kg, respectively in soil sample B-37A (4'-6') which exceeded the Eastern USA background level of 50 mg/kg for each constituent.
  - Metals were not detected at concentrations exceeding the Eastern USA background levels in soil sample B-37A (6'-8').
- Polychlorinated Biphenyls
  - PCBs were detected at a concentration of 82,000 ug/kg in soil sample B-37A (4'-6') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in B-37A (6'-8').

## 2.3 Data Validation

### 2.3.1 Field Program No. 1

Forty-five soil and 10 concrete core samples were collected during Field Program No. 1 of the Supplemental Phase II Site Assessment field activities at the Plant 12 site. The samples were analyzed for a variety of parameters depending on sample location. The parameters included volatile organic compounds (VOCs) by Method 8240, semivolatile organic compounds (SVOCs) by Method 8270, total petroleum hydrocarbons (TPHCs) by Method 418.1, fuel-related constituents by Method 310-13 and priority pollutant metals by Methods 6010 and 7471. The analyses were performed by Nytest Environmental, Inc. and IEA Laboratory, Inc., subcontractors

to Dvirka and Bartilucci Consulting Engineers, utilizing USEPA SW846 and NYSDOH methods.

The data packages were validated in accordance with NYSDEC Quality Assurance/Quality Control (QA/QC) requirements. All standards and QC samples were reviewed, as well as 20% of the sample results yielding a "20% Validation."

The following items were noted during the validation process:

- The semivolatile fraction of sample FFL-AC required re-extraction due to low acid surrogate recoveries, as well as re-analysis at a 1:10 dilution due to the high concentrations of butylbenzylphthalate and di-n-butylphthalate found in the initial undiluted run. The data from the re-extract, FFL-ACRE, and diluted re-extract, FFL-ACREDL, are considered the most representative of site conditions.
- In the volatile fraction, acetone and methylene chloride were detected in a few of the method blanks associated with the samples. Therefore, the acetone and methylene chloride results which are flagged "B" have been qualified as nondetectable and not attributable to the site.
- For the fuel analysis, TPH (as 10W40) was reported in some of the samples. Also, many of the samples contained TPH (as 10W40) at concentrations less than the detection limit of 80 ppm and these results were flagged "J."

No problems were found with the data package and all results are considered valid and usable as qualified above.

### 2.3.2 Field Program No. 2

One hundred thirty-eight soil and two concrete core samples were collected during Field Program No. 2 of the Supplemental Phase II Site Assessment field activities at the Plant 12 site. The samples were analyzed for a variety of parameters depending on sample location. The parameters included VOCs by Method 8240, SVOCs by Method 8270, PCBs by Method 8080, priority pollutant (PP) metals by Methods 6010 and 7471, TPHCs by Method 418.1 and fuel-related constituents by Method 310-13. All analyses were performed in accordance with the

USEPA SW846 and NYSDEC ASP methods listed above by Envirotech Research, Inc., a subcontractor to Dvirka and Bartilucci Consulting Engineers.

Twenty percent of the data packages were validated in accordance with NYSDEC Quality Assurance/Quality Control (QA/QC) requirements yielding a "20% validation." The findings of the validation process are summarized below.

Sample analyses were performed within the USEPA methodology specified holding times.

Sample B-35A (0-2') was originally collected on 4/28/97 but due to an oversight by the laboratory, the volatile fraction was not analyzed. As a result, the volatile fraction was recollected on 6/3/97. The volatile analysis was performed at medium level (1:125 dilution) due to a high concentration of nontargeted benzene isomers present.

Several samples required reanalysis due to surrogate recoveries and/or internal standard area counts being outside QC limits. The reanalysis yielded similar results. Therefore, the initial set of data was considered the best set and was utilized for environmental assessment purposes.

All methylene chloride results were qualified as nondetect due to blank and/or laboratory contamination and this compound is not attributed to the site. That is, the field blanks and/or method blanks associated with the samples also contained methylene chloride and the sample concentrations are less than five times the concentrations found in the blanks.

The semivolatile fraction of samples B-17B (0-2'), B-17B (2'-4') and B-18B (0-2') identified polychlorinated biphenyls (PCBs) as tentatively identified compounds; however, PCB analysis by Method 8080 was not requested for these sample. To determine the actual concentration of PCBs present it is recommended that reanalysis of these samples by Method 8080 be performed.

PCBs were also identified as nontargeted compounds in the SVOC analysis of sample B-22H (0-2'); however, no PCBs were reported under the PCB analysis. This may be due to the concentration of PCBs present being below the detection limit for that sample.

Two samples, B-3A (C-1) and B-22H (0-2'), contained high levels of TPHCs as indicated by the results of the 418.1 analysis; however, the 310-13 results indicate no petroleum products present. Review of the chromatograms indicate that many hydrocarbons are present; however, the pattern does not match any of the target petroleum products. Therefore, the hydrocarbon may be due to asphalt or organic materials.

Four samples, B-17A (2'-4'), B-14A (17'-19'), B-19A (0-2') and B-19A (2'-4'), had high levels of TPHCs by 418.1 present but no positive identification of a fuel. However, it was noted by the laboratory that these samples contained a mixture of resolved and unresolved hydrocarbons dissimilar to any of the listed petroleum products (JP-5 Fuel Oil, #2, #4 and #6 fuel oil, gasoline, kerosene and lubricating oil).

Lubricating oil has been identified as being present in sample B-27A (8'-10'); however, based upon review of the chromatogram, the amount would be very small to nonexistent. This conclusion is based upon the chromatogram not exhibiting a pattern of any kind. Furthermore, it is important to note that only a low level of TPHCs (51.9 mg/kg) was detected in this sample.

In addition to lubricating oil being present, the fuel-related constituents analysis indicated that sample B-39A (6'-8') also contained diesel range organics (DROs) at a concentration of 597 mg/kg.

For several of the sample delivery groups (SDGs), the metals analyses were subcontracted to Chemtech. All of the metals analyses were performed utilizing Method 6010 with the samples having a dilution factor of 2. Mercury analysis was performed in accordance with Method 7471. No problems with metals analysis were found.



All data is deemed valid and usable for environmental assessment purposes, as qualified above.

# Section 3

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### **3.0 DELINEATION PHASE II SITE ASSESSMENT SCOPE OF WORK**

This section provides an overview of the recommended technical scope of work for the Delineation Phase II Site Assessment conducted at the Plant 12 site. Field activities were conducted during August 1998 and January 1999.

Based on the findings of the Supplemental Phase II Site Assessment, a scope of work was developed to further delineate potential areas of environmental concern. A description of the recommended Delineation Phase II Site Assessment activities for the Plant 12 Site is presented in the sections that follow.

#### **3.1 Soil Sampling Program**

Table 3-1 summarizes the recommended Delineation Phase II Site Assessment sampling activities. The table specifies the number of soil borings, soil probes, lineal feet of drilling, number of split spoon samples, soil probe samples and sampling intervals, and the recommended analyses for the field program.

#### **3.2 Groundwater Sampling Program**

Based on the recommendations of the Supplemental Phase II Site Assessment, two shallow groundwater monitoring wells were to be installed. One well was to be installed immediately upgradient of the former Resin Waste Pit (Sump #1) and one well was to be installed immediately downgradient of the former Resin Waste Pit (Sump #1) to determine whether shallow groundwater has been impacted in these areas. The monitoring wells were to be screened through the water table, which is approximately 60 feet below grade. The wells were to be installed to a depth of 10 feet below the groundwater interface. Subsequent to construction and development of the wells, groundwater samples were to be collected for laboratory analysis. As shown in Table 3-1, the groundwater samples were to be analyzed for VOCs (Method 8240),

TABLE 3-1  
 Northrop Grumman Corporation  
 Delineation Phase II Site Assessment - Plant 12  
 RECOMMENDED DELINEATION PHASE II SITE ASSESSMENT SAMPLING ACTIVITIES

Building	Area No.	Location	SOIL BORINGS			SOIL PROBES			Recommended Analyses *														Laboratory Turnaround	Comments		
			No. of Barrels	No. of Samples	No. of Linear Ft. Drilling	No. of Corings	No. of Probes	No. of Corings	No. of Core	1	2	3	4	5	6	7	8	9	10	11	12	13			14	
Plant 12	3	Machine Shop (3A)	--	--	--	1	1	1	--	B-3AA	0'-2' bgs	--	--	--	--	--	--	--	--	--	--	--	1	24 to 48 hr	--	
			--	--	--	4 <sup>1</sup>	4 <sup>1</sup>	4 <sup>1</sup>	--	B-3AN7, B-3AS7, B-3AE7 and B-3AW7	0'-2' bgs	--	--	--	4	--	--	--	--	--	4	--	--	2	week	Analyze based on results of 0'-2' sample at B-3AA
			--	--	--	--	4 <sup>1</sup>	--	--	B-3AN7, B-3AS7, B-3AE7 and B-3AW7	2'-4' bgs	--	--	--	4	--	--	--	--	--	4	--	--	2	week	Analyze based on results of 0'-2' samples at B-3AN7, B-3AS7, B-3AE7 and B-3AW7
			--	--	--	1	2	1	--	B-7AA	0'-2' and 2'-4' bbs	--	--	--	4 <sup>1</sup>	2	--	--	--	--	2	--	--	24 to 48 hr	--	
			--	--	--	4 <sup>1</sup>	8 <sup>1</sup>	4 <sup>1</sup>	--	B-7AN7, B-7AS7, B-7AE7 and B-7AW7	0'-2' and 2'-4' bbs	--	--	--	8	8	8	--	--	--	8	--	--	1	week	Analyze based on results of 0'-2' sample at B-7AA
			--	--	--	--	8 <sup>1</sup>	--	--	B-7AN7, B-7AS7, B-7AE7 and B-7AW7	4'-6' and 6'-8' bbs	--	--	--	8	8	8	--	--	--	8	--	--	2	week	Analyze based on results of 2'-4' samples at B-7AN7, B-7AS7, B-7AE7 and B-7AW7
			--	--	--	--	1	1	1	--	B-8AA	2'-4' bbs	--	--	--	2	--	--	--	--	2	--	--	24 to 48 hr	--	
"	"	Trench in Staffed Machine Shop (8A)	--	--	--	2	--	--	B-8AA	4'-6' and 6'-8' bbs	--	--	--	2	--	--	--	--	2	--	--	2	week	Analyze based on results of 2'-4' sample at B-8AA		
			--	--	--	1	1	1	--	B-8BA	0'-2' bbs	--	--	--	2	--	--	--	--	2	--	--	2	week	--	
			--	--	--	1	3	1	--	B-12AA	4'-6', 6'-8' and 8'-10' bgs	--	--	--	3	--	--	--	--	3	--	--	2	week	--	
			--	--	--	4	8	4	--	B-12AN7, B-12AS7, B-12AE7 and B-12AW7	0'-2' and 2'-4' bgs	--	--	--	8	--	--	--	--	8	--	--	1	week	--	
Plant 12A	26	Dry Wells, Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpenter Shop (26A)	--	--	--	--	12	--	B-12AN7, B-12AS7, B-12AE7 and B-12AW7	4'-6', 6'-8' and 8'-10' bgs	--	--	--	12	--	--	--	--	12	--	--	2	week	Analyze based on results of 2'-4' samples at B-12AN7, B-12AS7, B-12AE7 and B-12AW7		
			--	--	--	4	20	4	--	B-12AN14, B-12AS14, B-12AE14 and B-12AW14	0'-2', 2'-4', 4'-6', 6'-8' and 8'-10' bgs	--	--	--	20	--	--	--	--	20	--	--	2	week	Analyze based on results of samples at B-12AN7, B-12AS7, B-12AE7 and B-12AW7	
Megapound Test Lab	32	Former Leaching Pool Beneath Megapound (32A)	--	--	--	1	1	--	B-26AA	7'-9' bgs	--	--	--	2	--	--	--	--	2	--	--	24 to 48 hr	--			
			--	--	--	2	--	--	B-26AA	9'-11' and 11'-13' bgs	--	--	--	2	--	--	--	--	2	--	--	2	week	Analyze based on results of 7'-9' sample at B-26AA		
"	22	Sanitary Leaching Pool (South) Beneath Megapound (22D)	--	--	--	1	1	1	--	B-32AA	10'-12' bgs	--	--	--	1	--	--	--	--	1	--	--	28 day	--		
			--	--	--	1	2	1	--	B-22DA	12'-14' and 14'-16' bgs	--	--	--	2	--	--	--	--	2	--	--	28 day	--		
EXTERIOR AREAS																										
Plant 12	17	Chemical Storage Area/Concrete Platform (17B)	--	--	--	1	2	1	--	B-17BA	4'-6' and 6'-8' bbs	--	--	--	2	--	--	--	--	2	--	--	2	week	--	
			--	--	--	4	8	4	--	B-17BN7, B-17BS7, B-17BE7 and B-17BW7	0'-2' and 2'-4' bbs	8	--	--	8	--	--	--	--	8	--	--	1	week	--	
			--	--	--	--	8	--	--	B-17BN7, B-17BS7, B-17BE7 and B-17BW7	4'-6' and 6'-8' bbs	8	--	--	8	--	--	--	--	8	--	--	1	week	Analyze based on results of 2'-4' samples at B-17BN7, B-17BS7, B-17BE7 and B-17BW7	
			--	--	--	4	16	4	--	B-17BN14, B-17BS14, B-17BE14 and B-17BW14	0'-2', 2'-4', 4'-6' and 6'-8' bbs	16	--	--	16	--	--	--	--	16	--	--	2	week	Analyze based on results of samples from B-17BN7, B-17BS7, B-17BE7 and B-17BW7	

\* Recommended Target Compounds

- 1. Phenols (Soliman Method (Method 8010747))
- 2. Polynuclear Aromatic Hydrocarbons (PNAHs) (EPA Method 8210)
- 3. Sulfides (EPA Method 8210)
- 4. Lead (Method 8010)
- 5. Polychlorinated Biphenyls (Method 8081)
- 6. Arsenic (Method 8010)
- 7. Arsenic (Method 8010)
- 8. STARS (Table 2, SVOCs) (Method 8270) bgs, TUP
- 9. STARS (Table 2 and VAPs, SVOCs) (Method 8260-8270)
- 10. Arsenic (Method 8010)
- 11. Chromium (Method 8010)
- 12. Chromium (Method 8260)
- 13. Hexachlorocyclopentadiene (Method 8260)
- 14. Hexachloroethane (Method 8260)
- 15. Hexachloroethane (Method 8260)
- 16. Hexachloroethane (Method 8260)
- 17. Hexachloroethane (Method 8260)
- 18. Hexachloroethane (Method 8260)
- 19. Hexachloroethane (Method 8260)
- 20. Hexachloroethane (Method 8260)

NOTES:

- 1. Advancement of soil probes and sample collection based on results 0'-2' sample at B-3AA
- 2. Advancement of soil probes and sample collection based on results 0'-2' sample at B-7AA
- 3. The sample(s) shall be split and analyzed by two independent laboratories.
- 4. bgs - below ground surface
- 5. bbs - below bench bottom
- 6. bps - below platform surface

TABLE 3-1 (continued)  
Northrop Grumman Corporation  
Delineation Phase II Site Assessment - Plant 12  
RECOMMENDED DELINEATION PHASE II SITE ASSESSMENT SAMPLING ACTIVITIES

Building	Area No.	Location	SOIL BORINGS			SOIL PROBES			Soil Sampling Interval	Recommended Analyses *														Laboratory Turnaround	Comments	
			No. of Borings	No. of Split Spoon Samples	Liner Ft. Drilling	No. of Core Samples	No. of Geoprobe Samples	No. of Cartridge Samples		1	2	3	4	5	6	7	8	9	10	11	12	13	14			
Plant 12	19	Area Outside of Machine Shop (19A)	--	--	--	1	3	--	B-19AA	4'-6", 6'-8" and 8'-10" bgs	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2 week	--
			--	--	--	3	6	--	B-19A7, B-19AE7 and B-19AW7	0-2' and 2'-4' bgs	6	6	6	--	--	--	--	6	--	--	--	--	--	--	1 week	--
			--	--	--	--	9	--	B-19A7, B-19AE7 and B-19AW7	4'-6", 6'-8" and 8'-10" bgs	9	9	9	--	--	--	--	9	--	--	--	--	--	1 week	Analyze based on results of 2'-4" samples at B-19A7, B-19AE7 and B-19AW7.	
			--	--	--	3	15	--	B-19A14, B-19AE14 and B-19AW14	0-2', 2'-4', 4'-6', 6'-8" and 8'-10" bgs	15	15	15	--	--	--	--	15	--	--	--	--	--	2 week	Analyze based on results of samples at B-19A14, B-19AE14 and B-19AW14.	
	"	22	Sanitary Leaching Pools (North and South) (22A)	1	1	12	--	--	B-22AA	8'-10" bgs	1	1	1	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22B)	1	1	--	--	--	B-22AA	10'-12" bgs	--	--	--	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22C)	1	1	12	--	--	B-22BA	8'-10" bgs	1	1	1	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22C)	1	1	18	--	--	B-22BA	10'-12" bgs	--	--	--	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22E)	1	1	28	--	--	B-22CA	8'-10" bgs	1	1	1	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22E)	2	2	--	--	--	B-22CA	14'-16" and 16'-18" bgs	--	--	--	--	--	--	--	2	2	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22F)	1	1	18	--	--	B-22EA	8'-10" bgs	--	--	--	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22F)	3	3	--	--	--	B-22EA	22'-24', 24'-26" and 26'-28" bgs	--	--	--	--	--	--	--	3	3	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22F)	1	1	18	--	--	B-22FA	8'-10" bgs	1	--	--	--	--	--	--	1	--	--	--	--	--	--	2 week	--
	"	"	Sanitary Leaching Pools (North and South) (22L)	3	3	--	--	--	B-22FA	12'-14', 14'-16" and 16'-18" bgs	--	--	--	--	--	--	--	3	3	--	--	--	--	--	2 week	--
"	"	Sanitary Leaching Pools (North and South) (22L)	1	2	12	--	--	B-22LA	8'-10" and 10'-12" bgs	2	--	--	--	--	--	--	2	--	--	--	--	--	--	2 week	--	
"	"	Automated Features/Unlabeled Buried Structures (North) (22G)	--	--	--	1	1	--	B-22GA	0-2' bgs	--	--	--	--	--	--	2	--	--	--	--	--	--	24 to 48 hr	--	
"	"	Automated Features/Unlabeled Buried Structures (North) (22G)	--	--	--	1	1	--	B-22GA	2'-4' bgs	--	--	--	--	--	--	1	--	--	--	--	--	--	24 to 48 hr	--	
"	"	Automated Features/Unlabeled Buried Structures (North) (22G)	--	--	--	4	4	--	B-22GN7, B-22GS7, B-22GE7 and B-22GW7	0-2' bgs	--	--	--	--	--	--	4	--	--	--	--	--	--	1 week	Analyze based on results of 0-2" samples at B-22GN7, B-22GS7, B-22GE7 and B-22GW7.	
"	"	Automated Features/Unlabeled Buried Structures (North) (22G)	--	--	--	8	8	--	B-22GN7, B-22GS7, B-22GE7 and B-22GW7	2'-4' and 4'-6" bgs	--	--	--	--	--	--	8	--	--	--	--	--	--	1 week	Analyze based on results of the results of the samples from B-22GN7, B-22GS7, B-22GE7 and B-22GW7.	
"	"	Automated Features/Unlabeled Buried Structures (North) (22G)	--	--	--	3	9	--	B-22GS14, B-22GE14 and B-22GW14	0-2', 2'-4' and 4'-6" bgs	--	--	--	--	--	--	9	--	--	--	--	--	--	2 week	--	

\*Recommended Target Compounds

- 6. Arsenic (Method 6010)
- 7. Mercury (Method 1471)
- 8. STARS Table 2 SVOCs (Method 8270) by TCLP
- 9. STARS Table 2 and VOCs/SVOCs (Method 8260/8270)
- 10. Atrazine (Method 6010)

- 11. Chromium (Method 6010)
- 12. Volatile Organic Compounds (Method 8260)
- 13. Semivolatile Organic Compounds (Method 8270)
- 14. Hexachloro Cyclopentadiene (Method 7190A)

- 1. Priority Pollutant Metals (Method 6010/7471)
- 2. Volatile Organic Compounds (Method 8260) incl. those listed in STARS Table 1
- 3. Semivolatile Organic Compounds (Method 8270) incl. those listed in STARS Table 2
- 4. Lead (Method 6010)
- 5. Polychlorinated Biphenyls (Method 8081)

NOTES:  
\* The sample(s) shall be split and analyzed by two independent laboratories.  
bgs. below ground surface

TABLE 3-1 (continued)  
 Northrop Grumman Corporation  
 Delineation Phase II Site Assessment - Plant 12  
 RECOMMENDED DELINEATION PHASE II SITE ASSESSMENT SAMPLING ACTIVITIES

Building	Area No.	Location	SOIL BORINGS			SOIL PROBES			Recommended Analytes *														Laboratory Turnaround	Comments		
			No. of Borings	No. of Spoil Lane F	No. of Drilling	No. of Corings	No. of Probes	No. of Samples	No. of Core	1	2	3	4	5	6	7	8	9	10	11	12	13			14	
Plant 12	*	Anomalous Features/Unknown Buried Structures (North) (22H)	--	--	--	1	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2 week	--	
			--	--	--	4	8	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	1 week	--	
			--	--	--	--	8	--	--	--	--	--	--	--	--	--	--	--	--	--	8	--	--	--	1 week	Analyze based on results of 2'-4" samples at B-22JN7, B-22HS7, B-22HE7 and B-22HW7
			--	--	--	3	12	--	--	--	--	--	--	--	--	--	--	--	--	--	12	--	--	--	2 week	Analyze based on results of the samples from B-22HS7, B-22HE7 and B-22HW7
"	*	Anomalous Features/Unknown Buried Structures (North) (22I)	--	--	--	4	8	--	--	--	--	--	--	--	--	--	--	--	8	--	--	--	1 week	--		
			--	--	--	--	4	--	--	--	--	--	--	--	--	--	--	--	--	4	--	--	--	1 week	Analyze based on results of 2'-4" samples at B-22JN7, B-22JS7, B-22JE7 and B-22JW7	
			--	--	--	4	12	--	--	--	--	--	--	--	--	--	--	--	--	12	--	--	--	2 week	Analyze based on results of the samples from B-22JN7, B-22JS7, B-22JE7 and B-22JW7	
"	42	Former Pit East of Sump #2 (42A)	1	2	14	1	--	--	--	--	--	--	--	--	--	--	--	4 <sup>1</sup>	--	--	--	--	24 to 48 hr	--		
			--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	1 week	Analyze based on results of 2'-4" and 10'-12" samples at B-42AA	
"	--	Resin Waste Pit (Sump #1) (RWP)	4	20	56	4	--	--	--	--	--	--	--	--	--	--	--	--	20	--	--	--	2 week	--		
			6	60 <sup>1</sup>	120	6	--	--	--	--	--	--	--	--	--	--	--	--	--	24	--	--	24	24	24	2 week
"	43	Former Trenches to Resin Waste Pit (Sump #1) (43A)	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2 week	--		
			--	--	--	4	8	--	--	--	--	--	--	--	--	--	--	--	--	8	--	--	--	1 week	Analyze based on results of the samples from B-43AN7, B-43AS7, B-43AE7 and B-43AW7	
"	45	Dry Well Northeast of Plant 12 (45A)	--	--	--	4	12	--	--	--	--	--	--	--	--	--	--	--	12	--	--	--	2 week	--		
			1	3	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	3	--	--	2 week	Analyze based on results of the samples at B-45AN7, B-45AS7, B-45AE7 and B-45AW7	
Plant 12A	16	Leaching Chamber North of Carpentry Shop (16A)	1	1	18	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2 week	--		
			--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2 week	--	
"	30	Drainage Chamber North of Lobby/Loading Area (30A)	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2 week	--		
			1	2	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2 week	--	
"	38	Former Drainage Trench East of Plant 12A (38B)	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2 week	--		
			--	--	--	4	8	--	--	--	--	--	--	--	--	--	--	--	--	8	8	--	--	2 week	--	

\*Recommended Target Compounds

- 1. Phenyl Pollutant Metals (Method 6010/7471)
- 2. Arsenic (Method 6010)
- 3. Sevensulfone (Method 8260)
- 4. Lead (Method 6010)
- 5. Polychlorinated Biphenyls (Method 8081)
- 6. Arsenic (Method 6010)
- 7. Arsenic (Method 6010)
- 8. STARS Table 2 SVOCs (Method 8270) by TUP
- 9. STARS Table 2 and VOCs/SVOCs (Method 8260/8270)
- 10. Arsenic (Method 6010)
- 11. Chromium (Method 6010)
- 12. Methylene Chloride (Method 8260)
- 13. Semivolatile Organic Compounds (Method 8270)
- 14. Hexachloro (Chromium (Method 7198A))

NOTES:  
 1. The samples shall be split and analyzed by two independent laboratories.  
 2. Continuous split spoon sampling from 0 to 20' bgs at each boring bgs below ground surface.

TABLE 3-1 (continued)  
 Northrop Grumman Corporation  
 Delineation Phase II Site Assessment - Plant 12  
 RECOMMENDED DELINEATION PHASE II SITE ASSESSMENT SAMPLING ACTIVITIES

Building	Area No.	Location	SOIL BORINGS			SOIL PROBES			Soil Sampling Interval	Recommended Analytes *														Laboratory Turnaround	Comments		
			No. of Borings	No. of Split Spoon Samples	No. of Linear Ft. Drilling	No. of Core Samples	No. of Geoprobe Samples	No. of Curved Probes		1	2	3	4	5	6	7	8	9	10	11	12	13	14				
<b>EXTERIOR AREAS (continued)</b>																											
	35	Southern Parking Lot (35A)	--	--	--	1	4	--	--	B-35AA	0-2', 2'-4', 4'-6' and 6'-8' bgs	--	--	--	--	--	4	4	--	--	--	--	--	--	2 week	--	
			--	--	--	3	6	--	--	B-35AN7, B-35AS7 and B-35AE7	0-2' and 2'-4' bgs	--	--	--	--	--	6	6	--	--	--	--	--	--	1 week	--	
			--	--	--	--	6	--	--	B-35AN7, B-35AS7 and B-35AE7	4'-6' and 6'-8' bgs	--	--	--	--	--	6	6	--	--	--	--	--	--	2 week	Analyze based on results of 2'-4' samples at B-35AN7, B-35AS7 and B-35AE7.	
	36	Existing and Former Refractive Basin (36A)	--	--	--	1	1	--	--	B-36AA	24'-26' bgs	--	--	--	--	--	2'	--	--	--	--	--	--	--	24 to 48 hr	--	
			--	--	--	--	3	--	--	B-36AA	22'-24', 26'-28' and 28'-30' bgs	--	--	--	--	--	3	--	--	--	--	--	--	--	2 week	Analyze based on results of 24'-26' sample at B-36AA.	
			--	--	--	--	2	--	--	B-37AA	0-2' and 2'-4' bgs	--	--	--	--	--	2	--	--	--	--	--	--	--	2 week	--	
	37	Former Drainage Basin (37A)	--	--	--	1	2	--	--	B-37AN8, B-37AS8, B-37AE8 and B-37AW8	0-2', 2'-4', 4'-6' and 6'-8' bgs	--	--	--	--	--	16	--	--	--	--	--	--	--	1 week	--	
			--	--	--	--	4	16	--	B-37AN16, B-37AS16, B-37AE16 and B-37AW16	0-2', 2'-4', 4'-6' and 6'-8' bgs	--	--	--	--	--	16	--	--	--	--	--	--	--	2 week	Analyze based on results of the samples at B-37AN8, B-37AS8, B-37AE8 and B-37AW8.	
			--	--	--	--	4	16	--	B-37AN16, B-37AS16, B-37AE16 and B-37AW16	0-2', 2'-4', 4'-6' and 6'-8' bgs	--	--	--	--	--	16	--	--	--	--	--	--	--	2 week	In addition, the 30"-32" procedure shall be screened in the field using a PK-B minimum assay kit. If the field results from the test kit indicate elevated levels of PK-Bs, additional soil samples may be collected and screened using the same procedure.	
			--	--	--	--	2	8	--	B-37AS8A and B-37AS16A	8'-10', 12'-14', 16'-18' and 20'-22' bgs	--	--	--	--	--	8	--	--	--	--	--	--	--	1 week	In addition, the 30"-32" procedure shall be screened in the field using a PK-B minimum assay kit. If the field results from the test kit indicate elevated levels of PK-Bs, additional soil samples may be collected and screened using the same procedure.	
			--	--	--	--	4	24	--	B-37AS12, B-37ASER, B-37ASE16 and B-37ASE12	0-2', 4'-6', 8'-10', 12'-14', 16'-18' and 20'-22' bgs	--	--	--	--	--	24	--	--	--	--	--	--	--	1 week	In addition, the 30"-32" procedure shall be screened in the field using a PK-B minimum assay kit. If the field results from the test kit indicate elevated levels of PK-Bs, additional soil samples may be collected and screened using the same procedure.	
			--	--	--	--	2	8	--	B-37AW8A and B-37AW16A	8'-10', 12'-14', 16'-18' and 20'-22' bgs	--	--	--	--	--	8	--	--	--	--	--	--	--	1 week	In addition, the 30"-32" procedure shall be screened in the field using a PK-B minimum assay kit. If the field results from the test kit indicate elevated levels of PK-Bs, additional soil samples may be collected and screened using the same procedure.	
			--	--	--	--	4	24	--	B-37AW24, B-37ANW8, B-37ANW16 and B-37ANW24	0-2', 4'-6', 8'-10', 12'-14', 16'-18' and 20'-22' bgs	--	--	--	--	--	24	--	--	--	--	--	--	--	1 week	In addition, the 30"-32" procedure shall be screened in the field using a PK-B minimum assay kit. If the field results from the test kit indicate elevated levels of PK-Bs, additional soil samples may be collected and screened using the same procedure.	
			--	--	--	--	1	3	--	PCS-AA	0-2', 2'-4' and 4'-6' bgs	--	--	--	--	--	3	3	--	--	--	--	--	--	2 week	--	
			--	--	--	--	3	9	--	PCS-AN8, PCS-AS8, PCS-AER and PCS-AW8	0-2', 2'-4' and 4'-6' bgs	--	--	--	--	--	9	9	--	--	--	--	--	--	2 week	--	
			--	--	--	--	1	3	--	PCS-GA	0-2', 2'-4' and 4'-6' bgs	--	--	--	--	--	3	3	--	--	--	--	--	--	2 week	--	
			--	--	--	--	3	9	--	PCS-GN8, PCS-GB8 and PCS-GW8	0-2', 2'-4' and 4'-6' bgs	--	--	--	--	--	9	9	--	--	--	--	--	--	2 week	--	
<b>Monitoring Well P12MW-1, P12MW-2, P12MW-3, P12MW-4 and GM-105</b>			20	110	330	11	104	377	24	0	<b>Groundwater Sampling Activities</b>														12'	--	--
<b>TOTALS</b>			20	110	330	11	104	377	24	0	108	35	43	228	9	108	171	136	80	43	31	88	2	2	2	2	

**\*Recommended Target Compounds**  
 6. Arsenic and Nickel (Method 6010)  
 7. Mercury (Method 1631)  
 8. STARS Table 2-3000's (Obtained 4/20/03) by TCTP  
 9. STARS Table 2-3000's (Obtained 4/20/03) by TCTP  
 10. Arsenic (Method 6010)

**NOTES:**  
 1. Priority Pollutant Metals (Method 6010/7471)  
 2. Volatile Organic Compounds (Method 8260) and Bore fluid in STARS Table 1  
 3. Semivolatile Organic Compounds (Method 8270) and Bore fluid in STARS Table 2  
 4. Lead (Method 6010)  
 5. Polybrominated Diphenyls (Method 8081)

The samples shall be split and analyzed by two independent laboratories.  
 \* Filtered and unfiltered samples if turbidity >50 NTU's.  
 bgs: below ground surface.

SVOCs (Method 8270), PCBs (Method 8080) and priority pollutant metals (Method 6010). Filtered and unfiltered samples were to be submitted for metals analysis if groundwater samples were not obtained at a turbidity of less than 50 nephelometric turbidity units (NTUs).

In addition, as shown in Table 3-1, groundwater samples were to be collected for laboratory analysis from existing groundwater monitoring wells P12MW-1 and GM-10S (P-5) and analyzed for VOCs (Method 8260), SVOCs (Method 8270), PCBs (Method 8081) and priority pollutant metals (Methods 6010/7470). Filtered and unfiltered samples were to be submitted for lab analysis if groundwater samples were not obtained at a turbidity of less than 50 NTUs.

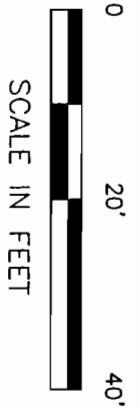
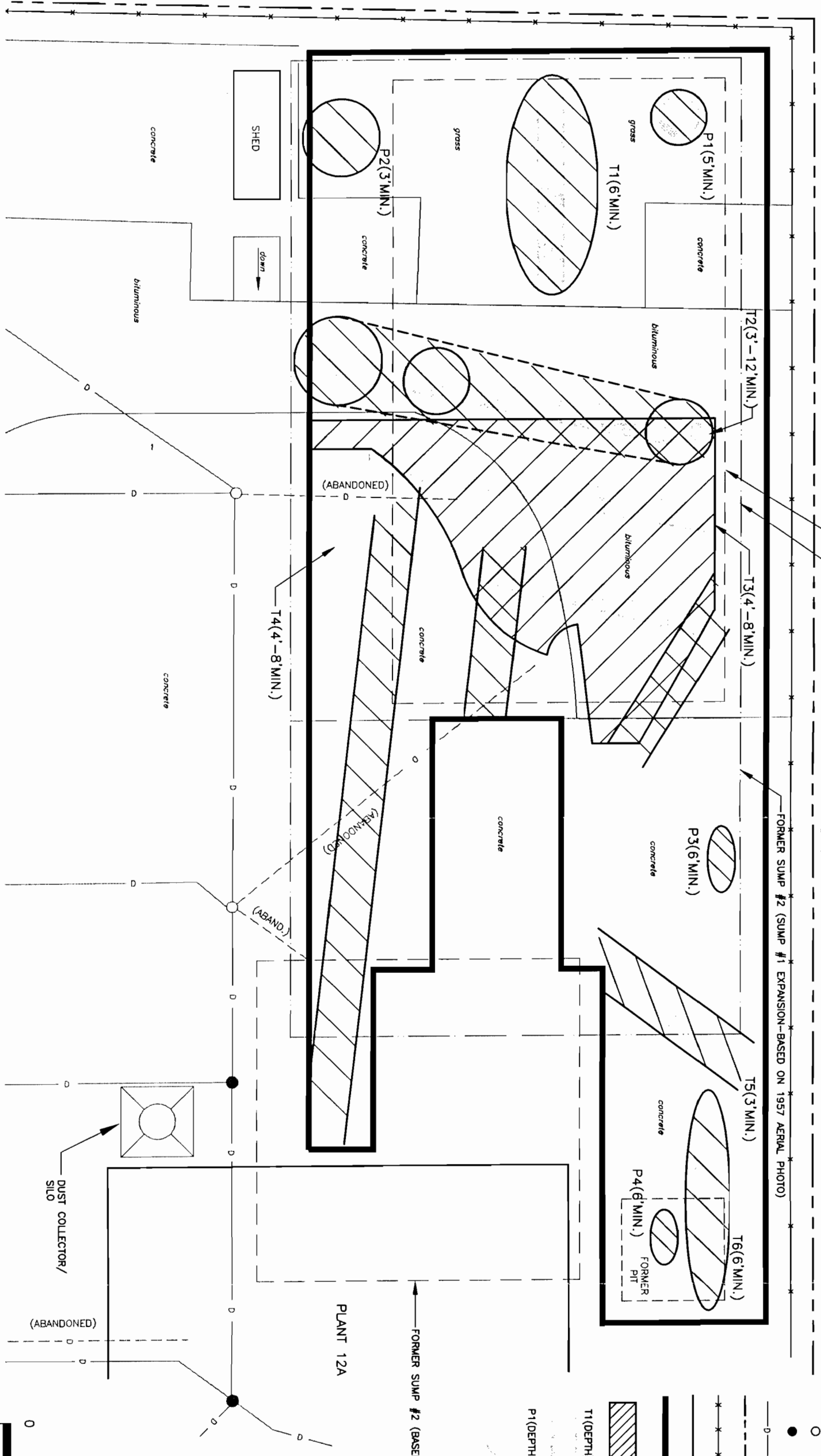
Also, a groundwater sample from monitoring well S8-MW1 (if located) was to be collected and analyzed for VOCs (Method 8260), SVOCs (Method 8270), PCBs (Method 8081) and priority pollutant metals (Methods 6010/7471). Filtered and unfiltered samples were to be submitted for metals analysis if groundwater samples were not obtained of less than 50 NTUs. In the event that monitoring well S8-MW1 was not located and/or sampled, NGC had the option to install a new shallow groundwater monitoring well downgradient of the former Drainage Basin.

To determine on-site groundwater flow direction, depth to groundwater levels were to be obtained and a survey of the top of the well casing at each of the on-site monitoring wells was to be conducted. The water level and survey data were to be utilized to determine groundwater elevations and develop a groundwater contour map for the Plant 12 site.

### **3.3 Test Pit/Trench Program**

Based upon the results of the geophysical surveys conducted in the former Resin Waste Pit area during the Supplemental Phase II Site Assessment, a test pit/trench program was to be conducted in order to investigate approximately 10 anomalies, “depression-type,” “disturbed” and “trough-like” features and zones located in the Resin Waste Pit and adjacent area of Former Sump #2. Figure 3-1 presents the approximate locations of the geophysical survey anomalies and





proposed test pit/trench locations. Table 3-2 identifies the approximate limits of the proposed test pit/trench program.

Table 3-2

**DELINEATION PHASE II SITE ASSESSMENT  
PROPOSED LIMITS OF  
TEST PIT/TRENCH PROGRAM**

<b>Test Pit/Trench</b>	<b>Minimum Depth (feet)</b>	<b>Width (feet)</b>	<b>Length (feet)</b>
Pit 1	5	10	10
Pit 2	3	10	10
Pit 3	6	5	5
Pit 4	6	5	5
Trench 1	6	5	35
Trench 2	12	5	75
Trench 3	8	5	75
Trench 4	8	5	75
Trench 5	3	5	35
Trench 6	6	5	30

# Section 4

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## 4.0 DELINEATION PHASE II SITE ASSESSMENT FIELD ACTIVITIES

This section provides a description of the field activities conducted as part of the Delineation Phase II Site Assessment at the Plant 12 site. A dedicated field book, which is available in the project file, provides documentation of the daily field activities conducted at the site during each day of the field program.

As discussed in Section 3, the field program was conducted in August 1998 and January 1999. A description of the field activities conducted as part of the Delineation Phase II Site Assessment is provided in the sections that follow.

### 4.1 Soil Sampling Program

During the Delineation Phase II Site Assessment field activities, soil borings and soil probes were advanced and soil samples were collected at the locations described in Section 3 and as shown on Figure 4-1. As discussed in Section 3, soil sampling activities were conducted at the following AOCs at the site:

#### Plant 12

##### Interior

- Machine Shop
- Trench in EMT Lab 1
- Trench in Staffed Machine Shop
- Resin Transfer Molding Lab (Autoclave Lay-up Area)

##### Exterior

- Chemical Storage Area/Concrete Platform
- Area Outside Machine Shop
- Sanitary Leaching Pools (North and South)
- Anomalous Features/Unknown Buried Structures (North)
- Former Trenches to Resin Waste Pit (Sump #1)
- Dry Well Northeast of Plant 12

## Plant 12A

### Interior

- Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop

### Exterior

- Leaching Chamber North of Carpentry Shop
- Drainage Chamber North of Lobby/Loading Area
- Former Drainage Trench East of Plant 12A

## Megapound Test Lab

### Interior

- Former Leaching Pool Beneath Megapound
- Sanitary Leaching Pool (South) Beneath Megapound

### Exterior Areas

- Southern Parking Lot
- Existing and Former Recharge Basins
- Former Drainage Basin
- Petroleum/Chemical Storage Areas

#### 4.1.1 Soil Probe Sampling

Soil samples were collected utilizing one of the following two methods: truck-mounted Simco 200 Earthprobe with Geoprobe tooling or manual advancement of Geoprobe tooling utilizing an electric hammer-drill. Soil boring logs are presented in Appendix A. Table 4-1 summarizes the Delineation Phase II Site Assessment field activities. As shown, the summaries include; soil probe identification, sampling location, number of borings/probes, samples and cores, soil sampling interval, soil sampling method, sample identification and the target constituents and analytical methods.

TABLE 4-1  
Northrop Grumman Corporation  
Delineation Phase II Site Assessment - Plant 12  
DELINEATION PHASE II SITE ASSESSMENT SAMPLING ACTIVITIES

Building	Area No.	Location	SOIL BORINGS			SOIL PROBES			Soil Sampling Interval	Analytical Parameters* (Soil and Groundwater)															Comments					
			No. of Samples	Lineal Ft. Drilling	No. of Coring Probes	No. of (Composite) Samples	No. of (Composite) Samples	Cartridge		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15						
<b>INTERIOR AREAS</b>																														
Plant 12	3	Machine Shop (3A)	--	--	1	1	1	1	0'-2' bbs	B-3AA	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	--
"	7	Trench in EMT Lab No. 1 (7A)	--	--	1	2	1	1	0'-2' and 2'-4' bbs	B-7AA	--	--	--	--	--	2	2	2	--	--	--	--	--	--	--	--	--	--	--	
"	8	Trench in Staffed Machine Shop (8A)	--	--	4	8	4	4	0'-2' and 2'-4' bbs	B-7AN7, B-7AN7, B-7AE7 and B-7AW7	--	--	--	--	--	8	--	--	--	--	--	--	--	--	--	--	--	--	--	
"	"	Trench in Staffed Machine Shop (8B)	--	--	1	1	1	1	2'-4' bbs	B-8AA	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	
"	"	Trench in Staffed Machine Shop (8B)	--	--	1	1	1	1	0'-2' bbs	B-8BA	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	
"	12	Rain Transfer Molding Lab (Autoclave Layup Area) (12A)	--	--	1	3	1	1	4'-6", 6'-8" and 8'-10' bbs	B-12AA	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--	
Plant 11 A	26	Jay Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpenter Shop (26A)	--	--	4	20	4	4	0'-2', 2'-4', 4'-6", 6'-8" and 8'-10' bbs	B-12AN7, B-12AS7, B-12AE5 and B-12AW7	--	--	--	--	--	8	--	--	--	--	--	--	--	--	--	--	--	--	Only the 0'-2' and 2'-4' bbs soil samples collected at soil boring B-12AN7, B-12AS7, B-12AE5 and B-12AW7 were laboratory analyzed.	
Megapound Test Lab	12	Former Leaching Pool beneath Megapound (12A)	--	--	1	3	--	3	7'-9", 9'-11" and 11'-13' bbs	B-20AA	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--	--	--	Only the 7'-9" bbs soil sample collected at soil boring B-20AA was laboratory analyzed.	
"	22	Sanitary Leaching Pool (South) beneath Megapound (22D)	--	--	1	2	1	1	10'-12' bbs	B-32AA	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	
<b>EXTERIOR AREAS</b>																														
Plant 12	17	Thermal Storage Area/Concrete Platform (17B)	--	--	1	2	1	1	4'-6" and 6'-8' bbs	B-17BA	--	--	--	--	--	2	2	2	2	2	2	--	--	--	--	--	--	--	--	
"	"	"	--	--	4	8	4	4	0'-2' and 2'-4' bbs	B-17BN7, B-17BS7, B-17BE7 and B-17BW7	8	--	--	--	--	8	8	8	8	8	8	--	--	--	--	--	--	8	--	
"	"	"	--	--	3	9	3	3	0'-2', 2'-4' and 4'-6' bbs	B-17BN14, B-17BS14 and B-17BE14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	Only the 0'-2', 2'-4' and 4'-6' bbs soil samples collected at soil boring B-17BN14 were laboratory analyzed.	
"	"	"	--	--	--	--	--	--	0'-2', 2'-4' and 4'-6' bbs	B-17BS14 and B-17BE14	--	--	--	--	--	--	--	--	--	--	6	--	--	--	--	--	--	--		
"	"	"	--	--	--	--	--	--	0'-2', 2'-4' and 4'-6' bbs	B-17BE14	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--	
"	"	"	--	--	1	3	--	3	4'-6", 6'-8" and 8'-10' bbs	B-19AA	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--	--		
"	19	Area Outside of Machine Shop (19A)	--	--	3	6	--	6	0'-2' and 2'-4' bbs	B-19AN12, B-19AE7 and B-19AW10	6	6	--	--	--	6	--	--	--	--	6	--	--	--	--	--	--	--		
"	"	"	--	--	--	--	--	--	4'-6", 6'-8" and 8'-10' bbs	B-19AN12, B-19AE7 and B-19AW10	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Only the 4'-6", 6'-8" and 8'-10' bbs soil samples collected at soil boring B-19AN12 were laboratory analyzed.		
"	"	"	--	--	1	3	--	3	0'-2', 2'-4' and 4'-6' bbs	B-19AN14	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--	--		
"	"	"	--	--	--	--	--	--	6'-8" and 8'-10' bbs	B-19AN14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
"	"	"	--	--	1	3	--	3	0'-2', 2'-4' and 4'-6' bbs	B-19AW14	--	--	--	--	--	--	--	--	--	--	3	3	--	--	--	--	--	--		

\* Constituent (Analytical Method)

- 1. Priority Pollutant Metals (Method 6010/6271)
- 2. Volatile Organic Compounds (Method 8260) and Semi-Volatiles (Method 8210)
- 3. Inorganic Organic Compounds (Method 8270) and Pesticides (Method 8210)
- 4. Arsenic and Nickel (Method 6010)
- 5. Polychlorinated Biphenyls (Method 8280)
- 6. Arsenic and Nickel (Method 6010)
- 7. Mercury (Method 1631)
- 8. STAES Table 2-3-03-A (Method 8270) by T-TP
- 9. STAES Table 2-3-03-A (Method 8270) by T-TP
- 10. Arsenic (Method 6010)
- 11. Chromium (Method 6010)
- 12. Volatile Organic Compounds (Method 8260)
- 13. Inorganic Organic Compounds (Method 8270)
- 14. Polychlorinated Biphenyls (Method 8280)
- 15. Zinc (Method 6010)

NOTES:  
 a. The sample was spin and analyzed by two independent laboratories.  
 bbs below ground surface  
 bbs below trench bottom  
 bps below platform surface.









### *Exterior Locations*

In general, exterior soil sampling activities were conducted using a pickup truck-mounted Simco 200 Earthprobe System. The Earthprobe System was equipped with Geoprobe tooling which consisted of a 1.5-inch outside diameter by 2-foot long soil probe sampler and drill rods. A 1-inch diameter clear polyethylene terephthalate-G (PETG) sample tube liner, dedicated to each soil probe sample, was utilized to secure the sample within the soil probe sampler. Each soil probe was advanced by hydraulically driving the soil probe sampler, sample tube liner and drill rods to the desired depth. The soil probe sampler was then hydraulically lifted to the surface by the Simco 200 Earthprobe System.

All soil probe samples collected utilizing the truck-mounted Simco 200 Earthprobe System were physically and visually characterized and inspected for the presence of staining, discoloration or odors and were screened for volatile organic vapors utilizing a photoionization detector (PID). This information is presented on soil boring logs presented in Appendix B. All sampling equipment, excluding the PETG sample tube liners which were dedicated to each soil probe sample, was decontaminated between each sample location. Decontamination procedures consisted of an external alconox wash and tap water rinse, followed by a distilled/deionized water rinse. All decontamination water and soil cuttings were retained in 55-gallon DOT drums for proper disposal.

During advancement of the soil probes utilizing the truck-mounted Simco 200 Earthprobe System, monitoring for volatile organic vapors was conducted in the workers' breathing zone and at the probeholes utilizing a PID. Air monitoring results are documented in the project log book. Prior to use, the PID was calibrated utilizing a 100 ppm concentration of isobutylene gas. Equipment calibration was also documented in the project log book.

### *Interior Locations*

The remaining interior soil probes were advanced manually utilizing Geoprobe tooling and an electric hammer-drill. The electric hammer-drill was equipped with Geoprobe tooling which consisted of a 1.5-inch outside diameter by 2-foot long soil probe sampler and drill rods. A 1-inch diameter clear PETG sample tube liner, dedicated to each soil probe sample, was utilized to secure the sample within the soil probe sampler. Each soil probe was advanced utilizing the electric hammer-drill by driving the soil probe sampler, sample tube liner and drill rods to the desired depth. The soil probe sampler was then mechanically lifted to the surface by a mechanical floor jack.

All soil probe samples collected utilizing the electric hammer-drill were physically and visually characterized and inspected for the presence of staining, discoloration or odors were screened for volatile organic vapors utilizing a PID. This information is presented on soil boring logs presented in Appendix B. All sampling equipment, excluding the PETG sample tube liners which were dedicated to each soil probe sample, was decontaminated between each sample location. Decontamination procedures consisted of an external alconox wash and tap water rinse, followed by a distilled/deionized water rinse. All decontamination water and soil cuttings were retained in 55-gallon DOT drums for proper disposal.

During the advancement of the soil probes utilizing the electric hammer-drill, monitoring for volatile organic vapors was conducted in the workers' breathing zone and at the probeholes utilizing a PID. Air monitoring results are documented in the project log book. Prior to use, the PID was calibrated utilizing a 100 ppm concentration of isobutylene gas. Equipment calibration was also documented in the project log book.

#### 4.1.2 Soil Boring Sampling

Soil samples were collected from soil boring locations utilizing a CME-55 rotary drill rig equipped with 4 1/4-inch hollow stem augers. All soil borings were logged by a Dvirka and

Bartilucci geologist. The boring logs are presented in Appendix A. Summaries of the soil boring sampling program are presented in Table 4-1. As shown, the summaries include: soil boring identification, sampling location, a number of borings, samples, soil sampling interval, soil sampling method, sample identification, and the target constituents and analytical methods.

Soil boring conducted utilizing the rotary drilling method were advanced utilizing a CME-55 drill rig equipped with 4 1/4-inch hollow stem augers. Soil samples were obtained at 2-foot intervals utilizing a 24-inch long stainless steel split spoon sampler driven into the soil with a 140 pound safety hammer. The sampler was retrieved from the borehole and opened to remove the soil sample for physical and visual characterization, inspected for the presence of staining, discoloration or odors, screened for volatile organic vapors utilizing a PID, and retained for laboratory analysis.

All soil boring and sampling equipment, including the 4 1/4-inch hollow stem auger(s) and 2-inch diameter split spoon sampler(s), was decontaminated between sample collection intervals and sample locations utilizing a high pressure steam cleaner. All decontamination water and soil cuttings were contained in 55-gallon DOT drums for proper disposal.

During the advancement of the soil borings, monitoring for volatile organic vapors was conducted in the workers' breathing zone and at the boreholes utilizing a PID. Air monitoring results are documented in the project log book. Prior to use, the PID was calibrated utilizing a 100 ppm concentration of isobutylene gas. Equipment calibration was also documented in the project log book.

## **4.2 Groundwater Sampling Program**

Three groundwater monitoring wells were installed during the Delineation Phase II Site Assessment. One groundwater monitoring well (P12MW-3) was installed upgradient of the former Resin Waste Pit and one groundwater monitoring well (P12MW-2) was installed downgradient of the former Resin Waste Pit. In addition, a third groundwater monitoring well

(P12MW-4) was installed downgradient of the Former Drainage Basin (AOC 37). These monitoring wells were installed to assess potential impact to groundwater. The approximate location of these groundwater monitoring wells is shown on Figure 4-1. It should be noted that groundwater monitoring well P12MW-4 was installed downgradient of the Former Drainage Basin due to the fact that existing groundwater monitoring and S8-MW1 was located too far to be considered a representative downgradient well.

Monitoring well P12MW-2, P12MW-3 and P12MW-4 were installed utilizing a CME-55 rotary drill rig equipped with 4 1/4-inch hollow stem augers. All equipment, including the 4 1/4-inch hollow stem augers, was decontaminated utilizing a high pressure steam cleaner. All decontamination water was contained in 55-gallon DOT drums for proper disposal. Well construction logs are presented in Appendix B. Two-inch diameter 0.010-inch slot Schedule 40 flush joint threaded PVC screen and 2-inch diameter Schedule 40 flush joint thread PVC riser pipe was utilized for well construction. All drill cuttings and well development water was contained in 55-gallon DOT drums for proper disposal. Number 1 Morie well gravel was utilized for well screen annulus. The remainder of the annular voids were filled with hydrated bentonite pellets and a cement and bentonite grout mix was installed as a seal. Subsequent well development activities reduced the turbidity of the well water to less than 50 NTU's. However, during the groundwater sampling activities, turbidity was measured to be greater than 50 NTU's. As a result, both filtered and unfiltered groundwater samples were collected for laboratory analysis.

In addition, existing groundwater monitoring wells P12MW-1 and GM-10S (P-5) were sampled. The approximate location of these groundwater monitoring wells is shown on Figure 4-1. During the sampling activities, turbidity was measured to be greater than 50 NTUs. As a result, both filtered and unfiltered groundwater samples were collected for laboratory analysis.

As indicated in Table 4-1, the groundwater samples collected at groundwater monitoring wells P12MW-1, P12MW-2, P12MW-3, P12MW-4 and GM-10S (P-5) were analyzed by the

laboratory for VOCs (Method 8260), SVOCs (Method 8270), PCBs (Method 8081) and priority pollutant metals (Methods 6010/7471).

In addition, groundwater levels and a top of well casing survey at each on-site monitoring well were conducted to determine the on-site groundwater flow direction.

### **4.3 Test Pit/Trench Program**

The Plant 12 test pit/trench program commenced on August 20, 1998. Test pits and test trenches were excavated within the former Resin Waste Pit (RWP) and the former Sump #2 in areas identified by geophysical surveys exhibiting anomalous characteristics.

As shown on Figure 4-2, 10 test pit/trench areas were identified from the geophysical survey. The test pits/trenches were excavated by Miller Environmental Group (MEG). A Case 1088 trackhoe was utilized to excavate and backfill pits and trenches and a Case 450 bulldozer was utilized for site restoration activities. All concrete and asphalt was removed as required prior to the excavation activities and was subsequently disposed of at 110 Sand and Gravel as construction debris. The depth of each excavation is indicated on Table 4-2. All excavated material was stockpiled adjacent to the excavation and subsequently utilized as backfill. A description of the excavation activities is summarized below.

#### *Pit 1*

As shown on Figure 4-2, Pit 1 was excavated in the northeast quadrant of the Plant 12 site. Pit 1 was excavated to approximately 10 feet wide, 10 feet long and 8 feet deep. Fill material from the former RWP was evident and was characterized as brown poorly sorted sand and gravel with and without silt. Native sediment, characterized as tan to orange poorly sorted sand and gravel was evident beneath the RWP fill material. No evidence of geophysical anomalies was observed at this location.

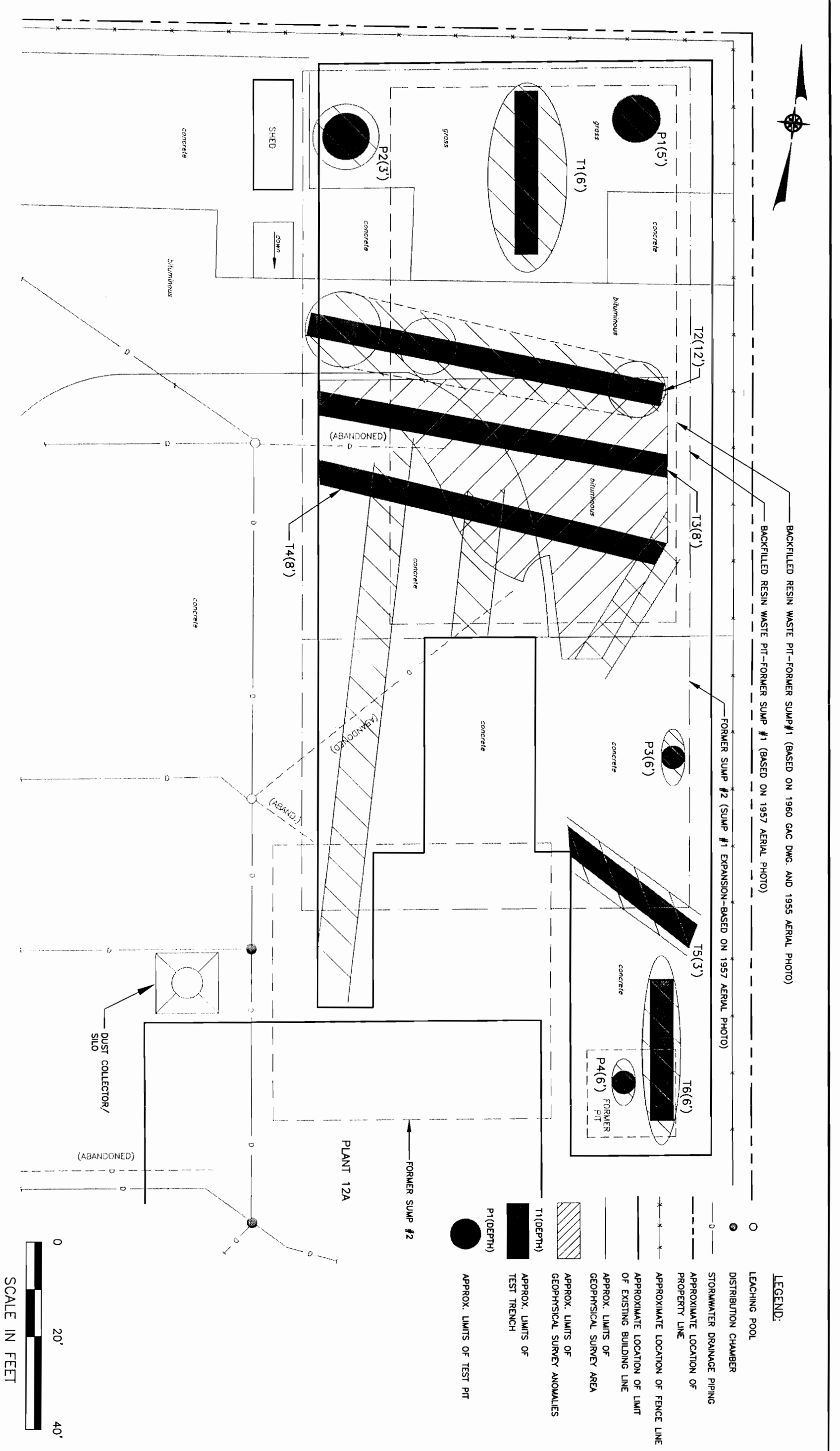




Table 4-2

**DELINEATION PHASE II SITE ASSESSMENT  
LIMITS OF TEST PIT/TRENCH AREAS**

<b>Test Pit/Trench</b>	<b>Minimum Depth (feet)</b>	<b>Width (feet)</b>	<b>Length (feet)</b>
Pit 1	5	10	10
Pit 2	3	10	10
Pit 3	6	5	5
Pit 4	6	5	5
Trench 1	6	5	35
Trench 2	12	5	75
Trench 3	8	5	75
Trench 4	8	5	75
Trench 5	3	5	35
Trench 6	6	5	30

### Trench 1

As shown on Figure 4-2, Trench 1 was excavated in the northeast quadrant of the Plant 12 site. Trench 1 was excavated to approximately 5 feet wide, 35 feet long and 6 feet deep. The interface between the former RWP, backfill material and native sediment was evident along the northern limit of the trench. In addition, two distinct semicircular fill units, indicative of two east-west drainage troughs approximately 1 to 2 feet and 3 to 4 feet wide, respectively, and 1 to 2 feet deep was evident. It should be noted that the backfill material originally utilized in this area consisted of several discrete layers. No evidence of geophysical anomalies was observed at this location.

### Pit 2

As shown on Figure 4-2, Pit 2 was excavated west of Trench 1. Pit 2 was excavated to approximately 10 feet wide, 10 feet long and 3 feet deep. The upper foot of excavated material consisted of topsoil and backfill. Generally tan to orange poorly sorted sands and gravels were evident below this material. No evidence of geophysical anomalies was observed at this location.

### Pit 4

As shown on Figure 4-2, Pit 4 was advanced along the eastern fence line of the Plant 12 site adjacent to the Plant 12A building. Pit 4 was excavated to approximately 5 feet wide, 5 feet long and 6 feet deep. A gray plasticized, resin-like material was encountered approximately 1.5 feet below grade. This material varied in thickness and slope and extended to a maximum depth of approximately 2.5 feet below grade. Along the western edge of the excavation, concrete debris, wood and resin-like material was evident. In addition, an abandoned, sediment-filled transite pipe, approximately 8 inches in diameter, was observed at the north end of Pit 4 and appeared to be mixed with the fill material utilized to backfill this area. A second transite pipe was encountered at the south end of Pit 4. It should be noted that several soil samples collected and analyzed from the RWP during the Delineation Phase II Site Assessment contained similar

features to those which were encountered in excavation Pit 4. As discussed in Sections 5 and 6, there were no exceedances of the TAGM criteria for soil samples collected from the RWP area.

#### Trench 6

As shown on Figure 4-2, Trench 6 was excavated east of Pit 4 and extended further to the north. Trench 6 was excavated to approximately 30 feet long, 5 feet wide and 6 feet deep.

The upper 3 feet of excavated material from Trench 6 appeared to be backfill material, where as, the remainder of the excavated material from Trench 6 appeared to be natural sediment consisting of tan to orange poorly sorted sand and gravel consistent with the majority of the Plant 12 site. No evidence of geophysical anomalies was observed.

#### Trench 5

As shown on Figure 4-2, Trench 5 was located along the eastern portion of the site and was excavated to approximately 35 feet long, 5 feet wide and 3 feet deep. Trench 5 was excavated in a northwest to southeast direction.

The eastern portion of the trench, with the exception of the upper 1.5 feet, consisted primarily of poorly sorted tan to orange natural sediment consistent with the majority of the Plant 12 site.

The interface between the native sediment and former RWP was observed in the western third of the trench. This interface identified the limit (i.e., sidewall slope) of the RWP. Fiberglass matting and backfill material was observed within the limits of the former RWP. The bottom and sidewalls of the RWP appeared as a gray silty plasticized material with other discolored materials present and consistent with other observed limits of the RWP. Once again, the features described above were included with several soil samples collected from the RWP. As indicated in

Sections 5 and 6, there were no exceedances of the TAGM criteria for soil samples collected from the RWP.

### Pit 3

As shown on Figure 4-2, Pit 3 was located along the eastern fence approximately 50 to 60 feet north of Plant 12A. Pit 3 was excavated to approximately 5 feet long, 5 feet wide and 6 feet deep. Consistent with much of the Plant 12 site, the upper 1.5 feet of excavated material consisted of a brown sandy fill while the lower strata appeared to be tan to orange poorly sorted sand with small quantities of silt and clay. No evidence of geophysical anomalies was observed at this location.

### Trench 4

As shown on Figure 4-2, Trench 4 was located north of Plant 12A and was excavated to approximately 75 feet long, 5 feet wide and 8 feet deep. However, at the direction of the on-site NGC representative, the western third of the trench was excavated to approximately 14 feet below grade in order to intersect the bottom of the RWP.

Trench 4 intersected the eastern and western interface between the RWP and native soil. The excavated material and native soils appeared consistent with the observed RWP backfill material and native sediment. Along the western third of Trench 4, green, blue and gray fill material of varying composition was observed at approximately 14 feet below grade. However, due to sidewall instability, the bottom of the RWP was not visible from grade. In addition, the green material appeared solid, while the blue and gray materials were soft resin-plastic and of a clay-like consistency. It is important to note that materials encountered above were included in several soil samples collected from the RWP. As discussed in Sections 5 and 6, there were no TAGM exceedances of the soil samples collected from the RWP.

### Trench 3

As shown on Figure 4-2, Trench 3 was excavated to the north and parallel to Trench 4 to approximately 75 feet long, 5 feet wide and 8 feet deep.

Along the eastern end of Trench 3, the former RWP/backfill contact interface appeared consistent with the interface observed at Trench 4. At the western end of Trench 3, remnants of a buried drum were observed. The drum was crushed but contained trace residual gray resin material. The drum was removed from the excavation and secured on plastic sheeting on-site for proper off-site transportation and disposal.

### Trench 2

As shown on Figure 4-2, Trench 2 was located to the north and parallel to Trench 3 and was excavated to approximately 75 feet long, 5 feet wide and 12 feet deep. A 2-inch diameter galvanized pipe was encountered and was determined to be an abandoned electrical conduit. At a slightly deeper depth, a 6-inch diameter transite pipe was encountered and was determined to be an abandoned Grumman water line.

The interface between the RWP and native fill units was also observed. In addition, two backfilled, parallel north-south trending troughs with semicircular cross-sections were observed.

# Section 5

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## 5.0 DELINEATION PHASE II SITE ASSESSMENT FINDINGS

This section presents the findings of the Delineation Phase II Site Assessment including a summary of the analytical results of the soil samples obtained during the Delineation Phase II Site Assessment field investigation. Soil sample results are screened using the criteria included in Appendix A of the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) No. 4046 (referred to in this document as the "NYSDEC TAGM criteria"), as well as the typical Eastern USA background soil contaminant concentration ranges included in the TAGM (referred to in this document as "Eastern USA background levels"). Those samples analyzed for total VOCs and SVOCs listed in Tables 1 and 2 of Appendix B in NYSDEC's Spill Technology and Remediation Series (STARS) Memo #1 were screened using the STARS Table 1 and 2 Alternative guidance values. In addition, those samples analyzed for VOCs and SVOCs listed in Tables 1 and 2 of Appendix B in NYSDEC's STARS Memo #1 by Toxicity Characteristic Leaching Procedure (TCLP) were compared to STARS Table 1 and 2 TCLP Extraction guidance values.

In addition to the criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* CaPAHs of 10,000 ug/kg and the criteria for *total* VOCs of 10,000 ug/kg as presented in the TAGM, were utilized.

Although there is no NYSDEC TAGM criterion for hexavalent chromium, discussions with NYSDEC representatives indicate that a level of 50 mg/kg has been utilized.

As previously discussed, the Delineation Phase II Site Assessment field investigation activities were conducted in August 1998 and January 1999 at the following areas at the site:

### Plant 12

#### Interior

- Machine Shop
- Trench in EMT Lab 1

#### Exterior

- Chemical Storage Area/Concrete Platform
- Area Outside Machine Shop

Plant 12 (continued)

Interior

- Trench in Staffed Machine Shop
- Resin Transfer Molding Lab (Autoclave Lay-up Area)

Exterior

- Sanitary Leaching Pools (North and South)
- Anomalous Features/Unknown Buried Structures (North)
- Former Trenches to Resin Waste Pit (Sump #1)
- Dry Well Northeast of Plant 12

Plant 12A

Interior

- Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop

Exterior

- Leaching Chamber North of Carpentry Shop
- Drainage Chamber North of Lobby/Loading Area
- Former Drainage Trench East of Plant 12A

Megapound Test Lab

Interior

- Former Leaching Pool Beneath Megapound
- Sanitary Leaching Pool (South) Beneath Megapound

Exterior Areas

- Southern Parking Lot
- Existing and Former Recharge Basins
- Former Drainage Basin
- Petroleum/Chemical Storage Areas



## 5.1 Plant 12 Interior

An area by area discussion of the Plant 12 Interior Delineation Phase II Site Assessment field program findings is presented below.

### 5.1.1 Machine Shop

A total of one soil sample was collected at soil boring location B-3AA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment. The soil sample was analyzed as described in Section 4. The analytical results are presented on Tables C-7 and C-8 in Appendix C and are summarized as follows:

- Arsenic and Nickel
  - Arsenic and nickel were detected at concentrations of 5.6 mg/kg and 13.7 mg/kg, respectively, in soil sample B-3AA (0-2') during the Delineation Phase II Site Assessment which are below Eastern USA background levels for these constituents. It is important to note that soil sample B-3AA (0-2') was collected during the Delineation Phase II Site Assessment field investigation in order to confirm the results of soil sample B-3A (0-2') collected during the Supplemental Phase II Site Assessment in which arsenic and nickel were detected at concentrations of 13.2 mg/kg and 32 mg/kg, respectively, which were above the Eastern USA background levels of 12 mg/kg and 25 mg/kg for these constituents.
- Hexavalent Chromium
  - Hexavalent chromium was detected at a concentration of 3.0 mg/kg in soil sample B-3AA (0-2') during the Delineation Phase II Site Assessment which is below the NYSDEC guidance value for this constituent. It is important to note that soil sample B-3AA (0-2') was collected during the Delineation Phase II Site Assessment field investigation in order to confirm the result of soil sample B-3A (0-2') collected during the Supplemental Phase II Site Assessment in which total chromium was detected at a concentration of 59.9 mg/kg which was above the Eastern USA background level of 50 mg/kg for this constituent.

### 5.1.2 Trench in EMT Lab No. 1

A total of 10 soil samples were collected at soil boring locations B-7AA, B-7AN7, B-7AS7, B-7AE7 and B-7AW7 during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to and 7 feet north, south, east and west of the soil boring advanced during the Supplemental Phase II Site Assessment. Soil samples were analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-4, C-5 and C-7 in Appendix C and are summarized below. It is important to note that soil samples B-7AA (0-2') and B-7AA (2'-4') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs, identified as lubricating oil, detected at concentrations of 1,440 mg/kg and 365 mg/kg in soil samples B-7A (0-2') and B-7A (2'-4'), respectively, during the Supplemental Phase II Site Assessment in which the screening threshold level of 250 mg/kg for TPHCs was exceeded.

- STARS total VOCs
  - Toluene and xylenes were detected in soil sample B-7AA (2'-4') at 1.1 ug/kg and 3.1 ug/kg, respectively, during the Delineation Phase II Site Assessment which are below the STARS Tables 1 and 2 Human Health guidance values.
- STARS total SVOCs
  - STARS total SVOCs were not detected in soil samples B-7AA (0-2') and B-7AA (2'-4') collected during the Delineation Phase II Site Assessment.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-7AA (0-2') and B-7AA (2'-4') collected during the Delineation Phase II Site Assessment.
- Mercury
  - Mercury was detected at concentrations of 1.1 mg/kg and 10.6 mg/kg in soil samples B-7AA (0-2') and B-7AN7 (0-2'), respectively, during the Delineation Phase II Site Assessment which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. It is important to note that soil samples B-7AA (0-2'), B-7AA (2'-4'), B-7AN7 (0-2'), B-7AN7 (2'-4'), B-7AS7 (0-2'), B-7AS7 (2'-4'), B-7AE7 (0-2'), B-7AE7 (2'-4'), B-7AW7 (0-2') and B-7AW7 (2'-4') were collected during the Delineation Phase II Site Assessment in order to

confirm and delineate the results of soil sample B-7A (0-2') and B-7A (2'-4') collected during the Supplemental Phase II Site Assessment in which mercury was detected at the same concentrations of 1.2 mg/kg which was above the Eastern USA background level of 0.20 mg/kg for this constituent.

#### 5.1.3 Trench in Staffed Machine Shop

A total of three soil samples were collected at soil boring locations B-8AA and B-8BA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil borings advanced during the Supplemental Phase II Site Assessment. It should be noted that the soil samples collected at soil boring locations B-8AA and B-8BA were split and analyzed by two independent laboratories. However, due to subsurface obstructions, deeper soil samples (i.e., 4'-6' and 6'-8') could not be collected at soil boring location B-8AA. Soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Table C-7 in Appendix C and are summarized as follows:

- Mercury
  - Mercury was detected at concentrations of 1.1 mg/kg and 1.1 mg/kg in soil samples B-8AA (2'-4') and B-8BA (0-2'), respectively, analyzed by Envirotech Laboratories and at concentrations of 0.9 mg/kg and 0.63 mg/kg in soil samples B-8AA (2'-4') and B-8BA (0-2'), respectively, analyzed by Mitkem Laboratories which exceeded the Eastern USA background level of 0.2 mg/kg for this constituent. It is important to note that soil samples B-8AA (2'-4') and B-8BA (0-2') were collected during the Delineation Phase II Site Assessment in order to confirm the results of soil samples B-8A (2'-4') and B-8B (0-2') collected during the Supplemental Phase II Site Assessment in which mercury was detected at concentrations of 1.8 mg/kg and 2.3 mg/kg, respectively, which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent.

#### 5.1.4 Resin Transfer Molding Lab (Autoclave Lay-up Area)

A total of 11 soil samples were collected at soil boring locations B-12AA, B-12AN7, B-12AS7, B-12AE5 and B-12AW7 during the Delineation Phase II Site Assessment field

investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to and 7 feet north, 7 feet south, 7 feet east and 7 feet west of the soil boring advanced during the Supplemental Phase II Site Assessment. Soil samples were analyzed as described in Section 4. The analytical results are presented on Table C-7 in Appendix C and are summarized as follows:

- Lead
  - Lead was not detected at concentrations exceeding Eastern USA background levels in soil samples B-12AA (4'-6'), B-12AA (6'-8'), B-12AA (8'-10'), B-12AN7 (0-2'), B-12AN7 (2'-4'), B-12AS7 (0-2'), B-12AS7 (2'-4'), B-12AE5 (0-2'), B-12AE5 (2'-4'), B-12AW7 (0-2') and B-12AW7 (2'-4'). It is important to note that soil samples B-12AA (4'-6'), B-12AA (6'-8'), B-12AA (8'-10'), B-12AN7 (0-2'), B-12AN7 (2'-4'), B-12AS7 (0-2'), B-12AS7 (2'-4'), B-12AE5 (0-2'), B-12AE5 (2'-4'), B-12AW7 (0-2') and B-12AW7 (2'-4') were collected during the August 1998 Delineation Phase II Site Assessment in order to confirm and delineate the results of soil samples B-12A (0-2') and B-12A (2'-4') collected during the Supplemental Phase II Site Assessment in which lead was detected at concentrations of 3,140 mg/kg and 2,770 mg/kg, respectively, which exceeded the Eastern USA background level of 500 mg/kg for this constituent.

## 5.2 Plant 12A Interior

An area by area discussion of the Plant 12A Interior Delineation Phase II Site Assessment field program findings is presented below.

### 5.2.1 Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop

A total of one soil sample was collected at soil boring location B-26AA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment. It should be noted that the soil sample collected at soil boring location B-26AA was split and analyzed by two independent laboratories as described in Section 4. The analytical results are presented on Table C-7 in Appendix C and are summarized as follows:

- Mercury
  - Mercury was undetected in the split soil samples B-26AA (7'-9') analyzed by Envirotech Laboratories and Mitkem Laboratories. It is important to note that soil sample B-26AA (7'-9') was collected during the Delineation Phase II Site Assessment in order to confirm the results of soil sample B-26A (7'-9') collected during the Supplemental Phase II Site Assessment in which mercury was detected at a concentration of 3.3 mg/kg which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent.

### **5.3 Megapound Test Lab Interior**

An area by area discussion of the Megapound Test Lab Interior Delineation Phase II Site Assessment field program findings is presented below.

#### **5.3.1 Former Leaching Pool Beneath Megapound**

A total of one soil sample was collected at soil boring location B-32AA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment. The soil sample was analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-4 and C-5 in Appendix C and are summarized below. It is important to note that soil sample B-32AA (10'-12') was collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated level of TPHCs detected at a concentration of 777 mg/kg in soil sample B-32A (10'-12') during the Supplemental Phase II Site Assessment in which the screening threshold level of 250 mg/kg for TPHCs was exceeded. In addition, TPHCs, as lubricating oil, were identified as "present" in soil samples B-32A (10'-12') and B-32A (12'-14') collected during the Supplemental Phase II Site Assessment.

- STARS total VOCs
  - Toluene was detected in soil sample B-32AA (10'-12') at 0.5 ug/kg during the Delineation Phase II Site Assessment which is below the STARS Tables 1 and 2 Human Health guidance value.
- STARS total SVOCs
  - STARS total SVOCs were not detected in soil sample B-32AA (10'-12') collected during the Delineation Phase II Site Assessment.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil sample B-32AA (10'-12') collected during the Delineation Phase II Site Assessment.

### 5.3.2 Sanitary Leaching Pool (South) Beneath Megapound

A total of two soil samples were collected at soil boring location B-22DA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment. The soil samples were analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-4 and C-5 in Appendix C and are summarized below. It is important to note that soil samples B-22DA (12'-14') and B-22DA (14'-16') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs, identified as lubricating oil, detected at a concentration of 373 mg/kg in soil sample B-22D (12'-14') during the Supplemental Phase II Site Assessment in which the screening threshold level of 250 mg/kg for TPHCs was exceeded.

- STARS total VOCs
  - Toluene was detected in soil samples B-22DA (12'-14') and B-22DA (14'-16') at concentrations of 0.7 ug/kg and 0.6 ug/kg, respectively, during the Delineation Phase II Site Assessment which are below the STARS Tables 1 and 2 Human Health guidance value for these compounds. In addition, ethylbenzene was detected at a concentration of 0.5 ug/kg and xylene was detected at a concentration of 0.6 ug/kg in soil samples B-22DA (14'-16) and B-22DA (12'-14'), respectively, during the Delineation Phase II Site Assessment which are

below the STARS Tables 1 and 2 Human Health guidance values for these compounds.

- STARS total SVOCs
  - STARS total SVOCs were not detected in soil samples B-22DA (12'-14') and B-22DA (14'-16') collected during the Delineation Phase II Site Assessment.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-22DA (12'-14') and B-22DA (14'-16') collected during the Delineation Phase II Site Assessment.

## 5.4 Plant 12 Exterior

An area by area discussion of the Plant 12 Exterior Delineation Phase II Site Assessment field program findings is presented below.

### 5.4.1 Chemical Storage Area/Concrete Platform

A total of 19 soil samples were collected at soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14, B-17BE7, B-17BE14 and B-17BW7 during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to and 7 feet north, south, east and west of soil boring B-17B advanced during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-17BA (4'-6'), B-17BA (6'-8'), B-17BN7 (0-2'), B-17BN7 (2'-4'), B-17BS7 (0-2'), B-17BS7 (2'-4'), B-17BE7 (0-2'), B-17BE7 (2'-4'), B-17BW7 (0-2') and B-17BW7 (2'-4') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs, detected at a concentration of 4,200 mg/kg in soil sample B-17B (0-2') during the Supplemental Phase II Site Assessment in which the screening threshold level of 250 mg/kg for TPHCs was exceeded. In addition, TPHCs, as lubricating oil, was identified as "present" in soil samples B-17B (0-2') and B-17B (2'-4') collected during the Supplemental Phase II Site Assessment.

Also, soil samples B-17BA (4'-6'), B-17BA (6'-8'), B-17BN7 (0-2'), B-17BN7 (2'-4'), B-17BS7 (0-2'), B-17BS7 (2'-4'), B-17BE7 (0-2'), B-17BE7 (2'-4'), B-17BW7 (0-2') and B-17BW7 (2'-4') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil samples B-17B (0-2') and B-17B (2'-4') collected during the Supplemental Phase II Site Assessment in which arsenic, cadmium, chromium, copper, mercury, nickel and zinc were detected at concentrations of 33.9 mg/kg, 15.9 mg/kg, 95.4 mg/kg, 411 mg/kg, 2.8 mg/kg, 57.3 mg/kg and 1,550 mg/kg, respectively, in soil sample B-17B (0-2') which exceeded the Eastern USA background levels of 12 mg/kg, 10 mg/kg, 50 mg/kg, 50 mg/kg, 0.20 mg/kg, 25 mg/kg and 50 mg/kg, respectively, for these constituents and; in which arsenic, mercury and zinc were detected at concentrations of 13.7 mg/kg, 0.23 mg/kg and 147 mg/kg, respectively, in soil sample B-17B (2'-4') which also exceeded the Eastern USA background levels of 12 mg/kg, 0.20 mg/kg and 50 mg/kg, respectively, for these constituents.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Table C-2 and Tables C-4 through C-7 in Appendix C and are summarized as follows:

- STARS total VOCs
  - Toluene was detected in soil samples B-17BA (4'-6'), B-17BA (6'-8'), B-17BS7 (0-2'), B-17BE7 (0-2'), B-17BE7 (2'-4') and B-17BW7 (2'-4') at concentrations of 0.8 ug/kg, 0.9 ug/kg, 0.7 ug/kg, 0.6 ug/kg, 0.7 ug/kg and 0.7 ug/kg, respectively, during the Delineation Phase II Site Assessment which are below the STARS Tables 1 and 2 Human Health guidance value for these compounds. In addition, benzene at 0.7 ug/kg, ethylbenzene at 0.6 ug/kg and isopropylbenzene at 0.6 ug/kg was detected in soil samples B-17BA (6'-8'), B-17BS7 (0-2') and B-17BW7 (2'-4'), respectively, during the Delineation Phase II Site Assessment which are below the STARS Tables 1 and 2 Human Health guidance values for these compounds.
- STARS total SVOCs
  - Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 1,000 ug/kg, 1,400 ug/kg, 510 ug/kg, 860 ug/kg and 71 ug/kg, respectively, in soil sample B-17BN7 (0-2') which exceeded the STARS Tables 1 and 2 Human Health guidance values of 220 ug/kg, 220 ug/kg, 220 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.



- Benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 470 ug/kg, 460 ug/kg, 360 ug/kg and 52 ug/kg, respectively, in soil sample B-17BS7 (0-2') which exceeded the STARS Tables 1 and 2 Human Health guidance values of 220 ug/kg, 220 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
- Benzo(a)pyrene was detected at a concentration of 130 ug/kg in soil sample B-17BE7 (0-2') which exceeded the STARS Tables 1 and 2 Human Health guidance value of 61 ug/kg for this compound.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-17BA (4'-6'), B-17BA (6'-8'), B-17BN7 (0-2'), B-17BN7 (2'-4'), B-17BS7 (0-2'), B-17BS7 (2'-4'), B-17BE7 (0-2'), B-17BE7 (2'-4'), B-17BW7 (0-2') and B-17BW7 (2'-4') collected during the Delineation Phase II Site Assessment.
- Polychlorinated Biphenyls
  - PCBs were detected at concentrations of 130,000 ug/kg and 12,000 ug/kg in soil samples B-17BA (4'-6') and B-17BA (6'-8'), respectively, which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
- Priority Pollutant Metals
  - Arsenic, mercury and zinc were detected at concentrations of 83.6 mg/kg, 0.50 mg/kg and 681 mg/kg, respectively, in soil sample B-17BN7 (0-2') which exceeded the Eastern USA background levels of 12 mg/kg, 0.20 mg/kg and 50 mg/kg, respectively, for these constituents.
  - Zinc was detected at a concentration of 80.5 mg/kg in soil sample B-17BN7 (2'-4') which exceeded the Eastern USA background level of 50 mg/kg for this constituent. In addition, arsenic was detected at a concentration of 49.6 mg/kg in soil sample B-17BS7 (0-2') which is above the Eastern USA background level of 12 mg/kg for this constituent.
  - Arsenic, mercury and zinc were detected at concentrations of 14.5 mg/kg, 1.90 mg/kg and 183 mg/kg, respectively, in soil sample B-17BE7 (0-2') which exceeded the Eastern USA background levels of 12 mg/kg, 0.20 mg/kg and 50 mg/kg, respectively, for these constituents.
- Arsenic, Mercury and Zinc
  - Arsenic, mercury and zinc were detected at concentrations of 55.5 mg/kg, 0.36 mg/kg and 194 mg/kg, respectively, in soil sample B-17BN14 (0-2') which exceeded the Eastern USA background levels of 12 mg/kg, 0.20 mg/kg and 50 mg/kg, respectively, for these constituents. In addition, arsenic was detected at a

concentration of 12.4 mg/kg in soil sample B-17BN14 (2'-4') which exceeded the Eastern USA background level of 12 mg/kg for this constituent.

- Arsenic and zinc were detected at concentrations of 22.5 mg/kg and 59.5 mg/kg, respectively, in soil sample B-17BN14 (4'-6') which exceeded the Eastern USA background levels of 12 mg/kg and 50 mg/kg, respectively, for these constituents.
- Arsenic
  - Arsenic was detected at concentrations of 26.6 mg/kg and 14.8 mg/kg in soil samples B-17BS14 (0-2') and B-17BS14 (2'-4'), respectively, which exceeded the Eastern USA background level of 12 mg/kg for this constituent.

#### 5.4.2 Area Outside of Machine Shop

A total of 19 soil samples were collected at soil boring locations B-19AA, B-19AN12, B-19AN14, B-19AE7, B-19AW10 and B-19AW14 during the Delineation Phase II Site Assessment field investigation. Soil boring B-19AA was advanced immediately adjacent to soil boring B-19A conducted during the Supplemental Phase II Site Assessment. Soil borings B-19AN12, B-19AN14, B-19AE7, B-19AW10 and B-19AW14 were advanced 12 feet north, 14 feet north, 7 feet east and 14 feet west, respectively, of soil boring B-19A. It should be noted that a soil boring could not be advanced south of soil boring B-19A during the Delineation Phase II Site Assessment field investigation due to the close proximity of the Plant 12 building.

It is important to note that soil samples B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AN12 (4'-6'), B-19AN12 (8'-10'), B-19AN14 (0-2'), B-19AN14 (2'-4'), B-19AN14 (4'-6'), B-19AN14 (6'-8'), B-19AE7 (0-2'), B-19AE7 (2'-4'), B-19AW10 (0-2') and B-19AW10 (2'-4') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil samples B-19A (0-2') and B-19A (2'-4') collected during the Supplemental Phase II Site Assessment in which several SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as one sample, B-19A (0-2'), that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples collected during the Supplemental Phase II Site Assessment contained SVOCs at concentrations that exceeded the criteria *total* SVOCs of 500,000 ug/kg.

In addition, soil samples B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AE7 (0-2'), B-19AE7 (2'-4'), B-19AW10 (0-2') and B-19AW10 (2'-4') were collected and analyzed for STARS SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs detected, at a concentration of 1,470 mg/kg, in soil sample B-19A (0-2') during the Supplemental Phase II Site Assessment in which the screening threshold level of 250 mg/kg for TPHCs was exceeded.

Also, soil samples B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AE7 (0-2'), B-19AE7 (2'-4'), B-19AW10 (0-2') and B-19AW10 (2'-4') were collected and analyzed for priority pollutant metals; soil samples B-19AN14 (0-2'), B-19AN14 (2'-4'), B-19AN14 (4'-6') were collected and analyzed for mercury and; soil samples B-19AW10 (0-2'), B-19AW10 (2'-4') and B-19AW10 (2'-4') were collected and analyzed for arsenic and mercury during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-19A (0-2') collected during the Supplemental Phase II Site Assessment in which arsenic, chromium, lead, mercury and zinc were detected at concentrations of 23.0 mg/kg, 60.2 mg/kg, 2,400 mg/kg, 1.1 mg/kg and 137 mg/kg, respectively, which exceeded the Eastern USA background levels of 12 mg/kg, 50 mg/kg, 500 mg/kg, 0.20 mg/kg and 50 mg/kg for these constituents.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-1, C-3, C-5 and C-7 in Appendix C and are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-19AA (4'-6'), B-19AA (6'-8'), B-19AA (8'-10'), B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AE7 (0-2'), B-19AE7 (2'-4'), B-19AW10 (0-2') and B-19AW10 (2'-4'). It is important to note that soil samples B-19AA (4'-6'), B-19AA (6'-8'), B-19AA (8'-10'), B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AE7 (0-2'), B-19AE7 (2'-4'), B-19AW10 (0-2') and B-19AW10 (2'-4') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-19A (2'-4') collected during the Supplemental Phase II Site Assessment in which 1,1,1-trichloroethane was detected at a concentration of 3,600 ug/kg which exceeded the Eastern USA background level of 800 ug/kg for this compound.

- Semivolatile Organic Compounds

- Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene were detected at concentrations of 1,100 ug/kg, 1,200 ug/kg, 1,700 ug/kg, 1,100 ug/kg and 190, respectively, in soil sample B-19AN12 (0-2') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. In addition, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 11,000 ug/kg, 10,000 ug/kg, 11,000 ug/kg, 4,600 ug/kg, 8,600 ug/kg, 4,700 ug/kg and 1,200 ug/kg, respectively, in soil sample B-19AN12 (2'-4') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 1,100 ug/kg, 61 ug/kg, 3,200 ug/kg and 14 ug/kg for these compounds.
- Benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 470 ug/kg, 490 ug/kg, 430 ug/kg and 54 ug/kg, respectively, in soil sample B-19AN12 (4'-6') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. In addition, benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 650 ug/kg, 690 ug/kg, 620 ug/kg and 90 ug/kg, respectively, in soil sample B-19AN12 (6'-8') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
- Benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 960 ug/kg, 1,100 ug/kg, 1,400 ug/kg, 990 ug/kg and 160 ug/kg, respectively, in soil sample B-19AN14 (0-2') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg for these compounds. In addition, benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 670 ug/kg, 690 ug/kg, 580 ug/kg and 110 ug/kg, respectively, in soil sample B-19AE7 (0-2') which exceeded the NYSDEC TAGM criteria of 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg for these compounds.
- Benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 110 ug/kg and 92 ug/kg, respectively, in soil sample B-19AW10 (0-2') which exceeded the NYSDEC TAGM criteria of 61 ug/kg and 14 ug/kg for these compounds.
- Total CaPAHs were detected at a concentration of 51,100 ug/kg in soil sample B-19AN12 (2'-4') which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg for total CaPAHs.
- As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as one

sample, B-19AN12 (2'-4'), that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* SVOCs of 500,000 ug/kg.

- STARS SVOCs by TCLP
  - Phenanthrene was detected in soil sample B-19AE7 (2'-4') at a concentration of 1.3 ug/L during the Delineation Phase II Site Assessment which is below the STARS Tables 1 and 2 TCLP Extraction guidance value for this compound.
  - STARS SVOCs by TCLP were not detected in soil samples B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AE7 (0-2'), B-19AW10 (0-2') and B-19AW10 (2'-4') collected during the Delineation Phase II Site Assessment.
- Priority Pollutant Metals
  - Mercury and zinc were detected at concentrations of 0.24 mg/kg and 78.7 mg/kg, respectively, in soil sample B-19AN12 (0-2') which exceeded the Eastern USA background levels of 0.20 mg/kg and 50 mg/kg, respectively, for these constituents. However, metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-19AN12 (2'-4'). In addition, copper and zinc were detected at concentrations of 60.3 mg/kg and 59.3 mg/kg, respectively, in soil sample B-19AE7 (0-2') which exceeded the Eastern USA background level of 50 mg/kg for these constituents. However, metals were not detected at concentrations exceeding Eastern USA background levels in soil sample B-19AE7 (2'-4').
- Mercury
  - Mercury was not detected at concentrations exceeding Eastern USA background levels in soil samples B-19AN14 (0-2'), B-AN14 (2'-4') and B-19AN14 (4'-6') during the Delineation Phase II Site Assessment.
- Arsenic and Mercury
  - Arsenic was detected at a concentration of 14.7 mg/kg in soil sample B-19AW14 (0-2') which exceeded the Eastern USA background level of 12 mg/kg for this constituent. However, arsenic and mercury were not detected at concentrations exceeding Eastern USA background levels in soil samples B-19AW14 (2'-4') and B-19AW14 (4'-6') during the Delineation Phase II Site Assessment.

### 5.4.3 Sanitary Leaching Pools (North and South)

A total of 17 soil samples were collected at soil boring locations B-22AA, B-22BA, B-22CA, B-22EA, B-22FA and B-22LA during the Delineation Phase II Site Assessment field investigation. Soil borings B-22AA, B-22BA, B-22CA, B-22EA, B-22FA and B-22LA were advanced immediately adjacent to soil borings B-22A, B-22B, B-22C, B-22E, B-22F and B-22L, respectively, conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-22AA (10'-12'), B-22BA (10'-12'), B-22CA (14'-16') and B-22CA (16'-18') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs detected in soil samples B-22A (10'-12'), B-22A (14'-16'), B-22B (10'-12'), B-22B (12'-14'), B-22C (10'-12') and B-22C (12'-14') collected during the Supplemental Phase II Site Assessment. In addition, TPHCs, as lubricating oil, were identified as "present" in soil samples B-22A (10'-12'), B-22B (10'-12'), B-22B (12'-14'), B-22C (10'-12') and B-22C (12'-14') collected during the Supplemental Phase II Site Assessment.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-1 through C-8 in Appendix C and are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-22AA (8'-10'), B-22BA (8'-10'), B-22CA (8'-10'), B-22FA (8'-10'), B-22LA (8'-10') and B-22LA (10'-12').
- STARS total VOCs
  - Toluene was detected in soil samples B-22BA (10'-12'), B-22CA (14'-16') and B-22CA (16'-18') at concentrations of 0.6 ug/kg, 0.6 ug/kg and 0.5 ug/kg, respectively, during the Delineation Phase II Site Assessment which is below the STARS Tables 1 and 2 Human Health guidance value for this compound. In addition, xylene was detected in soil samples B-22CA (14'-16') and B-22CA (16'-18') at concentrations of at 0.6 ug/kg and 0.5 ug/kg, respectively, during the

Delineation Phase II Site Assessment which is below the STARS Tables 1 and 2 Human Health guidance value for this compound.

- Semivolatile Organic Compounds

- Phenol, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations of 370 ug/kg, 960 ug/kg, 1,200 ug/kg, 1,200 ug/kg, 950 ug/kg and 130 ug/kg in soil sample B-22LA (8'-10') which exceeded the NYSDEC TAGM criterion of 30 ug/kg, 224 ug/kg, 400 ug/kg, 1,100 ug/kg, 61 ug/kg and 14 ug/kg, respectively, for these compounds. However, SVOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-22AA (8'-10'), B-22BA (8'-10'), B-22CA (8'-10'), B-22FA (8'-10'), B-22FA (12'-14'), B-22FA (14'-16'), B-22FA (16'-18'), and B-22LA (10-12'). It is important to note that soil samples B-22AA (8'-10'), B-22BA (8'-10'), B-22CA (8'-10'), B-22FA (8'-10'), B-22FA (12'-14'), B-22FA (14'-16'), B-22FA (16'-18'), B-22LA (8'-10') and B-22LA (10-12') were collected and analyzed for SVOCs during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil samples B-22E (4'-6'), B-22E (10'-12'), B-22E (20'-22'), B-22F (10'-12'), B-22L (12'-14') collected during the Supplemental Phase II Site Assessment in which several SVOCs, including phenol, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, exceeded Eastern USA background levels.
- As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, however, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* CaPAHs of 10,000 ug/kg and *total* SVOCs of 500,000 ug/kg.

- STARS total SVOCs

- STARS total SVOCs did not exceed STARS Tables 1 and 2 Human Health guidance value in soil samples B-22AA (10'-12'), B-22BA (10'-12'), B-22CA (14'-16') and B-22CA (16'-18') collected during the Delineation Phase II Site Assessment.

- STARS SVOCs by TCLP

- STARS SVOCs by TCLP were not detected in soil samples B-22AA (8'-10'), B-22AA (10'-12'), B-22BA (8'-10'), B-22BA (10'-12'), B-22CA (8'-10'), B-22CA (14'-16') and B-22CA (16'-18') collected during the Delineation Phase II Site Assessment.

- Polychlorinated Biphenyls

- PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in soil samples B-22AA (8'-10'), B-22BA (8'-10'), B-22CA (8'-10'), B-

22EA (8'-10'), B-22EA (22'-24'), B-22EA (24'-26'), B-22EA (26'-28'), B-22FA (8'-10'), B-22FA (12'-14'), B-22FA (14'-16') and B-22FA (16'-18') collected during the Delineation Phase II Site Assessment.

- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples B-22AA (8'-10') and B-22FA (8'-10).
  - Copper and mercury were detected at concentrations of 149 mg/kg and 0.4 mg/kg, respectively, in soil sample B-22BA (8'-10') which exceeded the Eastern USA background levels of 50 mg/kg and 0.20 mg/kg, respectively, for these constituents. In addition, copper and mercury were detected at concentrations of 283 mg/kg and 0.65 mg/kg, respectively, in soil sample B-22CA (8'-10') which exceeded the Eastern USA background levels of 50 mg/kg and 0.20 mg/kg, respectively, for these constituents.
- Mercury
  - Mercury was not detected at concentrations exceeding Eastern USA background levels in soil samples B-22EA (22'-24'), B-22EA (24'-26') and B-22EA (26'-28') collected during the Delineation Phase II Site Assessment.
- Hexavalent chromium
  - Hexavalent chromium was not detected at concentrations exceeding the NYSDEC guidance value in soil samples B-22BA (10'-12'), B-22CA (14'-16') and B-22CA (16'-18') collected during the Delineation Phase II Site Assessment.

#### 5.4.4 Anomalous Features/Unknown Buried Structures (North)

A total of 55 soil samples were collected at soil boring locations B-22GA, B-22GN7, B-22GS7, B-22GE7, B-22GE14, B-22GW7, B-22GW14, B-22HA, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HE14, B-22HW7, B-22JN7, B-22JN14, B-22JS7, B-22JS14, B-22JE7, B-22JE14, B-22JW7 and B-22JW14 during the Delineation Phase II Site Assessment field investigation. Soil borings B-22GA and B-22HA were advanced immediately adjacent to soil borings B-22G and B-22H, respectively, conducted during the Supplemental Phase II Site Assessment. Soil borings B-22GN7, B-22GS7, B-22GE7, B-22GW7 were advanced 7 feet north, south, east and west, respectively, of soil boring B-22G conducted during the Supplemental Phase II Site Assessment. Soil borings B-22HN7, B-22HS7, B-22HE7 and B-22HW7 were advanced 7 feet north, south, east and west, respectively, of soil boring B-22H conducted during



the Supplemental Phase II Site Assessment. Soil borings B-22JN7, B-22JS7, B-22JE7 and B-22JW7 were advanced 7 feet north, south, east and west, respectively, of soil boring B-22J conducted during the Supplemental Phase II Site Assessment. Soil borings B-22HS14 and B-22HE14 were advanced 14 feet south and east, respectively, of soil boring B-22H conducted during the Supplemental Phase II Site Assessment, and soil borings B-22JN14, B-22JS14, B-22JE14, and B-22JW14 were advanced 14 feet north, south, east and west, respectively, of soil boring B-22J conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-22HA (2'-4'), B-22HA (4'-6'), B-22HA (6'-8'), B-22HN7 (0-2'), B-22HN7 (2'-4'), B-22HS7 (0-2'), B-22HS7 (2'-4'), B-22HS14 (0-2'), B-22HS14 (2'-4'), B-22HS14 (4'-6'), B-22HE7 (0-2'), B-22HE7 (2'-4'), B-22HW7 (0-2'), B-22HW7 (2'-4'), B-22JN7 (0-2'), B-22JN7 (2'-4'), B-22JS7 (0-2'), B-22JS7 (2'-4'), B-22JS14 (0-2'), B-22JS14 (2'-4'), B-22JS14 (4'-6'), B-22JE7 (0-2'), B-22JE7 (2'-4'), B-22JW7 (0-2') and B-22JW7 (2'-4') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of the soil samples collected during the Supplemental Phase II Site Assessment in which several SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as two samples, B-22H (0-2') and B-22J (0-2'), that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples collected during the Supplemental Phase II Site Assessment contained SVOCs at concentrations that exceeded the criteria *total* SVOCs of 500,000 ug/kg.

In addition, soil samples B-22JN7 (0-2'), B-22JN7 (2'-4'), B-22JN14 (0-2'), B-22JN14 (2'-4'), B-22JN14 (4'-6'), B-22JS7 (0-2'), B-22JS7 (2'-4'), B-22JS14 (0-2'), B-22JS14 (2'-4'), B-22JS14 (4'-6'), B-22JE7 (0-2'), B-22JE7 (2'-4'), B-22JE14 (0-2'), B-22JE14 (2'-4'), B-22JE14 (4'-6'), B-22JW7 (0-2') and B-22JW7 (2'-4') were collected and analyzed for PCBs during the Delineation Phase II Site Assessment in order to delineate the results of soil sample B-22J (0-2') collected during the Supplemental Phase II Site Assessment in which PCBs were detected at a concentration of 74,000 ug/kg which exceeded the NYSDEC TAGM Criterion of 10,000 ug/kg.

Also, soil samples B-22GA (0-2'), B-22GA (2'-4'), B-22GN7 (0-2'), B-22GN7 (2'-4'), B-22GN7 (4'-6'), B-22GS7 (0-2'), B-22GE7 (0-2'), B-22GE7 (2'-4'), B-22GE7 (4'-6'), B-22GE14 (0-2'), B-22GE14 (2'-4'), B-22GE14 (4'-6'), B-22GW7 (0-2'), B-22GW7 (2'-4'), B-22GW7 (4'-6'), B-22GW14 (0-2'), B-22GW14 (2'-4'), B-22GW14 (4'-6'), B-22JN7 (0-2'), B-22JN7 (2'-4'), B-22JN14 (0-2'), B-22JN14 (2'-4'), B-22JN14 (4'-6'), B-22JS7 (0-2'), B-22JS7 (2'-4'), B-22JS14 (0-2'), B-22JS14 (2'-4'), B-22JS14 (4'-6'), B-22JE7 (0-2'), B-22JE7 (2'-4'), B-22JW7 (0-2'), B-22JW7 (2'-4'), B-22JW14 (0-2'), B-22JW14 (2'-4') and B-22JW14 (4'-6') were collected and analyzed for arsenic and mercury and; soil samples B-22HA (2'-4'), B-22HA (4'-6'), B-22HA (6'-8'), B-22HN7 (0-2'), B-22HN7 (2'-4'), B-22HS7 (0-2'), B-22HS7 (2'-4'), B-22HE7 (0-2'), B-22HE7 (2'-4'), B-22HE14 (0-2'), B-22HE14 (2'-4'), B-22HE14 (4'-6'), B-22HW7 (0-2'), B-22HW7 (2'-4') were collected and analyzed for arsenic and; soil samples B-22JE14 (0-2'), B-22JE14 (2'-4'), B-22JE14 (4'-6') were collected and analyzed for mercury during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil samples B-22G (0-2'), B-22H (0-2') and B-22J (0-2') collected during the Supplemental Phase II Site Assessment in which arsenic and mercury were detected at concentrations which exceeded the Eastern USA background levels for these constituents.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-3, C-6 and C-7 in Appendix C and are summarized as follows:

- Semivolatile Organic Compounds

- Phenol was detected at concentrations of 130 ug/kg, 380 ug/kg and 1,200 ug/kg in soil samples B-22HS14 (0-2'), B-22JS7 (2'-4') and B-22JE7 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 30 ug/kg for this compound. In addition, 4-Methylphenol was detected at a concentration of 8,700 ug/kg in soil sample B-22JS14 (4'-6') which exceeded the NYSDEC TAGM criterion of 900 ug/kg for this compound.
- 2-Methylphenol was detected at a concentration of 340 ug/kg in soil sample B-22JS14 (4'-6') which exceeded the NYSDEC TAGM criterion of 100 ug/kg for this compound.
- Di-n-butylphthalate was detected at concentrations of 130,000 ug/kg and 80,000 ug/kg in soil samples B-22JS7 (2'-4') and B-22JE7 (2'-4'), respectively, which

exceeded the NYSDEC TAGM criterion of 8,100 ug/kg for this compound. In addition, butylbenzylphthalate was detected at a concentration of 78,000 ug/kg in soil sample B-22JE7 (2'-4') which exceeded the NYSDEC TAGM criterion of 50,000 ug/kg for this compound.

- Benzo(a)anthracene was detected at concentrations of 390 ug/kg, 7,400 ug/kg, 1,100 ug/kg, 1,900 ug/kg, 1,500 ug/kg, 1,300 ug/kg, 2,200 ug/kg, 640 ug/kg, 310 ug/kg, 2,400 ug/kg, 380 ug/kg, 270 ug/kg, 760 ug/kg, 680 ug/kg, 920 ug/kg and 600 ug/kg in soil samples B-22HN7 (0-2'), B-22HS7 (0-2'), B-22HS7 (2'-4'), B-22HS14 (0-2'), B-22HS14 (2'-4'), B-22HE7 (0-2'), B-22HE7 (2'-4'), B-22HW7 (0-2'), B-22JN7 (0-2'), B-22JS7 (0-2'), B-22JS14 (2'-4'), B-22JS14 (4'-6'), B-22JE7 (0-2'), B-22JE7 (2'-4'), B-22JW7 (0-2') and B-22JW7 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound. In addition, chrysene was detected at concentrations of 420 ug/kg, 6,800 ug/kg, 1,000 ug/kg, 2,100 ug/kg, 1,400 ug/kg, 1,400 ug/kg, 1,900 ug/kg, 680 ug/kg, 2,400 ug/kg, 460 ug/kg, 780 ug/kg, 630 ug/kg, 1,000 ug/kg and 580 ug/kg in soil samples B-22HN7 (0-2'), B-22HS7 (0-2'), B-22HS7 (2'-4'), B-22HS14 (0-2'), B-22HS14 (2'-4'), B-22HE7 (0-2'), B-22HE7 (2'-4'), B-22HW7 (0-2'), B-22JS7 (0-2'), B-22JS14 (2'-4'), B-22JE7 (0-2'), B-22JE7 (2'-4'), B-22JW7 (0-2') and B-22JW7 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 400 ug/kg for this compound.
- Benzo(b)fluoranthene was detected at concentrations of 6,900 ug/kg, 2,300 ug/kg, 1,500 ug/kg, 1,600 ug/kg, 1,700 ug/kg and 2,800 ug/kg in soil samples B-22HS7 (0-2'), B-22HS14 (0-2'), B-22HS14 (2'-4'), B-22HE7 (0-2'), B-22HE7 (2'-4') and B-22JS7 (0-2'), respectively, which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound. In addition, benzo(k)fluoranthene was detected at a concentration of 2,600 ug/kg in soil sample B-22HS7 (0-2') which exceeded the NYSDEC TAGM criterion of 1,100 ug/kg for this compound.
- Benzo(a)pyrene was detected at concentrations of 97 ug/kg, 100 ug/kg, 340 ug/kg, 5,400 ug/kg, 750 ug/kg, 1,800 ug/kg, 1,400 ug/kg, 1,200 ug/kg, 1,500 ug/kg, 510 ug/kg, 210 ug/kg, 81 ug/kg, 1,900 ug/kg, 380 ug/kg, 180 ug/kg, 540 ug/kg, 470 ug/kg, 780 ug/kg and 440 ug/kg in soil samples B-22HA (2'-4'), B-22HA (4'-6'), B-22HN7 (0-2'), B-22HS7 (0-2'), B-22HS7 (2'-4'), B-22HS14 (0-2'), B-22HS14 (2'-4'), B-22HE7 (0-2'), B-22HE7 (2'-4'), B-22HW7 (0-2'), B-22JN7 (0-2'), B-22JN7 (2'-4'), B-22JS7 (0-2'), B-22JS14 (2'-4'), B-22JS14 (4'-6'), B-22JE7 (0-2'), B-22JE7 (2'-4'), B-22JW7 (0-2') and B-22JW7 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound. In addition, dibenzo(a,h)anthracene was detected at concentrations of 16 ug/kg, 16 ug/kg, 52 ug/kg, 700 ug/kg, 110 ug/kg, 250 ug/kg, 130 ug/kg, 170 ug/kg, 210 ug/kg, 80 ug/kg, 320 ug/kg, 81 ug/kg, 86 ug/kg and 130 ug/kg in soil samples B-22HA (2'-4'), B-22HA (4'-6'), B-22HN7 (0-2'), B-22HS7 (0-2'), B-22HS7 (2'-4'), B-22HS14 (0-2'), B-22HS14 (2'-4'), B-22HE7 (0-2'), B-22HE7 (2'-4'), B-22HW7 (0-2'), B-22JS7 (0-2'), B-22JS14 (2'-4'), B-22JE7 (0-2') and B-22JW7 (0-2'), respectively, which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound.

- As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as three samples, B-22HS7 (0-2') at 32,500 ug/kg, B-22HS14 (0-2') at 10,430 ug/kg and B-22JS7 (0-2') at 12,120 ug/kg, that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* SVOCs of 500,000 ug/kg.
- Polychlorinated Biphenyls
  - PCBs were detected at concentrations of 200,000 ug/kg, 91,000 ug/kg and 24,000 ug/kg in soil samples B-22JN7 (0-2'), B-22JS7 (0-2') and B-22JE7 (0-2'), respectively, which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
- Arsenic and mercury
  - Arsenic was detected at concentrations of 22.4 mg/kg, 17.1 mg/kg, 50.5 mg/kg, 21.6 mg/kg, 14.2 mg/kg, 45.8 mg/kg, 32 mg/kg, 23.4 mg/kg, 14.6 mg/kg, 15.1 mg/kg, 12.5 mg/kg, 27.4 mg/kg and 24.5 mg/kg in soil samples B-22GA (0-2'), B-22GN7 (0-2'), B-22GE7 (0-2'), B-22GW7 (0-2'), B-22GW14 (0-2'), B-22HN7 (0-2'), B-22HE7 (0-2'), B-22HE14 (0-2'), B-22HW7 (0-2'), B-22JN7 (0-2'), B-22JS7 (0-2'), B-22JW7 (0-2') and B-22JW14 (0-2'), respectively, which exceeded the Eastern USA background level of 12 mg/kg for this constituent. In addition, mercury was detected at concentrations of 0.25 mg/kg, 0.62 mg/kg, 0.34 mg/kg, 0.21 mg/kg, 0.21 mg/kg, 15.7 mg/kg, 0.28 mg/kg, 0.24 mg/kg, 0.21 mg/kg, 0.51 mg/kg and 0.33 mg/kg in soil samples B-22GN7 (0-2'), B-22GE7 (0-2'), B-22GW7 (0-2'), B-22JN7 (0-2'), B-22JS7 (0-2'), B-22JS14 (4'-6'), B-22JE7 (2'-4'), B-22JE14 (2'-4'), B-22JW7 (0-2'), B-22JW7 (2'-4') and B-22JW14 (0-2'), respectively, which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent.

#### 5.4.5 Former Pit East of Sump #2

A total of two soil samples were collected at soil boring location B-42AA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil borings advanced during the Supplemental Phase II Site Assessment. It should be noted that the soil samples collected at soil boring location B-42A were split and analyzed by two independent laboratories. The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Table C-7 in Appendix C and are summarized as follows:

- Mercury
  - Mercury was not detected in soil samples B-42AA (2'-4') and B-42AA (10'-12') collected during the Delineation Phase II Site Assessment field investigation. It is important to note that soil samples B-42AA (2'-4') and B-42AA (10'-12') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil samples B-42A (2'-4') and B-42A (10'-12') collected during the Supplemental Phase II Site Assessment in which mercury was detected at concentrations of 0.21 mg/kg and 0.72 mg/kg, respectively, which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent.

#### 5.4.6 Resin Waste Pit (Sump #1)

A total of 24 soil samples were collected at soil boring locations RWP-1, RWP-2, RWP-3, RWP-4, RWP-5 and RWP-6 during the Delineation Phase II Site Assessment field investigation.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-2, C-6 and C-7 in Appendix C and are summarized as follows:

- Volatile Organic Compounds
  - 1,1,1-trichloroethane was detected at a concentration of 1,100 ug/kg in soil sample RWP-1 (12'-14') which exceeded the NYSDEC TAGM criterion of 800 ug/kg for this compound.
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples RWP-1 (14'-16'), RWP-1 (16'-18'), RWP-1 (18'-20'), RWP-2 (14'-16'), RWP-2 (16'-18'), RWP-2 (18'-20'), RWP-2 (20'-22'), RWP-3 (8'-10'), RWP-3 (10'-12'), RWP-3 (12'-14'), RWP-3 (14'-16'), RWP-4 (15'-17'), RWP-4 (17'-19'), RWP-4 (21'-23'), RWP-4 (23'-25'), RWP-5 (6'-8'), RWP-5 (8'-10'), RWP-5 (10'-12'), RWP-5 (12'-14'), RWP-6 (6'-8'), RWP-6 (8'-10'), RWP-6 (12'-14') and RWP-6 (16'-18') collected during the Delineation Phase II Site Assessment.

- Semivolatile Organic Compounds
  - Di-n-butylphthalate was detected at a concentration of 11,000 ug/kg in soil sample RWP-3 (8'-10') which exceeded the NYSDEC TAGM criterion of 8,100 ug/kg for this compound. In addition, butylbenzylphthalate was detected at concentrations of 94,000 ug/kg, 84,000 ug/kg, 160,000 ug/kg, 160,000 ug/kg, 160,000 ug/kg, 190,000 ug/kg and 110,000 ug/kg in soil samples RWP-1 (12'-14'), RWP-2 (14'-16'), RWP-3 (8'-10'), RWP-4 (15'-17'), RWP-5 (6'-8'), RWP-6 (6'-8') and RWP-6 (8'-10') which exceeded the NYSDEC TAGM criterion of 50,000 ug/kg for this compound.
  - As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, however, none of the samples contained SVOCs at concentrations that exceeded the criteria for *total* CaPAHs of 10,000 ug/kg and *total* SVOCs of 500,000 ug/kg.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in soil samples RWP-1 (12'-14'), RWP-1 (14'-16'), RWP-1 (16'-18'), RWP-1 (18'-20'), RWP-2 (14'-16'), RWP-2 (16'-18'), RWP-2 (18'-20'), RWP-2 (20'-22'), RWP-3 (8'-10'), RWP-3 (10'-12'), RWP-3 (12'-14'), RWP-3 (14'-16'), RWP-4 (15'-17'), RWP-4 (17'-19'), RWP-4 (21'-23'), RWP-4 (23'-25'), RWP-5 (6'-8'), RWP-5 (8'-10'), RWP-5 (10'-12'), RWP-5 (12'-14'), RWP-6 (6'-8'), RWP-6 (8'-10'), RWP-6 (12'-14') and RWP-6 (16'-18') collected during the Delineation Phase II Site Assessment.
- Priority Pollutant Metals
  - Metals were not detected at concentrations exceeding Eastern USA background levels in soil samples RWP-1 (12'-14'), RWP-1 (14'-16'), RWP-1 (16'-18'), RWP-1 (18'-20'), RWP-2 (14'-16'), RWP-2 (16'-18'), RWP-2 (18'-20'), RWP-2 (20'-22'), RWP-3 (8'-10'), RWP-3 (10'-12'), RWP-3 (12'-14'), RWP-3 (14'-16'), RWP-4 (15'-17'), RWP-4 (17'-19'), RWP-4 (21'-23'), RWP-4 (23'-25'), RWP-5 (6'-8'), RWP-5 (8'-10'), RWP-5 (10'-12'), RWP-5 (12'-14'), RWP-6 (6'-8'), RWP-6 (8'-10'), RWP-6 (12'-14') and RWP-6 (16'-18') collected during the Delineation Phase II Site Assessment.

#### 5.4.7 Former Trenches to Resin Waste Pit (Sump #1)

A total of 15 soil samples were collected at soil boring locations B-43AA, B-43AN7, B-43AS7, B-43AS14, B-43AE5, B-43AE14 and B-43AW7 during the Delineation Phase II Site Assessment field investigation. Soil boring B-43AA was advanced immediately adjacent to soil

boring B-43A conducted during the Supplemental Phase II Site Assessment. Soil borings B-43AN7, B-43AS7 and B-43AW7 were advanced 7 feet north, south and west, respectively, of soil boring B-43A conducted during the Supplemental Phase II Site Assessment. Soil boring B-43AE5 was advanced 5 feet east of soil boring B-43A conducted during the Supplemental Phase II Site Assessment and; soil borings B-43AS14 and B-43AE14 were advanced 14 feet south and east, respectively, of soil boring B-43A conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-43AA (2'-4'), B-43AN7 (0-2'), B-43AN7 (2'-4'), B-43AS7 (0-2'), B-43AS7 (2'-4'), B-43AE5 (0-2'), B-43AE5 (2'-4'), B-43AW7 (0-2') and B-43AW7 (2'-4') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs detected in soil sample B-43A (0-2') in which TPHCs were detected a concentration of 431 mg/kg which exceeded the screening threshold level of 250 mg/kg. In addition, TPHCs, as lubricating oil, were identified as "present" in soil samples B-43A (0-2'), B-43A (4'-6'), B-43B (4'-6') and B-43B (8'-10') collected during the Supplemental Phase II Site Assessment.

In addition, soil samples B-43AN7 (0-2'), B-43AN7 (2'-4'), B-43AS7 (0-2'), B-43AS7 (2'-4'), B-43AS14 (0-2'), B-43AS14 (2'-4'), B-43AS14 (4'-6'), B-43AE5 (0-2'), B-43AE5 (2'-4'), B-43AE5 (4'-6'), B-43AE14 (0-2'), B-43AE14 (2'-4'), B-43AE14 (4'-6'), B-43AW7 (0-2') and B-43AW7 (2'-4') were collected and analyzed for PCBs during the Delineation Phase II Site Assessment in order to delineate the results of soil sample B-43A (0-2') collected during the Supplemental Phase II Site Assessment in which PCBs were detected at a concentration of 18,000 ug/kg which exceeded the NYSDEC TAGM Criterion of 10,000 ug/kg.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Table C-2 and Tables C-4 through C-6 in Appendix C and are summarized as follows:

- STARS total VOCs
  - STARS total VOCs did not exceed STARS Tables 1 and 2 Human Health guidance values in soil samples B-43AA (2'-4'), B-43AN7 (0-2'), B-43AN7 (2'-4'), B-43AS7 (0-2'), B-43AS7 (2'-4'), B-43AE5 (0-2'), B-43AE5 (2'-4'), B-43AW7 (0-2') and B-43AW7 (2'-4') collected during the Delineation Phase II Site Assessment.
- STARS total SVOCs
  - Benzo(b)fluoranthene was detected at a concentration of 270 ug/kg in soil sample B-43AS7 (0-2') which exceeded the STARS Tables 1 and 2 Human Health guidance value of 220 ug/kg for this compound. In addition, benzo(a)pyrene was detected at concentrations of 69 ug/kg, 170 ug/kg and 77 ug/kg in soil samples B-43AN7 (0-2'), B-43AS7 (0-2') and B-43AW7 (0-2'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 61 ug/kg for this compound.
  - Dibenzo(a,h)anthracene was detected at concentrations of 16 ug/kg and 23 ug/kg in soil samples B-43AN7 (0-2') and B-43AS7(0-2'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 14 ug/kg for this compound.
- STARS SVOCs by TCLP
  - Naphthalene was detected at concentrations of 10 ug/kg and 6.2 ug/kg in soil samples B-43AN7 (2'-4') and B-43AE5 (2'-4'), respectively, which are below the STARS Tables 1 and 2 Human Health guidance value of 10 ug/kg for this compound. In addition, STARS SVOCs by TCLP were not detected in soil samples B-43AA (2'-4'), B-43AN7 (0-2'), B-43AS7 (0-2'), B-43AS7 (2'-4'), B-43AE5 (0-2'), B-43AW7 (0-2') and B-43AW7 (2'-4') collected during the Delineation Phase II Site Assessment.
- Polychlorinated Biphenyls
  - PCBs were detected at concentrations of 11,000 ug/kg and 19,000 ug/kg in soil samples B-43AS7 (0-2') and B-43AE5 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.
  - PCBs were not detected at concentrations exceeding the NYSDEC TAGM criterion in soil samples B-43AA (2'-4'), B-43AN7 (0-2'), B-43AN7 (2'-4'), B-43AS7 (2'-4'), B-43AS14 (0-2'), B-43AS14 (2'-4'), B-43AS14 (4'-6'), B-43AE5 (0-2'), B-43AE5 (4'-6'), B-43AE14 (0-2'), B-43AE14 (2'-4'), B-43AE14 (4'-6'), B-43AW7 (0-2') and B-43AW7 (2'-4') collected during the Delineation Phase II Site Assessment.



#### 5.4.8 Dry Well Northeast of Plant 12

A total of three soil samples were collected at soil boring location B-45AA during the Delineation Phase II Site Assessment field investigation. Soil boring B-45AA was advanced immediately adjacent to soil boring B-45A conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-45AA (6'-8'), B-45AA (8'-10') and B-45AA (10'-12') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated levels of TPHCs detected in soil samples B-45A (4'-6') and B-45A (6'-8') in which TPHCs were detected at concentrations of 325 mg/kg and 727 mg/kg, respectively, which exceeded the screening threshold level of 250 mg/kg. In addition, TPHCs, as lubricating oil, were identified as "present" in soil samples B-45A (4'-6') and B-45A (6'-8') collected during the Supplemental Phase II Site Assessment.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 5. The analytical results are presented on Tables C-2, C-4 and C-4 in Appendix C and are summarized as follows:

- STARS total VOCs
  - STARS total VOCs did not exceed STARS Tables 1 and 2 Human Health guidance values in soil samples B-45AA (6'-8'), B-45AA (8'-10') and B-45AA (10'-12') collected during the Delineation Phase II Site Assessment.
- STARS total SVOCs
  - Benzo(a)anthracene was detected at concentrations of 1,600 ug/kg and 1,500 ug/kg in soil samples B-45AA (6'-8') and B-45AA (8'-10'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 220 ug/kg for this compound. In addition, benzo(b)fluoranthene was detected at concentrations of 2,600 ug/kg and 2,600 ug/kg in soil samples B-45AA (6'-8') and B-45AA (8'-10'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 220 ug/kg for this compound.
  - Benzo(k)fluoranthene was detected at concentrations of 990 ug/kg and 1,100 ug/kg in soil samples B-45AA (6'-8') and B-45AA (8'-10'), respectively, which

exceeded the STARS Tables 1 and 2 Human Health guidance value of 220 ug/kg for this compound. In addition, benzo(a)pyrene was detected at concentrations of 1,600 ug/kg and 1,700 ug/kg in soil samples B-45AA (6'-8') and B-45AA (8'-10'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 61 ug/kg for this compound.

- Dibenzo(a,h)anthracene was detected at concentrations of 110 ug/kg and 120 ug/kg in soil samples B-45AA (6'-8') and B-45AA (8'-10'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 14 ug/kg for this compound.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-45AA (6'-8'), B-45AA (8'-10') and B-45AA (10'-12') collected during the Delineation Phase II Site Assessment.

## 5.5 Plant 12A Exterior

An area by area discussion of the Plant 12A Exterior Delineation Phase II Site Assessment field program findings is presented below.

### 5.5.1 Leaching Chamber North of Carpentry Shop

A total of three soil samples were collected at soil boring location B-16AA during the Delineation Phase II Site Assessment field investigation. Soil boring B-16AA was advanced immediately adjacent to soil boring B-16A conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-16AA (10'-12'), B-16AA (12'-14') and B-16AA (14'-16') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-16A (12'-14') collected during the Supplemental Phase II Site Assessment in which several SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds. However, none of the samples collected during the Supplemental Phase II Site Assessment contained SVOCs at

concentrations that exceeded the criteria for *total* CaPAHs of 10,000 ug/kg and the criteria for *total* SVOCs of 500,000 ug/kg.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-1, C-3, C-6 and C-7 in Appendix C and are summarized as follows:

- Volatile Organic Compounds
  - Several VOCs were detected at concentrations below NYSDEC TAGM criteria in soil sample B-16AA (10'-12').
- Semivolatile Organic Compounds
  - Phenol at 64 ug/kg, benzo(a)anthracene at 550 ug/kg, chrysene at 730 ug/kg, benzo(a)pyrene at 560 ug/kg and dibenzo(a,h)anthracene at 52 ug/kg were detected in soil sample B-16AA (10'-12') at concentrations which exceeded the NYSDEC TAGM criteria of 30 ug/kg, 550 ug/kg, 224 ug/kg, 400 ug/kg, 61 ug/kg and 14 ug/kg, respectively, for these compounds.
  - As indicated above, although there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg were not exceeded.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations that exceeded the NYSDEC TAGM criterion of 10,000 ug/kg in soil samples B-16AA (10'-12'), B-16AA (14'-16') and B-16AA (16'-18').
- Priority Pollutant Metals
  - Zinc was detected at a concentration of 142 mg/kg in soil sample B-16AA (10'-12') which exceeded the Eastern USA background level of 50 mg/kg for this constituent. In addition, nickel and zinc were detected at concentrations of 67.9 mg/kg and 98.9 mg/kg, respectively, in soil sample B-16AA (16'-18') which exceeded the Eastern USA background levels of 25 mg/kg and 50 mg/kg, respectively, for these constituents.

### 5.5.2 Drainage Chamber North of Lobby/Loading Area

A total of two soil samples were collected at soil boring location B-30AA during the Delineation Phase II Site Assessment field investigation. Soil boring B-30AA was advanced immediately adjacent to soil boring B-30A conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-30AA (6'-8') and B-30AA (8'-10') were collected during the Delineation Phase II Site Assessment in order to delineate the results of soil sample B-30A (4'-6') collected during the Supplemental Phase II Site Assessment in which several SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds, as well as one sample, B-30A (4'-6'), that contained SVOCs at levels that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg. However, none of the samples collected during the Supplemental Phase II Site Assessment contained SVOCs at concentrations that exceeded the criteria *total* SVOCs of 500,000 ug/kg.

In addition, soil samples B-30AA (6'-8') and B-30AA (8'-10') were collected and analyzed for STARS SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated level of TPHCs detected in soil sample B-30A (4'-6') in which TPHCs were detected at a concentration of 4,290 mg/kg which exceeded the screening threshold level of 250 mg/kg. In addition, TPHCs, as lubricating oil, were identified as "present" in soil samples B-30A (4'-6') collected during the Supplemental Phase II Site Assessment.

Also, soil samples B-30AA (6'-8') and B-30AA (8'-10') were collected and analyzed for priority pollutant metals during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-30A (4'-6') collected during the Supplemental Phase II Site Assessment in which arsenic and mercury were detected at concentrations which exceeded the Eastern USA background levels for these constituents cadmium, chromium, copper, mercury, nickel and zinc were detected at concentrations of 14.8 mg/kg, 76.7 mg/kg, 171 mg/kg, 2.7 mg/kg, 27.0 mg/kg and 741 mg/kg, respectively, which exceeded the Eastern USA background

levels of 10 mg/kg, 50 mg/kg, 50 mg/kg, 0.2 mg/kg, 25 mg/kg and 50 mg/kg, respectively, for these constituents.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-1 and C-3 and Tables C-5 through C-7 in Appendix C and are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-30AA (6'-8') and B-30AA (8'-10').
- Semivolatile Organic Compounds
  - Benzo(a)pyrene was detected at a concentration of 69 ug/kg in soil sample B-30AA (6'-8') which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound.
  - As indicated above, benzo(a)pyrene was detected at a concentration that exceeded the NYSDEC TAGM criteria. However, the criterion for *total* CaPAHs of 10,000 ug/kg and the criterion for *total* SVOCs of 500,000 ug/kg were not exceeded.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-30AA (6'-8') and B-30AA (8'-10') collected during the Delineation Phase II Site Assessment.
- Polychlorinated Biphenyls
  - PCBs were not detected at concentrations that exceeded the NYSDEC TAGM criterion of 10,000 ug/kg in soil samples B-30AA (6'-8') and B-30AA (8'-10').
- Priority Pollutant Metals
  - Copper and zinc were detected at concentrations of 53.7 mg/kg and 280 mg/kg, respectively, in soil sample B-30AA (6'-8') which exceeded the Eastern USA background level of 50 mg/kg for these constituents. In addition, zinc was detected at a concentration of 109 mg/kg in soil sample B-30AA (8'-10') which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

### 5.5.3 Former Drainage Trench East of Plant 12A

A total of nine soil samples were collected at soil boring locations B-38BA, B-38BN7, B-38BS7, B-38BE7 and B-38BW7 during the Delineation Phase II Site Assessment field investigation. Soil boring B-30BA was advanced immediately adjacent to soil boring B-30B conducted during the Supplemental Phase II Site Assessment. Soil borings B-38BN7, B-38BS7, B-38BE7 and B-38BW7 were advanced 7 feet north, south, east and west of soil boring B-30B conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples B-38BA (1'-3'), B-38BN7 (1'-3'), B-38BN7 (3'-5'), B-38BS7 (1'-3'), B-38BS7 (3'-5'), B-38BE7 (1'-3'), B-38BE7 (3'-5'), B-38BW7 (1'-3') and B-38BW7 (3'-5') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated level of TPHCs detected in soil sample B-38B (1'-3') in which TPHCs were detected at a concentration of 915 mg/kg which exceeded the screening threshold level of 250 mg/kg. In addition, TPHCs, as lubricating oil, were identified as "present" in soil samples B-38B (1'-3') collected during the Supplemental Phase II Site Assessment.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-4 and C-5 in Appendix C and are summarized as follows:

- STARS total VOCs
  - STARS total VOCs did not exceed STARS Tables 1 and 2 Human Health guidance values in soil samples B-38BA (1'-3'), B-38BN7 (1'-3'), B-38BN7 (3'-5'), B-38BS7 (1'-3'), B-38BS7 (3'-5'), B-38BE7 (1'-3'), B-38BE7 (3'-5'), B-38BW7 (1'-3') and B-38BW7 (3'-5') collected during the Delineation Phase II Site Assessment.
- STARS total SVOCs
  - Benzo(a)pyrene was detected at a concentration of 96 ug/kg in soil sample B-38BN7 (1'-3') which exceeded the STARS Tables 1 and 2 Human Health guidance value of 61 ug/kg for this compound. In addition, benzo(a)anthracene, benzo(b)fluoranthene and benzo(a)pyrene were detected at concentrations of 300

ug/kg, 300 ug/kg and 200 ug/kg, respectively, in soil sample B-38BS7 (1'-3') which exceeded the STARS Tables 1 and 2 Human Health guidance values of 220 ug/kg, 220 ug/kg and 61 ug/kg for these compounds.

- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-38BA (1'-3'), B-38BN7 (1'-3'), B-38BN7 (3'-5'), B-38BS7 (1'-3'), B-38BS7 (3'-5'), B-38BE7 (1'-3'), B-38BE7 (3'-5'), B-38BW7 (1'-3') and B-38BW7 (3'-5') collected during the Delineation Phase II Site Assessment.

## 5.6 Exterior Areas

An area by area discussion of the Plant 12 Exterior Delineation Phase II Site Assessment field program findings is presented below.

### 5.6.1 Southern Parking Lot

A total of 10 soil samples were collected at soil boring locations B-35AA, B-35AN7, B-35AS7 and B-35AE7 during the Delineation Phase II Site Assessment field investigation. Soil boring B-35AA was advanced immediately adjacent to soil boring B-35A conducted during the Supplemental Phase II Site Assessment. Soil borings B-35AN7, B-35AS7 and B-35AE7 were advanced 7 feet north, south and east of soil boring B-35A conducted during the Supplemental Phase II Site Assessment. It should be noted that a soil boring could not be advanced west of soil boring B-35A during the Delineation Phase II Site Assessment field investigation due to the close proximity of the Plant 12 property boundary.

It is important to note that soil samples B-35AA (0-2'), B-35AA (2'-4'), B-35AA (4'-6'), B-35AA (6'-8'), B-35AN7 (0-2'), B-35AN7 (2'-4'), B-35AS7 (0-2'), B-35AS7 (2'-4'), B-35AE7 (0-2') and B-35AE7 (2'-4') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated level of TPHCs detected in soil samples B-35A (0-2') and B-35A (2'-4') in which TPHCs were detected at concentrations of 3,860 mg/kg and 713 mg/kg, respectively, which exceeded the screening threshold level of 250 mg/kg. In addition, TPHCs, as #4 Fuel Oil, were

detected at concentrations of 6,240 mg/kg and 1,070 mg/kg in soil samples B-35A (0-2') and B-35A (2'-4'), respectively, collected during the Supplemental Phase II Site Assessment.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-4 and C-5 in Appendix C and are summarized as follows:

- STARS total VOCs
  - STARS total VOCs were not detected in soil samples B-35AA (0-2'), B-35AA (2'-4'), B-35AA (4'-6'), B-35AA (6'-8'), B-35AN7 (0-2'), B-35AN7 (2'-4'), B-35AS7 (0-2'), B-35AS7 (2'-4'), B-35AE7 (0-2') and B-35AE7 (2'-4') collected during the Delineation Phase II Site Assessment.
- STARS total SVOCs
  - STARS total SVOCs did not exceed STARS Tables 1 and 2 Human Health guidance value in soil samples B-35AA (0-2'), B-35AA (2'-4'), B-35AA (4'-6'), B-35AA (6'-8'), B-35AN7 (0-2'), B-35AN7 (2'-4'), B-35AS7 (0-2'), B-35AS7 (2'-4'), B-35AE7 (0-2') and B-35AE7 (2'-4') collected during the Delineation Phase II Site Assessment.
- STARS SVOCs by TCLP
  - STARS SVOCs by TCLP were not detected in soil samples B-35AA (0-2'), B-35AA (2'-4'), B-35AA (4'-6'), B-35AA (6'-8'), B-35AN7 (0-2'), B-35AN7 (2'-4'), B-35AS7 (0-2'), B-35AS7 (2'-4'), B-35AE7 (0-2') and B-35AE7 (2'-4') collected during the Delineation Phase II Site Assessment.

#### 5.6.2 Existing and Former Recharge Basins

A total of one soil sample was collected at soil boring location B-36AA during the Delineation Phase II Site Assessment field investigation. The Delineation Phase II Site Assessment sampling activities were conducted immediately adjacent to the soil borings advanced during the Supplemental Phase II Site Assessment. It should be noted that the soil sample collected at soil boring location B-36AA was split and analyzed by two independent laboratories.



In addition, soil sample B-36AA (24'-26') was collected and analyzed for PCBs during the Delineation Phase II Site Assessment in order to confirm the results of soil sample B-36A (24'-26') collected during the Supplemental Phase II Site Assessment in which PCBs were detected at a concentration of 11,000 ug/kg which exceeded the NYSDEC TAGM Criterion of 10,000 ug/kg.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Table C-6 in Appendix C and are summarized as follows:

- Polychlorinated Biphenyls
  - PCBs were not detected in the split sample analyzed by Envirotech Laboratories but were detected below the NYSDEC TAGM criterion of 10,000 ug/kg in the split sample analyzed by Mitkem Laboratories.

#### 5.6.3 Former Drainage Basin

A total of 92 soil samples were collected at soil boring locations B-37AA, B-37AN8, B-37AN16, B-37ANW8, B-37ANW16, B-37ANW24, B-37AS8, B-37AS8A, B-37AS16, B-37AS16A, B-37AS32, B-37ASE8, B-37ASE16, B-37ASE32, B-37AE8, B-37AE16, B-37AW8, B-37AW8A, B-37AW16, B37AW16A and B-37AW24 during the Delineation Phase II Site Assessment field investigation.

It is important to note that soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AN8 (2'-4'), B-37AS8 (0-2'), B-37AS8 (2'-4'), B-37AE8 (0-2'), B-37AE8 (2'-4'), B-37AW8 (0-2') and B-37AW8 (2'-4') were collected during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-37A (6'-8') collected during the Supplemental Phase II Site Assessment in which several SVOCs were detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds. However, none of the samples collected during the Supplemental Phase II Site Assessment contained SVOCs at concentrations that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg and the criteria for *total* SVOCs of 500,000 ug/kg.

In addition, soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AN8 (2'-4'), B-37AN16 (0-2'), B-37AN16 (2'-4'), B-37AN16 (4'-6'), B-37AS8 (0-2'), B-37AS8 (2'-4'), B-37AS8 (4'-6'), B-37AS8 (6'-8'), B-37AS16 (0-2'), B-37AS16 (2'-4'), B-37AS16 (4'-6'), B-37AS16 (6'-8'), B-37AE8 (0-2'), B-37AE8 (2'-4'), B-37AE16 (0-2'), B-37AE16 (2'-4'), B-37AE16 (4'-6'), B-37AW8 (0-2'), B-37AW8 (2'-4'), B-37AW8 (4'-6'), B-37AW8 (6'-8'), B-37AW16 (0-2'), B-37AW16 (2'-4'), B-37AW16 (4'-6') and B-37AW16 (6'-8') were collected and analyzed for PCBs during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-37A (4'-6') collected during the Supplemental Phase II Site Assessment in which PCBs were detected at a concentration of 82,000 ug/kg which exceeded the NYSDEC TAGM Criterion of 10,000 ug/kg.

Also, soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AN8 (2'-4'), B-37AS8 (0-2'), B-37AS8 (2'-4'), B-37AS8 (4'-6'), B-37AS8 (6'-8'), B-37AS16 (0-2'), B-37AS16 (2'-4'), B-37AS16 (4'-6'), B-37AS16 (6'-8'), B-37AE8 (0-2'), B-37AE8 (2'-4'), B-37AW8 (0-2') and B-37AW8 (2'-4') were collected and analyzed for priority pollutant metals during the Delineation Phase II Site Assessment in order to confirm and delineate the results of soil sample B-37A (4'-6') collected during the Supplemental Phase II Site Assessment in which copper and zinc were detected at concentrations of 125 mg/kg and 54.7 mg/kg, respectively, which exceeded the Eastern USA background levels of 50 mg/kg for these constituents.

Based on the results of the soil samples identified above, 64 additional soil samples were collected at soil boring locations B-37AS8A, B-37AS16A, B-37AS32, B-37ASE8, B-37ASE16, B-37ASE32, B-37AW8A, B-37AW16A, B-37AW24, B-37ANW8, B-37ANW16 and B-37ANW24 during the Delineation Phase II Site Assessment in order to determine the horizontal and vertical extent of PCB-impacted soil in this area.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Table C-1, C-3, C-6 and C-7 in Appendix C and are summarized as follows:

- Volatile Organic Compounds
  - VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AN8 (2'-4'), B-37AS8 (0-2'), B-37AS8 (2'-4'), B-37AE8 (0-2'), B-37AE8 (2'-4'), B-37AW8 (0-2') and B-37AW8 (2'-4') collected during the Delineation Phase II Site Assessment field investigation.
  
- Semivolatile Organic Compounds
  - Benzo(a)anthracene was detected at concentrations of 560 ug/kg and 240 ug/kg in soil samples B-37AA (2'-4') and B-37AW8 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 224 ug/kg for this compound. In addition, chrysene was detected at a concentration of 620 ug/kg in soil sample B-37AA (2'-4') which exceeded the NYSDEC TAGM criterion of 400 ug/kg for this compound.
  - Benzo(a)pyrene was detected at concentrations of 250 ug/kg, 520 ug/kg, 110 ug/kg, 110 ug/kg, 140 ug/kg, 78 ug/kg and 260 ug/kg in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AS8 (2'-4'), B-37AE8 (0-2'), B-37AW8 (0-2') and B-37AW8 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 61 ug/kg for this compound. In addition, dibenzo(a,h)anthracene was detected at concentrations of 57 ug/kg, 83 ug/kg, 38 ug/kg, 23 ug/kg, 28 ug/kg and 49 ug/kg in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AS8 (2'-4'), B-37AE8 (0-2') and B-37AW8 (2'-4'), respectively, which exceeded the NYSDEC TAGM criterion of 14 ug/kg for this compound.
  - As indicated above, there were several SVOCs detected at concentrations that exceeded the NYSDEC TAGM criteria for *individual* compounds. However, none of the samples contained SVOCs at concentrations that exceeded the criterion for *total* CaPAHs of 10,000 ug/kg and for *total* SVOCs of 500,000 ug/kg.
  
- Polychlorinated Biphenyls
  - PCBs were detected at concentrations of 150,000 ug/kg, 88,000 ug/kg, 210,000 ug/kg, 24,000 ug/kg, 12,000 ug/kg, 170,000 ug/kg, 83,000 ug/kg, 210,000 ug/kg, 25,000 ug/kg, 59,000 ug/kg, 120,000 ug/kg, 410,000 ug/kg, 44,000 ug/kg, 130,000 ug/kg, 20,000 ug/kg, 100,000 ug/kg, 19,000 ug/kg, 38,000 ug/kg, 120,000 ug/kg, 230,000 ug/kg, 19,000 ug/kg, 110,000 ug/kg and 30,000 ug/kg in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37ANW8 (0-2'), B-37ANW16 (0-2'), B-37AS8 (2'-4'), B-37AS8 (4'-6'), B-37AS8 (6'-8'), B-37AS16 (2'-4'), B-37AS16 (4'-6'), B-37AS16 (6'-8'), B-37AS16A (8'-10'), B-37AS32 (8'-10'), B-37ASE8 (0-2'), B-37ASE8 (4'-6'), B-37ASE16 (0-2'), B-37ASE32 (0-2'), B-37AE8 (0-2'), B-37AW8 (2'-4'), B-37AW8 (6'-8'), B-37AW8A (16'-18'), B-37AW16 (6'-8') and B-37AW24 (4'-6'), respectively, which exceeded the NYSDEC TAGM criterion of 10,000 ug/kg.

- Priority Pollutant Metals

- Chromium was detected at concentrations of 192 mg/kg, 72.8 mg/kg, 50.3 mg/kg, 84.1 mg/kg, 100.0 mg/kg, 80.4 mg/kg, 90.2 mg/kg, 268 mg/kg, 67.6 mg/kg, 67.9 mg/kg, 67.1 mg/kg, 79.3 mg/kg and 161 mg/kg in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AS8 (2'-4'), B-37AS8 (4'-6'), B-37AS8 (6'-8'), B-37AS16 (2'-4'), B-37AS16 (6'-8'), B-37AS16A (8'-10'), B-37AS32 (8'-10'), B-37ASE8 (0-2'), B-37ASE8 (4'-6'), B-37ASE16 (0-2') and B-37ASE32 (0-2'), respectively, which exceeded the Eastern USA background level of 50 mg/kg for this constituent. In addition, copper was detected at concentrations of 712 mg/kg, 327 mg/kg, 153 mg/kg, 249 mg/kg, 163 mg/kg, 75.2 mg/kg and 207 mg/kg in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AS8 (2'-4'), B-37AE8 (0-2'), B-37AE8 (2'-4') and B-37AW8 (2'-4'), respectively, which exceeded the Eastern USA background level of 50 mg/kg for this constituent.
- Mercury was detected at a concentration of 0.21 mg/kg in soil sample B-37AA (0-2') which exceeded the Eastern USA background level of 0.20 mg/kg for this constituent. In addition, zinc was detected at concentrations of 144 mg/kg, 80 mg/kg, 54.8 mg/kg and 56 mg/kg in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2') and B-37AS8 (2'-4'), respectively, which exceeded the Eastern USA background level of 50 mg/kg for this constituent.

#### 5.6.4 Petroleum/Chemical Storage Areas

A total of 30 soil samples were collected at soil boring locations PCS-AA, PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8, PCS-GA, PCS-GN8, PCS-GS8, PCS-GE8 and PCS-GW8 during the Delineation Phase II Site Assessment field investigation. Soil boring PCS-AA and PCS-GA were advanced immediately adjacent to soil borings PCS-A and PCS-G, respectively, conducted during the Supplemental Phase II Site Assessment. Soil borings PCS-AN8, PCS-AE8, PCS-AW8 were advanced 8 feet north, south, east and west of soil boring PCS-A conducted during the Supplemental Phase II Site Assessment and; soil borings PCS-GN8, PCS-GS8, PCS-GE8 and PCS-GW8 were advanced 8 feet north, south, east and west of soil boring PCS-G conducted during the Supplemental Phase II Site Assessment.

It is important to note that soil samples PCS-AA (0-2'), PCS-AA (2'-4'), PCS-AA (4'-6'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AS8 (2'-4'), PCS-AS8 (4'-6'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AE8 (4'-6'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-AW8 (4'-6'), PCS-GA (0-2'), PCS-GA (2'-4'), PCS-GA (4'-6'), PCS-GN8

(0-2'), PCS-GN8 (2'-4'), PCS-GN8 (4'-6'), PCS-GS8 (0-2'), PCS-GS8 (2'-4'), PCS-GS8 (4'-6'), PCS-GE8 (0-2'), PCS-GE8 (2'-4'), PCS-GE8 (4'-6'), PCS-GW8 (0-2'), PCS-GW8 (2'-4') and PCS-GW8 (4'-6') were collected and analyzed for STARS total VOCs and SVOCs and SVOCs by TCLP during the Delineation Phase II Site Assessment due to the elevated level of TPHCs detected in soil samples PCS-A (2'-4'), PCS-G (0-2') and PCS-G (2'-4') in which TPHCs were detected at concentrations of 290 mg/kg, 290 mg/kg and 2,400 mg/kg, respectively, which exceeded the screening threshold level of 250 mg/kg. In addition, TPHCs, as 10W40 motor oil, were detected at concentrations of 170 mg/kg, 7 mg/kg, 18 mg/kg, 48 mg/kg, 24 mg/kg, 200 mg/kg, 27 mg/kg, 28 mg/kg, 25 mg/kg and 18 mg/kg in soil samples PCS-A (0-2'), PCS-A (2'-4'), PCS-B (0-2'), PCS-C (2'-4'), PCS-D (0-2'), PCS-D (2'-4'), PCS-F (0-2'), PCS-F (2'-4'), PCS-G (0-2') and PCS-G (2'-4'), respectively, collected during the Supplemental Phase II Site Assessment.

The soil samples collected during the Delineation Phase II Site Assessment field investigation were analyzed as described in Section 4. The analytical results are presented on Tables C-2, C-4 and C-5 in Appendix C and are summarized as follows:

- STARS total VOCs
  - STARS total VOCs did not exceed STARS Tables 1 and 2 Human Health guidance values in soil samples PCS-AA (0-2'), PCS-AA (2'-4'), PCS-AA (4'-6'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AS8 (2'-4'), PCS-AS8 (4'-6'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AE8 (4'-6'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-AW8 (4'-6'), PCS-GA (0-2'), PCS-GA (2'-4'), PCS-GA (4'-6'), PCS-GN8 (0-2'), PCS-GN8 (2'-4'), PCS-GN8 (4'-6'), PCS-GS8 (0-2'), PCS-GS8 (2'-4'), PCS-GS8 (4'-6'), PCS-GE8 (0-2'), PCS-GE8 (2'-4'), PCS-GE8 (4'-6'), PCS-GW8 (0-2'), PCS-GW8 (2'-4') and PCS-GW8 (4'-6') collected during the Delineation Phase II Site Assessment.
- STARS total SVOCs
  - Benzo(a)anthracene was detected at concentrations of 12,000 ug/kg, 26,000 ug/kg, 6,000 ug/kg, 3,500 ug/kg, 5,000 ug/kg, 8,500 ug/kg, 1,300 ug/kg, 18,000 ug/kg, 2,700 ug/kg, 5,400 ug/kg, 2,000 ug/kg, 3,200 ug/kg and 670 ug/kg in soil samples PCS-AA (0-2'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-GA (0-2'), PCS-GN8 (0-2'), PCS-GS8 (4'-6') and PCS-GE8 (0-2'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance

value of 220 ug/kg for this compound. In addition, benzo(b)fluoranthene was detected at concentrations of 12,000 ug/kg, 27,000 ug/kg, 6,200 ug/kg, 3,300 ug/kg, 5,000 ug/kg, 10,000 ug/kg, 1,300 ug/kg, 20,000 ug/kg, 3,100 ug/kg, 5,000 ug/kg and 2,000 ug/kg, respectively, in soil samples PCS-AA (0-2'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-GA (0-2'), PCS-GN8 (0-2'), PCS-GS8 (4'-6') and PCS-GE8 (0-2') which exceeded the STARS Tables 1 and 2 Human Health guidance value of 220 ug/kg for this compound.

- Benzo(k)fluoranthene was detected at concentrations of 5,200 ug/kg, 10,000 ug/kg, 2,400 ug/kg, 1,400 ug/kg, 1,900 ug/kg, 4,400 ug/kg, 520 ug/kg, 8,100 ug/kg, 1,200 ug/kg, 2,100 ug/kg, 780 ug/kg, 1,100 ug/kg and 280 ug/kg in soil samples PCS-AA (0-2'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-GA (0-2'), PCS-GN8 (0-2'), PCS-GS8 (4'-6') and PCS-GE8 (0-2'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 220 ug/kg for this compound. In addition, benzo(a)pyrene was detected at concentrations of 10,000 ug/kg, 22,000 ug/kg, 5,200 ug/kg, 2,700 ug/kg, 4,200 ug/kg, 8,300 ug/kg, 1,100 ug/kg, 17,000 ug/kg, 2,500 ug/kg, 4,300 ug/kg, 1,700 ug/kg, 85 ug/kg, 99 ug/kg, 1,700 ug/kg and 570 ug/kg in soil samples PCS-AA (0-2'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-GA (0-2'), PCS-GN8 (0-2'), PCS-GS8 (0-2'), PCS-GS8 (2'-4'), PCS-GS8 (4'-6') and PCS-GE8 (0-2'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 61 ug/kg for this compound.

- Dibenzo(a,h)anthracene was detected at concentrations of 1,800 ug/kg, 3,400 ug/kg, 510 ug/kg, 350 ug/kg, 680 ug/kg, 1,400 ug/kg, 160 ug/kg, 2,500 ug/kg, 380 ug/kg, 830 ug/kg, 240 ug/kg, 260 ug/kg and 81 ug/kg in soil samples PCS-AA (0-2'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-GA (0-2'), PCS-GN8 (0-2'), PCS-GS8 (4'-6') and PCS-GE8 (0-2'), respectively, which exceeded the STARS Tables 1 and 2 Human Health guidance value of 14 ug/kg for this compound.

- STARS SVOCs by TCLP

- Naphthalene was detected at a concentration of 120 ug/kg in soil sample PCS-GE8 (4'-6') which exceeds the STARS Tables 1 and 2 TCLP Extraction guidance value of 10 ug/kg for this compound during the Delineation Phase II Site Assessment.

- STARS SVOCs by TCLP did not exceed STARS Tables 1 and 2 TCLP Extraction guidance values in soil samples PCS-AA (0-2'), PCS-AA (2'-4'), PCS-AA (4'-6'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AS8 (2'-4'), PCS-AS8 (4'-6'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AE8 (4'-6'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-AW8 (4'-6'), PCS-GA (0-

2'), PCS-GA (2'-4'), PCS-GA (4'-6'), PCS-GN8 (0-2'), PCS-GN8 (2'-4'), PCS-GN8 (4'-6'), PCS-GS8 (0-2'), PCS-GS8 (2'-4'), PCS-GS8 (4'-6'), PCS-GE8 (0-2'), PCS-GE8 (2'-4'), PCS-GW8 (0-2'), PCS-GW8 (2'-4') and PCS-GW8 (4'-6') collected during the Delineation Phase II Site Assessment.

## 5.7 Groundwater Sampling

As previously discussed in Section 4, three shallow groundwater monitoring wells, identified as P12MW-2, P12MW-3 and P12MW-4, were installed immediately downgradient of the former Resin Waste Pit (Sump #1); immediately upgradient of the former Resin Waste Pit (Sump #1) and downgradient of the former Drainage Basin, respectively, in order to determine whether shallow groundwater has been impacted in these areas. In addition, groundwater samples, identified as P12 MW-1, P12 MW-2, P12 MW-3, P12 MW-4 and GM-10S, were collected from monitoring wells P12MW-1, P12MW-2, P12MW-3, P12MW-4 and GM-10S (P-5), respectively, during the Delineation Phase II Site Assessment. The groundwater samples were analyzed for VOCs (Method 8260), SVOCs (Method 8270), PCBs (Method 8081) and priority pollutant metals (Method 6010). Filtered and unfiltered samples were submitted for metals analysis due to the inability to obtain a turbidity of less than 50 nephelometric turbidity units (NTUs). The analytical results of the groundwater samples are presented on Tables C-9 through C-12 in Appendix C and are summarized as follows:

- VOCs
  - 1,1,1-Trichloroethane was detected at concentrations of 12 ug/L, 14 ug/L and 25 ug/L in groundwater sample P12 MW-2 collected on August 21, 1998; groundwater sample P12 MW-2 collected on January 14, 1999; and groundwater sample P12 MW-3 collected on January 14, 1999 which exceeded the NYSDEC Class GA groundwater standard of 5 ug/L for this compound.
- SVOCs
  - SVOCs were not detected in groundwater samples P12 MW-1, P12 MW-2, P12 MW-3, P12 MW-4 and GM-10S collected during the Delineation Phase II Site Assessment.

- PCBs
  - Total PCBs were detected at a concentration of 0.94 ug/L in groundwater sample P12MW-2 collected August 31, 1998 which exceeds the NYSDEC Class GA groundwater standard of 0.09 ug/L for total PCBs.
  - Total PCBs were not detected above the method detection limit in groundwater sample P12MW-2 collected January 14, 1999.
- Priority Pollutant Metals
  - Priority pollutant metals were not detected above NYSDEC Class GA groundwater standards/guidance values in the filtered and unfiltered groundwater samples collected during the Delineation Phase II Site Assessment.

In addition, to determine on-site groundwater flow direction, depth to groundwater was obtained on January 21, 1999 and a survey of the top of the well casings was completed by a New York State Licensed Land Surveyor on January 21, 1999. Results of these measuring events are as follows:

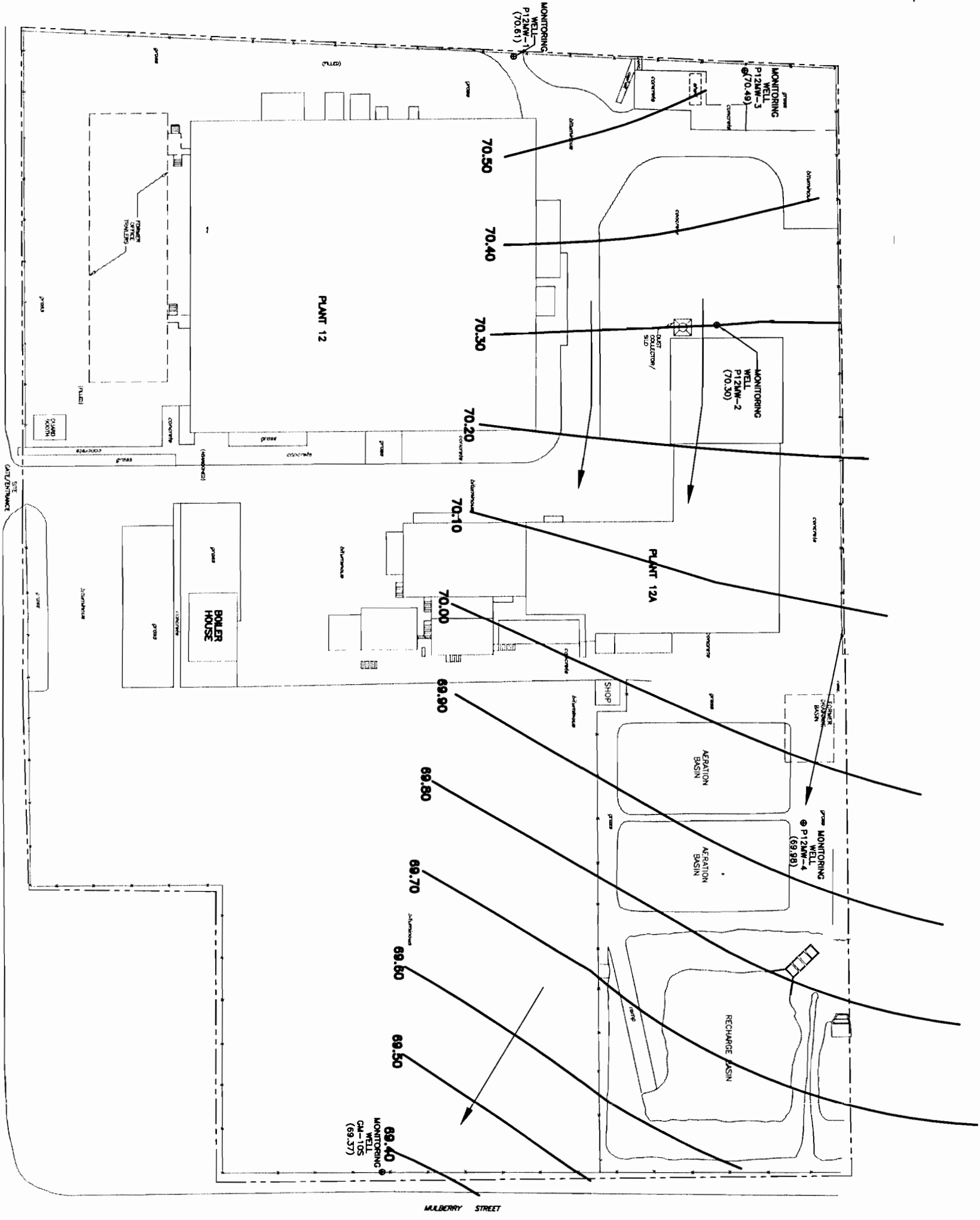
<u>Well Number</u>	<u>Depth to Water (feet)</u>	<u>Casing Elevation (feet)</u>	<u>Groundwater Elevation (feet)</u>
P12MW1	56.29	126.90	70.61
P12MW2	54.69	124.99	70.30
P12MW3	57.21	127.70	70.49
P12MW4	55.77	125.75	69.98
P12-10S	53.27	122.64	69.37
P12S-8	54.19	123.85	69.66

The water level and survey data were utilized to determine groundwater elevations across the site. Figure 5-1 illustrates the approximate groundwater flow directions. Generally, the groundwater flows in a southerly to south southwesterly direction across the Plant 12 site.

## 5.8 Data Validation

As part of the Delineation Phase II Site Assessment at the Plant 12 site, soil samples were collected to confirm and further delineate impacted soil. The samples were analyzed for a variety of parameters depending on the sample location. Sample analysis was performed by Envirotech





MONITORING WELL MW-S8 (69.66)

DATE: 11/11/99  
 DRAWN BY: [illegible]

GROUNDWATER CONTOUR MAP  
 PLANT 12 - DELINEATION PHASE II SITE ASSESSMENT  
 NORTHROP'S GRANULAR CORPORATION  
 BEYOND NEW YORK



**LEGEND**

GROUNDWATER CONTOURS

APPROXIMATE ELEVATION OF WATER TABLE FEET ABOVE MEAN SEA LEVEL

MONITORING WELL @ CM-105 (69.37)

LOCATION OF MONITORING WELL AND MEASURED GROUNDWATER ELEVATION ON JANUARY 21, 1999

FENCE

APPROXIMATE LIMIT OF SITE BOUNDARY

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

Research, Inc. (Envirotech) and Mitkem Laboratories (Mitkem) which were both subcontractors to Dvirka and Bartilucci Consulting Engineers. Sample analysis was performed in accordance with USEPA-SW846 methods.

The Data packages submitted by Envirotech and Mitkem were validated in accordance with New York State Department of Environmental Conservation (NYSDEC) Quality Assurance/Quality Control (QA/QC) requirements. Twenty percent of the data packages were reviewed yielding a “20% validation” as specified in the scope of work.

The findings of the validation process are summarized below.

- All sample analysis was performed within the method specified holding times.
- A discrepancy was identified between the STARS SVOC by TCLP and STARS total SVOC results for sample PCS-GE8 (4'-6'). No target compounds were found in the total analysis, however, six compounds were found in the TCLP analysis including naphthalene at 120 ug/l. Since no constituents were detected in the total analysis, typically no constituents should be found in the leachate of that sample. The results for the other two samples collected at that location, PCS-GE8 (0-2') and PCS-GE8 (2'-4'), were reviewed and showed elevated levels of total SVOCs in PCS-GE8 (0-2') (7571 ug/kg) and PCS-GE8 (2'-4') (179 ug/kg) and low to no SVOCs in the leachate samples. In addition, naphthalene was not found in any of the PCS-GE8 samples. The laboratory has confirmed the presence of naphthalene in the leachate for PCS-GE8 (4'-6').
- Several samples requiring mercury analysis were split between Envirotech and Mitkem in order to confirm the results. In all instances the results were comparable.
- Several samples required reanalysis due to surrogate and/or internal standard area counts being outside QC limits. The reanalysis confirmed the initial results and the data from the initial run is considered the best set and is summarized on the data tables.

No other problems were found with the data. The data is deemed valid and usable for environmental assessment purposes.

# Section 6



## 6.0 CONCLUSIONS OF THE DELINEATION PHASE II SITE ASSESSMENT

Based upon the findings of the Delineation Phase II Site Assessment field investigations discussed in Section 5, conclusions are provided in this section for the Plant 12 property.

We have relied on the Technical and Administrative Guidance Memorandum (TAGM) No. 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels dated January 24, 1994 published by the New York State Department of Environmental Conservation (NYSDEC) to screen the data collected during the Delineation Phase II Site Assessment.

As discussed in the introduction of the TAGM, the document is designed to provide a basis and procedure for NYSDEC Project Managers at "...individual Federal Superfund, State Superfund, 1986 EQBA Title 3 and Responsible Party (RP) sites...." to determine soil cleanup levels. The TAGM provides a number of methods to determine the degree to which these sites are cleaned up including recommended soil cleanup objectives and Eastern USA background concentrations (both of which are recognized as the NYSDEC TAGM criteria).

The Plant 12 property is not a Federal Superfund or State Superfund site nor is it an RP or 1986 EQBA Title 3 property. However, we believe it is reasonable to establish the NYSDEC TAGM criteria for VOCs and SVOCs and the Eastern USA background levels for metals, as presented in the TAGM, as the levels of cleanup across the site. The proposed revised NYSDEC TAGM criteria for cadmium and chromium (NYSDEC TAGM amendment dated April 7, 1995) were established as the levels of cleanup for the site for these metals.

Also, as presented in the TAGM, in addition to the criteria for *individual* compounds, the criterion for *total* SVOCs of 500,000 ug/kg, the criterion for *total* PAHs of 100,000 ug/kg and the criterion for *total* CaPAHs of 10,000 ug/kg, and the criteria for *total* VOCs of 10,000 ug/kg were utilized for comparison.

In addition, those samples analyzed for total VOCs and SVOCs listed in Tables 1 and 2 of Appendix B in NYSDEC's Spill Technology and Remediation Series (STARS) Memo #1 were compared to STARS Tables 1 and 2 Human Health guidance values. Also, those samples analyzed for VOCs and SVOCs listed in Tables 1 and 2 of Appendix B in NYSDEC's Spill Technology and Remediation Series (STARS) Memo #1 by Toxicity Characteristic Leaching Procedure (TCLP) were compared to STARS Tables 1 and 2 TCLP Extraction guidance values.

Although there is no NYSDEC TAGM criteria for hexavalent chromium, discussions with NYSDEC representatives indicate that a level of 50 mg/kg has been utilized.

The analytical results of the samples collected for laboratory analysis during the Delineation Phase II Site Assessment field investigation are summarized in comparison to appropriate NYSDEC TAGM criteria, STARS Human Health and TCLP guidance values and Eastern USA background levels on Table 6-1. The summary table is included at the end of this section of the report. It should be noted that Table 6-1 indicates only those constituents of concern that were detected in the samples at concentrations that were in excess of the NYSDEC TAGM criteria, STARS Human Health and TCLP guidance values and Eastern USA background levels. Conclusions are presented in Sections 6.1 through 6.7 which follow.

## **6.1 Plant 12 Interior**

### **6.1.1 Machine Shop**

As discussed in Section 5, one soil sample was collected at soil boring location B-3AA and analyzed for arsenic, nickel and hexavalent chromium during the Delineation Phase II Site Assessment field investigation. The soil boring was advanced immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment. It is important to note that soil sample B-3AA (0-2') was collected and analyzed for arsenic, nickel and hexavalent chromium during the Delineation Phase II Site Assessment field investigation in order to confirm the results of soil sample B-3A (0-2') collected during the Supplemental Phase II Site

Assessment in which arsenic, nickel and chromium were detected above Eastern USA background levels.

As discussed in Section 5, the analytical results of soil sample B-3AA (0-2') indicate that nickel, arsenic and hexavalent chromium were detected at concentrations that were below Eastern USA background levels.

Based on the above information, remediation of the soil beneath the floor of the Machine Shop in the vicinity of soil borings B-3A and B-3AA is not warranted.

#### 6.1.2 Trench in EMT Lab No. 1

As discussed in Section 5, 10 soil samples were collected at soil boring locations B-7AA, B-7AN7, B-7AS7, B-7AE7 and B-7AW7 and analyzed for STARS total VOCs/SVOCs, STARS SVOCs by TCLP and mercury during the Delineation Phase II Site Assessment field investigation. The soil borings were advanced immediately adjacent to and 7 feet north, south, east and west of soil boring B-7A advanced during the Supplemental Phase II Site Assessment.

It is important to note that the soil samples collected at soil boring location B-7AA were analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated levels of TPHCs and identification of lubricating oil in the soil samples collected at soil boring location B-7A during the Supplemental Phase II Site Assessment. In addition, the soil samples collected at soil boring locations B-7AA, B-7AN7, B-7AS7, B-7AE7 and B-7AW7 were analyzed for mercury during the Delineation Phase II Site Assessment field investigation in order to confirm and delineate the results of the soil samples collected at soil boring location B-7A during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS total VOCs/SVOCs and STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed

STARS Tables 1 and 2 Human Health and TCLP Extraction guidance values in the soil samples collected at soil borings B-7AA, B-7AN7, B-7AS7, B-7AE7 and B-7AW7. However, as shown on Table 6-1, the analytical results of the Delineation Phase II Site Assessment indicate that mercury was detected at concentrations that exceeded Eastern USA background levels in soil samples B-7AA (0-2') and B-7AN7 (0-2').

Based on the above information, the soil at least 2 feet beneath the trench floor in the vicinity of soil borings B-7AA and B-7AN7 is primarily impacted by mercury. Therefore, the mercury-impacted soil beneath the trench floor at B-7AA and B-7AN7 is an area to be considered for remediation.

#### 6.1.3 Trench in Staffed Machine Shop

As discussed in Section 5, three soil samples were collected at soil boring locations B-8AA and B-8BA and analyzed for mercury during the Delineation Phase II Site Assessment field investigation. The soil borings were advanced immediately adjacent to the soil borings advanced during the Supplemental Phase II Site Assessment. In addition, the soil samples collected at soil boring locations B-8AA and B-8BA were split and analyzed by two independent laboratories.

It is important to note that the soil samples collected at soil boring locations B-8AA and B-8BA were analyzed for mercury during the Delineation Phase II Site Assessment field investigation in order to confirm the results of the soil samples collected at soil boring location B-8A and B-8B during the Supplemental Phase II Site Assessment.

As shown on Table 6-1, the analytical results of soil sample B-8AA (2'-4') indicate that mercury was detected at concentrations that exceeded NYSDEC TAGM criteria in the split samples analyzed by both laboratories. In addition, mercury was detected at a concentration that exceeded Eastern USA background levels in soil sample B-8BA (0-2') analyzed by both laboratories.

Based on the above information, the soil at least 4 feet beneath the trench floor in the vicinity of soil boring B-8AA is primarily impacted by mercury and the soil 2 feet beneath the trench floor in the vicinity of soil boring B-8BA is also primarily impacted by mercury. As a result, the mercury-impacted soil beneath the trench floor in the vicinity of soil borings B-8AA and B-8BA are areas to be considered for remediation.

#### 6.1.4 Resin Transfer Molding Lab (Autoclave Lay-up Area)

As discussed in Section 5, 11 soil samples were collected at soil boring locations B-12AA, B-12AN7, B-12AS7, B-12AE5 and B-12AW7 and analyzed for lead during the Delineation Phase II Site Assessment field investigation. The soil borings were conducted immediately adjacent to and 7 feet north, 7 feet south, 5 feet east and 7 feet west of soil boring B-12A advanced during the Supplemental Phase II Site Assessment.

It is important to note that the soil samples collected at soil boring locations B-12AA, B-12AN7, B-12AS7, B-12AE5 and B-12AW7 were analyzed for lead during the Delineation Phase II Site Assessment field investigation in order to confirm and delineate the results of the soil samples collected at soil boring location B-12A during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, lead was not detected at concentrations exceeding Eastern USA background levels in the soil samples collected at soil boring locations B-12AA, B-12AN7, B-12AS7, B-12AE5 and B-12AW7 during the Delineation Phase II Site Assessment field investigation.

Based on the above information, the soil beneath the floor of the Resin Transfer Molding Lab (Autoclave Lay-up Area) in the vicinity of soil borings B-12AA, B-12AN7, B-12AS7, B-12AE5 and B-12AW7 exhibits minor concentrations of lead. However, due to the fact that lead was not detected at concentrations exceeding Eastern USA background levels, remediation



of soil beneath the floor of the Resin Transfer Molding Lab (Autoclave Lay-up Area) in the vicinity of soil borings B-12AA, B-12AN7, B-12AS7, B-12AE5 and B-12AW7 is not warranted.

## **6.2 Plant 12A Interior**

### **6.2.1 Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop**

As discussed in Section 5, one soil sample was collected at soil boring location B-26AA and analyzed for mercury during the Delineation Phase II Site Assessment field investigation. The soil boring was advanced immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment.

It should be noted that the soil sample collected at soil boring location B-26AA was split and analyzed by two independent laboratories for mercury during the Delineation Phase II Site Assessment field investigation in order to confirm the result of the soil sample collected at soil boring location B-26A during the Supplemental Phase II Site Assessment in which mercury was detected at a concentration which exceeded Eastern USA background levels.

As the analytical results in Section 5 indicate, mercury was not detected in either of the split soil samples B-26AA (7'-9') analyzed by both laboratories. Therefore, remediation of the soil beneath the former dry well located beneath the Lobby/Loading Area in the vicinity of soil boring B-26AA is not warranted.

## **6.3 Megapound Test Lab Interior**

### **6.3.1 Former Leaching Pool Beneath Megapound**

As discussed in Section 5, one soil sample was collected at soil boring location B-32AA and analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation. The soil boring was advanced

immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment.

It is important to note that the soil sample collected at soil boring location B-32AA was analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated level of TPHCs detected in the soil samples collected during the Supplemental Phase II Site Assessment. In addition, TPHCs, as lubricating oil were identified as “present” in the soil samples collected during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS total VOCs/SVOCs and STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed STARS Tables 1 and 2 Human Health and TCLP Extraction guidance values, respectively. Therefore, remediation of the soil beneath the leaching pool in the vicinity of soil boring B-32AA is not warranted.

### 6.3.2 Sanitary Leaching Pool (South) Beneath Megapound

As discussed in Section 5, two soil samples were collected at soil boring B-22DA and analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation. The soil boring was advanced immediately adjacent to the soil boring advanced during the Supplemental Phase II Site Assessment.

It is important to note that the soil samples collected at soil boring location B-22DA were analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated level of TPHCs detected in the soil samples collected during the Supplemental Phase II Site Assessment. In addition, TPHCs, as lubricating oil were identified as “present” in the soil samples collected during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS total VOCs/SVOCs and STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed STARS Tables 1 and 2 Human Health and TCLP Extraction guidance values, respectively. Therefore, remediation of the soil beneath the former leaching pool in the vicinity of soil boring B-22DA is not warranted.

## **6.4 Plant 12 Exterior**

### **6.4.1 Chemical Storage Area/Concrete Platform**

As discussed in Section 5, 19 soil samples were collected at soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14, B-17BE7, B-17BE14 and B-17BW7. The soil samples collected at soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14, B-17BE7, B-17BE14 and B-17BW7 were analyzed for one or more of the following analytical parameters: STARS total VOCs/SVOCs, STARS SVOCs by TCLP, PCBs or priority pollutant metals.

As shown on Table 6-1, the criteria for *total* PCBs was exceeded in soil samples B-17BA (4'-6') and B-17BA (6'-8'). In addition, the results of soil samples B-17BN7 (0-2'), B-17BS7 (0-2') and B-17BE7 (0-2') indicated that SVOCs were detected at elevated concentrations that were in excess of the STARS Tables 1 and 2 Human Health guidance values. However, the criteria for STARS SVOCs by TCLP were not exceeded in these samples. Also, arsenic, mercury and zinc were detected at concentrations that exceeded Eastern USA background levels in several soil samples collected at soil boring locations B-17BN7, B-17BN14, B-17BS7, B-17BS14 and B-17BE7. However, it is important to note that zinc is not classified as a RCRA metal, that is, a metal which in elevated concentrations could be classified as a hazardous waste. In addition, elemental zinc is not identified as hazardous constituents in Appendix 23 of the NYSDEC's regulations found at 6 NYCRR Part 371. As a result, slightly elevated levels of zinc do not appear to warrant further investigation.

Based on the above, the soil beneath the platform at soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14 and B-17BE7 is primarily impacted by PCBs, SVOCs and metals. Therefore, the impacted soil beneath the platform in the vicinity of soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14 and B-17BE7 are areas to be considered for remediation.

#### 6.4.2 Area Outside of Machine Shop

As discussed in Section 5, 19 soil samples were collected at soil boring locations B-19AA, B-19AN12, B-19AN14, B-19AE7, B-19AW10 and B-19AW14. The soil samples collected at soil boring locations B-19AA, B-19AN12, B-19AN14, B-19AE7, B-19AW10 and B-19AW14 were analyzed for one or more of the following analytical parameters: VOCs, SVOCs, STARS SVOCs by TCLP or priority pollutant metals.

As shown on Table 6-1, the results of soil samples B-19AN12 (0-2'), B-19AN12 (2'-4'), B-19AN12 (4'-6'), B-19AN12 (6'-8'), B-19AN14 (0-2'), B-19AE7 (0-2') and B-19AW10 (0-2') indicated that SVOCs were detected at elevated concentrations that were in excess of the NYSDEC TAGM criteria. In addition, mercury and zinc were detected at concentrations that exceeded Eastern USA background levels in soil sample B-19AN12 (0-2') and, copper and zinc were detected at concentrations that exceeded Eastern USA background levels in soil sample B-19AE7 (0-2'). Also, arsenic, chromium, copper, mercury, selenium and zinc were detected at concentrations that exceeded Eastern USA background levels in soil sample B-19AW10 (0-2') and arsenic was detected in soil sample B-19AW14 (0-2') at a concentration that exceeded Eastern USA background levels. However, it is important to note that neither copper nor zinc are classified as RCRA metals, that is, metals which in elevated concentrations could be classified as a hazardous waste. In addition, neither elemental copper, selenium nor zinc are identified as hazardous constituents in Appendix 23 of the NYSDEC's regulations found at 6 NYCRR Part 371. As a result, copper and zinc do not appear to warrant further investigation.

Based on the above information, the soil at least 4 feet below grade in the vicinity of soil boring B-19AN12 is primarily impacted by SVOCs and mercury. In addition, the soil at least 2 feet below grade in the vicinity of soil boring B-19AE7 is primarily impacted by SVOCs and the soil at least 2 feet below grade in the vicinity of soil borings B-19AW10 and B-19AW14 is primarily impacted by SVOCs and metals. Therefore, the impacted soil in the vicinity of soil boring locations B-19AN12, B-19AN14, B-19AE7, B-19AW10 and B-19AW14 are areas to be considered for remediation.

#### 6.4.3 Sanitary Leaching Pools (North and South)

As discussed in Section 5, 17 soil samples were collected at soil boring locations B-22AA, B-22BA, B-22CA, B-22EA, B-22FA and B-22LA and analyzed for one or more of the following analytical parameters: VOCs, SVOCs, STARS total VOCs/SVOCs, STARS SVOCs by TCLP, PCBs and/or priority pollutant metals. These soil borings were advanced immediately adjacent to soil borings B-22A, B-22B, B-22C, B-22E, B-22F and B-22L advanced during the Supplemental Phase II Site Assessment.

It is important to note that the soil samples collected at soil boring locations B-22AA, B-22BA and B-22CA were analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP due to the elevated levels of TPHCs and presence of lubricating oil in the soil samples collected at soil boring locations B-22A, B-22B and B-22C during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, VOCs, STARS total VOCs, SVOCs, STARS total SVOCs, STARS SVOCs by TCLP and PCBs were either not detected or were detected at concentrations that did not exceed applicable NYSDEC TAGM criteria, STARS Tables 1 and 2 Human Health and/or TCLP Extraction guidance values in the soil samples collected at soil boring locations B-22AA, B-22BA and B-22CA.

As shown on Table 6-1, the results of soil samples B-22BA (8'-10') and B-22CA (8'-10') indicate that copper and mercury were detected at concentrations that exceeded Eastern USA background levels. In addition, chromium and copper were detected at concentrations that exceeded Eastern USA background levels in the soil samples collected at soil boring location B-22B and chromium, copper, mercury and zinc were detected at concentrations that exceeded Eastern USA background levels in the soil samples collected at soil boring location B-22C during the Supplemental Phase II Site Assessment. However, it is important to note that neither copper nor zinc are classified as RCRA metals, that is, metals which in elevated concentrations could be classified as a hazardous waste. In addition, neither elemental copper nor zinc are identified as hazardous constituents in Appendix 23 of the NYSDEC's regulations found at 6 NYCRR Part 371. As a result, copper and zinc do not appear to warrant further investigation. Therefore, mercury-impacted soil in the vicinity of soil borings B-22BA and B-22CA are areas to be considered for remediation.

As the analytical results in Section 5 indicate, VOCs, PCBs, priority pollutant metals and mercury were either not detected or were detected at concentrations that did not exceed applicable NYSDEC TAGM criteria or Eastern USA background levels in the soil samples collected at soil boring locations B-22EA, B-22FA and B-22LA. However, as shown on Table 6-1, the results of soil sample B-22LA (8'-10') indicate that six SVOCs were detected at concentrations that exceeded the individual NYSDEC TAGM criteria; however, the criteria for *total SVOCs*, *total PAHs* and *total CaPAHs* were not exceeded.

It should be noted that PCBs were detected in soil samples B-22E (10'-12') and B-22E (20'-22') at a concentration that exceeded NYSDEC TAGM criterion during the Supplemental Phase II Site Assessment. In addition, the analytical results of soil sample B-22E (20'-22') indicate that copper, mercury and zinc were detected at concentrations that exceeded Eastern USA background levels. Therefore, soil in the immediate vicinity of soil boring B-22E is primarily impacted by mercury and PCBs. Therefore, the mercury and PCB-impacted soil in the vicinity of soil boring B-22E is an area to be considered for remediation.

Also, the analytical results of the soil samples collected at boring B-22F during the Supplemental Phase II Site Assessment indicate that seven SVOCs were detected at concentrations exceeding individual NYSDEC TAGM criteria and the criterion for *total* CaPAHs. However, the criteria for *total* SVOCs and *total* PAHs were not exceeded. In addition, PCBs were detected at a concentration that exceeded the NYSDEC TAGM criterion. As a result, soil in the immediate vicinity of soil boring B-22F is impacted by SVOCs (mainly CaPAHs) and PCBs. Therefore, SVOC and PCB-impacted soil in the vicinity of soil boring B-22F is an area to be considered for remediation.

As discussed above, the analytical results of soil sample B-22LA (8'-10') indicate that six SVOCs were detected at concentrations that exceeded the individual NYSDEC TAGM criteria; however, the criteria for *total* SVOCs, *total* PAHs and *total* CaPAHs were not exceeded. As a result, remediation of the soil in the immediate vicinity of soil boring B-22LA is not warranted.

#### 6.4.4 Anomalous Features/Unknown Buried Structures (North)

As discussed in Section 5, 55 soil samples were collected at soil boring locations B-22GA, B-22GN7, B-22GS7, B-22GE7, B-22GE14, B-22GW7, B-22GW14, B-22HA, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HE14, B-22HW7, B-22JN7, B-22JN14, B-22JS7, B-22JS14, B-22JE7, B-22JE14, B-22JW7 and B-22JW14 and analyzed for one or more of the following analytical parameters: SVOCs, PCBs, arsenic and mercury.

It is important to note that the soil samples collected at soil boring locations B-22HA, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HW7, B-22JN7, B-22JS7, B-22JS14, B-22JE7 and B-22JW7 were analyzed for SVOCs during the Delineation Phase II Site Assessment field investigation in order to confirm and delineate the results of the soil samples collected at soil boring location B-22H and B-22J during the Supplemental Phase II Site Assessment in which several SVOCs were detected at concentrations that exceeded NYSDEC TAGM criteria for *individual* compounds as well as two samples which exceeded the criterion for *total* CaPAHs. In addition, the soil samples collected at soil boring locations B-22JN7, B-22JN14, B-22JS7,

B-22JS14, B-22JE7, B-22JE14 and B-22JW7 were analyzed for PCBs during the Delineation Phase II Site Assessment field investigation in order to delineate the results of the soil samples collected at soil boring location B-22J during the Supplemental Phase II Site Assessment in which PCBs were detected at concentrations that exceeded the NYSDEC TAGM criterion.

Also, the soil samples collected at soil boring locations B-22GA, B-22GN7, B-22GS7, B-22GE7, B-22GE14, B-22GW7, B-22GW14, B-22HA, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HE14, B-22HW7, B-22JN7, B-22JN14, B-22JS7, B-22JS14, B-22JE7, B-22JE14, B-22JW7 and B-22JW14 were analyzed for arsenic and/or mercury during the Delineation Phase II Site Assessment field investigation in order to confirm and delineate the results of the soil samples collected at soil boring location B-22G, B-22H, B-22J during the Supplemental Phase II Site Assessment in which arsenic and/or mercury were detected at concentrations that exceeded the NYSDEC TAGM criteria.

As shown on Table 6-1, several SVOCs were detected at concentrations that exceeded *individual* NYSDEC TAGM criteria in the soil samples collected at soil boring locations B-22HA, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HW7, B-22JN7, B-22JS7, B-22JS14, B-22JE7 and B-22JW7. More importantly, soil samples B-22HS7 (0-2'), B-22HS14 (0-2') and B-22JS7 (0-2') contained SVOCs at levels that exceeded the criterion for *total* CaPAHs. However, the criteria for *total* SVOCs was not exceeded. In addition, PCBs were detected at concentrations in excess of the NYSDEC TAGM criterion in soil samples B-22JN7 (0-2'), B-22JS7 (0-2') and B-22JE7 (0-2').

Also, arsenic and mercury were detected at concentrations that exceeded Eastern USA background levels in soil samples B-22GN7 (0-2'), B-22GE7 (0-2'), B-22GW7 (0-2'), B-22JN7 (0-2'), B-22JS7 (0-2'), B-22JW7 (0-2') and B-22JW14 (0-2') and; arsenic was detected at concentrations that exceeded Eastern USA background levels in soil samples B-22GA (0-2'), B-22GW14 (0-2'), B-22HN7 (0-2'), B-22HE7 (0-2'), B-22HE14 (0-2') and B-22HW7 (0-2'). In addition, mercury was detected at concentrations that exceeded Eastern USA background levels in soil samples B-22JS14 (4'-6'), B-22JE7 (2'-4'), B-22JE14 (2'-4') and B-22JW7 (2'-4').



Based on the above, the soil at a depth of at least 2 feet below grade in the immediate vicinity of soil boring locations B-22HS7, B-22HS14 and B-22JS7 is impacted by SVOCs. In addition, the soil at a depth of at least 2 feet below grade in the immediate vicinity of soil boring locations B-22JN7, B-22JS7 and B-22JE7 is impacted by PCBs. Also, the soil at a depth of at least 2 feet below grade in the immediate vicinity of soil boring locations B-22GA, B-22GN7, B-22GE7, B-22GW7, B-22GW14, B-22HN7, B-22HE7, B-22HE14, B-22HW7, B-22JN7, B-22JS7, B-22JE7, B-22JW7 and B-22JW14 is impacted by arsenic and/or mercury. Therefore, the SVOC, PCB, arsenic and/or mercury-impacted soil in the immediate vicinity of soil boring locations B-22GA, B-22GN7, B-22GE7, B-22GW7, B-22GW14, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HE14, B-22HW7, B-22JN7, B-22JS7, B-22JE7, B-22JW7 and B-22JW14 are areas to be considered for remediation.

In addition, the soil at a depth of at least 4 feet below grade in the immediate vicinity of soil boring locations B-22JE14 and B-22JW7 and the soil at a depth of at least 6 feet below grade in the immediate vicinity of soil boring location B-22JS14 is impacted by mercury. Therefore, the mercury-impacted soil in the immediate vicinity of soil boring locations B-22JS14, B-22JE14 and B-22JW7 are areas to be considered for remediation.

#### 6.4.5 Former Pit East of Sump #2

As discussed in Section 5, two soil samples were collected from soil boring B-42AA and analyzed for mercury during the Delineation Phase II Site Assessment field investigation. Soil boring B-42AA was advanced immediately adjacent to soil boring B-42A advanced during the Supplemental Phase II Site Assessment. In addition, the soil samples collected at soil boring location B-42AA were split and analyzed by two independent laboratories.

It is important to note that the soil samples collected at soil boring location B-42AA were analyzed for mercury during the Delineation Phase II Site Assessment field investigation in order to confirm the results of the soil samples collected at soil boring location B-42A during the

Supplemental Phase II Site Assessment in which mercury was detected at concentrations that exceeded Eastern USA background levels.

As the analytical results in Section 5 indicate, mercury was not detected in the soil samples collected at soil boring location B-42AA during the Delineation Phase II Site Assessment field investigation. Therefore, remediation of the soil in the vicinity of soil borings B-42A and B-42AA is not warranted.

#### 6.4.6 Resin Waste Pit (Sump #1)

As discussed in Section 5, 24 soil samples were collected from soil boring locations RWP-1, RWP-2, RWP-3, RWP-4, RWP-5 and RWP-6 and analyzed for VOCs, SVOCs, PCBs and priority pollutant metals during the Delineation Phase II Site Assessment field investigation. In addition, the location of each soil boring was based on the results of a geophysical survey that was conducted during the Supplemental Phase II Site Assessment in which several anomalies were apparent within the survey area.

As the analytical results in Section 5 indicate, PCBs and priority pollutant metals were either not detected or were detected at concentrations that did not exceed applicable NYSDEC TAGM criteria or Eastern USA background levels in the soil samples collected at soil boring locations RWP-1, RWP-2, RWP-3, RWP-4, RWP-5 and RWP-6. However, as shown on Table 6-1, butylbenzylphthalate was detected at concentrations that exceeded NYSDEC TAGM criteria in soil samples RWP-1 (12'-14'), RWP-2 (14'-16'), RWP-3 (8'-10'), RWP-4 (15'-17'), RWP-5 (6'-8'), RWP-6 (6'-8') and RWP-6 (8'-10'). In addition, di-n-butylphthalate was detected at a concentration that exceeded NYSDEC TAGM criteria in soil sample RWP-3 (8'-10'). However, it should be noted that the criteria for *total* SVOCs and *total* CaPAHs were not exceeded in these samples. Also, 1,1,1-trichloroethane was detected at a concentration that exceeded NYSDEC TAGM criteria in soil sample RWP-1 (12'-14'); however, the criteria for *total* VOCs was not exceeded.

Based on the above, remediation of the soil in the vicinity of soil borings RWP-1, RWP-2, RWP-3, RWP-4, RWP-5 and RWP-6 is not warranted.

#### 6.4.7 Former Trenches to Resin Waste Pit (Sump #1)

As discussed in Section 5, 15 soil samples were collected at soil boring locations B-43AA, B-43AN7, B-43AS7, B-43AS14, B-43AE5, B-43AE14 and B-43AW7 and analyzed for one or more of the following analytical parameters: STARS total VOCs/SVOCs, STARS SVOCs by TCLP and PCBs during the Delineation Phase II Site Assessment field investigation.

It should be noted that the soil samples collected at soil boring locations B-43AA, B-43AN7, B-43AS7, B-43AE5 and B-43AW7 were analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated levels of TPHCs and presence of lubricating oil in the soil samples collected at soil boring location B-43A during the Supplemental Phase II Site Assessment. In addition, the soil samples collected at soil boring locations B-43AN7, B-43AS7, B-43AS14, B-43AE5, B-43AE14 and B-43AW7 were analyzed for PCBs during the Delineation Phase II Site Assessment field investigation in order to delineate the results of the soil sample collected at soil boring location B-43A during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS total VOCs/SVOCs, STARS SVOCs by TCLP and PCBs were either not detected or were detected at concentrations that did not exceed applicable STARS Tables 1 and 2 Human Health and TCLP Extraction guidance values or NYSDEC TAGM criteria in the soil samples collected at soil boring locations B-43AA, B-43AS14 and B-43AE14. However, as shown on Table 6-1, several STARS SVOC compounds, including benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values in soil samples B-43AN7 (0-2'), B-43AS7 (0-2') and B-43AW7 (0-2'). In addition, PCBs were detected at concentrations that exceeded NYSDEC TAGM criteria in soil samples B-43AS7 (0-2') and B-43AE5 (2'-4').

Based on the above, STARS SVOC-impacted soil in the vicinity of soil borings B-43AN7 and B-43AE5 are areas to be considered for remediation. In addition, the PCB-impacted soil in the vicinity of soil borings B-43AS7 and B-43AE5 are areas to be considered for remediation.

#### 6.4.8 Dry Well Northeast of Plant 12

As discussed in Section 5, three soil samples were collected at soil boring location B-45AA and analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation. Soil boring B-45AA was advanced immediately adjacent to soil boring B-45A advanced during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed applicable STARS TCLP Extraction guidance values in the soil samples collected at soil boring location B-45AA. However, as shown on Table 6-1, several STARS SVOC compounds, including benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values in soil samples B-45AA (6'-8') and B-45AA (8'-10').

Based on the above, STARS Tables 1 and 2 SVOC-impacted soil in the vicinity of soil boring B-45AA is an area to be considered for remediation.

### 6.5 **Plant 12A Exterior**

#### 6.5.1 Leaching Chamber North of Carpentry Shop

As discussed in Section 5, three soil samples were collected at soil boring location B-16AA and analyzed for VOCs, SVOCs, PCBs and priority pollutant metals during the

Delineation Phase II Site Assessment field investigation. Soil boring B-16AA was advanced immediately adjacent to soil boring B-16A advanced during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, VOCs, PCBs, chromium and mercury were either not detected or were detected at concentrations that did not exceed applicable NYSDEC TAGM criteria in the soil samples collected at soil boring location B-16AA. However, as shown on Table 6-1, the analytical results of soil sample B-16AA (10'-12') indicated that several SVOCs were detected at concentrations that exceeded individual NYSDEC TAGM criteria in soil to a depth of at least 12 feet below grade. However, the criteria for *total* SVOCs and *total* CaPAHs were not exceeded.

In addition, as shown on Table 6-1, zinc was detected at a concentration that exceeded the Eastern USA background level in sample B-16AA (10'-12') and; nickel and zinc were detected at concentrations that exceeded Eastern USA background levels in sample B-16AA (16'-18'). However, it is important to note that neither nickel nor zinc are classified as RCRA metals, that is, metals which in elevated concentrations could be classified as a hazardous waste. In addition, neither elemental nickel nor zinc are identified as hazardous constituents in Appendix 23 of the NYSDEC's regulations found at 6 NYCRR Part 371. As a result, nickel and zinc do not appear to warrant further investigation.

Based on the above information, remediation of the soil in the vicinity of soil boring location B-16AA is not warranted.

#### 6.5.2 Drainage Chamber North of Lobby/Loading Area

As discussed in Section 5, two soil samples were collected at soil boring location B-30AA and analyzed for VOCs, SVOCs, STARS SVOCs by TCLP, PCBs and priority pollutant metals during the Delineation Phase II Site Assessment field investigation. Soil boring B-30AA

was advanced immediately adjacent to soil boring B-30A advanced during the Supplemental Phase II Site Assessment.

It should be noted that the soil samples collected at soil boring locations B-30AA were analyzed for STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated levels of TPHCs and presence of lubricating oil in the soil samples collected at soil boring location B-30A during the Supplemental Phase II Site Assessment. In addition, the soil samples collected at soil boring location B-30AA were analyzed for VOCs, SVOCs, PCBs and metals during the Delineation Phase II Site Assessment field investigation in order to confirm and delineate the results of the soil sample collected at soil boring location B-30A collected during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, VOCs, STARS SVOCs by TCLP and PCBs were either not detected or were detected at concentrations that did not exceed applicable NYSDEC TAGM criteria or STARS Tables 1 and 2 TCLP Extraction guidance values in the soil samples collected at soil boring location B-30AA. However, as shown on Table 6-1, the analytical results of soil sample B-30AA (6'-8') indicated that benzo(a)pyrene, copper and zinc were detected at concentrations that exceeded NYSDEC TAGM criteria. In addition, zinc was detected at a concentration that exceeded the NYSDEC TAGM criteria in soil sample B-30AA (8'-10'). However, as previously discussed, neither copper nor zinc are classified as RCRA metals, that is, metals which in elevated concentrations could be classified as a hazardous waste. Therefore, copper and zinc do not appear to warrant further investigation. Also, although benzo(a)pyrene was detected at a concentration that exceeded the individual NYSDEC TAGM criteria, the criteria for *total* SVOCs and *total* CaPAHs was not exceeded. As a result, benzo(a)pyrene does not appear to warrant further investigation. Therefore, remediation of the soil in the vicinity of soil boring location B-30AA is not warranted.

### 6.5.3 Former Drainage Trench East of Plant 12A

As discussed in Section 5, nine soil samples were collected at soil boring locations B-38BA, B-38BN7, B-38BS7, B-38BE7 and B-38BW7 and analyzed for STARS total VOC/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation. Soil boring B-38BA was advanced immediately adjacent to soil boring B-38B advanced during the Supplemental Phase II Site Assessment. Soil borings B-38BN7, B-38BS7, B-38BE7 and B-38BW7 were advanced 7 feet north, south, east and west of soil boring B-38B advanced during the Supplemental Phase II Site Assessment.

It should be noted that the soil samples collected at soil boring locations B-38BA, B-38BN7, B-38BS7, B-38BE7 and B-38BW7 were analyzed for STARS total VOC/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated levels of TPHCs and presence of lubricating oil in the soil samples collected at soil boring location B-38B during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS total VOCs were not detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values. However, as shown on Table 6-1, the analytical results of soil samples B-38BN7 (1'-3') and B-38BS7 (1'-3') indicated that benzo(a)pyrene was detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values. In addition, benzo(a)anthracene and benzo(b)fluoranthene were detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values in soil sample B-38BS7 (1'-3'). However, STARS SVOCs by TCLP were not detected in the soil samples collected at soil boring locations B-38BA, B-38BN7, B-38BS7, B-38BE7 and B-38BW7. In addition, the criteria for *total* CaPAHs was not exceeded in soil samples B-38BN7 (1'-3') and B-38BS7 (1'-3').

Based on the above information, remediation of the soil in the vicinity of soil boring locations B-38BN7 and B-38BS7 is not warranted.

## 6.6 Exterior Areas

### 6.6.1 Southern Parking Lot

As discussed in Section 5, 10 soil samples were collected at soil boring locations B-35AA, B-35AN7, B-35AS7 and B-35AE7 and analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation. It should be noted that a soil boring could not be advanced west of soil boring B-35AA due to the close proximity of the Plant 12 property boundary.

It is important to note that the soil samples collected at soil boring locations B-35AA, B-35AN7, B-35AS7 and B-35AE7 were analyzed for STARS total VOCs/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation due to the elevated levels of TPHCs and identification of #4 Fuel Oil in the soil samples collected at soil boring location B-35A during the Supplemental Phase II Site Assessment.

As the analytical result in Section 5 indicate, STARS total VOCs/SVOCs and STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed STARS Tables 1 and 2 Human Health and TCLP Extraction guidance values in the soil samples collected at soil borings B-35AA, B-35AN7, B-35AS7 and B-35AE7. Therefore, remediation of the soil in the vicinity of soil boring locations B-35AA, B-35AN7, B-35AS7 and B-35AE7 is not warranted.

### 6.6.2 Existing and Former Recharge Basins

As discussed in Section 5, one soil sample was collected from soil boring B-36AA and analyzed for PCBs during the Delineation Phase II Site Assessment field investigation. Soil boring B-36AA was advanced immediately adjacent to soil boring B-36A advanced during the Supplemental Phase II Site Assessment. In addition, the soil sample collected at soil boring location B-36AA was split and analyzed by two independent laboratories.



It is important to note that the soil sample collected at soil boring location B-36AA was analyzed for PCBs during the Delineation Phase II Site Assessment field investigation in order to confirm the results of the soil sample collected at soil boring location B-36A during the Supplemental Phase II Site Assessment in which PCBs were detected at concentrations that exceeded NYSDEC TAGM criterion.

As the analytical results in Section 5 indicate, PCBs were not detected above the NYSDEC TAGM criterion in the split soil samples collected at soil boring location B-36AA during the Delineation Phase II Site Assessment field investigation. Therefore, remediation of the soil in the vicinity of soil boring B-36AA is not warranted.

#### 6.6.3 Former Drainage Basin

As discussed in Section 5, 92 soil samples were collected at soil boring locations B-37AA, B-37AN8, B-37AN16, B-37ANW8, B-37ANW16, B-37ANW24, B-37AS8, B-37AS8A, B-37AS16, B-37AS16A, B-37AS32, B-37ASE8, B-37ASE16, B-37ASE32, B-37AE8, B-37AE16, B-37AW8, B-37AW8A, B-37AW16, B-37AW16A and B-37AW24, and analyzed for one or more of the following analytical parameters: VOCs, SVOCs, PCBs and priority pollutant metals during the Delineation Phase II Site Assessment field investigation.

It should be noted that the soil samples collected at soil boring locations B-37AA, B-37AN8, B-37AN16, B-37AS8, B-37AS16, B-37AE8, B-37AE16, B-37AW8 and B-37AW16 were analyzed for VOCs, SVOCs, PCBs and priority pollutant metals during the Delineation Phase II Site Assessment field investigation in order to confirm and/or delineate the results of the soil samples collected at soil boring location B-37A during the Supplemental Phase II Site Assessment.

In addition, based on the results of the soil samples collected at the soil borings identified above, 64 additional soil samples were collected at soil boring locations B-37AS8A,

B-37AS16A, B-37AS32, B-37ASE8, B-37ASE16, B-37ASE32, B-37AW8A, B-37AW16A, B-37AW24, B-37ANW8, B-37ANW16 and B-37ANW24, and analyzed for PCBs and/or chromium during the Delineation Phase II Site Assessment.

As the analytical results in Section 5 indicate, VOCs were not detected at concentrations exceeding NYSDEC TAGM criteria in the soil samples collected at soil boring locations B-37AA, B-37AN8, B-37AS8, B-37AE8 and B-37AW8. However, as shown on Table 6-1, several SVOCs, including benzo(a)anthracene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations that exceeded NYSDEC TAGM criteria in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37AS8 (2'-4'), B-37AE8 (0-2'), B-37AW8 (0-2') and B-37AW8 (2'-4'). However, although several SVOCs were detected at concentrations that exceeded the individual NYSDEC TAGM criteria, the criteria for *total* SVOCs and *total* CaPAHs was not exceeded. In addition, PCBs were detected at concentrations that exceeded NYSDEC TAGM criteria in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2'), B-37ANW8 (0-2'), B-37ANW16 (0-2'), B-37AS8 (2'-4'), B-37AS8 (4'-6'), B-37AS8 (6'-8'), B-37AS16 (2'-4'), B-37AS16 (4'-6'), B-37AS16 (6'-8'), B-37AS16A (8'-10'), B-37AS32 (8'-10'), B-37ASE8 (0-2'), B-37ASE8 (4'-6'), B-37ASE16 (0-2'), B-37ASE32 (0-2'), B-37AE8 (0-2'), B-37AW8 (2'-4'), B-37AW8 (6'-8'), B-37AW8A (16'-18'), B-37AW16 (6'-8') and B-37AW24 (4'-6').

Also, chromium was detected at concentrations that exceeded Eastern USA background levels in the soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AS8 (2'-4'), B-37AS8 (4'-6'), B-37AS8 (6'-8'), B-37AS16 (2'-4'), B-37AS16 (6'-8'), B-37AS16A (8'-10'), B-37AS32 (8'-10'), B-37ASE8 (0-2'), B-37ASE8 (4'-6'), B-37ASE16 (0-2') and B-37ASE32 (0-2'), and mercury was detected at a concentration that exceeded Eastern USA background levels in the soil sample B-37AA (0-2').

In addition, copper and zinc were detected at concentrations that exceeded Eastern USA background levels in soil samples B-37AA (0-2'), B-37AA (2'-4'), B-37AN8 (0-2') and B-37AS8 (2'-4') and copper was detected at concentrations that exceeded Eastern USA

background levels in soil samples B-37AE8 (0-2'), B-37AE8 (2'-4') and B-37AW8 (2'-4'). However, as previously discussed, neither copper nor zinc are classified as RCRA metals, that is, metals which in elevated concentrations could be classified as a hazardous waste. In addition, neither elemental copper nor zinc are identified as hazardous constituents in Appendix 23 of the NYSDEC's regulations found at 6 NYCRR Part 371. As a result, copper and zinc do not appear to warrant further investigation.

Based on the above, PCB-impacted soil in the vicinity of soil borings B-37AA, B-37AN8, B-37ANW8, B-37ANW16, B-37AS8, B-37AS16, B-37AS16A, B-37AS32, B-37ASE8, B-37ASE16, B-37ASE32, B-37AE8, B-37AW8, B-37AW8A, B-37AW16 and B-37AW24 are areas to be considered for remediation. In addition, chromium-impacted soil in the vicinity of soil borings B-37AA, B-37AS8, B-37AS16, B-37AS16A, B-37AS32, B-37ASE8, B-37ASE16 and B-37ASE32 and mercury-impacted soil in the vicinity of soil boring B-37AA are areas to be considered for remediation.

#### 6.6.4 Petroleum/Chemical Storage Areas

As discussed in Section 5, 30 soil samples were collected at soil boring locations PCS-AA, PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8, PCS-GA, PCS-GN8, PCS-GS8, PCS-GE8 and PCS-GW8 and analyzed for STARS total VOC/SVOCs and STARS SVOCs by TCLP during the Delineation Phase II Site Assessment field investigation. Soil borings PCS-AA and PCS-GA were advanced immediately adjacent to soil borings PCS-A and PCS-G, respectively, advanced during the Supplemental Phase II Site Assessment. Soil borings PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8 and soil borings PCS-GN8, PCS-GS8, PCS-GE8 and PCS-GW8 were advanced 8 feet north, south, east and west of soil borings PCS-A and PCS-G, respectively.

It should be noted that the soil samples collected at soil boring locations PCS-AA, PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8, PCS-GA, PCS-GN8, PCS-GS8, PCS-GE8 and PCS-GW8 were analyzed for STARS total VOC/SVOCs and STARS SVOCs by TCLP during

the Delineation Phase II Site Assessment field investigation due to the elevated levels of TPHCs in the soil samples collected during the Supplemental Phase II Site Assessment.

As the analytical results in Section 5 indicate, STARS total VOCs were not detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values in the soil samples collected at soil boring locations PCS-AA, PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8, PCS-GA, PCS-GN8, PCS-GS8, PCS-GE8 and PCS-GW8. However, as shown on Table 6-1, the analytical results of soil samples PCS-AA (0-2'), PCS-AN8 (0-2'), PCS-AN8 (2'-4'), PCS-AN8 (4'-6'), PCS-AS8 (0-2'), PCS-AE8 (0-2'), PCS-AE8 (2'-4'), PCS-AW8 (0-2'), PCS-AW8 (2'-4'), PCS-GA (0-2'), PCS-GN8 (0-2'), PCS-GS8 (4'-6') and PCS-GE8 (0-2') indicated that benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene were detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values. In addition, benzo(a)pyrene was detected at concentrations that exceeded STARS Tables 1 and 2 Human Health guidance values in soil samples PCS-GS8 (0-2') and PCS-GS8 (2'-4'). Also, naphthalene was detected at a concentration that exceeded the STARS TCLP Extraction guidance value in soil sample PCS-GE8 (4'-6').

Based on the above information, the soil in the vicinity of soil boring locations PCS-AA, PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8, PCS-GA, PCS-GN8, PCS-GS8 and PCS-GE8 is primarily impacted by SVOCs. Therefore, the soil in the vicinity of soil boring locations PCS-AA, PCS-AN8, PCS-AS8, PCS-AE8, PCS-AW8, PCS-GA, PCS-GN8, PCS-GS8 and PCS-GE8 are areas to be considered for remediation.

## **6.7 Groundwater**

As discussed in Section 5, three shallow (10 feet below the groundwater interface) groundwater monitoring wells, identified as P12MW-2, P12MW-3 and P12MW-4, were installed immediately downgradient of the former Resin Waste Pit, upgradient of the former Resin Waste Pit, and downgradient of the former Drainage Basin during the Delineation Phase II Site Assessment field investigation, respectively. Groundwater samples were collected from these

monitoring wells and analyzed for VOCs, SVOCs, PCBs and priority pollutant metals. Filtered and unfiltered samples were submitted for metals analysis.

During the Delineation Phase II Site Assessment, groundwater levels were measured from six surveyed on-site groundwater monitoring wells. The groundwater contour map shown on Figure 5-1 indicates that groundwater flow is in the southerly direction for the Plant 12 site.

As the analytical results in Section 5 indicate, SVOCs were not detected. In addition, several priority pollutant metals were detected below NYSDEC Class GA groundwater standards. As discussed in Section 5, 1,1,1-trichloroethane was detected above NYSDEC Class GA groundwater standards in the groundwater samples collected on August 31, 1998 and January 14, 1999 at groundwater monitoring well P12MW-2 and the groundwater sample collected at groundwater monitoring well P12MW-3. However, based on the exceedance of 1,1,1-trichloroethane observed at groundwater monitoring well P12MW-3 (located upgradient of the Resin Waste Pit), it appears that an upgradient, off-site source is impacting the groundwater quality at the Plant 12 site.

In addition, PCBs were detected above NYSDEC Class GA groundwater standards in the groundwater sample collected on August 31, 1998 at groundwater monitoring well P12MW-2. However, PCBs were not detected in groundwater sample P12MW-2 collected on January 14, 1999 at groundwater monitoring well P12MW-2. Therefore, it appears that on-site groundwater quality at the Plant 12 site has not been impacted by PCBs.

**TAB**  
**NORTHROP GRUMMAN CORPORATION**  
**DELINEATION PHASE II SITE ASSESSMENT - PLANT 12**  
**SOIL SAMPLING RESULTS**  
**SUMMARY OF EXCEEDANCES**

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Trench in EMT Lab No.1		Trench in Staffed Machine Shop		Leaching Chambers North of Carpentry Shop		Chemical Storage Area/Concrete Platform	NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	B-7AA 0'-2' 08/11/98	B-7AN7 0'-2' 08/21/98	B-8AA ** 2'-4' 08/19/98	B-8BA *** 2'-4' 08/19/98	B-16AA 10'-12' 08/14/98	B-16AA 16'-18' 08/14/98		
VOCs (ug/kg) 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	N/A	30 345	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 800 10,000
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzofluoranthene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	N/A	N/A	N/A	N/A	64 J 66 J 4,400 3,000 550 730 950 380 560 180 52 3,402	U U 580 12 J U U U U U U U 12	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
PCBs (ug/kg) Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	N/A	N/A	N/A	N/A	1,700 940 2,640	U U U	130,000 U U	NYSDEC TAGM Criteria (ug/kg) --- --- --- 10,000 <sup>2</sup>
METALS (mg/kg) Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A	N/A	N/A	N/A	7.4 14.4 29.9 0.08 10.1 0.99 B 142	7.1 30.7 36.8 0.2 67.9 1.1 98.9	10.5 N/A N/A 0.16 N/A N/A N/A	Eastern USA Background Levels (mg/kg) 3-12 <sup>3</sup> 1.5-40 <sup>3</sup> , (50*) 1-50 0.001-0.2 0.5-25 0.1-3.9 9-50

**Qualifiers:**  
U: Compound/constituent analyzed for but not detected.  
J: Compound/constituent found at a concentration below the detection limit.  
B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
--- : Not established.  
N/A : Compound/constituent not analyzed for.  
MDL : Method detection limit.  
<sup>1</sup> : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
<sup>2</sup> : Criteria is for total PCBs in subsurface soils.  
<sup>3</sup> : New York State Background.  
\* : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
\*\* : Split sample analyzed by Envirotech Laboratories.  
\*\*\* : Split sample analyzed by Mikrotech Laboratories.  
☐ : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Chemical Storage Area/Concrete Platform						NYSDEC TAGM Criteria (ug/kg) 800 10,000
	B-17BA 6'-8' 08/06/98	B-17BN7 2'-4' 08/06/98	B-17BN14 0'-2' 08/20/98	B-17BN14 2'-4' 08/20/98	B-17BN14 4'-6' 08/20/98	B-17BS14 0'-2' 08/20/98	
VOCs (ug/kg) 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzofluoranthene Chrysene Benzofluoranthene Benzofluoranthene Benzofluoranthene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CapAHs	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
STARS SVOC TOTAL (ug/kg) Benzofluoranthene Benzofluoranthene Benzofluoranthene Benzofluoranthene Dibenzofluoranthene	U 7.6 J U U U U	U 1,000 1,400 510 860 71	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
STARS SVOC TCLP (ug/L) Naphthalene	U	U	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
PCBs (ug/kg) Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	U 12,000 U U U	U 2,200 U U U	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) ... ... ... 10,000 <sup>2</sup>
METALS (mg/kg) Arsenic Chromium Copper Mercury Nickel Selenium Zinc	U 3.5 N/A N/A 0.02 N/A N/A N/A	U 83.6 34 48.8 0.50 16.4 681	U 10.9 7.3 8.3 0.07 15 80.5	U 12.4 N/A N/A N/A 7.9	U 22.5 N/A N/A N/A 59.5	U 49.6 12.5 16.1 0.06 5.3 34.1	Eastern USA Background Levels (mg/kg) 3 - 12 <sup>3</sup> 1.5 - 40 <sup>2</sup> (50*) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 39 9 - 50

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 --- : Not established.  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit  
 1 : Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 \* : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6.1 (continued)  
 NORTHROP GRUMM, INC. CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Chemical Storage Area/Concrete Platform B-17BS14 2' - 4' 08/20/98	Area Outside Machine Shop						NYSDEC TAGM Criteria (ug/kg) 800 10,000
		B-19AN12 0-2' 08/07/98	B-19AN12 2' - 4' 08/07/98	B-19AN12 4' - 6' 08/07/98	B-19AN12 6' - 8' 08/07/98	B-19AN14 0-2' 08/20/98	B-19AE7 0-2' 08/07/98	
VOCs (ug/kg) 1,1,1-Trichloroethane Total VOCs	N/A	190 330.8	120 175.1	N/A	N/A	N/A	49 114.6	
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	N/A	U U 24 J 80 J 210 J 1,100 1,200 1,700 660 1,100 730 190 6,680 N/A	U U 130 J U U 11,000 10,000 11,000 4,600 8,600 4,700 1,200 51,100 N/A	U U U U U 470 490 560 220 430 270 54 2,494 N/A	U U U U U 89 J 650 690 840 400 620 390 90 3,680 N/A	U U U U U 960 1,100 1,400 500 990 790 160 J 5,900 N/A	670 690 790 330 580 440 110 3,610 N/A	
STARS SVOC TOTAL (ug/kg) Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenz(a,h)anthracene	N/A	170 J 220 88 130 U	N/A	N/A	N/A	N/A	N/A	
STARS SVOC TCLP (ug/L) Naphthalene	N/A	U	U	N/A	N/A	N/A	U	
PCBs (ug/kg) Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	N/A	2,100 2,100	N/A	N/A	N/A	N/A	N/A	
METALS (mg/kg) Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A	14.8 N/A N/A N/A N/A N/A N/A	14.5 39.8 31.1 1.90 14.9 183	7.0 6.9 5.8 0.10 3.1 B 13.4	N/A	N/A	6.0 11.2 60.3 0.17 6.3 B 59.3	

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 ---: Not established.  
 N/A: Compound/constituent not analyzed for.  
 MDL: Method detection limit.  
 1: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background.  
 4: Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 5: Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.



TABLE 6-1 (revised)  
 NORTHROP GRUMMAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Area Outside Machine Shop B-19AW10 0 - 2' 08/07/98		Sanitary Leaching Pools (North and South) B-22BA 8' - 10' 08/18/98		Anomalous Features/Unknown Buried Structures (North) B-22GA 0 - 2' 08/18/98		B-22GN7 0 - 2' 08/07/98		B-22GE7 0 - 2' 08/07/98		NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	4.6 J 42.8	N/A	2.4 J 93.9	0.8 J 35	N/A	N/A	N/A	N/A	N/A	N/A	
<b>VOCs (ug/kg)</b> 1,1,1-Trichloroethane											NYSDEC TAGM Criteria (ug/kg) 800 10,000
<b>Total VOCs</b>											
<b>SVOCs (ug/kg)</b> Phenol	U	N/A	U	U	U	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900
2-Methylphenol	U		U	U	U						
4-Methylphenol	350 J		U	U	U						
Di-n-butylphthalate	U		U	U	U						
Butylbenzylphthalate	U		200 J	1,100 J	U						
Benzo(a)anthracene	U		30 J		U						50,000
Chrysene	U		43 J		U						224 or MDL
Benzo(b)fluoranthene	690		89 J		U						400
Benzo(k)fluoranthene	220		U		U						1,100
Benzo(a)pyrene	110 J		U		U						1,100
Indeno(1,2,3-cd)pyrene	350		U		U						61 or MDL
Dibenz(a,h)anthracene	92 J		U		U						3,200
<b>Total CapAHs</b>	1,462		162	0	U						14 or MDL 10,000 <sup>1</sup>
<b>STARS SVOC TOTAL (ug/kg)</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14 10,000 <sup>1</sup>
Benzo(a)anthracene											
Benzo(b)fluoranthene											
Benzo(k)fluoranthene											
Benzo(a)pyrene											
Dibenz(a,h)anthracene											
<b>STARS SVOC TCLP (ug/L)</b>	U	N/A	U	U	U	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
Naphthalene											
<b>PCBs (ug/kg)</b> Arochlor 1248	N/A	N/A	510	740	U	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) ... ... ... 10,000 <sup>2</sup>
Arochlor 1254			150		U						
Arochlor 1260			660	740	U						
<b>TOTAL PCBs</b>											
<b>METALS (mg/kg)</b> Arsenic	40.6	14.7	4.5	U	U	22.4	17.1	50.5	21.6	21.6	Eastern USA Background Levels (mg/kg) 3 - 12 <sup>3</sup> 1.5 - 40 <sup>1</sup> , (50) <sup>1</sup> 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50
Chromium	97.2	38.7	19.3	15.1	U	N/A	N/A	N/A	N/A	N/A	
Copper	56.3	N/A	149	283	U	N/A	N/A	N/A	N/A	N/A	
Mercury	10.2	N/A	0.4	0.65	U	N/A	0.25	0.62	0.34	0.34	
Nickel	9.6	N/A	6.1	1.5	B	N/A	N/A	N/A	N/A	N/A	
Selenium	7	N/A	33.3	28.0	U	N/A	N/A	N/A	N/A	N/A	
Zinc	90	N/A			U	N/A	N/A	N/A	N/A	N/A	

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than theIDL.

**Notes:**  
 ---: Not established  
 N/A: Compound/constituent not analyzed for.  
 MDL: Method detection limit.  
 1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background.  
 4: Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 5: Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Anomalous Features/Unknown Buried Structures (North)						NYSDEC TAGM Criteria (ug/kg) 800 10,000
	B-22GW14 0 - 2' 08/20/98	B-22HA 2 - 4' 09/06/98	B-22HA 4 - 6' 08/06/98	B-22HN7 0 - 2' 08/06/98	B-22HS7 0 - 2' 08/06/98	B-22HS14 0 - 2' 08/20/98	
VOCs (ug/kg) Total VOCs	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
SVOCs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
Phenol	U	U	U	U	U	U	U
2-Methylphenol	U	U	U	U	U	U	U
4-Methylphenol	U	U	U	U	U	U	U
Di-n-butylphthalate	U	U	U	U	U	U	U
Bulkybenzophthalate	U	U	U	U	U	U	U
Benzol(a)anthracene	140	160	140	390	7,400	1,900	500
Chrysene	120	140	140	420	6,800	2,100	1,500
Benzob(f)fluoranthene	120	130	130	450	6,900	2,300	1,400
Benzok(j)fluoranthene	51	54	54	190	2,600	980	1,100
Benzol(a)pyrene	97	100	100	340	5,400	1,800	1,400
Indeno(1,2,3-cd)pyrene	54	58	58	220	2,700	1,100	530
Dibenz(a,h)anthracene	16 J	16 J	16 J	52	700	250	130
Total CaPAHs	598	658	658	2,062	32,500	10,430	7,820
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzol(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzob(f)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzok(j)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzol(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzol(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arochlor 1248	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arochlor 1254	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arochlor 1260	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL PCBs	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METALS (mg/kg)	14.2	1.5	1.6	45.8	10.1	1.3	10,000 <sup>2</sup>
Arsenic	N/A	N/A	N/A	N/A	N/A	N/A	3 - 12 <sup>3</sup>
Chromium	N/A	N/A	N/A	N/A	N/A	N/A	1.5 - 40 <sup>3</sup> , (50) <sup>4</sup>
Copper	N/A	N/A	N/A	N/A	N/A	N/A	1 - 50
Mercury	0.13	N/A	N/A	N/A	N/A	N/A	0.001 - 0.2
Nickel	N/A	N/A	N/A	N/A	N/A	N/A	0.5 - 25
Selenium	N/A	N/A	N/A	N/A	N/A	N/A	0.1 - 39
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	9 - 50
STARS Human Health Guidance Values (ug/kg)	220	220	220	220	220	220	220
STARS TCLP Guidance Values (ug/L)	10	10	10	10	10	10	10
NYSDEC TAGM Criteria (ug/kg)	---	---	---	---	---	---	---
Eastern USA Background Levels (mg/kg)	10,000 <sup>2</sup>	10,000 <sup>2</sup>	10,000 <sup>2</sup>	10,000 <sup>2</sup>	10,000 <sup>2</sup>	10,000 <sup>2</sup>	10,000 <sup>2</sup>

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 --- : Not established.  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 4 : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (continued)  
 NORTHROP GRUMM CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Anomalous Features/Unknown Buried Structures (North)				NYSDEC TAGM Criteria (ug/kg) 800 10,000	STARS HUMAN HEALTH GUIDANCE VALUES (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
	B-22HE7 0 - 2' 08/06/98	B-22HE14 0 - 2' 08/06/98	B-22HW7 0 - 2' 08/06/98	B-22JN7 0 - 2' 08/06/98		
<b>VOCs (ug/kg)</b> 1,1,1-Trichloroethane	N/A	N/A	N/A	N/A	N/A	
<b>Total VOCs</b>						
<b>SVOCs (ug/kg)</b>						
Phenol	U	U	U	U	U	380 J
2-Methylphenol	U	U	U	U	U	U
4-Methylphenol	U	U	U	U	U	U
Di-n-butylphthalate	260 J	180 J	180 J	4,400 U	U	U
Butylbenzylphthalate	870 J	2,300 J	2,300 J	24,000 U	2,500 U	130,000 U
Benzofluoranthene	1,300	640	640	310 J	2,400 J	25,000 U
Chrysene	1,400	680	680	340 J	2,400 J	U
Benzofluoranthene	1,600	700	700	380 J	2,800 J	U
Benzofluoranthene	640	250	250	150 J	42 J	U
Benzofluoranthene	1,200	510	510	210 J	1,900 J	U
Indeno(1,2,3-cd)pyrene	660	310	310	92 J	1,200 J	U
Dibenz(a,h)anthracene	170	80	80	1,482 U	320 U	U
Total CaPAHs	6,970	3,170	3,170		12,120	0
<b>STARS SVOC TOTAL (ug/kg)</b>	N/A	N/A	N/A	N/A	N/A	N/A
Benzofluoranthene						
Benzofluoranthene						
Benzofluoranthene						
Benzofluoranthene						
Dibenz(a,h)anthracene						
<b>STARS SVOC TCLP (ug/L)</b>	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene						
<b>PCBs (ug/kg)</b>	N/A	N/A	N/A	N/A	N/A	N/A
Arochlor 1248						
Arochlor 1254						
Arochlor 1260						
TOTAL PCBs						
<b>METALS (mg/kg)</b>						
Arsenic	32	23.4	14.6	15.1	12.5	1 B
Chromium	N/A	N/A	N/A	N/A	N/A	N/A
Copper	N/A	N/A	N/A	N/A	N/A	N/A
Mercury	N/A	N/A	N/A	N/A	N/A	N/A
Nickel	N/A	N/A	N/A	N/A	N/A	N/A
Selenium	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	N/A

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 ---: Not established  
 N/A: Compound/constituent not analyzed for.  
 MDL: Method detection limit.  
 1: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background.  
 \*: Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 ☐: Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE (continued)  
 NORTHROP GRAMM MAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Anomalous Features/Unknown Buried Structures (North)								NYSDEC TAGM Criteria (ug/kg) 800 10,000
	B-22JS14 2'-4' 08/20/98	B-22JS14 4'-6' 08/20/98	B-22JE7 0-2' 08/06/98	B-22JE7 2'-4' 08/06/98	B-22JE14 2'-4' 08/20/98	B-22JW7 0-2' 08/06/98	B-22JW7 2'-4' 08/06/98	B-22JW14 0-2' 08/20/98	
VOCs (ug/kg) 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzofluoranthene Chrysene Benzofluoranthene Benzofluoranthene Benzofluoranthene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	79 U 900 3,600 460 560 260 380 180 81 2,301	340 J 8,700 4,400 32 270 280 260 130 180 62 1,182	U U 490 J 11,000 760 700 280 540 290 86 J 3,436	U U U 80,000 78,000 680 J 870 J 330 J 470 J U 2,980	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
STARS SVOC TOTAL (ug/kg) Benzofluoranthene Benzofluoranthene Benzofluoranthene Benzofluoranthene Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
STARS SVOC TCLP (ug/L) Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
PCBs (ug/kg) Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	760 630 93 1,483	590 1,800 470 2,860	24,000 U U 24,000	720 U U 720	340 100 440	3,900 U 3,900	2,700 5,500 8,200	N/A	NYSDEC TAGM Criteria (ug/kg) ... ... ... 10,000 <sup>2</sup>
METALS (mg/kg) Arsenic Chromium Copper Mercury Nickel Selenium Zinc	7.6 N/A 0.03 N/A N/A N/A	8.0 N/A 15.7 N/A N/A N/A	9.7 N/A 0.16 N/A N/A N/A	11.8 N/A 0.28 N/A N/A N/A	N/A N/A 0.24 N/A N/A N/A	27.4 N/A N/A N/A N/A N/A	8.9 N/A 0.51 N/A N/A N/A	24.5 N/A 0.33 N/A N/A N/A	Eastern USA Background Levels (mg/kg) 3 - 12 <sup>3</sup> 1.5 - 40 <sup>3</sup> , (50 <sup>1</sup> ) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 --- : Not established.  
 N/A: Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 4 : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 5 : Value exceeds NYSDCE TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (revised)  
 NORTHROP GRUMMAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	San. LP's (North & South)		Drainage Chamber North of Lobby/Loading Area		Former Drainage Basin				NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	B-22LA 8' - 10'	B-30AA 6' - 8'	B-30AA 8' - 10'	B-30AA 8' - 10'	B-37AA 0' - 2'	B-37AA 2' - 4'	B-37ANW8 0' - 2'	B-37ANW16 0' - 2'	
VOCs (ug/kg) 1,1,1-Trichloroethane	10	U	U	0.8	1.0 J	1.1 J	0.8 J	N/A	NYSDEC TAGM Criteria (ug/kg) 800 10,000
Total VOCs	31.4	2	U	U	36.1	30.3	46.2	N/A	
SVOCs (ug/kg)	370	U	U	U	U	U	U	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
Phenol	U	U	U	U	U	U	U	N/A	
2-Methylphenol	38 J	16 J	9 J	U	U	U	U	N/A	
4-Methylphenol	450	78 J	U	U	U	U	U	N/A	
D-n-butylphthalate	4,000	210 J	92 J	U	170 J	U	U	N/A	
Butybenzophthalate	960	80	92	U	210	560 J	120 J	N/A	
Benzo(a)anthracene	1,200	140 J	130 J	U	320 J	620 J	150 J	N/A	
Chrysene	1,200	160	150	U	520	760	220	N/A	
Benzo(b)fluoranthene	580	U	U	U	180	300	100 J	N/A	
Benzo(k)fluoranthene	950	69	52	U	250	520	110 J	N/A	
Indeno(1,2,3-cd)pyrene	560	60	60	U	240	360	130 J	N/A	
Dibenz(a,h)anthracene	130	U	U	U	57 J	83	38 J	N/A	
Total CaPAHs	5,580	509	484	U	1,777	3,203	868	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
PCBs (ug/kg)	9,600	1,600	1,600	U	150,000	88,000	210,000	12,000 D	NYSDEC TAGM Criteria (ug/kg) --- --- --- 10,000 <sup>2</sup>
Arochlor 1248	U	2,800	2,800	U	U	U	U	U	
Arochlor 1254	U	U	U	U	U	U	U	U	
Arochlor 1260	U	U	U	U	U	U	U	U	
TOTAL PCBs	9,600	4,400	4,400	U	150,000	88,000	210,000	12,000	Eastern USA Background Levels (mg/kg) 3 - 12 <sup>3</sup> 1.5 - 40 <sup>3</sup> , (50 <sup>1</sup> ) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50
Metals (mg/kg)	6.6	9.2	2.1	U	4.7	3.5	3.7	N/A	
Arsenic	11.9	25.4	9.9	U	192	72.8	44.8	N/A	
Chromium	7.7	53.7	18.2	U	712	327	153	N/A	
Copper	0.08	0.15	0.17	U	0.21	0.10	0.08	N/A	
Mercury	2.9 B	10.9	3.3 B	U	6.6 B	4.3 B	8.6	N/A	
Nickel	U	U	U	U	1.1 B	U	U	N/A	
Selenium	11.1	280	109	U	144	80.0	54.8	N/A	
Zinc									

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.  
 D: Result obtained from a diluted analysis.

**Notes:**  
 --- : Not established  
 N/A: Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background  
 \* : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 ☐ : Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (revised)  
 NORTHROP GRUMMAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION	Former Drainage Basin										NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	B-37AS8 2'-4' 08/07/98	B-37AS8 4'-6' 08/07/98	B-37AS8 6'-8' 08/07/98	B-37AS16 2'-4' 08/21/98	B-37AS16 4'-6' 08/21/98	B-37AS16 6'-8' 08/21/98	B-37AS16A 8'-10' 10/05/99	B-37AS32 8'-10' 10/05/99			
<b>VOCs (ug/kg)</b>											NYSDEC TAGM Criteria (ug/kg)
1,1,1-trichloroethane	3.0 J										800
Total VOCs	30.7										10,000
<b>SVOCs (ug/kg)</b>											NYSDEC TAGM Criteria (ug/kg)
Phenol	U										30 or MDL
2-Methylphenol	U										100 or MDL
4-Methylphenol	U										900
Di-n-butylphthalate	U										8,100
Butylbenzylphthalate	U										50,000
Benzofluoranthracene	96										224 or MDL
Chrysene	94 J										400
Benzofluoranthene	210										1,100
Benzofluoranthene	83										1,100
Benzofluoranthene	110										61 or MDL
Indeno(1,2,3-cd)pyrene	89										3,200
Dibenz(a,h)anthracene	23 J										14 or MDL
Total CaPAHs	705										10,000 <sup>1</sup>
<b>STARS SVOC TOTAL (ug/kg)</b>											STARS Human Health Guidance Values (ug/kg)
Benzofluoranthracene	N/A										220
Benzofluoranthene											220
Benzofluoranthene											220
Benzofluoranthene											61
Benzofluoranthene											14
<b>STARS SVOC TCLP (ug/L)</b>											STARS TCLP Guidance Values (ug/L)
Naphthalene	N/A										10
<b>PCBs (ug/kg)</b>											NYSDEC TAGM Criteria (ug/kg)
Arochlor 1248	170,000										...
Arochlor 1254	U										...
Arochlor 1260	U										...
TOTAL PCBs	170,000	83,000	210,000	25,000	59,000	410,000	44,000	44,000	44,000	44,000	10,000 <sup>2</sup>
<b>METALS (mg/kg)</b>											Eastern USA Background Levels (mg/kg)
Arsenic	1.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3 - 12 <sup>3</sup>
Chromium	50.3	84.1	100.0	80.4	33.1	268	67.6	67.6	67.6	67.6	1.5 - 40 <sup>3</sup> , (50 <sup>3</sup> )
Copper	249	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 - 50
Mercury	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.001 - 0.2
Nickel	3.6 B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.5 - 25
Selenium	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1 - 3.9
Zinc	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9 - 50

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.  
 D: Result obtained from a diluted analysis.

**Notes:**  
 --- : Not established.  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (continued)  
 NORTHROP GRUMM CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH DATE OF COLLECTION	Former Drainage Basin						NYSDEC TAGM Criteria (ug/kg) 800 10,000
	B-37ASE8 0'-2' 1/05/99	B-37ASE16 0'-2' 1/05/99	B-37ASE32 0'-2' 1/05/99	B-37AE8 0'-2' 08/07/98	B-37AE8 2'-4' 08/07/98	B-37AW8 0'-2' 08/07/98	
VOCs (ug/kg) 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	3.0 J 95.1	0.7 J 20.1	0.9 J 23.7	0.9 J 21.2
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	N/A	N/A	N/A	U U U U 91 120 170 J 260 95 140 110 28 J 923	U U U U 41 48 J 52 78 29 J 27 J 7.9 J 223	U U U U 180 J 240 J 82 96 J 110 47 78 13 J 480	U U U U 240 290 J 450 260 180 49 1,629
STARS SVOC TOTAL (ug/kg) Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
STARS SVOC TCLP (ug/L) Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs (ug/kg) Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	130,000 DP U U	100,000 D U U	19,000 D U U	38,000 U U	1,100 340 1,440	1,600 400 2,000	120,000 U U
METALS (mg/kg) Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A 67.9 N/A N/A N/A N/A N/A	N/A 79.3 N/A N/A N/A N/A N/A	N/A 161 N/A N/A N/A N/A N/A	3.3 45.5 163 0.06 5 46.5	1.4 33.5 75.2 0.04 2.1 13.9	4.8 27 23.1 0.03 5.6 32.3	1.6 45.8 207 0.07 2.9 41.2

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.  
 D: Result obtained from a diluted analysis.  
 P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.

**Notes:**  
 ---: Not established.  
 N/A: Compound/constituent not analyzed for.  
 MDL: Method detection limit.  
 †: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 ‡: Criteria is for total PCBs in subsurface soils.  
 §: New York State Background.  
 ¶: Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 ☐: Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Former Drainage Basin		Former Drainage Trench East of Plant 12A		Former Trenches to Resin Waste Pit (Sump #1)		NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	B-37AW8 6' - 8' 08/21/98	B-37AWBA 16-18' 1/06/99	B-37AW16 6' - 8' 08/21/98	B-37AW24 4'-6' 1/06/99	B-38BN7 1' - 3' 08/12/98	B-38BS7 1' - 3' 08/12/98	
<b>VOCs (ug/kg)</b> 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	N/A	N/A	0.9 25.9	NYSDEC TAGM Criteria (ug/kg) 800 10,000
<b>SVOCs (ug/kg)</b> Phenol 2-Methylphenol 4-Methylphenol D-n-butylphthalate Butylbenzylphthalate Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(e)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000
<b>STARS SVOC, IOTCL (ug/L)</b> Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(e)pyrene Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	130 130 55 96	74 160 52 69	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
<b>STARS SVOC, ICLP (ug/L)</b> Naphthalene	N/A	N/A	N/A	N/A	U	16 J 23 J	STARS ICLP Guidance Values (ug/L) 10
<b>PCBs (ug/kg)</b> Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	230,000 U U 230,000	19,000 D U U 19,000	110,000 U U 110,000	30,000 U U 30,000	N/A	4,400 U U 4,400	NYSDEC TAGM Criteria (ug/kg) ... ... ... 10,000
<b>METALS (mg/kg)</b> Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A	N/A	N/A	N/A	N/A	N/A	Eastern USA Background Levels (mg/kg) 3 - 12 1.5 - 40 * (50*) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 D: Result obtained from a diluted analysis.

**Notes:**  
 --- : Not established.  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 4 : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 5 : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.



TABLE 6 (continued)  
 NORTHROP GRUMLER CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Former Trenches to Resin waste (Pit Sump #1) B-43AE5 2' - 4' 08/05/98	Dry Well Northeast of Plant 12		Petroleum/Chemical Storage Areas		NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
		B-45AA 6' - 8' 08/14/98	B-45AA 8' - 10' 08/14/98	PCS-AA 0 - 2' 08/12/98	PCS-AN8 0 - 2' 08/12/98	
<b>VOCs (ug/kg)</b> 1,1,1-Trichloroethane Total VOCs	1.2 33.1 N/A	U 25.8 N/A	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	NYSDEC TAGM Criteria (ug/kg) 800 10,000  NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 *
<b>SVOCs (ug/kg)</b> Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzophthalate Benzofluoranthene Chrysene Benzofluoranthene Benzofluoranthene Benzofluoranthene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CapAHs	63 71 32 J 52 U	120 120 49 77 U	1,600 2,600 990 1,600 110 U	1,500 2,600 1,100 1,700 120 U	26,000 27,000 10,000 22,000 3,400 U	220 220 220 61 14  STARS Human Health Guidance Values (ug/kg)
<b>STARS SVOC TOTAL (ug/kg)</b> Benzofluoranthene Benzofluoranthene Benzofluoranthene Benzofluoranthene Benzofluoranthene Dibenz(a,h)anthracene	6.2 J 19,000 U U 19,000 N/A	U 2,500 U U 2,500 N/A	U N/A N/A N/A N/A N/A	U N/A N/A N/A N/A N/A	U N/A N/A N/A N/A N/A	10 NYSDEC TAGM Criteria (ug/kg) ... ... ... 10,000 *  STARS TCLP Guidance Values (ug/L) 3 - 12 * 1.5 - 40 * (50*) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50
<b>PCBs (ug/kg)</b> Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	U U U U 19,000 N/A	U 2,500 U U 2,500 N/A	U N/A N/A N/A N/A N/A	U N/A N/A N/A N/A N/A	U N/A N/A N/A N/A N/A	Eastern USA Background Levels (mg/kg) 3 - 12 * 1.5 - 40 * (50*) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50
<b>METALS (mg/kg)</b> Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A	N/A	N/A	N/A	N/A	Eastern USA Background Levels (mg/kg) 3 - 12 * 1.5 - 40 * (50*) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.

**Notes:**  
 ... : Not established.  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 \* : Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 † : Criteria is for total PCBs in subsurface soils.  
 ‡ : New York State Background.  
 § : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 ¶ : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6. (continued)  
 NORTHROP GRUMM CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Petroleum/Chemical Storage Areas								NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	PCS-AS8 0 - 2' 08/12/98	PCS-AE8 2 - 4' 08/12/98	PCS-AE8 2 - 4' 08/12/98	PCS-AE8 2 - 4' 08/12/98	PCS-AW8 0 - 2' 08/12/98	PCS-AW8 2' - 4' 08/12/98	PCS-GA 0 - 2' 08/11/98	PCS-GN8 0 - 2' 08/11/98	
<b>VOCs (ug/kg)</b> 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>SVOCs (ug/kg)</b> Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(e)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>STARS SVOC TOTAL (ug/kg)</b> Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(e)pyrene Dibenz(a,h)anthracene	5,000 5,000 1,900 4,200 680	8,500 10,000 4,400 8,300 1,400	1,300 1,300 520 1,100 160	18,000 20,000 8,100 17,000 2,500	2,700 3,100 1,200 2,500 380	5,400 5,000 2,100 4,300 830	2,000 2,000 760 1,700 240	2,000 2,000 760 1,700 240	100 110 48 85 13
<b>STARS SVOC TCLP (ug/L)</b> Naphthalene	U	U	U	U	U	U	U	U	U
<b>PCBs (ug/kg)</b> Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>METALS (mg/kg)</b> Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.

**Notes:**  
 --- : Not established.  
 N/A: Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 \* : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 ☐ : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 6-continued  
 NORTHROP GRUMM, INC. CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Petroleum/Chemical Storage Areas		Resin Waste Pit (Sump #1)				NYSDEC TAGM Criteria (ug/kg) 800 10,000		
	PCS-GS8 2'-4' 08/11/98	PCS-GS8 4'-6' 08/11/98	PCS-GE8 0-2' 08/11/98	PCS-GE8 4'-6' 08/11/98	RWP-1 12'-14' 08/13/98	RWP-2 14'-16' 08/13/98		RWP-3 8'-10' 08/13/98	RWP-4 15'-17' 08/13/98
<b>VOCs (ug/kg)</b> 1,1,1-Trichloroethane Total VOCs	N/A	N/A	N/A	N/A	1,100 1,100	1.6 J 34.8	62 145.2	58 146.8	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 *
<b>SVOCs (ug/kg)</b> Phenol 2-Methylphenol 4-Methylphenol Di-n-butylphthalate Butylbenzylphthalate Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene Total CaPAHs	N/A	N/A	N/A	N/A	94,000	84,000	11,000 J 160,000	160,000	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 *
<b>STARS SVOC TOTAL (ug/kg)</b> Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Dibenz(a,h)anthracene	110 140 52 99	3,200 2,300 1,100 1,700 260	670 660 280 570 81	U	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
<b>STARS SVOC TCLP (ug/L)</b> Naphthalene	U	U	U	120	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
<b>PCBs (ug/kg)</b> Arochlor 1248 Arochlor 1254 Arochlor 1260 TOTAL PCBs	N/A	N/A	N/A	N/A	U	77	560	U	NYSDEC TAGM Criteria (ug/kg) ... ... ... 10,000 *
<b>METALS (mg/kg)</b> Arsenic Chromium Copper Mercury Nickel Selenium Zinc	N/A	N/A	N/A	N/A	1.2 17.6 5.6 0.02 B 1.6 B 6.4	0.72 B 2.7 2.8 B 1.3 B 9.6	1.8 11.4 8.2 0.03 B 2.5 B 12.9	0.76 B 6.4 4.7 B 0.10 3.8 B 18.0	Eastern USA Background Levels (mg/kg) 3 - 12 * 1.5 - 40 * (50 *) 1 - 50 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 --- : Not established.  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 \* : Criteria is for total PCBs in subsurface soils.  
 \* : New York State Background  
 \* : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 \* : Value exceeds NYDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE (continued)  
 NORTHROP GRU...AN CORPORATION  
 DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Resin Waste Pit (sump # 1)		NYSDEC TAGM Criteria (ug/kg) 800 10,000
	RWP-5 6' - 8' 08/14/98	RWP-6 6' - 8' 08/18/98	
VOCs (ug/kg) 1,1,1-Trichloroethane	16	170	U
Total VOCs	108.4	252.3	4,480
SVOCs (ug/kg)			
Phenol	U	U	U
2-Methylphenol	U	U	U
4-Methylphenol	U	U	U
Di-n-butylphthalate	U	U	U
Butylbenzylphthalate	U	U	U
Benzofluoranthene	U	U	U
Chrysene	U	U	U
Benzofluoranthene	U	U	U
Benzofluoranthene	U	U	U
Benzofluoranthene	U	U	U
Indeno(1,2,3-cd)pyrene	U	U	U
Dibenz(a,h)anthracene	U	U	U
Total CaPAHs	0	0	0
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A
Benzofluoranthene	U	U	U
Benzofluoranthene	U	U	U
Benzofluoranthene	U	U	U
Benzofluoranthene	U	U	U
Dibenz(a,h)anthracene	U	U	U
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A
Naphthalene	U	U	U
PCBs (ug/kg)			
Arochlor 1248	U	97	810
Arochlor 1254	U	92	U
Arochlor 1260	U	189	810
TOTAL PCBs	U	U	U
METALS (mg/kg)			
Arsenic	2.8	1.9	1.6
Chromium	7.6	7.7	7.1
Copper	5.8	5.7	4.2
Mercury	0.02	0.03	0.02
Nickel	2.1	2.9	2.4
Selenium	U	U	U
Zinc	6.9	29.1	18.5

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 --- : Not established  
 N/A : Compound/constituent not analyzed for.  
 MDL : Method detection limit.  
 1 : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A.  
 2 : Criteria is for total PCBs in subsurface soils.  
 3 : New York State Background.  
 4 : Proposed revised criteria for chromium in TAGM 4046 Appendix A.  
 5 : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

# Section 7

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## **7.0 PHASE II SUMMARY**

The Supplemental Phase II Site Assessment, discussed in Section 2.0, and the conclusions of the Delineation Phase II Site Assessment, presented in Section 6.0, are summarized in this section of the report for the Plant 12 property.

The analytical data generated during the Supplemental and Delineation Phase II Site Assessments was screened based on a comparison to the NYSDEC TAGM 4046 criteria to identify Areas of Concern (AOCs) that may warrant further consideration. However, the final remediation objectives and the limits of remediation will be developed between Northrop Grumman Corporation and the potential buyer based on the future use of the Plant 12 property.

The analytical results for the Supplemental Phase II and Delineation Phase II Site Assessments are summarized in comparison to the appropriate NYSDEC TAGM 4046 criteria on Table 7-1. This summary table is included at the end of this section of the report. The table indicates only those constituents of concern that were detected in the samples at concentrations that were in excess of the NYSDEC TAGM criteria.

A summary of all AOCs investigated during the Supplemental and Delineation Phase II Site Assessments are shown in Table 7-2. AOCs that are considered for remediation are illustrated on Figure 7-1. Figure 7-1 and Table 7-2 are included at the end of this section of the report.

### **7.1 Plant 12 Interior**

#### **7.1.1 Primary Pressure Lab (PPL)**

Based on the results of the “confirmatory” samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation in the Primary Pressure Lab is not warranted.

#### 7.1.2 Fluid Calibration (Fluid Flow) Lab (FFL) (1)

Based on the concrete and soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation in the Fluid Calibration (Fluid Flow) Lab is not warranted.

#### 7.1.3 Liquid Flow Lab (2)

Based on the concrete and soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation in the Liquid Flow Lab is not warranted.

#### 7.1.4 Machine Shop (3)

As presented in Section 6, the confirmatory analytical results of soil sample B-3AA (0-2'), collected during the Delineation Phase II Site Assessment indicate that nickel, arsenic and hexavalent chromium were not detected at concentrations exceeding the TAGM criteria. Based on the above information, further investigation or remediation of the soil beneath the floor of the Machine Shop in the vicinity of soil borings B-3A and B-3AA is not warranted.

#### 7.1.5 Tank Room (4)

Based on the analytical results of the two soil samples collected at soil boring location B-4A, during the Supplemental Phase II Site Assessment, further investigation or remediation in the Tank Room is not warranted.

During the United States Environmental Protection Agency (USEPA) Underground Injection Control (UIC) closure program, conducted by D&B (May 1998), the discharge pipe from the northeast drain of the Tank Room was excavated from the exterior northeast corner of

the Tank Room towards the presumed location of a leaching pool. The UIC closure program determined that the pipe was once connected to leaching pool B-22E (shown in Figure 5-2) but had been disconnected. It was also discovered that leaching pool B-22E was backfilled to grade. Soil samples collected and analyzed during the Supplemental Phase II Site Assessment indicated that the soil within leaching pool B-22E had been impacted. Recommended remedial action for leaching pool B-22E is discussed in Section 7.5.7.

#### 7.1.6 Comp Saw Room (5)

Based on the three soil samples collected at soil boring locations B-5A and B-5B, during the Supplemental Phase II Site Assessment, further investigation or remediation in the Comp Saw Room is not warranted.

#### 7.1.7 Polishing Room (6)

As previously discussed, the Polishing Room contained a floor drain beneath a polishing machine which was considered a potential contaminant pathway. Based upon a review of construction drawings, plot plans and Northrop Grumman utility maps, it was determined that the floor drain was connected to drainage pipes which discharged to a leaching chamber east of the Plant 12 building. The floor drain located in the Polishing Room was sealed with concrete during the UIC closure program. Therefore, further investigation or remediation of the Polishing Room is not warranted.

#### 7.1.8 Trench in EMT Lab No. 1 (7)

As shown in Table 7-1, the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 2 feet beneath the trench floor in the vicinity of soil borings B-7AA and B-7AN7 is primarily impacted by mercury. Therefore, remediation of the mercury-impacted soil beneath the trench floor at B-7AA and B-7AN7 is to be considered.



#### 7.1.9 Trench in Staffed Machine Shop (8)

As shown in Table 7-1, the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, it appears that the soil 4 feet beneath the trench floor in the vicinity of soil boring B-8AA and the soil 2 feet beneath the trench floor in the vicinity of soil boring B-8BA is primarily impacted by mercury. The mercury-impacted soil in the vicinity of soil borings B-8AA and B-8BA is to be considered for remediation.

#### 7.1.10 Engineering Development Lab (9)

As previously discussed, the Engineering Development Lab contained a floor drain which was considered a potential contaminant pathway. Based upon a review of construction drawings, plot plans and Northrop Grumman utility maps, it was determined that the floor drain was connected to drainage pipes which discharged to a leaching chamber east of the Plant 12 building. The floor drain located in the Engineering Development Lab was sealed with concrete during the UIC closure program. Therefore, further investigation or remediation of the Engineering Development Lab is not warranted.

#### 7.1.11 Trench in Repair Lab No. 2 (10)

Based on the two soil samples collected at soil boring location B-10A, during the Supplemental Phase II Site Assessment, further investigation or remediation in the Trench in Repair Lab No. 2 is not warranted.

#### 7.1.12 Autoclave Room (Pump Room) (PR)(11)

Based on the concrete and soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation in the Autoclave Room is not warranted.

#### 7.1.13 Resin Transfer Molding Lab (Autoclave Lay-up Area) (12)

Based on the soil samples collected during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation or remediation is not warranted. Although lead was detected at concentrations exceeding the TAGM criterion during the Supplemental Phase II Site Assessment, confirmatory samples collected and analyzed during the Delineation Phase II Site Assessment did not detect any TAGM exceedances. Therefore, further investigation or remediation at the Resin Transfer Molding Lab (Autoclave Lay-up Area) is not warranted.

#### 7.1.14 External Pump House (13)

Based on the four soil samples collected at soil boring locations B-13A and B-13B, during the Supplemental Phase II Site Assessment, it appears that further investigation or remediation is not warranted.

### **7.2 Plant 12A Interior**

#### 7.2.1 Basement/Sub-basement Areas (BA)(MSA)(23)

As discussed in Section 2.0, based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation is not warranted.

#### 7.2.2 Floor Drains in Facilities Maintenance Room and Maintenance Equipment Area (24)

As previously discussed, there were several floor drains in the Facility Maintenance Room and Maintenance Equipment Area in Plant 12A. Flush tests with dye and water, mechanical snaking and audible/vibration tests were conducted at these floor drains and associated piping during the Supplemental Phase II Site Assessment. The results of the tests confirmed the interconnection of the floor drains and their discharge to the sump pit previously

investigated as AOC MSA-B. Therefore, further investigation is not warranted at the floor drains in the Facility Maintenance Room and Maintenance Equipment Area.

### 7.2.3 Point of Generation/Hazardous Waste Accumulation Area (25)

Based on the results of soil sample B-25A (4'-6'), collected and analyzed during the Supplemental Phase II Site Assessment, it appears that the soil beneath the floor drain at the bottom of the stairwell of the Point of Generation/Hazardous Waste Accumulation Area is impacted by PCBs. Therefore, it is recommended that the soil beneath the floor drain be excavated to a depth of at least 8 feet below grade across an area of approximately 5 feet by 5 feet. Excavated soil should be transported for proper off-site disposal. Because this floor drain contains an earthen bottom its closure is regulated by the UIC program. Therefore, all closure activities associated with the floor drain at the Point of Generation/Hazardous Waste Accumulation Area should be conducted in accordance with the USEPA UIC program.

### 7.2.4 Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop (26)

Although mercury was originally detected in soil sample B-26A (7'-9') during the Supplemental Phase II Site Assessment, mercury was not detected in either of the split soil samples B-26AA (7'-9') analyzed by both laboratories during the Delineation Phase II Site Assessment. Therefore, remediation of the soil beneath the former dry well located beneath the Lobby/Loading Area in the vicinity of soil boring B-26AA is not warranted. Similarly, further investigation or remediation is not warranted at soil boring locations B-26B or B-26C.

### 7.2.5 Leaching Chamber Beneath Carpentry Shop (15)

As discussed in Section 2.0, soil samples B-15A (8'-10') and B-15A (12'-14') collected and analyzed during the Supplemental Phase II Site Assessment indicate that constituents of concern were not detected at concentrations exceeding the TAGM criteria. Therefore, further investigation or remediation is not warranted at this former leaching chamber.

### 7.2.6 Former Fuel Tanks at Carpentry Shop (40)

As discussed in Section 2.0, soil samples B-40A (6'-8') and B-40A (8'-10') collected and analyzed during the Supplemental Phase II Site Assessment indicate that constituents of concern were not detected at concentrations exceeding TAGM criteria. Therefore, further investigation or remediation is not warranted at the Former Fuel Tanks at the Carpentry Shop.

## 7.3 **Megapound Test Lab Interior**

### 7.3.1 Former Leaching Pool Beneath Megapound (32)

As discussed in Section 2.0, TPHCs, as lubricating oil were identified as "present" in the soil sample B-32A (10'-12') collected during the Supplemental Phase II Site Assessment. Confirmatory samples collected during the Delineation Phase II Site Assessment indicated that, as shown in Section 6, STARS total VOCs/SVOCs and STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed STARS Tables 1 and 2 Human Health and TCLP Extraction guidance values, respectively. Therefore, remediation of the Former Leaching Pool Beneath the Megapound building is not warranted.

### 7.3.2 Sanitary Leaching Pool (South) Beneath Megapound (22D)

#### Recommendations

As discussed in Section 2.0, TPHCs as lubricating oil were identified as "present" in the soil sample B-22D (12'-14') collected during the Supplemental Phase II Site Assessment. Confirmatory samples collected during the Delineation Phase II Site Assessment indicated that, as shown in Section 6, that STARS total VOCs/SVOCs and STARS SVOCs by TCLP were either not detected or were detected at concentrations that did not exceed STARS Tables 1 and 2

Human Health and TCLP Extraction guidance values, respectively. Therefore, remediation of the former Sanitary Leaching Pool (South) Beneath the Megapound building is not warranted.

### 7.3.3 Machine Pit Sump (MTL-B)

Based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, petroleum impacted soil at the location of the machine pit sump should be considered for remediation.

## 7.4 **Boiler House Interior**

### 7.4.1 Sump Pit/Trenches (33)

As discussed in Section 2, the analytical results of soil samples B-33A (20'-22') and B-33A (24'-26') collected and analyzed during the Supplemental Phase II Site Assessment indicate that constituents of concern were either not detected or were detected at concentrations that did not exceed the TAGM criteria. In addition, during the UIC closure program, the floor drains and sump pit were flush tested. It was determined that these drainage features discharged to a primary and secondary leaching pool system (B-34) located immediately west of the Boiler House. As documented by the May 1998 UIC Closure Report, the interior floor drains were sealed with concrete and the leaching pool system was remediated and properly closed according to the USEPA UIC requirements. Based on the above information, further investigation or remediation of the sump pit trenches in the Boiler House is not warranted.

## 7.5 **Plant 12 Exterior**

### 7.5.1 Northern Leaching Chambers (14)

As documented in the May 1998 UIC Closure Report, leaching chambers 14A and 14B (which historically received discharges from floor drains located within the Plant 12 building)

were remediated and closed in accordance with the USEPA UIC program. Therefore, no further investigation or remediation is warranted.

#### 7.5.2 Chemical Storage Area/Concrete Platform (17)

As shown in Table 7-1, the soil beneath the platform at soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14 and B-17BE7 is primarily impacted by PCBs and metals. Remediation of the impacted soil beneath the platform in the vicinity of soil boring locations B-17BA, B-17BN7, B-17BN14, B-17BS7, B-17BS14 and B-17BE7 should be considered.

Based on the Supplemental Phase II program analytical results (summarized in Section 2.0), no further investigation or remediation is warranted at boring locations B-17B and B-17C.

#### 7.5.3 Former Fuel USTs East of Plant 12 (18)

As discussed in Section 2.0, petroleum impacted soil was identified in soil samples B-18A (6'-8') and B-18B (4'-6') collected and analyzed during the Supplemental Phase II Site Assessment. In addition, "refusal" of the split spoon sampling equipment was experienced at 11 and 12 feet below grade for borings B-18A and B-18B, respectively. Therefore, it is recommended that an UST closure program be conducted in this area. The area should be excavated to determine whether abandoned USTs or remnants of USTs and/or associated structures are present below the surface. Impacted soil and concrete should be considered for excavation. Any impacted concrete should also be considered for removal.

#### 7.5.4 Area Outside of Machine Shop (19)

As shown in Table 7-1, the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments indicate that the soil 6 feet below grade in the vicinity of soil boring B-19A is impacted by VOCs, SVOCs, and metals. The soil 4 feet below

grade in the vicinity of soil boring B-19AN12 is primarily impacted by SVOCs and mercury and the soil 2 feet below grade in the vicinity of soil boring B-19AN14 is primarily impacted by SVOCs. In addition, the soil 2 feet below grade in the vicinity of soil boring B-19AW10 is primarily impacted by metals. Therefore, remediation of the impacted soil in the vicinity of soil boring locations B-19A, B-19AN12, B-19AW10, and B-19AW14 is to be considered.

#### 7.5.5 Tank Room Leaching Pool (20A)

Based on the soil samples B-20A (10'-12') and B-20A (18'-20'), collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation of this leaching pool is not warranted.

#### 7.5.6 Sanitary Leaching Pools (West) (21)

Based on the soil samples at soil boring locations B-21A and B-21B, collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation of the Sanitary Leaching Pools located west of Plant 12 is not warranted.

#### 7.5.7 Sanitary Leaching Pools (North and South) (22)

During the Supplemental Phase II Site Assessment, borings B-22A, B-22B and B-22C were advanced at suspected leaching pool locations on the south side of the building and borings B-22E, B-22F, B-22K and B-22L were advanced at suspected leaching pool locations on the north side of the building. Specific findings and conclusions for each leaching pool are discussed below:

##### Leaching Pool A

At "Leaching Pool A", soil samples were collected during the Delineation Phase II Site Assessment at soil boring location B-22AA. Soil samples B-22AA (8'-10') and B-22 AA (10'-

12') were collected due to elevated levels of TPHCs and the presence of lubricating oil in the soil samples collected at soil boring locations B-22A during the Supplemental Phase II Site Assessment. As summarized in Section 6.0, soil samples B-22AA (8'-10') and B-22 AA (10'-12') collected and analyzed during the Delineation Phase II Site Assessment were either not detected or were detected at concentrations that did not exceed applicable NYSDEC TAGM criteria, STARS Tables 1 and 2 Human Health and/or TCLP Extraction guidance values. Therefore, based on the analytical results from the Delineation Phase II Site Assessment, further investigation or remediation at "Leaching Pool A" is not warranted.

#### Leaching Pool B

As shown in Table 7-1, soil sampling and analysis conducted during the Supplemental Phase II and Delineation Phase II Site Assessments indicate that "Leaching Pool B" is primarily impacted by mercury. Therefore, the impacted soil located within the leaching pool at a depth of 8'-10' below grade should be considered for remediation.

#### Leaching Pool C

As shown in Table 7-1, soil sampling and analysis conducted during the Supplemental Phase II and Delineation Phase II Site Assessments indicate that "Leaching Pool C" is primarily impacted by chromium and mercury. Therefore, the impacted soil located within the leaching pool at a depth of 10 to 14 feet below grade should be considered for remediation.

#### Leaching Pool E

As shown in Table 7-1, soil sampling and analysis conducted during the Supplemental Phase II and Delineation Phase II Site Assessments indicate that "Leaching Pool E" is primarily impacted by PCBs and mercury. Therefore, the impacted soil located within the leaching pool at a depth of 9 to 22 feet below grade should be considered for remediation.



### Leaching Pool F

As shown in Table 7-1, soil sampling and analysis conducted during the Supplemental Phase II and Delineation Phase II Site Assessments indicate that “Leaching Pool F” is primarily impacted by PCBs and SVOCs (mainly CaPAHs). Therefore, the impacted soil located within the leaching pool at a depth of 9 to 12 feet below grade should be considered for remediation.

### Leaching Pool K

As documented in the May 1998 UIC Closure report, “Leaching Pool K” was remediated and closed in accordance with the USEPA UIC program. Therefore, further investigation or remediation is not warranted.

### Leaching Pool L

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation at “Leaching Pool L” is not warranted.

#### 7.5.8 Anomalous Features/Unknown Buried Structures (North) (22)

Soil borings B-22G, B-22H, B-22I and B-22J were advanced during the Supplemental Phase II Site Assessment at the suspected locations of leaching pools and/or at locations where anomalous features or zones were identified. Specific findings and conclusions for each anomalous feature/unknown structure are discussed below:

#### Boring Location B-22G

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 2 feet below grade in

the vicinity of soil boring B-22G is impacted by arsenic and mercury. In addition, the soil 2 feet below grade in the vicinity of soil borings B-22GN7, B-22GE7, and B-22GW14 is primarily impacted by arsenic and mercury. Therefore, remediation of the impacted soil in the vicinity of soil boring locations B-22G, B-22GN7, B-22GE7, and B-22GW14 is to be considered.

#### Boring Location B-22H

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 2 feet below grade in the vicinity of soil boring B-22H is impacted by SVOCs and arsenic. In addition, the soil 2 feet below grade in the vicinity of soil borings B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HE14, and B22HW7 is primarily impacted by varying combinations of SVOCs and arsenic. Therefore, remediation of the impacted soil in the vicinity of soil boring locations B-22H, B-22HN7, B-22HS7, B-22HS14, B-22HE7, B-22HE14, and B22HW7 is to be considered.

#### Boring Location B-22I

Soil samples B-22I (6'-8') and B-22I (10'-12'), collected and analyzed during the Supplemental Phase II Site Assessment indicate that constituents of concern were either not detected or were detected at concentrations that did not exceed NYSDEC TAGM criteria. Therefore, further investigation or remediation at this area is not warranted.

#### Boring Location B-22J

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 4 feet below grade in the vicinity of soil borings B-22JE7, B-22JE14, and B-22JW7, are primarily impacted by SVOCs, PCBs, arsenic and mercury. In addition, the soil 2 feet below grade in the vicinity of soil borings B-22JN7, B-22J, and B-22JS7 are primarily impacted by varying combinations of SVOCs, PCBs, arsenic and mercury. Likewise, the soil 6 feet below grade in the vicinity of soil

boring B-22JS14 is impacted by mercury. Therefore, remediation of the impacted soil in the vicinity of soil boring locations B-22JE7, B-22JE14, B-22JW7, B-22JN7, B-22J, B-22JS7, and B-22JS14 is to be considered.

#### 7.5.9 Phenol Leaching Chamber

Based on the soil samples collected and analyzed during the Phase I/Phase II Environmental Baseline Study, further investigation is not warranted.

#### 7.5.10 Former Sump #2 (41)

Based on the soil samples collected and analyzed during the Delineation Phase II Site Assessment, further investigation is not warranted at Former Sump #2.

It is important to note that there were several anomalies detected during the geophysical investigation in the Former Sump #2 conducted during the Supplemental Phase II Site Assessment. Test pits were excavated to investigate the anomalies detected during the geophysical survey during the Delineation Phase II Site Assessment. As discussed in Section 4.3, the test trench that was excavated through the Former Sump #2 did not indicate any subsurface features or conditions that would require further investigation or remediation.

#### 7.5.11 Former Pit East of Sump #2 (42)

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation or remediation is not warranted at Former Pit East of Sump #2.

It is important to note that there was one anomaly detected during the geophysical investigation in the Former Pit East of Sump #2 conducted during the Supplemental Phase II Site Assessment. A test pit was excavated to investigate the anomaly detected during the geophysical

survey during the Delineation Phase II Site Assessment. As discussed in Section 4.3, the test pit that was excavated through the Former Pit East of Sump #2 did not indicate any subsurface features or conditions that would require further investigation or remediation.

#### 7.5.12 Resin Waste Pit (Sump #1) (RWP)

As shown in Table 7-1, the soil samples collected and analyzed during the Supplemental and Delineation Phase II Site Assessments, further investigation or remediation is not warranted. Although 1,1,1-trichloroethane was detected in soil sample RWP-1 (12'-14') at a concentration of 1,100 ug/kg, the TAGM criterion for *total* VOCs of 10,000 ug/kg was not exceeded. Therefore, further investigation or remediation is not warranted.

It is important to note that there were several anomalies detected during the geophysical investigation in Resin Waste Pit (Sump #1) conducted during the Supplemental Phase II Site Assessment. Test pits and trenches were excavated to investigate the anomalies detected during the geophysical survey during the Delineation Phase II Site Assessment. As discussed in Section 4.3, the test pits and trenches that were excavated through the Resin Waste Pit (Sump #1) did not indicate any subsurface features or conditions that would require further investigation or remediation.

#### 7.5.13 Former Trenches to Resin Waste Pit (Sump #1) (43)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 4 feet below grade in the vicinity of soil boring B-43AE5 is primarily impacted by PCBs. In addition, the soil 2 feet below grade in the vicinity of soil borings B-43A and B-43AS7 is also impacted by PCBs. Therefore, remediation of the impacted soil in the vicinity of soil boring locations B-43AE5, B-43A and B-43AS7 is to be considered.

Further investigation or remediation is not warranted at boring location B-43B.

#### 7.5.14 Former Dry Well in Vicinity of Trenches (44)

As documented in the May 1998 UIC Closure Report, the former dry well in the vicinity of trenches (which historically received discharges from floor drains located within the Plant 12 building) was remediated and closed in accordance with the USEPA UIC program. Therefore, no further investigation or remediation is warranted.

#### 7.5.15 Dry Well Northeast of Plant 12 (45)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental and Delineation Phase II Site Assessments, the soil at soil boring B-45 is impacted. Therefore, the impacted soil located within the dry well at a depth of 4 to 10 feet below grade should be considered for remediation.

### 7.6 **Plant 12A Exterior**

#### 7.6.1 Leaching Chamber North of Carpentry Shop (16)

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation or remediation is not warranted at this location.

#### 7.6.2 Dry Well/Manhole West of Carpentry Shop (27)

Based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation is not warranted at this location.

### 7.6.3 Center Courtyard Area (28)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental and Delineation Phase II Site Assessments, the soil at boring B-28 is impacted. Therefore, the impacted soil located within the dry well at a depth of approximately 6 feet below grade (or 2 feet beneath the bottom of the existing dry well) should be considered for remediation.

### 7.6.4 Dry Well South of Plant 12A (29)

Based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation is not warranted at this former dry well.

### 7.6.5 Drainage Chamber North of Lobby/Loading Area (30)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental and Delineation Phase II Site Assessments, the soil at boring B-30 is impacted. Therefore, the impacted soil located within the drainage chamber at a depth of 6 feet below grade (or 2 feet below the bottom of the chamber) should be considered for remediation.

### 7.6.6 Dry Well in Stairwell Between Megapound and Plant 12A (31)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, the soil at boring B-31 is impacted. Therefore, the impacted soil located within the dry well at a depth of approximately 5 feet below grade should be considered for remediation.

#### 7.6.7 Former Drainage Trench East of Plant 12A (38)

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation is not warranted at this location.

#### 7.6.8 Dry Wells East of Plant 12A (39)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, the soil at boring B-39A is impacted. Therefore, the impacted soil located beneath the existing dry well at boring location B-39A from 6 to 10 feet below grade (or 4 feet beneath the bottom of the dry well) should be considered for remediation.

As documented in the May 1998 UIC Closure report, the drainage chamber (at boring B-39B) was remediated and closed in accordance with the USEPA UIC program. Therefore, further investigation or remediation at this drainage chamber is not warranted.

Based on the analytical results of the soil samples collected at boring B-39C during the Supplemental Phase II Site Assessment, further investigation or remediation activities are not warranted at this location.

### **7.7 Boiler House Exterior**

#### 7.7.1 Leaching Pools West of Boiler House (34)

As documented in the May 1998 UIC Closure report, both leaching pools located west of the Boiler House were remediated and closed in accordance with the USEPA UIC program. Therefore, further investigation or remediation of the leaching pools located west of Boiler House is not warranted.

### 7.7.2 Surrounding Area (MTL-A)

Based on the soil samples collected and analyzed during the Supplemental Phase II Site Assessment, further investigation or remediation is not warranted at this location.

## 7.8 **Exterior Areas**

### 7.8.1 Southern Parking Lot (35)

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation or remediation is not warranted at this location.

### 7.8.2 Existing and Former Recharge Basins (36)

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation or remediation is not warranted at this location.

### 7.8.3 Former Drainage Basin (37)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental and Delineation Phase II Site Assessments, the soil 2 feet below grade in the vicinity of soil borings B-37ASE32, B-37ASE16, B-37AE8, B-37AN8, B-37ANW8 and B-37ANW16, is primarily impacted by the PCBs and chromium. Similarly, the soil 6 feet below grade in the vicinity of soil borings B-37ASE8, B-37A and B-37AW24 is primarily impacted by PCBs and chromium. Likewise, the soil 8 feet below grade in the vicinity of soil borings B-37AS8, B-37AW8 and B-37AW16 is primarily impacted by PCBs and chromium. Also the soil 10 feet below grade in the vicinity of soil borings B-37AS16 and B-37AS32 is primarily impacted by PCBs and chromium. Therefore, the impacted soil in the vicinity of soil boring



locations B-37ASE32, B-37ASE16, B-37AE8, B-37AN8, B-37ANW8, B-37ANW16, B-37ASE8, B-37A, B-37AW24, B-37AS16 and B-37AS32 is to be considered for remediation.

#### 7.8.4 Petroleum/Chemical Storage Areas (PCS)

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 2 feet below grade in the vicinity of soil borings PCS-A and PCS-AS8 is primarily impacted by SVOCs. In addition, the soil 4 feet below grade in the vicinity of soil borings PCS-AE8 and PCS-AW8 is also impacted by SVOCs. Similarly, soil 6 feet below grade in the vicinity of soil borings PCS-AN8 is impacted by SVOCs. Therefore, remediation of the impacted soil in the vicinity of soil boring locations PCS-A, PCS-AS8, PCS-AE8, PCS-AW8, and PCS-AN8 is to be considered.

As shown in Table 7-1, based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, the soil 2 feet below grade in the vicinity of soil borings PCS-GA and PCS-GN8 is primarily impacted by SVOCs. In addition, the soil 4 feet below grade in the vicinity of soil boring PCS-GS8 is also impacted by SVOCs. Therefore, remediation of the impacted soil in the vicinity of soil boring locations PCS-GA, PCS-GN8, and PCS-GS8 is to be considered.

Based on the soil samples collected and analyzed during the Supplemental Phase II and Delineation Phase II Site Assessments, further investigation or remediation is not warranted at soil boring locations PCS-B, PCS-C, PCS-D, PCS-E, and PCS-F.

### 7.9 **Groundwater**

As discussed in Section 5, the analytical results of groundwater samples collected and analyzed during the Delineation Phase II Site Assessment indicate that 1,1,1-trichloroethane was detected slightly above NYSDEC Class GA groundwater standards in groundwater monitoring well P12MW-2. Based on the groundwater level measurements from surveyed monitoring wells,

groundwater flow was determined during the Delineation Phase II Site Assessment, to be in the southerly direction at the Plant 12 site (see Figure 5-1). Consequently, groundwater monitoring well P12MW-2 is located immediately downgradient of the former Resin Waste Pit. It is important to note that 1,1,1-trichloroethane was also detected above NYSDEC Class GA groundwater standards in groundwater monitoring well P12MW-3 which is located upgradient of the former location of the former Resin Waste Pit along the northern property boundary for the Plant 12 site. Because the upgradient well (P12MW-3) was also shown to be impacted by 1,1,1-trichloroethane, the source of this contamination is likely attributed to an off-site, upgradient location.

In addition, PCBs were detected above NYSDEC Class GA groundwater standards, at a concentration of 0.94 ug/l, in the groundwater sample collected on August 31, 1998 at groundwater monitoring well P12MW-2 (downgradient of the former Resin Waste Pit). However, PCBs were not detected above the method detection limit, of 0.50 ug/l, in groundwater sample P12MW-2 collected on January 14, 1999 at groundwater monitoring well P12MW-2. Since there were no other exceedances of the NYSDEC Class GA groundwater standard for PCBs from the other on-site groundwater monitoring wells, on-site groundwater quality has not been impacted by PCBs.

Although groundwater degradation remains an environmental concern, previous and ongoing investigations have documented a regional VOC contamination issue for the Bethpage-Levittown areas. Ongoing investigations are expected to further delineate the existing groundwater contamination. In particular, NYSDEC and USEPA are involved in the active oversight of the remedial investigations, feasibility studies and the remediation of all operable units, including groundwater plumes associated with adjacent properties. Therefore, further investigation or remediation and/or monitoring of groundwater does not appear to be warranted at this time.

**SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12**  
**SOIL SAMPLING RESULTS**  
**SUMMARY OF EXCEEDANCES**

SAMPLE IDENTIFICATION	Fluid Calibration (Fluid Flow) Lab	Liquid Flow Lab	Machine Shop		Tank Room		Trench in EMT Lab No. 1		NYSDEC TAGM Criteria, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
			B-3A 0-2'	B-3A 2'-4'	B-4A 0-2'	B-7A 6'-7'	B-7A Z-4'	B-7A Z-4'	
DATE OF COLLECTION	4/30/96	5/02/97	5/02/97	5/02/97	5/05/97	5/05/97	5/05/97	5/05/97	
VOCs (ug/kg)	N/A								
1,1-Dichloroethane		U	U	U	U	U	U	U	200
1,1,1-Trichloroethane		1.3	13	0.6	1.7	0.6	1.7	0.6	800
Toluene		9.1	383.1	10.2	22.1	10.2	22.1	10.2	1,500
TOTAL VOCs								8.4	10,000
SVOCs (ug/kg)									
Phenol	600	U	U	U	U	U	U	U	30 or MDL
2-Methylphenol	U	U	U	U	U	U	U	U	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	900
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	8,500
Dio-n-butylphthalate	1,800	U	U	U	U	U	U	U	50,000
Benzol(a)anthracene	2,400	U	U	U	U	U	U	U	224 or MDL
Chrysene	U	820	350	220	570	1,400	570	U	400
Benzol(b)fluoranthene	U	400	530	1,200	440	1,200	440	U	1,100
Benzol(k)fluoranthene	U	450	600	1,200	440	1,200	440	U	1,100
Benzol(a)pyrene	U	620	600	530	600	1,800	600	U	61 or MDL
Indeno(1,2,3-cd)pyrene	U	250	310	520	280	520	280	U	3,200
Dibenzol(a,h)anthracene	U	440	500	440	490	1,200	490	U	14 or MDL
TOTAL CAPAHs	0	280	75	250	77	210	77	0	10,000*
STARS SVOC TOTAL (ug/kg)		2,357	2,965	6,750	2,877	6,750	2,877	0	
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzo(a)anthracene									220
Benzo(b)fluoranthene									220
Benzo(k)fluoranthene									220
Benzo(a)pyrene									61
Dibenzol(a,h)anthracene									14
STARS SVOC TCLP (ug/L)									10
Naphthalene									...
PCBs (ug/kg)									...
Arochlor-1232									...
Arochlor-1242									...
Arochlor-1246									...
Arochlor-1254									...
Arochlor-1260									...
TOTAL PCBs									10,000*
Metals (mg/kg)									Eastern USA Background Levels (mg/kg)
Asenic									3-12
Cadmium		2.2	13.2	6	3.3	6	3.3	2	0.1-1 (10')
Chromium		9.8	59.9	10.2	8.9	10.2	8.9	7.4	15-40 (50')
Copper		6.5	13.6	9.2	5.1	9.2	5.1	4.9	1-50
Lead		4.6	10.2	12	6.4	12	6.4	14	200-500**
Mercury		0.06	0.2	U	U	U	U	1.2	0.001-0.2
Nickel		8.6	32	6.7	4.6	6.7	4.6	5.1	0.5-25
Selenium		U	2.8	U	U	U	U	1.2	0.1-3.9
Zinc		18.9	19.7	63.7	21.3	63.7	21.3	14.6	9-50
TPHCs (mg/kg)		42	54.0	52.9	29.7	52.9	29.7	1,440	...
Fuels (mg/kg)									...
#2 Fuel Oil	U	N/A	U	U	U	U	U	U	...
#4 Fuel Oil	N/A	U	U	U	U	U	U	U	...
Lubricating Oil	B + J	Present	Present	Present	Present	Present	Present	Present	...

**Qualifiers:**  
U: Compound/constituent analyzed for but not detected.  
J: Compound/constituent found at a concentration below the detection limit.  
B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
--- : Not established  
MDL: Method detection limit  
N/A: Compound/constituent not analyzed for.  
\* : Proposed criterion for total CAPAHs in TAGM 4046 Appendix A.  
† : Criteria is for total PCBs in subsurface soils.  
‡ : New York State Background.  
+ : Value reported as 10W40.  
- : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
□ : Background for metropolitan or suburban areas.  
\* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION	Trench in EMT Lab No. 1		Trench in Starfied Machine Shop		Trench in Repair Lab No. 2	NYSDEC TAGM Criteria (ug/kg)	STARS TAGM Criteria (ug/kg)
	B-7AA 0'-2'	B-7AN7 2'-4'	B-8AA *** 2'-4'	B-8B 0'-2'			
SAMPLE IDENTITY	08/11/98	08/21/98	08/19/98	5/02/97	5/02/97		
DATE OF COLLECTION	N/A	N/A	N/A	N/A	N/A		
VOCs (ug/kg)							
1,1-Dichloroethane						200	
1,1,1-Trichloroethane						800	
Toluene						1,500	
TOTAL VOCs						10,000	
SVOCs (ug/kg)							
Phenol						30 or MDL	
2-Methylphenol						100 or MDL	
4-Methylphenol						900	
1,4-Dichlorobenzene						8,500	
Di-n-butylphthalate						8,100	
Buylbenzylphthalate						50,000	
Benzo(a)anthracene						224 or MDL	
Chrysene						400	
Benzo(b)fluoranthene						1,100	
Benzo(k)fluoranthene						1,100	
Benzo(a)pyrene						61 or MDL	
Indeno(1,2,3-cd)pyrene						3,200	
Dibenzo(e,h)anthracene						14 or MDL	
TOTAL CgPAHs						10,000 <sup>1</sup>	
STARS SVOC TOTAL (ug/kg)							
Benzo(a)anthracene						220	
Benzo(b)fluoranthene						220	
Benzo(k)fluoranthene						61	
Benzo(a)pyrene						14	
Dibenzo(e,h)anthracene						10	
STARS SVOC TCLP (ug/L)							
Naphthalene						220	
PCBs (ug/kg)						220	
Aroclor-1232						61	
Aroclor-1242						14	
Aroclor-1248						10	
Aroclor-1254						10	
Aroclor-1260						10	
TOTAL PCBs						10,000 <sup>2</sup>	
Metals (mg/kg)							
Arsenic						3-12 <sup>3</sup>	
Cadmium						0.1-1 (10 <sup>4</sup> )	
Chromium						1.5-40 <sup>3</sup> (50 <sup>4</sup> )	
Copper						1-50	
Lead						200-500 <sup>5</sup>	
Mercury						0.001-0.2	
Nickel						0.5-25	
Selenium						0.1-3.9	
Zinc						9-50	
TPHCs (mg/kg)						---	
Fuels (mg/kg)						---	
#2 Fuel Oil						---	
#4 Fuel Oil						---	
Lubricating Oil						---	

Qualifiers:  
 U Compound/constituent analyzed for but not detected  
 J Compound/constituent found at a concentration below the detection limit  
 B Compound/constituent concentration is less than the CRDL, but greater than the IDL

Notes:  
 --- Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 1: Proposed criterion total CgPAHs in TAGM 4046 Appendix A  
 2: Criteria for total PCBs in subsurface soils  
 3: New York State Background  
 4: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 5: Background for metropolitan or suburban areas  
 --- Split sample analyzed by Environmental Laboratories  
 --- Split sample analyzed by Environmental Laboratories  
 --- Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7-1  
 NORTHROP GRUMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION	Autoclave Room (Pump Room) B-11A 0'-2' 5/02/97	Resin Transfer Molding Lab (Autoclave Lay-up Area) B-12A 2'-4' 5/05/97	External Pump House		Northern Leaching Chambers B-14A 11'-13' 5/01/97	NYSDEC TAGM Criteria (ug/kg)
			B-13A 0'-2' 5/05/97	B-13B 2'-4' 5/05/97		
VOCs (ug/kg)						
1,1-Dichloroethane	U	U	U	U	U	200
1,1,1-Trichloroethane	U	U	U	U	U	800
Toluene	U	U	U	U	U	1,500
TOTAL VOCs	13.1	2.3	27.1	15	19.8	10,000
SVOCs (ug/kg)						
Phenol	U	U	U	U	U	100 or MDL
2-Methylphenol	U	U	U	U	U	800
4-Methylphenol	U	U	U	U	U	800
1,4-Dichlorobenzene	U	U	U	U	U	8,500
Di-n-butylphthalate	U	U	U	U	U	50,000
Benzofluoranthracene	U	U	U	U	U	224 or MDL
Chrysene	U	U	U	U	U	400
Benzofluoranthene	U	U	U	U	U	1,100
Benzofluoranthene	32	U	U	U	U	1,100
Benzofluoranthene	U	U	U	U	U	61 or MDL
Benzofluoranthene	U	U	U	U	U	3,200
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	14 or MDL
Dibenzofluoranthracene	U	U	U	U	U	10,000 *
TOTAL CapAHs	32	0	0	9,230	5,380	
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzofluoranthracene	U	U	U	U	U	220
Benzofluoranthene	U	U	U	U	U	220
Benzofluoranthene	U	U	U	U	U	61
Benzofluoranthene	U	U	U	U	U	14
Dibenzofluoranthracene	U	U	U	U	U	10
Naphthalene	U	U	U	U	U	10
PCBs (ug/kg)						
Aroclor-1232	U	U	U	U	U	NYSDEC TAGM Criteria (ug/kg)
Aroclor-1242	U	U	U	U	U	---
Aroclor-1248	U	U	U	U	U	---
Aroclor-1254	U	U	U	U	U	---
Aroclor-1260	U	U	U	U	U	---
TOTAL PCBs	0	0	0	0	0	10,000 *
Metals (mg/kg)						
Arsenic	1.6	0.93	2.9	N/A	N/A	Eastern USA Background Levels (mg/kg)
Cadmium	7.9	2.8	8.7	N/A	N/A	3-12 *
Chromium	17.7	3.2	5	N/A	N/A	0.1-1 (10 <sup>7</sup> )
Copper	13.1	3,140	2,770	N/A	N/A	15-40 (50 <sup>7</sup> )
Lead	0.09	0.06	4.5	N/A	N/A	1-50
Mercury	7.5	1.9	4.5	N/A	N/A	200-500 **
Nickel	49.5	6.5	12	N/A	N/A	0.001-0.2
Selenium	29.7	45.0	N/A	N/A	N/A	0.5-25
Zinc	U	U	U	U	U	0.1-39
TEPHCs (mg/kg)	Present	Present	U	Present	Present	9-50
Fuels (mg/kg)						
#2 Fuel Oil	U	U	U	U	U	---
#4 Fuel Oil	U	U	U	U	U	---
Lubricating Oil	U	U	U	U	U	---

Notes:  
 --- : Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 \* : Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 \*\* : Criteria is for total PCBs in subsurface soils.  
 \* : New York State Background  
 \* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \* : Background for metropolitan or suburban areas  
 \* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7-1 (used)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Northern Leaching Chambers		Leaching Chamber North of Carpentry Shop		Chemical Storage Area/Concrete Platform		NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,500 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000*
	B-14A 17'-19' 5/01/97	B-14B 6'-8' 4/23/97	B-16A 12'-14' 4/23/97	B-16AA 10'-12' 08/14/98	B-17A 0'-2' 4/25/97	B-17A 2'-4' 4/25/97	
VOCs (ug/kg)							
1,1-Dichloroethane	U	U	U	U	U	U	U
1,1,1-Trichloroethane	U	U	U	U	U	U	U
Toluene	U	U	U	U	U	U	U
TOTAL VOCs	7.2	10.6	35.4	345.3	2.2	8	10,000
SVOCs (ug/kg)							
Phenol	U	U	U	U	U	U	U
2-Methylphenol	U	U	U	U	U	U	U
4-Methylphenol	U	U	U	U	U	U	U
1,4-Dichlorobenzene	U	U	U	U	U	U	U
Di-n-butylphthalate	U	U	U	U	U	U	U
Butylbenzylphthalate	U	U	U	U	U	U	U
Chrysene	U	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U	U
Benzo(a)pyrene	U	U	U	U	U	U	U
Indeno(1,2,3-c)pyrene	U	U	U	U	U	U	U
Dibenzo(e,h)anthracene	U	U	U	U	U	U	U
TOTAL CAPAHs	36,200	360	6,020	3,402	317	0	10,000*
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzofluoranthene	U	U	U	U	U	U	220
Benzofluoranthene	U	U	U	U	U	U	220
Benzofluoranthene	U	U	U	U	U	U	61
Benzofluoranthene	U	U	U	U	U	U	14
Dibenzo(a,h)anthracene	U	U	U	U	U	U	10
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L)
Naphthalene	U	U	U	U	U	U	10
PCBs (ug/kg)							NYSDEC TAGM Criteria (ug/kg)
Aroclor-1232	1,700	U	U	U	U	U	---
Aroclor-1242	U	U	U	U	U	U	---
Aroclor-1248	U	U	U	U	U	U	---
Aroclor-1254	190	15,000	370	1,700	940	2,640	---
Aroclor-1260	1,890	U	1,100	2,400	1,830	7.1	---
TOTAL PCBs	15,000	2,400	1,830	2,640	1,830	2.1	10,000*
Metals (mg/kg)							Eastern USA Background Levels (mg/kg)
Arsenic	10.0	2.7	7.8	7.4	7.4	2.7	3-12*
Cadmium	0.30	1.4	2.4	1.9	0.55	0.68	0.1-1 (10**)
Chromium	34.3	35.1	64.5	14.4	30.7	6.9	1.5-40* (50*)
Copper	72	83.7	58.3	29.9	36.8	9.8	1-50
Lead	28.1	22.8	40.1	23.8	102	7.2	200-500**
Mercury	0.18	0.23	0.08	0.2	0.2	0.13	0.001-0.2
Nickel	3.2	14.5	15.7	10.1	67.9	5.2	0.5-25
Selenium	U	U	U	U	U	U	0.1-3.9
Zinc	76.5	214	129	142	98.9	31.3	9-50
TPHCs (mg/kg)	59.1	127	117	N/A	N/A	251	---
Fuels (mg/kg)	U	U	U	U	U	U	---
#2 Fuel Oil	U	U	U	U	U	U	---
#4 Fuel Oil	U	U	U	U	U	U	---
Lubricating Oil	U	U	U	U	U	U	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL

Notes:  
 ---: Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 \* : Proposed criterion for total CAPAHs in TAGM 4046 Appendix A  
 \* : Criteria is for total PCBs in subsurface soils.  
 \* : New York State Background  
 \* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \* : Background for metropolitan or suburban areas  
 \* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7-1  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE DEPTH DATE OF COLLECTION	Chemical Storage Area/Concrete Platform							NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES AND EASTERN USA BACKGROUND LEVELS
	B-17B 0 - 2' 4/25/97	B-17B 2' - 4' 4/25/97	B-17BA 41' - 61' 08/06/98	B-17BA 61' - 81' 08/06/98	B-17BN7 0 - 2' 08/06/98	B-17BN7 2' - 4' 08/06/98	B-17BN14 2' - 4' 08/20/98	
VOCs (ug/kg)								
1,1-Dichloroethane	U	U	N/A	N/A	N/A	N/A	N/A	200
1,1,1-Trichloroethane	U	U	N/A	N/A	N/A	N/A	N/A	800
Toluene	U	U	N/A	N/A	N/A	N/A	N/A	1,500
TOTAL VOCs	2.2	1.6						10,000
SVOCs (ug/kg)								
Phenol	U	U	N/A	N/A	N/A	N/A	N/A	30 or MDL
2-Methylphenol	U	U	N/A	N/A	N/A	N/A	N/A	100 or MDL
4-Methylphenol	U	U	N/A	N/A	N/A	N/A	N/A	900
1,4-Dichlorobenzene	U	U	N/A	N/A	N/A	N/A	N/A	8,500
n-butylphthalate	U	U	N/A	N/A	N/A	N/A	N/A	8,100
Bis(2-ethylhexyl)phthalate	430 J	4,300						50,000
Chrysene	280	21,000						224 or MDL
Benzo(a)anthracene	270							400
Benzo(b)fluoranthene	540 U	110						1,100
Benzo(k)fluoranthene	370							1,100
Indeno(1,2,3-cd)pyrene	180 U							61 or MDL
Dibenz(a,h)anthracene	1,910	110						3,200
TOTAL CAPAHs	N/A	N/A						14 or MDL
STARS SVOC TOTAL (ug/kg)								10,000*
Benzo(a)anthracene	N/A	N/A	52	U	1,000	U	N/A	220
Benzo(b)fluoranthene	N/A	N/A	87	U	1,400	U	U	220
Benzo(k)fluoranthene	N/A	N/A	31 J	U	510	U	U	220
Benzo(a)pyrene	N/A	N/A	46	U	860	U	U	61
Dibenz(a,h)anthracene	N/A	N/A	11 J	U	71	U	U	14
STARS SVOC TCLP (ug/L)								
Naphthalene	N/A	N/A	U	U	U	U	N/A	10
PCBs (ug/kg)								
Aroclor-1232	N/A	N/A	U	U	U	U	N/A	NYSDEC TAGM Criteria (ug/kg)
Aroclor-1242	N/A	N/A	U	U	U	U	N/A	...
Aroclor-1246	N/A	N/A	U	U	U	U	N/A	...
Aroclor-1254	N/A	N/A	U	U	U	U	N/A	...
Aroclor-1260	N/A	N/A	U	U	U	U	N/A	...
TOTAL PCBs	N/A	N/A	130,000	U	2,200	U	N/A	10,000*
			130,000	U	2,200	U	N/A	
Metals (mg/kg)								
Arsenic	339	137	10.5	U	83.6	U	55.5	Eastern USA Background Levels (mg/kg)
Cadmium	139	16	N/A	N/A	6.3	U	N/A	3 - 12
Chromium	954	11.9	N/A	N/A	34	U	N/A	0.1 - 1 (10')
Copper	220	11.7	N/A	N/A	7.3	U	N/A	15 - 40' (50')
Lead	28	16.4	N/A	N/A	48.8	U	N/A	1 - 50
Mercury	57.3	0.23	0.16	U	0.5	U	N/A	200 - 500**
Nickel	20 B	6.3 B	N/A	N/A	16.4	U	0.36	0.001 - 0.2
Selenium	1,550	147	N/A	N/A	681	U	N/A	0.5 - 25
Zinc	4,200	114	N/A	N/A	80.5	U	N/A	0.1 - 3.9
TPHCs (mg/kg)								9 - 50
Fuels (mg/kg)								...
#2 Fuel Oil	U	U	N/A	N/A	N/A	N/A	N/A	...
#4 Fuel Oil	U	U	N/A	N/A	N/A	N/A	N/A	...
Lubricating Oil	Present	Present	N/A	N/A	N/A	N/A	N/A	...

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ... : Not established.  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 \* : Proposed criterion for total CAPAHs in TAGM 4046 Appendix A.  
 † : Criteria is for total PCBs in subsurface soils.  
 ‡ : New York State Background.  
 § : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 ¶ : Background for metropolitan or suburban areas.  
 \*\* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7-1 (used)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION	Chemical Storage Area/Concrete Platform				Former Fuel USTs East of Plant 12				NYSDEC TAGM Criteria (ug/kg)
	B-17BN14 4'-6" 08/20/98	B-17BS7 0-2' 08/06/98	B-17BS14 2'-4' 08/20/98	B-17BE7 0-2' 08/06/98	B-17C 0-2' 4/25/97	B-18A 4'-6" 5/07/97	B-18A 6'-8" 5/07/97	NYSDEC TAGM Criteria (ug/kg)	
VOCs (ug/kg)	N/A	N/A	N/A	N/A	U	0.6 J	U	200	
1,1-Dichloroethane					U	0.7 J	U	800	
1,1,1-Trichloroethane					U	3.4	U	1,500	
Toluene					2.1	20.8	16	10,000	
TOTAL VOCs									
SVOCs (ug/kg)	N/A	N/A	N/A	N/A	U	U	U	30 or MDL	
Phenol					U	U	U	900	
2-Methylphenol					U	U	U	8,500	
4-Methylphenol					U	U	U	8,100	
1,4-Dichlorobenzene					U	U	U	50,000	
Di-n-butylphthalate					880	830	200 J	224 or MDL	
Butybenzylphthalate					10,000	15,000	2,800		
Benzofluoranthene					72	230	180		
Benzo(a)anthracene					64	300	190		
Chrysene					74	230	240		
Benzofluoranthene					48	110	110		
Benzo(a)pyrene					U	120	100		
Indeno(1,2,3-cd)pyrene					U	120	100		
Dibenzo(a,h)anthracene					U	1,200	1,000		
TOTAL CapAHs					258	N/A	N/A		
STARS SVOC TOTAL (ug/kg)	N/A	470	N/A	170 J	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)	
Benzo(a)anthracene		480		220				220	
Benzo(b)fluoranthene		180		U				220	
Benzo(k)fluoranthene		380		130				220	
Benzo(a)pyrene		52		U				61	
Dibenzo(a,h)anthracene								14	
STARS SVOC TCLP (ug/L)	N/A	U	N/A	U	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L)	
Naphthalene								10	
PCBs (ug/kg)	N/A	U	N/A	U	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg)	
Aroclor-1232								---	
Aroclor-1242								---	
Aroclor-1248								---	
Aroclor-1254		690	N/A	2,100	N/A	N/A	N/A	---	
Aroclor-1260		U	N/A	U				---	
TOTAL PCBs		690	N/A	2,100				10,000*	
Metals (mg/kg)	22.5	48.5	26.5	14.3	1.6	8.5	6.4	Eastern USA Background Levels (mg/kg)	
Arsenic	N/A	0.84 B	N/A	N/A	0.38 B	0.78	0.94	3-12*	
Cadmium	N/A	12.5	N/A	N/A	6.0	28.6	18.1	0.1-1 (10')	
Chromium	N/A	16.1	N/A	N/A	13.4	21.7	14.4	1.5-40*(50')	
Copper	N/A	21.4	N/A	N/A	14.9	34.9	28.0	1-50	
Lead	0.05	0.06	N/A	N/A	19	U	U	200-500**	
Mercury	N/A	5.3 B	N/A	N/A	4.0 B	9.6	8.1	0.001-0.2	
Nickel	N/A	34.1	N/A	N/A	U	U	U	0.5-25	
Selenium	39.5	U	N/A	N/A	282	51.2	35.2	0.1-3.9	
Zinc	N/A	N/A	N/A	N/A	81.2	198	649	9-50	
TPHCs (mg/kg)	N/A	N/A	N/A	N/A	U	U	U	---	
Fuels (mg/kg)	N/A	N/A	N/A	N/A	Present	193	667	---	
#2 Fuel Oil								---	
#4 Fuel Oil								---	
Lubricating Oil								---	

Qualifiers:  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ---: Not established  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 \* : Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 \*\* : Criteria is for total PCBs in subsurface soils.  
 \*\*\* : New York State Background  
 \*\*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \*\*\*\*\* : Background for metropolitan or suburban areas.  
 \*\*\*\*\* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.



TABLE 7-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION	Former Fuel USTS: East of Plant 12		Area Outside Machine Shop				NYSDEC TAGM Criteria (ug/kg)
	B-18B 0'-2' 5/08/97	B-18B 4'-6' 5/08/97	B-19A 0'-2' 5/01/97	B-19A 2'-4' 5/01/97	B-19A 2'-4' 08/07/98	B-19A 4'-6' 08/07/98	
VOCs (ug/kg)							
1,1-Dichloroethane	U	1.1	U	U	9.6	U	200
1,1,1-Trichloroethane	U	5.9	U	U	19.9	U	800
Toluene	U	16.8	U	U	1.2	U	1,500
TOTAL VOCs			3,910		330.6		10,000
SVOCs (ug/kg)							
Phenol	U	U	U	U	U	U	30 or MDL
2-Methylphenol	U	U	U	U	U	U	100 or MDL
4-Methylphenol	U	U	U	U	U	U	900
1,4-Dichlorobenzene	U	U	U	U	U	U	8,500
Di-n-butylphthalate	U	U	U	U	U	U	50,000
Benz(a)anthracene	U	U	U	U	U	U	224 or MDL
Chrysene	340	440	1,500	1,900	11,000	470	400
Benz(b)fluoranthene	410	600	2,300	1,200	10,000	480	680
Benz(a)fluoranthene	180	240	1,000	1,700	10,000	560	840
Benz(e)pyrene	310	440	3,000	660	4,600	220	1,100
Indeno(1,2,3-cd)pyrene	180	270	3,000	1,100	8,600	430	610
Dibenz(a,h)anthracene	51	70	2,300	730	4,700	270	3,200
TOTAL CAPAHs	1,751	2,566	22,800	535	6,680	2,494	10,000 <sup>1</sup>
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benz(a)anthracene							220
Benz(b)fluoranthene							220
Benz(a)fluoranthene							220
Benz(e)pyrene							61
Dibenz(a,h)anthracene							14
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L)
Naphthalene							10
PCBs (ug/kg)							NYSDEC TAGM Criteria (ug/kg)
Aroclor-1232							...
Aroclor-1242							...
Aroclor-1248							...
Aroclor-1254							...
Aroclor-1260							...
TOTAL PCBs							10,000 <sup>2</sup>
Metals (mg/kg)							Eastern USA Background Levels (mg/kg)
Arsenic	20.3	19.4	2.3	3.9	6	7.0	3-12 <sup>3</sup>
Cadmium	1.3	1.0	1.4	15.3	0.75	0.14	0.1-1(10 <sup>4</sup> )
Chromium	33.5	21.1	60.2	8.2	10.9	6.9	1.5-40 <sup>3</sup> (50 <sup>3</sup> )
Copper	29.2	19.1	38.4	4.5	20.0	5.8	1-50
Lead	404	22.5	2,400	4.5	28.4	9.4	200-500 <sup>**</sup>
Mercury	0.18	0.11	1.1	9.3	0.24	0.10	0.001-0.2
Nickel	14.6	9.3	9.5	21.0	5.9	3.1	0.5-25
Selenium	U	U	U	U	U	U	0.1-3.9
Zinc	70.5	42.9	137	202	78.7	13.4	9-50
TPHCs (mg/kg)	101	252	1,470	202	N/A	N/A	...
Fuels (mg/kg)							...
#2 Fuel Oil	U	U	U	U	U	U	...
#4 Fuel Oil	U	U	U	U	U	U	...
Lubricating Oil	Present	U	U	U	U	U	...

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 --- : Not established  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 1: Proposed criterion for total CAPAHs in TAGM 4046 Appendix A  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background  
 \*: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \*\*: Background for metropolitan or suburban areas  
 ☐: Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7.1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Area Outside Machine Shop		Tank Room Leaching Pools (West)		Sanitary Leaching Pools (North and South)	NYSDEC TAGM Criteria (µg/kg) HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES, and EASTERN USA BACKGROUND LEVELS
	B-19A114 0-2' 08/20/98	B-19A110 0-2' 08/07/98	B-19A114 0-2' 07-14 5/13/97	B-21B 12-14 5/12/97		
VOCs (µg/kg)						
1,1-Dichloroethane	N/A	12 J	U	U	U	200
1,1,1-Trichloroethane		48 J	U	U	0.8 J	900
Toluene		110 J	U	U	2.5	1,500
TOTAL VOCs		114.6	42.8	79.3		10,000
S/VOCs (µg/kg)						
Phenol	U	U	U	U	U	30 or MDL 100 or MDL
2-Methylphenol	U	U	U	U	U	900
4-Methylphenol	34 J	75 J	350 J	U	U	8,500
1,4-Dichlorobenzene	U	U	U	U	U	50,000
n-Butylphthalate	U	U	U	U	U	224 or MDL
Benzo(a)anthracene	160 J	100 J	330 J	U	U	400
Chrysene	1,700	1,710	540	310	29	61 or MDL
Benzo(b)fluoranthene	1,400	890	310	330	24	1,100
Benzo(a)fluoranthene	500	330	200	350	44	3,200
Benzo(e)pyrene	990	360	320	120	24	10,000*
Indeno(1,2,3-cd)pyrene	790	110 J	350	260	U	
Dibenz(a,h)anthracene	160	110	310	160	U	
TOTAL CAPAHs	5,900	3,610	3,131	1,623	121	
STARS SVOC TOTAL (µg/kg)	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (µg/kg)
Benzo(a)anthracene						220
Benzo(b)fluoranthene						220
Benzo(k)fluoranthene						220
Benzo(a)pyrene						61
Dibenz(a,h)anthracene						14
STARS SVOC TCLP (µg/L)						
Naphthalene		U				10
ECBs (µg/kg)						
Aroclor-1232						
Aroclor-1242						
Aroclor-1246						
Aroclor-1254						
Aroclor-1260						
TOTAL PCBs						
Metals (mg/kg)						
Arsenic	N/A	6.0	40.6	14.7	2.6	10,000*
Cadmium	N/A	0.48 B	0.54 B	N/A	0.97 B	3-12*
Chromium	N/A	11.2	97.2	38.7	61	0.1-1(10*)
Copper	N/A	60.3	56.3	N/A	17.2	1.5-40*(50*)
Lead	N/A	55.4	60.8	N/A	5.3	1-50
Mercury	0.16	0.17	10.2	N/A	19.1	200-500**
Nickel	N/A	6.3 B	9.6	N/A	6.1	0.001-0.2
Selenium	N/A	U	7	N/A	2.8 B	0.5-25
Zinc	N/A	59.3	90	N/A	18.0	0.1-39
TPHCs (mg/kg)						
Fuels (mg/kg)						
#2 Fuel Oil	N/A	N/A	N/A	N/A	20.5	9-50
#4 Fuel Oil	N/A	N/A	N/A	N/A	253	---
Lubricating Oil					Present	---

Qualities:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ---: Not established.  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for.  
 \* : Proposed criterion for total CAPAHs in TAGM 4046 Appendix A.  
 \* : Criteria is for total PCBs in subsurface soils.  
 \* : New York State Background  
 \* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \* : Background for metropolitan or suburban areas.  
 \* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7-1 (revised)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION	Sanitary Leaching Pools (North and South)							B-22E 10' - 12' 5/13/97	B-22E 10' - 12' 5/13/97	B-22E 10' - 12' 5/13/97	B-22E 10' - 12' 5/13/97	B-22E 10' - 12' 5/13/97	B-22E 20' - 22' 5/09/97	NYSDEC TAGM Criteria (ug/kg)
	B-22BA 8' - 10' 08/18/98	B-22C 12' - 14' 5/13/97	B-22C 12' - 14' 5/13/97	B-22C 12' - 14' 5/13/97	B-22C 4' - 6' 5/09/97	B-22C 4' - 6' 5/09/97	B-22C 10' - 12' 5/13/97							
VOCs (ug/kg)	U	U	U	U	U	U	U	U	U	U	U	U	U	200
1,1-Dichloroethane	2.4 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	800
1,1,1-Trichloroethane	1.0 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	1,500
Toluene	93.9	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	10,000
TOTAL VOCs														
SVOCs (ug/kg)	U	U	U	U	U	U	U	U	U	U	U	U	U	30 or MDL
2-Henol	U	U	U	U	U	U	U	U	U	U	U	U	U	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	U	900
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	U	8,500
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	8,100
Di-n-butylphthalate	200 J	450	450	450	450	450	450	450	450	450	450	450	450	50,000
Butybenzylphthalate	30 J	69	69	69	69	69	69	69	69	69	69	69	69	224 or MDL
Benzo(a)anthracene	43 J	54	54	54	54	54	54	54	54	54	54	54	54	400
Chrysene	89 J	68	68	68	68	68	68	68	68	68	68	68	68	1,100
Benzo(b)fluoranthene	U	36	36	36	36	36	36	36	36	36	36	36	36	1,100
Benzo(k)fluoranthene	U	45	45	45	45	45	45	45	45	45	45	45	45	61 or MDL
Benzo(a)pyrene	U	38	38	38	38	38	38	38	38	38	38	38	38	3,200
Indeno(1,2,3-cd)pyrene	U	28	28	28	28	28	28	28	28	28	28	28	28	14 or MDL
Dibenzo(a,h)anthracene	U	188	188	188	188	188	188	188	188	188	188	188	188	10,000*
TOTAL CapAHs	162	284	284	284	284	284	284	284	284	284	284	284	284	
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	220
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	U	220
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	U	220
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	U	U	U	61
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	14
STARS SVOC ICLP (ug/L)	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS ICLP Guidance Values (ug/L)
Naphthalene	U	U	U	U	U	U	U	U	U	U	U	U	U	10
PCBs (ug/kg)	U	U	U	U	U	U	U	U	U	U	U	U	U	NYSDEC TAGM Criteria (ug/kg)
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1248	U	U	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	U	---
TOTAL PCBs	660	370	370	370	370	370	370	370	370	370	370	370	370	10,000*
Metals (mg/kg)	4.5	0.71 B	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	Eastern USA Background Levels (mg/kg)
Arsenic	0.59 B	1.1	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	3 - 12*
Cadmium	19.3	54.6	70.9	70.9	70.9	70.9	70.9	70.9	70.9	70.9	70.9	70.9	70.9	0.1 - 1 (10*)
Chromium	149	959	104	104	104	104	104	104	104	104	104	104	104	1.5 - 40* (50*)
Copper	23.4	19.8	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	1 - 50
Lead	0.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	200 - 500**
Mercury	6.1 B	4.1 B	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	0.001 - 0.2
Nickel	U	U	U	U	U	U	U	U	U	U	U	U	U	0.5 - 25
Selenium	33.3	96.1	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	23.9	0.1 - 3.9
Zinc	N/A	572	499	499	499	499	499	499	499	499	499	499	499	9 - 50
IPHCs (mg/kg)	N/A	U	U	U	U	U	U	U	U	U	U	U	U	---
Fuels (mg/kg)	N/A	U	U	U	U	U	U	U	U	U	U	U	U	---
#2 Fuel Oil	U	U	U	U	U	U	U	U	U	U	U	U	U	---
#4 Fuel Oil	U	U	U	U	U	U	U	U	U	U	U	U	U	---
Lubricating Oil	U	U	U	U	U	U	U	U	U	U	U	U	U	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 --- Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 \* : Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 \* : Criteria is for total PCBs in subsurface soils.  
 \* : New York State Background  
 \* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \* : Background for metropolitan or suburban areas  
 \* : Value exceeds NYSDDEC TAGM Criteria, STARS Human Health Guidance Values, STARS ICLP Guidance Values or Eastern USA Background Levels

TABLE 7-1 (continued)  
 NORTHROP GRUMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Sanitary Leaching Pools (North and South) B-22F 10' - 12' 5/09/97	Anomalous Features/Unknown Buried Structures (North)						NYSDEC TAGM Criteria (ug/kg)
		B-22GA 0 - 2' 08/18/98	B-22GN7 0 - 2' 08/07/98	B-22GE7 0 - 2' 08/07/98	B-22GW7 0 - 2' 08/07/98	B-22GW14 0 - 2' 08/20/98	B-22H 0 - 2' 5/1/97	
VOCs (ug/kg)		N/A	N/A	N/A	N/A	N/A	N/A	
1,1-Dichloroethane	U						200	
1,1,1-Trichloroethane	14						800	
Toluene	U						1,500	
TOTAL VOCs	21.1	2.8				1.7	10,000	
SVOCs (ug/kg)								
Phenol	U						30 or MDL	
2-Methylphenol	U						100 or MDL	
4-Methylphenol	200 J						900	
1,4-Dichlorobenzene	90 J						8,500	
Di-n-butylphthalate	2,600						8,100	
Butylbenzylphthalate	4,800						50,000	
Benzol(a)anthracene	4,800						224 or MDL	
Chrysene	5,200						400	
Benzol(b)fluoranthene	6,200						1,100	
Benzol(k)fluoranthene	2,200						1,100	
Benzol(a)pyrene	4,300						61 or MDL	
Indeno(1,2,3-cd)pyrene	2,300						3,200	
Dibenzol(a,h)anthracene	830						14 or MDL	
TOTAL CAPAHs	26,830	3,240					10,000*	
STARS SVOC TCLP (ug/L)								
Benzol(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	220	
Benzol(b)fluoranthene	U						220	
Benzol(k)fluoranthene	U						61	
Benzol(a)pyrene	U						14	
Dibenzol(a,h)anthracene	U						10	
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	...	
PCBs (ug/kg)								
Aroclor-1232	U						...	
Aroclor-1242	U						...	
Aroclor-1248	1,700						...	
Aroclor-1254	U						...	
Aroclor-1260	U						...	
TOTAL PCBs	27,000	1,700				0	10,000*	
Metals (mg/kg)								
Arsenic	9.6	19.4	17.1	50.5	21.8	14.2	3 - 12	
Cadmium	U						0.1 - 1(10')	
Chromium	228	8.5					1.5 - 40 (50')	
Copper	31.5	8.1					1 - 50	
Lead	22.5	10.2					200 - 500**	
Mercury	U	0.78	0.25	0.82	0.34	0.13	0.001 - 0.2	
Nickel	7.7	5.8					0.5 - 25	
Selenium	U						0.1 - 3.9	
Zinc	33.5	25.9					9 - 50	
IPHCs (mg/kg)							...	
Fuels (mg/kg)							...	
#2 Fuel Oil	U						...	
#4 Fuel Oil	U						...	
Lubricating Oil	Present						...	

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 --- : Not established.  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for.  
 \* : Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 \* : Criteria is for total PCBs in subsurface soils  
 \* : New York State Background  
 \*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \* : Background for metropolitan or suburban areas  
 \* : Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7-1 (ued)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION	Anomalous Features/Unknown Buried Structures (North)						B-22HS14 0'-2' 08/20/98	B-22HS14 2'-4' 08/20/98	B-22HS14 4'-6' 08/06/98	B-22HN7 0'-2' 08/06/98	B-22HS7 2'-4' 08/06/98	B-22HS14 0'-2' 08/20/98	B-22HS14 2'-4' 08/20/98	B-22HE7 0'-2' 08/06/98	NYSDEC TAGM Criteria (ug/kg) 200 800 1,500 10,000
	B-22HA 2'-4' 08/06/98	B-22HA 4'-6' 08/06/98	B-22HN7 0'-2' 08/06/98	B-22HS7 2'-4' 08/06/98	B-22HS14 0'-2' 08/20/98	B-22HS14 2'-4' 08/20/98									
VOCs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,500 50,000 224 or MDL 400 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
1,1-Dichloroethane															
1,1,1-Trichloroethane															
Toluene															
TOTAL VOCs															
SVOCs (ug/kg)															
Phenol															
2-Methylphenol															
4-Methylphenol															
1,4-Dichlorobenzene															
Di-n-butylphthalate															
Butylbenzylphthalate															
Benzofuranthracene															
Chrysene															
Benzofluoranthene															
Benzofluoranthene															
Benzofluoranthene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
TOTAL CapAHs															
STARS SVOC TOTAL (ug/kg)															
Benzofluoranthracene															
Benzofluoranthracene															
Benzofluoranthracene															
Benzofluoranthracene															
Dibenz(a,h)anthracene															
STARS SVOC TCLP (ug/L)															
Naphthalene															
PCBs (ug/kg)															
Aroclor-1232															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
TOTAL PCBs															
Metals (mg/kg)															
Arsenic															
Chromium															
Chromium															
Copper															
Lead															
Mercury															
Nickel															
Selenium															
Zinc															
TEPHCs (mg/kg)															
Exelis (mg/kg)															
#2 Fuel Oil															
#4 Fuel Oil															
Lubricating Oil															

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ... : Not established.  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background  
 4: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 5: Background for metropolitan or suburban areas.  
 6: Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7 (continued)  
 NORTHROP GRUM CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)				B-22J 0 - 2' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	B-22J 2 - 4' 08/06/98	NYSDEC TAGM Criteria (ug/kg)	STARS Human Health Guidance Values (ug/kg)
	B-22HE7 0 - 2' 08/06/98	B-22HE14 0 - 2' 08/06/98	B-22HW7 0 - 2' 08/06/98	B-22J 0 - 2' 08/06/98											
<b>VOCs (ug/kg)</b>	N/A	N/A	N/A	U	U	U	U	U	U	U	U	U	U	200	220
1,1-Dichloroethane														800	220
1,1,1-Trichloroethane	0.8 J	7.6	U	U	U	U	U	U	U	U	U	U	U	1,500	220
Toluene														10,000	220
<b>TOTAL VOCs</b>															10,000 <sup>1</sup>
<b>SVOCs (ug/kg)</b>															10,000 <sup>1</sup>
Phenol														900	14 or MDL
2-Methylphenol														8,500	14 or MDL
4-Methylphenol														8,100	14 or MDL
1,4-Dichlorobenzene														50,000	14 or MDL
Di-n-butylphthalate														224 or MDL	10,000 <sup>1</sup>
Benz(a)anthracene														400	1,100
Chrysene														1,100	1,100
Benz(b)fluoranthene														1,100	1,100
Benz(k)fluoranthene														61 or MDL	3,200
Benz(a)pyrene														3,200	10,000 <sup>1</sup>
Indeno(1,2,3-cd)pyrene														14 or MDL	10,000 <sup>1</sup>
Dibenzo(a,h)anthracene														10,000 <sup>1</sup>	10,000 <sup>1</sup>
<b>TOTAL CapAHs</b>															10,000 <sup>1</sup>
<b>STARS SVOC TOTAL (ug/kg)</b>															10,000 <sup>1</sup>
Benz(a)anthracene														220	220
Benz(b)fluoranthene														220	220
Benz(k)fluoranthene														61	14
Benz(a)pyrene														14	14
Dibenzo(a,h)anthracene														10	10
<b>STARS SVOC TCLP (ug/L)</b>															10
Naphthalene															10
<b>PCBs (ug/kg)</b>															10
Aroclor-1232															10
Aroclor-1242															10
Aroclor-1248															10
Aroclor-1254															10
Aroclor-1260															10
<b>TOTAL PCBs</b>															10
<b>Metals (mg/kg)</b>															10,000 <sup>2</sup>
Arsenic															3 - 12 <sup>3</sup>
Cadmium															0.1 - 1 (10 <sup>7</sup> )
Chromium															1.5 - 40 <sup>4</sup> (50 <sup>7</sup> )
Copper															1 - 50
Lead															200 - 500 <sup>5</sup>
Mercury															0.001 - 0.2
Nickel															0.5 - 25
Selenium															0.1 - 3.9
Zinc															9 - 50
<b>TPHCs (mg/kg)</b>															---
<b>Fuels (mg/kg)</b>															---
#2 Fuel Oil															---
#4 Fuel Oil															---
Lubricating Oil															---

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
 --- Not established  
 MDL Method detection limit  
 N/A: Compound/constituent not analyzed for  
 1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in TAGM 4046 Appendix A.  
 3: New York State Background  
 4: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 5: Background for metropolitan or suburban areas.  
 Value exceeds NYSDEC TAGM Criteria. STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7.1  
 NORTHROP GRUM CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Anomalous Features/Unknown Buried Structures (North)						NYSDEC TAGM Criteria (ug/kg) 200 800 1,500 10,000
	B-22J57 2'-4' 08/05/98	B-22J14 4'-6' 08/20/98	B-22J7 0'-2' 08/05/98	B-22J14 2'-4' 08/20/98	B-22J7 0'-2' 08/05/98	B-22J14 2'-4' 08/05/98	
VOCs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL
1,1-Dichloroethane	380 J	U	U	U	U	U	900
1,1,1-Trichloroethane	U	U	U	U	U	U	8,500
Toluene	U	U	U	U	U	U	50,000
TOTAL VOCs	130,000	79 J	150 J	80,000	14 J	3,500	224 or MDL
SVOCs (ug/kg)	25,000	900	4,400	78,000	320 J	12,000	1,100
Phenol	U	U	U	U	U	U	1,100
2-Methylphenol	U	U	U	U	U	U	1,100
4-Methylphenol	U	U	U	U	U	U	61 or MDL
1,4-Dichlorobenzene	U	U	U	U	U	U	14 or MDL
Di-n-butylphthalate	3,600	32	11,000	680 J	410	3,200	10,000
Butylbenzylphthalate	380	270 J	760 J	630 J	1,000	800	
Chrysene	480	280 J	700	870 J	1,100	500 J	
Benzofluoranthene	560	280 J	700	870 J	1,100	500 J	
Benzofluoranthene	280	130 J	280	330 J	410	240	
Benzofluoranthene	380	180 J	540	470 J	480	200	
Indene(1,2,3-cd)pyrene	180	62	290	85 J	130	200	
Dibenzofluoranthene	81	U	86 J	U	4,820	2,690	
TOTAL CapAHs	0	1,182	3,436	2,980	N/A	N/A	
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	220
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	220
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	61
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	14
Dibenzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	10
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L)
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	10
PCBs (ug/kg)	U	U	U	U	U	U	NYSDEC TAGM Criteria (ug/kg)
Aroclor-1232	U	U	U	U	U	U	---
Aroclor-1242	U	U	U	U	U	U	---
Aroclor-1248	760	590	24,000	720	3,900	2,700	---
Aroclor-1254	630	1,800	U	U	U	5,500	---
Aroclor-1260	93	470	U	U	U	8,200	---
TOTAL PCBs	1,483	2,860	24,000	720	3,900	8,200	10,000
Metals (mp/kg)	1 B	7.6	9.7	11.8	27.4	8.9	Eastern USA Background Levels (mp/kg)
Arsenic	N/A	8.0	N/A	N/A	N/A	N/A	3 - 12
Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	0.1 - 1 (10')
Chromium	N/A	N/A	N/A	N/A	N/A	N/A	1.5 - 40 (50')
Copper	N/A	N/A	N/A	N/A	N/A	N/A	1 - 50
Lead	N/A	N/A	N/A	N/A	N/A	N/A	200 - 500
Mercury	0.03	0.03 B	0.16	0.28	0.24	0.51	0.001 - 0.2
Nickel	N/A	N/A	N/A	N/A	N/A	N/A	0.5 - 25
Selenium	N/A	N/A	N/A	N/A	N/A	N/A	0.1 - 3.9
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	9 - 50
TPHCs (mp/kg)	N/A	N/A	N/A	N/A	N/A	N/A	---
Fuels (mp/kg)	N/A	N/A	N/A	N/A	N/A	N/A	---
#2 Fuel Oil	N/A	N/A	N/A	N/A	N/A	N/A	---
#4 Fuel Oil	N/A	N/A	N/A	N/A	N/A	N/A	---
Lubricating Oil	N/A	N/A	N/A	N/A	N/A	N/A	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the DL

Notes:  
 Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 Proposed criterion for total PCBs in subsurface soils  
 New York State Background  
 Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 Background for vegetation or suburban areas  
 Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7-1  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE ID DATE OF COLLECTION	Anomalous Features/Unknown Buried Structures (North)	Sanitary Leaching Pools (North & South)				Point of Generation of Waste Accumulation Area	Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop	NYSDEC TAGM Criteria (ug/kg)
		B-22K 10'-12" 5/14/97	B-22L 12'-14" 5/14/97	B-22LA 8'-10" 08/19/98	B-26A 7'-9" 4/29/97			
VOCs (ug/kg)								
1,1-Dichloroethane		1,200	U	U	U	U	U	200
1,1,1-Trichloroethane		5,200	7,100	10	U	U	U	800
Toluene		1,400	1,800	0.9	U	U	U	1,500
TOTAL VOCs		10,380	8,900	7.7	U	U	U	10,000
SVOCs (ug/kg)								
Phenol		2,400	U	770	U	U	U	30 or MDL
2-Methylphenol		33,000	U	50	U	U	U	100 or MDL
4-Methylphenol		40,000	17,000	38	U	U	U	900
1,4-Dichlorobenzene		470	U	1,900	U	U	U	8,500
Di-n-butylphthalate		420	U	4,100	U	U	U	8,100
Benzol(a)anthracene		810	3,900	1,400	U	U	U	50,000
Chrysene		610	3,300	1,600	U	U	U	224 or MDL
Benzol(b)fluoranthene		620	3,300	2,000	U	U	U	400
Benzol(k)fluoranthene		400	U	750	U	U	U	1,100
Benzol(a)pyrene		1,800	3,000	950	U	U	U	1,100
Indeno(1,2,3-cd)pyrene		530	U	560	U	U	U	61 or MDL
Dibenzol(a,h)anthracene		17,130	230	130	U	U	U	3,200
TOTAL CAPAHs		2,440	8,430	5,580	U	U	U	14 or MDL
STARS SVOC TOTAL (ug/kg)		N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzol(a)anthracene								220
Benzol(b)fluoranthene								220
Benzol(k)fluoranthene								220
Benzol(a)pyrene								61
Dibenzol(a,h)anthracene								14
STARS SVOC TCLP (ug/L)								STARS TCLP Guidance Values (ug/L)
Naphthalene								10
PCBs (ug/kg)								NYSDEC TAGM Criteria (ug/kg)
Aroclor-1232								---
Aroclor-1242								---
Aroclor-1248								---
Aroclor-1254								---
Aroclor-1260								---
TOTAL PCBs								10,000*
Metals (mg/kg)								Eastern USA Background Levels (mg/kg)
Arsenic		3.6	2.5	9.2	6.6	2.0	9.4	3-12
Cadmium		0.28	B	U	U	2.0	2.9	0.1-1 (0.1)
Chromium		8.9	8.1	20.0	11.9	5.5	37.6	15-40 (50)
Copper		29.2	17.2	10.9	7.7	20.5	42.8	200-500**
Lead		7.1	5.9	10.8	5.6	23.2	60.5	0.001-0.2
Mercury		0.69	0.35	0.15	0.08	U	0.19	0.5-25
Nickel		6.7	3.2	4.6	2.9	4.9	9.8	0.1-3.9
Selenium								9-50
Zinc		66.8	33.1	18.5	11.1	84.3	271	---
TEPHCs (mg/kg)								---
Fuels (mg/kg)								---
#2 Fuel Oil		837	557	35.9	N/A	183	232	---
#4 Fuel Oil								---
Lubricating Oil								---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ---: Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for.  
 \* : Proposed criterion for total CAPAHs in TAGM 4046 Appendix A  
 \* : Criteria is for total PCBs in subsurface soils  
 \* : New York State Background  
 \* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \* : Background for metropolitan or suburban areas  
 \* : Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels



TABLE 7.1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 INTERIOR SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION	Dry Wells Beneath Lobby/Loading Area Facilities Maintenance Room and Carpentry Shop		Center Courtyard Area	Drainage Chamber North of Lobby/Loading Area		Dry Well in Stairwell Between Megapound and Plant 12A	NYSDEC TAGM Criteria (ug/kg) HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	5'-7' B-268 4/29/97	7'-9' B-268 4/29/97		B-26C 5'-7' 4/30/97	B-30A 4'-6" 4/30/97		
VOCs (ug/kg)	U	U	U	U	U	U	
1,1-Dichloroethane	U	U	U	U	U	U	
1,1,1-Trichloroethane	U	U	U	U	U	U	
Toluene	U	U	U	U	U	U	
TOTAL VOCs	4.9	6.1	3.8	3.6	860	0.8	
SVOCs (ug/kg)	U	U	U	U	U	U	
Phenol	U	U	U	U	U	U	
2-Methylphenol	U	U	U	U	U	U	
4-Methylphenol	U	U	U	U	U	U	
1,4-Dichlorobenzene	49 J	U	U	63 J	270 J	U	
Dimethylphthalate	210 J	U	U	870 J	U	U	
Buthylphthalate	550 J	U	U	4,500 J	U	U	
Benzofluoranthene	17 J	10 J	U	380 J	210 J	92 J	
Chrysene	19	U	U	1,300	80	130	
Benzofluoranthene	39	U	U	1,000	140 J	170	
Benzofluoranthene	18	U	U	2,400	160	220	
Benzofluoranthene	20	U	U	520	U	88	
Indeno(1,2,3-cd)pyrene	23	U	U	320	69	140	
Dibenz(a,h)anthracene	136	10	U	83	60	110	
TOTAL CAPAHs	N/A	N/A	N/A	4,935	509	27	
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	220
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	220
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	61
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	14
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	10
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	10
PCBs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg)
Aroclor-1232	N/A	N/A	N/A	N/A	N/A	N/A	---
Aroclor-1242	N/A	N/A	N/A	N/A	N/A	N/A	---
Aroclor-1248	N/A	N/A	N/A	N/A	N/A	N/A	---
Aroclor-1254	N/A	N/A	N/A	N/A	N/A	N/A	---
Aroclor-1260	N/A	N/A	N/A	N/A	N/A	N/A	---
TOTAL PCBs	N/A	N/A	N/A	N/A	N/A	N/A	10,000 <sup>2</sup>
Metals (mg/kg)	N/A	N/A	N/A	N/A	N/A	N/A	Eastern USA Background Levels (mg/kg)
Arsenic	3.6	1.0 B	3.1	6.6	10.6	2.1	3-12 <sup>3</sup>
Cadmium	1.1	0.42 B	1.35	8.2	14.8	1.0 B	0.1-1 (10 <sup>4</sup> )
Chromium	43.6	15.8	10.4	37.6	76.7	9.9	1.5-40 <sup>3</sup> (50 <sup>4</sup> )
Copper	34.7	22.6	42.9	167	171	18.2	1-50
Lead	75.7	21.9	16.1	208	151	15.4	200-500 <sup>**</sup>
Mercury	0.05 B	U	0.07 B	0.39	2.7	0.15	0.001-0.2
Nickel	6.2 B	4.5 B	5.6 B	23.8	27.0	3.3 B	0.5-25
Selenium	U	U	U	1.3 B	U	U	0.1-3.9
Zinc	160	54.2	67.5	1,340	741	109	9-50
TPHCs (mg/kg)	226	82.6	29.0	824	4,290	N/A	---
Fuels (mg/kg)	U	U	U	U	U	U	---
#2 Fuel Oil	U	U	U	U	U	U	---
#4 Fuel Oil	U	U	U	U	U	U	---
Lubricating Oil	Present	Present	Present	Present	Present	Present	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.  
 Present: Compound/constituent analyzed for but not detected.

Notes:  
 ---: Not established  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 1: Proposed criterion for total CAPAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background.  
 4: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \*\*: Background for metropolitan or suburban areas.  
 \*\*: Value exceeds NYSDDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7-4 (used)  
NORTHROP GRUMMA CORPORATION  
SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
SOIL SAMPLING RESULTS  
SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION	Dry Well in Strata Between Megapound and Plant 12A	Former Leaching Pool Beneath Megapound	Leaching Pools West of Boiler House	Adjacent to Former Recharge Basin	Within Existing Recharge Basin	Former Drainage Basin	NYSDEC TAGM Criteria (ug/kg)
DATE OF COLLECTION	B-31A 5'-7' 5/05/97	B-32A 10'-12' 4/30/97	B-34A 12'-14' 4/23/97	B-35A 24'-26' 5/06/97	B-36B 0'-2' 5/07/97	B-37A 4'-6' 4/23/97	20 100 400 1,500 10,000
VOCs (ug/kg)	U	U	U	U	U	U	30 or MDL
1,1-Dichloroethane	U	U	U	U	U	U	100
1,1,1-Trichloroethane	U	U	U	U	U	U	400
Toluene	U	U	U	U	U	U	1,500
TOTAL VOCs	19.7	21.3	14.9	2.9	3.6	6.5	10,000
SVOCs (ug/kg)	U	U	U	U	U	U	30 or MDL
Phenol	U	U	U	U	U	U	100
2-Methylphenol	U	U	U	U	U	U	100
4-Methylphenol	U	U	U	U	U	U	100
1,4-Dichlorobenzene	U	U	U	U	U	U	100
D-n-butylphthalate	U	U	U	U	U	U	100
Butylbenzylphthalate	U	U	U	U	U	U	100
Benzofluoranthene	U	U	U	U	U	U	100
Chrysene	240	220	88	120	120	150	400
Benzofluoranthene	220	270	170	200	220	190	1,100
Benzofluoranthene	270	240	170	240	280	280	1,100
Benzofluoranthene	110	76	57	76	110	47	1,100
Indeno(1,2,3-cd)pyrene	220	87	87	160	210	210	61 or MDL
Dibenzofluoranthene	120	39	34	130	130	44	3,200
TOTAL CAPAHs	0	39	532	34	0	37	14 or MDL
STARS SVOC TOTAL (ug/kg)	1,219	N/A	N/A	N/A	0	1,177	10,000*
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	220
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	220
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	61
Benzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	14
Dibenzofluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	10
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	10
Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	220
PCBs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	220
Aroclor-1232	N/A	N/A	N/A	N/A	N/A	N/A	220
Aroclor-1242	N/A	N/A	N/A	N/A	N/A	N/A	220
Aroclor-1248	N/A	N/A	N/A	N/A	N/A	N/A	61
Aroclor-1254	N/A	N/A	N/A	N/A	N/A	N/A	14
Aroclor-1260	N/A	N/A	N/A	N/A	N/A	N/A	10
TOTAL PCBs	510	510	510	11,000	77	82,000	10,000*
Metals (mg/kg)	U	U	U	U	U	U	10,000*
Arsenic	2.7	1.9	2.1	3.7	1.4	2.6	Eastern USA Background Levels (mg/kg)
Cadmium	0.18 B	5.8 U	2.0	0.26 B	4.7 U	0.41 B	3-12*
Chromium	17.2	3.8 B	12.9	22.0	4.7	36.3	0.1-1 (10*)
Copper	4.2 B	3.8 B	385	35.3	88.5	125	1.5-40 (50*)
Lead	9.3	4.3 U	115	22.2	216	317.7	1-50
Mercury	U	15.2 U	3.9	5.9 B	2.6 B	3.1 B	200-500**
Nickel	3.5 B	U	78.3	27.7	20.4	54.7	0.001-0.2
Selenium	U	14	384	56.3	138	1.1 B	0.5-25
Zinc	78.7	777	2,460	27.7	20.4	24.9	0.1-39
IEPHCs (mg/kg)	U	U	U	U	U	U	9-50
Fuels (mg/kg)	N/A	U	U	U	U	U	---
#2 Fuel Oil	U	U	U	U	U	U	---
#4 Fuel Oil	U	U	U	U	U	U	---
Lubricating Oil	U	U	U	U	U	U	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ---: Not established.  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 \* : Proposed criterion for total CAPAHs in TAGM 4046 Appendix A.  
 \* : Criteria is for total PCBs in subsurface soils.  
 \* : New York State Background.  
 \* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \* : Background for metropolitan or suburban areas.  
 \* : Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

**TABLE 7 (revised)**  
**NORTHROP GRUUM CORPORATION**  
**SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12**  
**SOIL SAMPLING RESULTS**  
**SUMMARY OF EXCEEDANCES**

SAMPLE LOCATION	Former Drainage Basin				B-37AS16 2'-4' 08/07/98	B-37AS8 6'-8' 08/07/98	B-37AS8 4'-6' 08/07/98	B-37AS8 2'-4' 08/07/98	B-37AS16 2'-4' 08/21/98	NYSDEC TAGM Criteria (ug/kg) 200 800 1,500 10,000
	B-37AA 2'-4' 08/07/98	B-37ANB 0'-2' 08/07/98	B-37ANW8 0'-2' 1/06/99	B-37ANW16 0'-2' 1/06/99						
VOCs (ug/kg)	U	U	N/A	U	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,500 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000*
1,1-Dichloroethane	1.1 J	0.8 J		3.0 J						
1,1,1-Trichloroethane	1.0 J	0.6 J		0.8 J						
Toluene	30.3	46.2		30.7						
TOTAL VOCs										
SVOCs (ug/kg)	U	U	N/A	U	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 100 or MDL 900 8,500 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000*
Phenol	U	U		U						
2-Methylphenol	U	U		U						
4-Methylphenol	U	U		U						
1,4-Dichlorobenzene	U	U		U						
Di-n-butylphthalate	U	U		U						
Butylbenzylphthalate	U	U		U						
Benzo(a)anthracene	U	U		U						
Chrysene	560 J	120 J		96						
Benzo(b)fluoranthene	620 J	150 J		94						
Benzo(k)fluoranthene	760	220		210						
Benzo(a)pyrene	300	100 J		110						
Indeno(1,2,3-cd)pyrene	520	110 J		83						
Dibenzo(g,h)anthracene	360	130 J		89						
TOTAL CapAHs	83	38 J		23 J						
	3,203	868		705						
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
Benzo(a)anthracene										
Benzo(b)fluoranthene										
Benzo(k)fluoranthene										
Benzo(a)pyrene										
Dibenzo(g,h)anthracene										
STARS SVOC ICLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STARS TOLP Guidance Values (ug/L) 10
Naphthalene										
PCBs (ug/kg)	U	U	U	U	U	U	U	U	U	NYSDEC TAGM Criteria (ug/kg) --- --- --- --- --- 10,000*
Aroclor-1232	88,000	210,000	24,000	170,000	83,000	210,000	25,000	210,000	25,000	
Aroclor-1242	88,000	210,000	24,000	170,000	83,000	210,000	25,000	210,000	25,000	
Aroclor-1248	88,000	210,000	24,000	170,000	83,000	210,000	25,000	210,000	25,000	
Aroclor-1254	88,000	210,000	24,000	170,000	83,000	210,000	25,000	210,000	25,000	
Aroclor-1260	88,000	210,000	24,000	170,000	83,000	210,000	25,000	210,000	25,000	
TOTAL PCBs	88,000	210,000	24,000	170,000	83,000	210,000	25,000	210,000	25,000	Eastern USA Background Levels (mg/kg) 3-12* 0.1-1 (10*) 1.5-40*(50*) 1-50 200-500** 0.001-0.2 0.5-25 0.1-3.9 9-50 ---
Metals (mg/kg)										
Arsenic	3.5	3.7	N/A	1.9	N/A	N/A	N/A	N/A	N/A	
Cadmium	0.83 B	0.41 B		0.45 B						
Chromium	72.8	44.8		50.3						
Copper	327	153		249						
Lead	70.7	67.6		55.3						
Mercury	0.10	0.08		0.07						
Nickel	4.3 B	8.6		3.6 B						
Selenium	U	U		U						
Zinc	80	54.8		56						
IPHCs (mg/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Fuels (mg/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
#2 Fuel Oil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
#4 Fuel Oil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Lubricating Oil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

**Qualifiers:**  
U: Compound/constituent analyzed for but not detected  
J: Compound/constituent found at a concentration below the detection limit  
B: Compound/constituent concentration is less than the CRDL but greater than the IDL  
D: Result obtained from a diluted analysis

**Notes:**  
---: Not established  
MDL: Method detection limit  
N/A: Compound/constituent not analyzed for  
1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
2: Criteria is for total PCBs in subsurface soils.  
3: New York State Background  
\*: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
\*\*: Background for metropolitan/suburban areas  
☐: Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TOLP Guidance Values or Eastern USA Background Levels.

TABLE 7.1 (continued)  
 NORTHROP GRUMLIN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Former Drainage Basin						NYSDEC TAGM Criteria (ug/kg) 200 800 1,500 10,000	STARS TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,500 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14 10
	B-37AS16 4'-6" 08/21/98	B-37AS16 6'-8" 09/21/98	B-37AS16A 8'-10" 1/05/99	B-37ASE8 4'-6" 1/05/99	B-37ASE16 0'-2" 1/05/99	B-37ASE32 0'-2" 1/05/99			
VOCs (ug/kg) 1,1-Dichloroethane 1,1,1-Trichloroethane Toluene TOTAL VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol 1,4-Dichlorobenzene Di-n-butylphthalate Butylbenzylphthalate Benzofluoranthracene Chrysene Benzo(b)fluoranthrene Benzo(k)fluoranthrene Benzo(e)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene TOTAL CapAHs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
STARS SVOC TOTAL (ug/kg) Benzo(a)anthracene Benzo(b)fluoranthrene Benzo(k)fluoranthrene Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
STARS SVOC TCLP (ug/L) Naphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
PCBs (ug/kg) Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 TOTAL PCBs	59,000 U U U U U	120,000 U U U U U	410,000 U U U U U	20,000 U U U U U	100,000 U U U U U	19,000 U U U U U	10,000 <sup>2</sup>	Eastern USA Background Levels (mg/kg) 3-12 <sup>3</sup> 0.1-1 (10 <sup>1</sup> ) 1.5-40 <sup>3</sup> (50 <sup>1</sup> ) 1-50 200-500 <sup>**</sup> 0.001-0.2 0.5-25 0.1-3.9 9-50	
Metals (mg/kg) Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Zinc	N/A N/A 33.1 N/A N/A N/A N/A N/A N/A	N/A N/A 90.2 N/A N/A N/A N/A N/A N/A	N/A N/A 268 N/A N/A N/A N/A N/A N/A	N/A N/A 67.6 N/A N/A N/A N/A N/A N/A	N/A N/A 67.9 N/A N/A N/A N/A N/A N/A	N/A N/A 79.3 N/A N/A N/A N/A N/A N/A	10,000 <sup>2</sup>	Eastern USA Background Levels (mg/kg) 3-12 <sup>3</sup> 0.1-1 (10 <sup>1</sup> ) 1.5-40 <sup>3</sup> (50 <sup>1</sup> ) 1-50 200-500 <sup>**</sup> 0.001-0.2 0.5-25 0.1-3.9 9-50	
TPHCs (mg/kg) #2 Fuel Oil #4 Fuel Oil Lubricating Oil	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	10,000 <sup>2</sup>	Eastern USA Background Levels (mg/kg) 3-12 <sup>3</sup> 0.1-1 (10 <sup>1</sup> ) 1.5-40 <sup>3</sup> (50 <sup>1</sup> ) 1-50 200-500 <sup>**</sup> 0.001-0.2 0.5-25 0.1-3.9 9-50	

Notes:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL  
 P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.  
 N/A: Compound/constituent not analyzed for  
 1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 2: New York State Background  
 3: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \*\* Background for metropolitan or suburban areas  
 Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7. (ued)  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE ID SAMPLE DEPTH DATE OF COLLECTION	Former Drainage Basin				NYSDEC TAGM Criteria (µg/kg)	STARS TAGM Criteria (µg/kg)
	B-37AEB 0-2" 08/07/98	B-37AER 2'-4" 08/07/98	B-37AW8 0-2" 08/07/98	B-37AWB 2'-4" 08/07/98		
YOCs (µg/kg)	U	U	U	U	N/A	N/A
1,1-Dichloroethane	3.0 J	0.7 J	0.9 J	0.9 J	200	200
1,1,1-Trichloroethane	2.9 J	0.5 J	0.6 J	0.6 J	800	800
Toluene	95.1	20.1	23.7	21.2	1,500	1,500
TOTAL VOCs					10,000	10,000
SVOCs (µg/kg)	U	U	U	U	30 or MDL	30 or MDL
Phenol	U	U	U	U	100 or MDL	100 or MDL
2-Methylphenol	U	U	U	U	900	900
4-Methylphenol	U	U	U	U	8,500	8,500
1,4-Dichlorobenzene	U	U	U	U	8,100	8,100
Di-n-butylphthalate	U	U	U	U	50,000	50,000
Butylbenzylphthalate	U	U	U	U	224 or MDL	224 or MDL
Benzol(a)anthracene	91 J	41	180 J	240 J	400	400
Chrysene	120	48 J	96 J	290 J	1,100	1,100
Benzol(b)fluoranthene	260	52	110	450	1,100	1,100
Benzol(k)fluoranthene	95	18 J	47	160	61 or MDL	61 or MDL
Benzol(a)pyrene	140	29 J	78	260	3,200	3,200
Indeno(1,2,3-cd)pyrene	110	27 J	54	180	14 or MDL	14 or MDL
Dibenzol(a,h)anthracene	28 J	7.9 J	13 J	49	10,000 <sup>1</sup>	10,000 <sup>1</sup>
TOTAL CAPAHs	923	223	480	1,629		
STARS SVOC TOTAL (µg/kg)	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (µg/kg)	STARS Human Health Guidance Values (µg/kg)
Benzol(a)anthracene	U	U	U	U	220	220
Benzol(b)fluoranthene	U	U	U	U	220	220
Benzol(k)fluoranthene	U	U	U	U	61	61
Benzol(a)pyrene	U	U	U	U	14	14
Dibenzol(a,h)anthracene	U	U	U	U	10	10
STARS SVOC TCLP (µg/L)	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (µg/L)	STARS TCLP Guidance Values (µg/L)
Naphthalene	U	U	U	U	10	10
PCBs (µg/kg)	U	U	U	U	NYSDEC TAGM Criteria (µg/kg)	NYSDEC TAGM Criteria (µg/kg)
Aroclor-1232	U	U	U	U	...	...
Aroclor-1242	U	U	U	U	...	...
Aroclor-1248	38,000	1,100	1,600	120,000	...	...
Aroclor-1254	U	340	400	U	...	...
Aroclor-1260	U	U	U	U	...	...
TOTAL PCBs	38,000	1,440	2,000	120,000	10,000 <sup>2</sup>	10,000 <sup>2</sup>
Metals (mg/kg)					Eastern USA Background Levels (mg/kg)	Eastern USA Background Levels (mg/kg)
Arsenic	3.3	1.4	4.8	1.6	3-12 <sup>3</sup>	3-12 <sup>3</sup>
Cadmium	0.27 B	0.1 B	0.95 B	0.44 B	0.1-1(10 <sup>1</sup> )	0.1-1(10 <sup>1</sup> )
Chromium	45.5	33.5	27	45.8	1.5-40 <sup>3</sup> (50 <sup>1</sup> )	1.5-40 <sup>3</sup> (50 <sup>1</sup> )
Copper	163	75.2	23.1	207	1-50	1-50
Lead	47	21.5	32.9	49.8	200-500 <sup>**</sup>	200-500 <sup>**</sup>
Mercury	0.06	0.04	0.03 B	0.07	0.001-0.2	0.001-0.2
Nickel	5 B	2.1 B	5.6 B	2.9 B	0.5-25	0.5-25
Selenium	U	U	U	U	0.1-3.9	0.1-3.9
Zinc	46.5	13.9	32.3	41.2	9-50	9-50
TPHCs (mg/kg)	N/A	N/A	N/A	N/A	...	...
Fuels (mg/kg)	N/A	N/A	N/A	N/A	...	...
#2 Fuel Oil	N/A	N/A	N/A	N/A	...	...
#4 Fuel Oil	N/A	N/A	N/A	N/A	...	...
Lubricating Oil	N/A	N/A	N/A	N/A	...	...

Notes:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the DL  
 D: Result obtained from a diluted analysis  
 N/A: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 1: Proposed criteria for total CAPAHs in TAGM 4046 Appendix A  
 2: Criteria for total PCBs in subsurface soils  
 3: New York State Background  
 \*: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \*\*: Background for maximum of suburban residential areas  
 Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7  
 NORTHROP GRUMMAN CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Former Drainage Trench East of Plant 12A		Dry Wells East of Plant 12A		Former Sump No. 2	Former Pit East of Sump No. 2	NYSDEC TAGM Criteria, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	B-388 1'-3' 4/23/97	B-388N7 1'-3' 08/12/98	B-39A 6'-8' 5/01/97	B-39B 3'-5' 5/01/97			
VOCs (ug/kg)							
1,1-Dichloroethane	U	N/A	U	U	0.6	J	200
1,1,1-Trichloroethane	U	N/A	U	U	0.8	J	800
Toluene	U	N/A	U	U	33.1	J	1,500
TOTAL VOCs	15.6		7.4	5		8.9	10,000
SVOCs (ug/kg)							
Phenol	U	N/A	U	U		U	30 or MDL
2-Methylphenol	U	N/A	U	U		U	900
4-Methylphenol	U	N/A	U	U		U	100 or MDL
1,4-Dichlorobenzene	U	N/A	U	U		U	8,500
D-n-butylphthalate	U	N/A	U	U		U	8,100
Butylbenzylphthalate	U	N/A	U	U		U	50,000
Benzofluoranthracene	1,300		4,000	120	410,000	U	224 or MDL
Chrysene	280		690			U	400
Benzofluoranthene	220		910			U	1,100
Benzofluoranthene	160		1,000			U	61 or MDL
Benzofluoranthene	160		430			U	3,200
Indeno(1,2,3-cd)pyrene	U		650			U	14 or MDL
Dibenzo(a,h)anthracene	U		130			U	10,000*
TOTAL CapAHs	660		136	0	0	0	
4,300			1,086				
STARS SVOC TOTAL (ug/kg)	N/A		N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg)
Benzofluoranthracene	130	300	N/A	N/A	N/A	N/A	220
Benzofluoranthene	130	300	N/A	N/A	N/A	N/A	220
Benzofluoranthene	55	120	N/A	N/A	N/A	N/A	220
Benzofluoranthene	96	200	N/A	N/A	N/A	N/A	61
Dibenzo(a,h)anthracene	U	U	N/A	N/A	N/A	N/A	14
STARS SVOC TCLP (ug/L)	N/A	U	N/A	N/A	N/A	N/A	10
Naphthalene	U	U	N/A	N/A	N/A	N/A	---
PCBs (ug/kg)							---
Arochlor-1232	U	N/A	N/A	N/A	N/A	U	---
Arochlor-1242	U	N/A	N/A	N/A	N/A	U	---
Arochlor-1248	570		N/A	N/A	N/A	U	---
Arochlor-1254	770		N/A	N/A	N/A	U	---
Arochlor-1260	U		N/A	N/A	N/A	U	---
TOTAL PCBs	1,340		N/A	N/A	0	U	10,000*
Metals (mg/kg)							
Arsenic	10.2	N/A	3.6	0.83	3.4	6.0	3-12*
Cadmium	0.35	N/A	2.1	2.8	1.8	U	0.1-1 (10*)
Chromium	11.2		46.2	2.8	38.9	U	1.5-40*(50*)
Copper	22.8		50.6	2.7	34.8	7.0	1-50
Lead	65.2		97.4	3.3	54.7	7.5	200-500**
Mercury	0.08		0.65	U	U	0.21	0.001-0.2
Nickel	10.3		23.0	5.0	31.8	U	0.5-25
Selenium	U		U	12.1	U	U	0.1-3.9
Zinc	317		447	U	360	U	9-50
TEPHCs (mg/kg)							
Fuels (mg/kg)	915	N/A	521	U	173	48.3	---
#2 Fuel Oil	U	N/A	U	N/A	U	U	---
#4 Fuel Oil	U	N/A	U	U	U	U	---
Lubricating Oil	Present		Present	Present	Present	U	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL

Notes:  
 N/A: Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 \* Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 \* Criteria is for total PCBs in subsurface soils  
 \* New York State Background  
 \*\* Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 Background for metropolitan or suburban areas  
 Value exceeds NYSDDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

**TABLE 7.1 (continued)**  
**NORTHROP GRUM CORPORATION**  
**SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12**  
**SOIL SAMPLING RESULTS**  
**SUMMARY OF EXCEEDANCES**

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Former Pit East of Sump No. 2		Former Trenches to Resin Waste Pit (Sump No. 1)				NYSDEC TAGM Criteria (ug/kg)	STARS Human Health Guidance Values (ug/kg)
	B-42A 10'-12" 5/12/97	B-43A 0'-2" 4/25/97	B-43B 4'-6" 4/25/97	B-43C 8'-10" 4/25/97	B-43AN7 0'-2" 08/05/98	B-43AS7 0'-2" 08/05/98		
<b>VOCs (ug/kg)</b>								
1,1-Dichloroethane	U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U
Toluene	U	U	U	U	U	U	U	U
<b>TOTAL VOCs</b>	1.3	12	17.1	24.2	25.9	114.6	33.1	25.8
<b>SVOCs (ug/kg)</b>								
Phenol	U	U	U	U	U	U	U	U
2-Methylphenol	U	U	U	U	U	U	U	U
4-Methylphenol	U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U
D-n-butylphthalate	U	U	U	U	U	U	U	U
Butylbenzylphthalate	U	U	U	U	U	U	U	U
Benzo(a)anthracene	U	U	U	U	U	U	U	U
Chrysene	U	U	U	U	U	U	U	U
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U
Benzo(e)pyrene	U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U
<b>TOTAL CapAHs</b>	0	36	0	0	0	0	0	0
<b>STARS SVOC TOTAL (ug/kg)</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	U	U	U	U	U	U	U	U
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U
Benzo(e)pyrene	U	U	U	U	U	U	U	U
<b>TOTAL CapAHs</b>	0	18,000	0	0	4,400	11,000	19,000	2,500
<b>STARS SVOC TCLP (ug/L)</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	U	U	U	U	U	U	U	U
<b>PCBs (ug/kg)</b>								
Aroclor-1232	U	U	U	U	U	U	U	U
Aroclor-1242	U	U	U	U	U	U	U	U
Aroclor-1248	U	U	U	U	U	U	U	U
Aroclor-1254	U	U	U	U	U	U	U	U
Aroclor-1260	U	U	U	U	U	U	U	U
<b>TOTAL PCBs</b>	0	18,000	0	0	4,400	11,000	19,000	2,500
<b>Metals (mg/kg)</b>								
Arsenic	1.5	3.0	U	U	N/A	N/A	N/A	N/A
Cadmium	0.85	0.85	U	U	U	U	U	U
Chromium	5.7	12.9	2.8	9.1	U	U	U	U
Copper	4.3	10.5	8.2	9.0	U	U	U	U
Lead	2.7	16.4	2.4	2.3	4,400	11,000	19,000	2,500
Mercury	0.72	0.13	U	U	U	U	U	U
Nickel	2.8	5.4	0.88	2.1	U	U	U	U
Selenium	8.4	33.1	9.6	10.6	U	U	U	U
Zinc	U	431	60.6	51.1	N/A	N/A	N/A	N/A
<b>TEPHCs (mg/kg)</b>								
Fuels (mg/kg)	N/A	U	U	U	U	U	U	U
#2 Fuel Oil	U	U	U	U	U	U	U	U
#4 Fuel Oil	U	U	U	U	U	U	U	U
Lubricating Oil	U	U	U	U	U	U	U	U

**Qualifiers:**  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL

**Notes:**  
 ---: Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 2: Criteria for total PCBs in subsurface soils  
 3: New York State Background  
 \*: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 \*\*: Background for metropolitan or suburban areas  
 \*\*\*: Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE 7 (continued)  
 NORTHROP GRUM CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION	Former Dry Well in Vicinity of Trenches		Dry Well Northeast of Plant 12				Basement Area		Megapound Test Laboratory	NYSDEC TAGM Criteria (ug/kg)	HEALTH GUIDANCE VALUES, STARS HUMAN GUIDANCE VALUES and EASTERN USA BACKGROUND LEVELS
	B-44A 16' - 18' 4/23/97	B-45A 4' - 6' 4/23/97	B-45A 6' - 8' 4/23/97	B-45A 8' - 10' 08/14/98	BA-A 16' - 18' 5/01/96	BA-A 20' - 22' 5/01/96	BA-A 2' - 4' 4/30/96				
VOCs (ug/kg)	U	U	U	N/A	U	U	U	N/A	N/A	NYSDEC TAGM Criteria (ug/kg)	
1,1-Dichloroethane	U	U	U	N/A	U	U	U	U	U	200	
1,1,1-Trichloroethane	U	U	U	N/A	U	U	U	U	U	800	
Toluene	U	U	U	N/A	U	U	U	U	U	1,500	
TOTAL VOCs	8.1	3	14	N/A	U	U	U	U	U	10,000	
SVOCs (ug/kg)	45 J	U	U	N/A	U	U	U	U	U	30 or MDL	
Phenol	U	U	U	N/A	U	U	U	U	U	100 or MDL	
2-Methylphenol	18 J	U	U	N/A	U	U	U	U	U	900	
4-Methylphenol	U	U	U	N/A	U	U	U	U	U	8,500	
1,4-Dichlorobenzene	220 J	280 J	750	N/A	U	U	U	U	U	8,100	
Di-n-butylphthalate	1,600	800	2,300	N/A	U	U	U	U	U	50,000	
Buylbenzylphthalate	47	230	480	N/A	U	U	U	U	U	224 or MDL	
Chrysene	42	300	550	N/A	U	U	U	U	U	400	
Benzo(b)fluoranthene	43	360	650	N/A	U	U	U	U	U	1,100	
Benzo(k)fluoranthene	U	180	290	N/A	U	U	U	U	U	1,100	
Benzo(a)pyrene	38	230	460	N/A	U	U	U	U	U	61 or MDL	
Indeno(1,2,3-cd)pyrene	U	150	250	N/A	U	U	U	U	U	3,200	
Dibenzo(a,h)anthracene	U	46	74	N/A	U	U	U	U	U	14 or MDL	
TOTAL CapAHs	170	1,476	2,804	N/A	U	U	U	U	U	10,000 *	
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	U	U	U	N/A	N/A	STARS Human Health Guidance Values (ug/kg)	
Benzo(a)anthracene	U	U	U	N/A	U	U	U	N/A	N/A	220	
Benzo(b)fluoranthene	U	U	U	N/A	U	U	U	N/A	N/A	220	
Benzo(k)fluoranthene	U	U	U	N/A	U	U	U	N/A	N/A	220	
Benzo(a)pyrene	580	16,000	7,700	N/A	U	U	U	N/A	N/A	61	
Dibenzo(a,h)anthracene	U	U	U	N/A	U	U	U	N/A	N/A	14	
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	U	U	U	N/A	N/A	10	
Naphthalene	U	U	U	N/A	U	U	U	N/A	N/A	---	
PCBs (ug/kg)	U	U	U	N/A	U	U	U	N/A	N/A	---	
Aroclor-1232	U	U	U	N/A	U	U	U	N/A	N/A	---	
Aroclor-1242	U	U	U	N/A	U	U	U	N/A	N/A	---	
Aroclor-1248	580	16,000	7,700	N/A	U	U	U	N/A	N/A	---	
Aroclor-1254	U	U	U	N/A	U	U	U	N/A	N/A	---	
Aroclor-1260	U	U	U	N/A	U	U	U	N/A	N/A	---	
TOTAL PCBs	580	16,000	9,600	N/A	U	U	U	N/A	N/A	10,000 *	
Metals (mg/kg)	19	3.7	5.0	N/A	U	U	U	N/A	N/A	Eastern USA Background Levels (mg/kg)	
Arsenic	2.3	0.29 B	0.33 B	N/A	U	U	U	N/A	N/A	3 - 12 *	
Cadmium	19.1	4.5	3.6	N/A	U	U	U	N/A	N/A	0.1 - 1 (07)	
Chromium	24.4	8.3	8.0	N/A	U	U	U	N/A	N/A	15 - 40 (507)	
Copper	10.4	10.7	47.4	N/A	U	U	U	N/A	N/A	1 - 50	
Lead	0.32	0.13	0.08 B	N/A	U	U	U	N/A	N/A	200 - 500 **	
Mercury	2.9 B	3.4 B	3.3 B	N/A	U	U	U	N/A	N/A	0.001 - 0.2	
Nickel	93.5	66.2	31.4	N/A	U	U	U	N/A	N/A	0.5 - 25	
Selenium	96.4	325	727	N/A	U	U	U	N/A	N/A	0.1 - 19	
Zinc	Present	Present	Present	N/A	U	U	U	N/A	N/A	9 - 50	
IPHCs (mg/kg)	U	U	U	N/A	U	U	U	N/A	N/A	---	
Fuels (mg/kg)	U	U	U	N/A	U	U	U	N/A	N/A	---	
#2 Fuel Oil	U	U	U	N/A	U	U	U	N/A	N/A	---	
#4 Fuel Oil	U	U	U	N/A	U	U	U	N/A	N/A	---	
Lubricating Oil	Present	Present	Present	N/A	U	U	U	N/A	N/A	---	

Qualifiers:  
 U Compound/constituent analyzed for but not detected.  
 J Compound/constituent found at a concentration below the detection limit.  
 B Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 N/A Not established.  
 MDL Method detection limit.  
 N/A Compound/constituent not analyzed for.  
 \* Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 \* Criteria is for total PCBs in subsurface soils.  
 \* New York State Background.  
 \*\* Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \* Background for metropolitan or suburban areas.  
 \* Value exceeds NYSDEC TAGM Criteria. STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.



TABLE 7 (used)  
 NORTHROP GRUM CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Megapound Test Laboratory		Petroleum/Chemical Storage Areas						NYSDEC TAGM Criteria (ug/kg) NYSDEC TAGM Criteria (ug/kg) NYSDEC TAGM Criteria (ug/kg) NYSDEC TAGM Criteria (ug/kg) STARS Human Health Guidance Values (ug/kg) STARS TCLP Guidance Values (ug/L) NYSDEC TAGM Criteria (ug/kg) STARS Human Health Guidance Values (ug/kg) STARS TCLP Guidance Values (ug/L) NYSDEC TAGM Criteria (ug/kg) Eastern USA Background Levels (mg/kg)
	MTL-B 0-2' 4/30/96	MTL-B 2'-4' 4/30/96	PCS-AA 0-2' 08/12/98	PCS-AN8 0-2' 08/12/98	PCS-AN8 2'-4' 08/12/98	PCS-AN8 4'-6' 08/12/98	PCS-AS8 0-2' 08/12/98	PCS-AE8 0-2' 08/12/98	
VOCs (ug/kg) 1,1-Dichloroethane 1,1,1-Trichloroethane Toluene TOTAL VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 200 800 1,500 10,000
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol 1,4-Dichlorobenzene Di-n-butylphthalate Butylbenzylphthalate Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene TOTAL CapAHs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 900 8,500 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
STARS SVOC TOTAL (ug/kg) Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenzo(a,h)anthracene	N/A	N/A	12,000	26,000	6,000	3,500	5,000	8,500	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
STARS SVOC TCLP (ug/L) Naphthalene	N/A	N/A	0.02 J	5.6 J	U	4.3 J	U	U	STARS TCLP Guidance Values (ug/L) 10
PCBs (ug/kg) Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 TOTAL PCBs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) --- --- --- --- --- 10,000 <sup>2</sup>
Metals (mg/kg) Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Zinc	1.7 B U 2.6 8.6 1.8 0.21 1.3 B U 9.1	1.2 B U 2.2 5.4 1.9 0.23 1.2 B U 11.1	N/A	N/A	N/A	N/A	N/A	N/A	Eastern USA Background Levels (mg/kg) 3-12 0.1-1.0 <sup>1</sup> 1.5-4.0 (50) 200-500 <sup>**</sup> 0.001-0.2 0.3-25 0.1-39 9-50 ---
TEPHCs (mg/kg) Fuel Oil #2 Fuel Oil #4 Fuel Oil Lubricating Oil	7,700 U N/A 12,000 +	10,000 U N/A 15,000 +	N/A	N/A	N/A	N/A	N/A	N/A	---

Qualifiers:  
 U: Compound/constituent analyzed for but not detected  
 J: Compound/constituent found at a concentration below the detection limit  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL

Notes:  
 1: Not established  
 MDL: Method detection limit  
 N/A: Compound/constituent not analyzed for  
 2: Proposed criterion for total CapAHs in TAGM 4046 Appendix A  
 3: Criteria is for total PCBs in subsurface soils  
 4: New York State Background  
 5: Value reported as 10W40  
 6: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A  
 7: Background for metropolitan or suburban areas  
 8: Value exceeds NYSDDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels

TABLE (in used)  
 NORTHROP GRU... CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE IDENTIFICATION	Petroleum/Chemical Storage Areas						PCS-GS8 2'-4' 08/11/98	PCS-GS8 2'-4' 08/11/98	PCS-GS8 2'-4' 08/11/98	PCS-GS8 2'-4' 08/11/98	NYSDEC TAGM Criteria (ug/kg)
	PCS-AE8 2'-4' 08/12/98	PCS-AW8 0-2' 08/12/98	PCS-AW8 2'-4' 08/12/98	PCS-GA 0-2' 08/11/98	PCS-GN8 0-2' 08/11/98	PCS-GS8 0-2' 08/11/98					
VOCs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1-Dichloroethane											
1,1,1-Trichloroethane											
Toluene											
TOTAL VOCs											
SVOCs (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Phenol											
2-Methylphenol											
4-Methylphenol											
1,4-Dichlorobenzene											
Di-n-butylphthalate											
Butylbenzylphthalate											
Benzofluoranthene											
Chrysene											
Benzofluoranthene											
Benzofluoranthene											
Benzofluoranthene											
Indeno(1,2,3-cd)pyrene											
Dibenz(a,h)anthracene											
TOTAL CarPAHs											
STARS SVOC TOTAL (ug/kg)	1,300	18,000	2,700	5,400	2,000	100	110	3,200			
Benzofluoranthene	1,300	20,000	3,100	3,600	2,000	110	140	2,300			
Benzofluoranthene	570	17,100	2,700	2,100	1,700	48	52	1,100			
Benzofluoranthene	1,100	19,000	2,500	4,300	1,700	85	99	1,700			
Dibenz(a,h)anthracene	180	2,500	380	830	240	13	J	260			
STARS SVOC TCLP (ug/L)	U	U	U	U	U	U	U	U			
Napthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
PCBs (ug/kg)											
Aroclor-1232											
Aroclor-1248											
Aroclor-1254											
Aroclor-1260											
TOTAL PCBs											
Metals (mg/kg)											
Arsenic											
Cadmium											
Chromium											
Copper											
Lead											
Mercury											
Nickel											
Selenium											
Zinc											
TPHCs (mg/kg)											
Fuels (mg/kg)											
#2 Fuel Oil											
#4 Fuel Oil											
Lubricating Oil											

Qualifiers:  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 --- : Not established.  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 1: Proposed criterion for total CarPAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background.  
 4: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 5: Background for metropolitan or suburban areas.  
 6: Value exceeds NYSDEC TAGM Criteria. STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

TABLE 7 (continued)  
 NORTHROP GRUPO CORPORATION  
 SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12  
 SOIL SAMPLING RESULTS  
 SUMMARY OF EXCEEDANCES

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Petroleum/Chemical Storage Areas		Primary Pressure Lab				Pump Room		NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES AND EASTERN USA BACKGROUND LEVELS
	PCS-GE8 0-2' 08/11/98	PCS-GE8 4'-6' 08/11/98	PPL-A 0-2' 4/30/96	PPL-B 2'-4' 4/30/96	PPL-B 0-2' 5/01/96	PPL-B 2'-4' 5/01/96	PPL-B 0-2' 5/01/96	PPL-B 2'-4' 5/01/96	
VOCs (ug/kg) 1,1-Dichloroethane 1,1,1-Trichloroethane Toluene TOTAL VOCs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 200 800 600 1,500 10,000
SVOCs (ug/kg) Phenol 2-Methylphenol 4-Methylphenol 1,4-Dichlorobenzene Di-n-butylphthalate Bis(2-ethylhexyl)phthalate Benzofluoranthene Chrysene Benzofluoranthene Benzofluoranthene Benzofluoranthene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene TOTAL CAPAHs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) 30 or MDL 100 or MDL 800 8,100 50,000 224 or MDL 400 1,100 1,100 61 or MDL 3,200 14 or MDL 10,000 <sup>1</sup>
STARS SVOC TOTAL (ug/kg) Benzofluoranthene Benzofluoranthene Benzofluoranthene Benzofluoranthene Dibenz(a,h)anthracene	670 660 380 570 81	U U U U U	N/A	N/A	N/A	N/A	N/A	N/A	STARS Human Health Guidance Values (ug/kg) 220 220 220 61 14
STARS SVOC TCLP (ug/L) Naphthalene	U	120	N/A	N/A	N/A	N/A	N/A	N/A	STARS TCLP Guidance Values (ug/L) 10
PCBs (ug/kg) Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 TOTAL PCBs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NYSDEC TAGM Criteria (ug/kg) ... ... ... ... 10,000 <sup>1</sup>
Metals (mg/kg) Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Eastern USA Background Levels (mg/kg) 3 - 12 <sup>3</sup> 0.1 - 1(10) <sup>3</sup> 1.5 - 40 <sup>3</sup> (50) <sup>3</sup> 1 - 50 200 - 500 <sup>3</sup> 0.001 - 0.2 0.5 - 25 0.1 - 3.9 9 - 50
IPHCs (mg/kg) Fuels (mg/kg) #2 Fuel Oil #4 Fuel Oil Lubricating Oil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	... ... ... ... ...

Qualifiers:  
 U: Compound/constituent analyzed for but not detected.  
 J: Compound/constituent found at a concentration below the detection limit.  
 B: Compound/constituent concentration is less than the CRDL, but greater than the DL.

Notes:  
 ... : Not established.  
 MDL: Method detection limit.  
 N/A: Compound/constituent not analyzed for.  
 1: Proposed criterion for total CapAHs in TAGM 4046 Appendix A.  
 2: Criteria is for total PCBs in subsurface soils.  
 3: New York State Background.  
 \*: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 \*\*: Background for metropolitan or suburban areas.  
 ☐: Value exceeds NYSDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

**TABLE 2 (inset)**  
**NORTHROP GRUM CORPORATION**  
**SUPPLEMENTAL PHASE II SITE ASSESSMENT AND DELINEATION PHASE II SITE ASSESSMENT - PLANT 12**  
**SOIL SAMPLING RESULTS**  
**SUMMARY OF EXCEEDANCES**

SAMPLE LOCATION SAMPLE IDENTIFICATION SAMPLE DEPTH DATE OF COLLECTION	Resin Waste Pit (Sump #1)					NYSDEC TAGM CRITERIA, STARS HUMAN HEALTH GUIDANCE VALUES, STARS TCLP GUIDANCE VALUES AND EASTERN USA BACKGROUND LEVELS
	RWP-1 12'-14' 08/13/98	RWP-2 14'-16' 08/13/98	RWP-3 8'-10' 08/13/98	RWP-4 15'-17' 08/13/98	RWP-5 6'-8' 08/13/98	
VOCs (ug/kg)						
1,1-Dichloroethane	U	U	U	U	U	U
1,1,1-Trichloroethane	U	1.6 J	62	58	3.8 J	U
Toluene	U	0.6 J	0.6 J	0.9 J	170	U
TOTAL VOCs	U	34.8	145.2	146.6	252.3	4,480
SVOCs (ug/kg)						
Phenol	U	U	U	U	U	U
2-Methylphenol	U	U	U	U	U	U
4-Methylphenol	U	U	U	U	U	U
1,4-Dichlorobenzene	U	U	U	U	U	U
Di-n-butylphthalate	U	U	U	U	U	U
Butylbenzylphthalate	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Chrysene	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Indeno(1,2,3-c)pyrene	U	U	U	U	U	U
Dibenzofluoranthene	U	U	U	U	U	U
TOTAL CAPAHs	0	0	0	0	0	0
STARS SVOC TOTAL (ug/kg)	N/A	N/A	N/A	N/A	N/A	N/A
Benzofluoranthene	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Benzofluoranthene	U	U	U	U	U	U
Dibenzofluoranthene	U	U	U	U	U	U
STARS SVOC TCLP (ug/L)	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	U	U	U	U	U	U
PCBs (ug/kg)						
Aroclor-1232	U	U	U	U	U	U
Aroclor-1242	U	U	U	U	U	U
Aroclor-1246	U	U	U	U	U	U
Aroclor-1254	U	U	U	U	U	U
Aroclor-1260	U	U	U	U	U	U
TOTAL PCBs	U	77	560	560	189	810
Metals (mg/kg)						
Arsenic	1.2	0.72 B	1.8	0.76 B	1.9	1.6
Cadmium	U	U	U	U	0.12 B	U
Chromium	17.6	2.7	11.4	6.4	7.7	7.1
Copper	5.6	2.8 B	8.2	4.7 B	5.7	4.2 B
Lead	3.8	2.8	8.4	6.1	8.0	6.7
Mercury	0.02 B	U	0.03 B	0.10	0.02 B	0.02 B
Nickel	1.6 B	1.3 B	2.5 B	3.8 B	2.1 B	2.4 B
Selenium	U	U	U	U	U	U
Zinc	6.4	9.6	12.9	18.0	29.1	18.5
TPHCs (mg/kg)	N/A	N/A	N/A	N/A	N/A	N/A
Fuels (mg/kg)						
#2 Fuel Oil	N/A	N/A	N/A	N/A	N/A	N/A
#4 Fuel Oil	N/A	N/A	N/A	N/A	N/A	N/A
Lubricating Oil	N/A	N/A	N/A	N/A	N/A	N/A

**Qualities:**  
U: Compound/constituent analyzed for but not detected.  
J: Compound/constituent found at a concentration below the detection limit.  
B: Compound/constituent concentration is less than the CRDL, but greater than the IDL.

**Notes:**  
---: Not established.  
MDL: Method detection limit.  
N/A: Compound/constituent not analyzed for.  
1: Proposed criterion for total CAPAHs in TAGM 4046 Appendix A.  
2: Criteria is for total PCBs in subsurface soils.  
3: New York State Background.  
+: Value reported as 10W40.  
\*: Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
\*\* Background for metropolitan or suburban areas.  
\*\*\* Value exceeds NYSEDEC TAGM Criteria, STARS Human Health Guidance Values, STARS TCLP Guidance Values or Eastern USA Background Levels.

**TABLE 7-2**  
**NORTHROP GRUMMAN CORPORATION**  
**DELINEATION PHASE II SITE ASSESSMENT – PLANT 12**  
**SUMMARY OF PHASE II**  
**AREAS OF CONCERN**

Areas of Concern (AOCs)	No Further Action	Considered for Remediation
<b>Plant 12 Interior</b>		
Primary Pressure Lab (PPL)	■	
Fluid Calibration (Fluid Flow) Lab (FFL)	■	
Liquid Flow Lab	■	
Machine Shop (3)	■	
Tank Room (4)	■	
Comp Saw Room (5)	■	
Polishing Room (6)	■	
Trench in EMT Lab No. 1 (7)		■
Trench in Staffed Machine Shop (8)		■
Engineering Development Lab (9)	■	
Trench in Repair Lab No. 2 (10)	■	
Autoclave Room (Pump Room)-(PR)(11)	■	
Resin Transfer Molding Lab (Autoclave Lay-up Area) (12)	■	
External Pump House (13)	■	
<b>Plant 12A Interior</b>		
Basement/Sub-basement Areas (BA)(MSA)(23)	■	
Floor Drains in Facilities Maintenance Room and Maintenance Equipment Area (24)	■	
Point of Generation/Hazardous Waste Accumulation Area (25)	See note 1	See note 1
Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop (26)	■	
<b>Megapound Test Lab Interior</b>		
Former Leaching Pool Beneath Megapound (32)	■	
Sanitary Leaching Pool (South) Beneath Megapound (22D)	■	
Machine Pit Sump (MTL-B)		■

**TABLE 7-2 (continued)**  
**NORTHROP GRUMMAN CORPORATION**  
**DELINEATION PHASE II SITE ASSESSMENT – PLANT 12**  
**SUMMARY OF PHASE II**  
**AREAS OF CONCERN**

Areas of Concern (AOCs)	No Further Action	Considered for Remediation
<b>Boiler House Interior</b>		
Sump Pit/Trenches (33)	■	
<b>Plant 12 Exterior</b>		
Northern Leaching Chambers (14)	■	
Chemical Storage Area/Concrete Platform (17)		■
Former Fuel USTs East of Plant 12 (18)		■
Area Outside of Machine Shop (19)		■
Tank Room Leaching Pool (20A)	■	
Sanitary Leaching Pools (West)-(21)	■	
Sanitary Leaching Pools (North and South) (22A)	■	
Sanitary Leaching Pools (North and South) (22B)		■
Sanitary Leaching Pools (North and South) (22C)		■
Sanitary Leaching Pools (North and South) (22E)		■
Sanitary Leaching Pools (North and South) (22F)		■
Sanitary Leaching Pools (North and South) (22L)	■	
Anomalous Features/Unknown Buried Structures (North) (22G)		■
Anomalous Features/Unknown Buried Structures (North) (22H)		■
Anomalous Features/Unknown Buried Structures (North) (22J)		■
Phenol Leaching Chamber	■	
Former Sump #2 (41)	■	
Former Pit East of Sump #2 (42)	■	
Resin Waste Pit (Sump #1) (RWP)	■	
Former Trenches to Resin Waste Pit (Sump #1) (43)		■
Former Dry Well in Vicinity of Trenches (44)	■	
Dry Well Northeast of Plant 12 (45)		■
<b>Plant 12A Exterior</b>		
Leaching Chamber North of Carpentry Shop (16)	■	

**TABLE 7-2 (continued)**  
**NORTHROP GRUMMAN CORPORATION**  
**DELINEATION PHASE II SITE ASSESSMENT – PLANT 12**  
**SUMMARY OF PHASE II**  
**AREAS OF CONCERN**

Areas of Concern (AOCs)	No Further Action	Considered for Remediation
Center Courtyard Area (28)		■
Dry Well South of Plant 12A (29)	■	
Drainage Chamber North of Lobby/Loading Area (30)		■
Dry Well in Stairwell Between Megapound and Plant 12A (31)		■
Former Drainage Trench East of Plant 12A (38)	■	
Dry Wells East of Plant 12A (39)		■
<b>Boiler House Exterior</b>		
Leaching Pools West of Boiler House (34)	■	
Surrounding Area (MTL-A)	■	
<b>Exterior Areas</b>		
Southern Parking Lot (35)	■	
Existing and Former Recharge Basins (36)	■	
Former Drainage Basin (37)		■
Petroleum/Chemical Storage Areas (PCS-A)		■
Petroleum/Chemical Storage Areas (PCS-G)		■

Note 1. The floor drain in the vicinity of the Point of Generation/Hazardous Waste Accumulation Area should be closed in accordance with the requirements of the Underground Injection Control (UIC) program.

# Appendix A

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**APPENDIX A**

**BORING LOGS**

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-7AA</u>
Project Name: <u>UGC Plant 12</u> <u>Delineation Program</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KK</u> Date: <u>8/11</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>* 4</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Manual</u> Drilling Method: <u>Geoprobe</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2</u> Drive Hammer Wt.: <u>NA</u>	* From trench bottom 24" deep
Date Started: <u>8/11/98</u> Date Completed: <u>8/11/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL*	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-	1	0-2	76	-	0.1	Brown silty fine to medium sand
-1-						
-2-	2	2-4	18	-	0.1	Brown silty fine to medium sand and tan poorly sorted sand and gravel
-3-						
-4-						
-5-						
-6-						= EOB
-7-						
-8-						
-9-						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NAC- Plant 12  
Phase II Delineation

Well/Boring No.: B7AW7  
 Sheet 1 of 1  
 By: JMK Date: 8/21/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Eminston Env.  
 Driller: W Rowland Geologist: M. Pappas  
 Drill Rig: \_\_\_\_\_ Drilling Method: Manual Geoprobe  
 Sample Spoon I.D.: 1.5" Drive Hammer Wt.: \_\_\_\_\_  
 Date Started: 8/21/98 Date Completed: \_\_\_\_\_

Borehole Completion Depth: 6' bgs  
 Borehole Diameter: 1.5"  
 Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
						Note: boring conducted in trench Note: 0-2' + 2'-4' are below trench bottom trench bottom is 2' bgs
-0-		0-2'	6"	-	0.0	0-6": Lt Br / tan very fine silty mt. very dry fr. - gravel
-1-						
-2-		2'-4'	10"	-	0.0	0-10": Lt Br / tan fine sand sm gravel, very dry
-3-						
-4-						
-5-						
-6-					End @ 4' <del>6' bgs</del> 6' bgs	
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-344</u>
Project Name: <u>UGC Plant 12 Decontamination Program</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KK</u> Date: <u>8/11</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>2'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: _____ Drilling Method: <u>Geoprobe</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/11/98</u> Date Completed: <u>8/11/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-	1	0-2	19'	-	117	Upper 3" Black Fine gravel lower 16" Brown poorly sorted silty sand and gravel
-2-						
-3-						
-4-						- EOB
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NAC- Plant 12  
Phase II Delineation

Well/Boring No.: B7A57  
Sheet 1 of 1  
By: ML Date: 8/21/98  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Env.  
Driller: W Rowland Geologist: M. Plumber  
Drill Rig: \_\_\_\_\_ Drilling Method: Manual power  
Sample Spoon I.D.: 1.5" Drive Hammer Wt.: \_\_\_\_\_  
Date Started: 8/21/98 Date Completed: 8/21/98

Borehole Completion Depth: 6' bgs  
Borehole Diameter: 1.5"  
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
						Note: boring conducted outside of trench 0-2' + 2'-4' sample are below trench bottom or 2'-4' + 4'-6' bgs
-0-				-		
-1-		0-2	8"	-	0.0	0-8": LF Bir. / for fract spray 1.5 lb gravel, dry
-2-						
-3-		2-4	15"	-	0.0	0-15": SAA for 0-15"
-4-						
-5-						
-6-						EOB @ 4' btb-or- 6' bgs
-7-						
-8-						
-9-						
-10						

**Remarks:**

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B7AET</u>
Project Name: <u>NAC-Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Phase II Delineation</u>	By: <u>JAL</u> Date: <u>8/21/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Env.</u>	Borehole Completion Depth: <u>6' bgs</u>
Driller: <u>W. Rowland</u>	Geologist: <u>M. Paulsen</u>
Drill Rig: _____	Drilling Method: <u>Manual Geoprot</u>
Sample Spoon I.D.: <u>1.5"</u>	Drive Hammer Wt.: _____
Date Started: <u>8/21/98</u>	Date Completed: <u>8/21/98</u>
	Ground Surface El.: <u>0</u>

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-				-		<i>note: boring conducted outside of trench 0-2' + 2'-4' samples are below street bottom or 2'-4' + 4'-6' bgs</i>
-1-		0-2'	10'	-	0.0	
-2-		2-4'	14'	-	0.0	0-14" Lt. Br. / tan fine sand, some gravel, dry
-3-						
-4-						EOB @ 4' bth or 6' bgs
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NAC- Plant 12  
Phase II Delineation

Well/Boring No.: B7AW7  
 Sheet 1 of 1  
 By: JML Date: 8/21/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Env.

Driller: N. Rowland Geologist: M. Pauber  
 Drill Rig: \_\_\_\_\_ Drilling Method: Manual Gasprobe  
 Sample Spoon I.D.: 1.5" Drive Hammer Wt.: \_\_\_\_\_  
 Date Started: 8/21/98 Date Completed: 8/21/98

Borehole Completion Depth: 6' bgs  
 Borehole Diameter: 1.5"  
 Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-				-		Note: boring conducted outside of trench 0-2' + 2' + samples are below trench bottom or 2'-4' + 4'-6' bgs
-1-		0-2	6"	-	0.0	
-2-						0-10": Lt Br. / tan / orange fine sand, little gravel, dry
-3-		2-4	10"	-		
-4-						EOB @ 4' btb - or - 6' bgs
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dechlorination Program

Well/Boring No.: B-84A  
 Sheet 1 of 1  
 By: KIK Date: 8/15  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Manual Drilling Method: Grapple  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/15/98 Date Completed: 8/15/98

Borehole Completion Depth: 4  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-						
-1-						
-2-	1	2-4	18	-	0.0	Tan to Brown poorly sorted sand and gravel  - Manual refusal @ 4' bit
-3-						
+4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: Below trench bottom

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>R-8BA</u>
Project Name: <u>UGC Plant 12 Delegation Program</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KK</u> Date: <u>8/15</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>2'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Manual</u> Drilling Method: <u>Grapple</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/17/98</u> Date Completed: <u>8/17/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	1	02	2	-	0.0	Brown to Tan poorly sorted sand and gravel - EOB
-1-						
-2-						
-3-						
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks: <u>Below trench bottom</u>	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-12AA</u>
Project Name: <u>UGC Plant 2</u>	Sheet <u>1</u> of <u>1</u>
<u>Delimitation Program</u>	By: <u>KIK</u> Date: <u>8/10</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>10</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Grapple</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/10/98</u> Date Completed: <u>8/10/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0						
-2.0						
-3.0					0.0	
-4.0	1	4.6	24	-		Tan poorly sorted sand and gravel
-5.0						
-6.0	2	6.8	24	-	0.0	Same
-7.0						
-8.0		8.10	24	-	0.0	Same
-9.0	3					- ECB
-10.0						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Decontamination Program

Well/Boring No.: B-12AN7  
 Sheet 1 of 1  
 By: KIK Date: 8/10  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/10/98 Date Completed: 8/10/98

Borehole Completion Depth: 10  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	0.0	Silty tan poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	~	0.0	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	~	0.0	Same
-6.0						
-7.0	4	6-8	24	~	0.0	Same
-8.0						
-9.0	5	8-10	24	~	0.0	Same
-10.0						- EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 2  
Delegation Program

Well/Boring No.: B-12AS7  
 Sheet 1 of 1  
 By: KK Date: 8/10  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 5/10/98 Date Completed: 5/10/98

Borehole Completion Depth: 10'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1	1	0-2	24	-	0.0	Brown silty poorly sorted sand and gravel
-2						
-3	2	2-4	24	-	0.0	Brown to tan poorly sorted sand and gravel
-4						
-5	3	4-6	24	-	0.0	Tan poorly sorted sand and gravel
-6						
-7	4	6-8	24	-	0.0	Same
-8						
-9	5	8-10	24	-	0.0	Same
-10						- EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 12  
Dehydration Program

Well/Boring No.: B12AES  
 Sheet 1 of 1  
 By: KK Date: 8/10  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Ugiotta Geologist: Keith Klaus Borehole Completion Depth: 10  
 Drill Rig: Simco Earthprobe Drilling Method: Gasprobe Borehole Diameter: 2"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/10/98 Date Completed: 8/10/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1	1	0-2	24	-	0.0	Tan poorly sorted sand, gravel and silt
-2						
-3	2	2-4	24	-	0.0	Same
-4						
-5	3	4-6	24	-	0.0	Tan to Brown silt and poorly sorted sand and gravel
-6						
-7	4	6-8	24	-	0.0	Tan poorly sorted sand and gravel
-8						
-9	5	8-10	24	-	0.0	Same
-10						- COR

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-12 AWJ</u>
Project Name: <u>UGC Plant 2</u>	Sheet <u>1</u> of <u>1</u>
<u>Deliverable Program</u>	By: <u>KIK</u> Date: <u>8/10</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>10</u>
Driller: <u>Bruce Vajotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Geoprene</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/10/98</u> Date Completed: <u>8/10/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	0.0	Brown to Tan poorly sorted sand + gravel
-2.0						
-3.0	2	2-4	24	1	0.0	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	1	0.0	Same
-6.0						
-7.0	4	6-8	24	1	0.0	Same
-8.0						
-9.0	5	8-10	24	1	0.0	Same
-10.0						- EOB

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
Delamination Program

Well/Boring No.: B-16AA  
 Sheet 1 of 1  
 By: KIK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vahorra Geologist: Keith Klaus Borehole Completion Depth: 18  
 Drill Rig: CME-55 Drilling Method: HKA Borehole Diameter: 8"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/14/98 Date Completed: 8/14/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
10-	1	10-12	10"	15,19 20,23	0.0	Brown to black poorly sorted sand and gravel
11-						
1-2-	2	12-14	16	10,12 13,11	0.0	Same
1-3-						
1-4-	3	14-16	24	17,18 18,15	0.0	Same
1-5-						
1-6-	4	16-18	16	16,23 15,12	0.0	Tan poorly sorted sand and gravel.
1-7-						
1-8-						-EOB
1-9-						
2-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-17BA</u>
Project Name: <u>NGC Plant 2</u>	Sheet <u>1</u> of <u>    </u>
<u>Decontamination Program</u>	By: <u>KIK</u> Date: <u>8/6</u>
	Chk'd: <u>    </u> Date: <u>    </u>

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>8'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco Earth Probe</u> Drilling Method: <u>Geoprobe</u>	Ground Surface El.: <u>    </u>
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/6/98</u> Date Completed: <u>8/6/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-						
-2-						
-3-						
-4-						
-5-	1	4.6	24"	NA	6.0	Brown poorly sorted sand and gravel
-6-						
-7-	2	6.8	24"	NA	0.0	Brown to tan poorly sorted sand and gravel
-8-						
-9-						
-10-						
						- EOB

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 12  
Dehydration Program

Well/Boring No.: B-17BN7  
 Sheet 1 of 1  
 By: KK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Ujorita Geologist: Keith Klaus Borehole Completion Depth: 8'  
 Drill Rig: Simco Earthprobe Drilling Method: Washcore Borehole Diameter: 2"  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/6/95 Date Completed: 8/6/95

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1	1	0-2	24	NA	0.0	Brown poorly sorted sand and gravel
-2						
-3	2	2-4	20	NA	0.0	Upper 16" Brown poorly sorted sand & gravel Lower 4" medium gravel
-4						
-5	3	4-6	20	NA	0.0	Upper 16" medium gravel Lower 4" Brown poorly sorted sand and gravel
-6						
-7	4	6-8	18	NA	0.0	Brown poorly sorted sand and gravel
-8						
-9						E O B
-10						

Remarks: \_\_\_\_\_

Water Level Measurement	_____	Date	_____
	_____	Date	_____
	_____	Date	_____
	_____	Date	_____

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NGC PLANT 12  
DELINEATION PROGRAM

Well/Boring No.: B17 BN14  
 Sheet 1 of 1  
 By: KW Date: 11/23/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: EMINGTON ENVIRONMENTAL  
 Driller: W. ROWLAND Geologist: KEN WENZ  
 Drill Rig: CARDPROBE Drilling Method: GEOPROBE  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/20/98 Date Completed: 8/20/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.0'	=	0.0	0-1.2': Brown; SILT AND FINE TO MEDIUM SAND; occasional roots; dry; no odor. 1.2-6': Tan to orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-1						
-2						
-3						
-4	2	4-6'	2.0'	-	0.0	
-5						
-6						
-7						
-8						
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-17RS7</u>
Project Name: <u>UGL Plant 12</u>	Sheet <u>1</u> of <u>    </u>
<u>Decontamination Program</u>	By: <u>KK</u> Date: <u>8/16</u>
	Chk'd: <u>    </u> Date: <u>    </u>

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>8'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Geoprene</u>	Ground Surface El.: <u>    </u>
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/16/98</u> Date Completed: <u>8/16/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.0	Brown to tan poorly sorted sand & gravel
-2.0						
-3.0	2	2-4	24	-	0.0	Same
-4.0						
-5.0	3	4-6	20	-	0.0	Tan poorly sorted sand & gravel
-6.0						
-7.0	4	6-8	20	-	0.0	Same
-8.0						
-9.0						
-10.0						
						EOB

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B17B514</u>
Project Name: <u>NGC PLANT 12 DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/25/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>CARD PROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	1	0-4'	2.1'	=	0.0	0-4.6': Brown-black to brown; SILT AND FINE TO COARSE SAND; trace clay; trace fine to coarse gravel; moist; no odor.
-1-						
-2-						4.6-6': Orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; moist; no odor.
-3-						
-4-	2	4-6'	1.8'	-	0.0	
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-17BE7</u>
Project Name: <u>UGC Plant 2</u>	Sheet <u>1</u> of <u>    </u>
<u>Deliveries Program</u>	By: <u>KIK</u> Date: <u>8/6</u>
	Chk'd: <u>    </u> Date: <u>    </u>

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>8'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Geoprobe</u>	Ground Surface El.: <u>    </u>
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/1/95</u> Date Completed: <u>8/1/95</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0.5						
-1	1	0-2	24	NA	0.0	Brown poorly sorted sand and gravel
-2						
-3	2	2-4	20	NA	0.0	Same with trace coarse gravel
-4						
-5	3	4-6	23	NA	0.0	Tan to brown poorly sorted sand and gravel
-6						
-7	4	6-8	22	NA	0.0	Same
-8						
-9						
-10						

-EOIS

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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## BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B17BEH</u>
Project Name: <u>NGC PLANT 12 DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>GARDPROBE</u> Drilling Method: <u>GSPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.9'	=	0.0	0-6'; Brown to orange-brown; SILT AND FINE TO COARSE SAND; little fine to medium gravel; moist; no odor.
-1						
-2						
-3						
-4	2	4-6'	1.7'	-	0.0	
-5						
-6						
-7						
-8						
-9						
-10						

<b>Remarks:</b>  	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dehydration Program

Well/Boring No.: B-17BW-7  
 Sheet 1 of 1  
 By: KIK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprene  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/6/98 Date Completed: 8/6/98

Borehole Completion Depth: 8'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.0	Brown poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	-	0.0	Same
-4.0						
-5.0	3	4-6	24	-	0.0	Same
-6.0						
-7.0	4	6-8	24	-	0.0	Tan poorly sorted sand and gravel
-8.0						
-9.0						- EOB
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-19AA</u>
Project Name: <u>NGC Plant 2</u>	Sheet <u>1</u> of <u>1</u>
<u>Delimitation Program</u>	By: <u>KIK</u> Date: <u>8/17</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>10'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco Earthprobe</u> Drilling Method: <u>Grapple</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/17/98</u> Date Completed: <u>8/17/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-						
-1-						
-2-						
-3-						
-4-	1	4-6	24	-	0.0	Tan poorly sorted sand and gravel
-5-						
-6-	2	6-8	24	-	0.0	Same
-7-						
-8-	3	8-10	24	-	0.0	Same
-9-						
-10						- EOB

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant #2  
Delegation Program

Well/Boring No.: B-19A(1)2  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus Borehole Completion Depth: 10  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/7/98 Date Completed: 8/7/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1	1	0-2	24	-	0.2	Brown silty fine sand
-2						
-3	2	2-4	24	-	0.2	Brown to tan poorly sorted sand and gravel
-4						
-5	3	4-6	24	-	0.1	Brown to tan poorly sorted sand and gravel
-6						
-7	4	6-8	24	-	0.1	Brown to tan poorly sorted sand and gravel
-8						
-9	5	8-10	24	-	0.1	Tan poorly sorted sand + gravel
-10						- EUR

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

## BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B19AN14</u>
Project Name: <u>NGC PLANT 12 DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>10'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>GARHPROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.5	1	0.0	0-1.8': Brown; SILT AND FINE TO MEDIUM SAND; trace fine to coarse gravel; occasional roots 0-0.8'; dry; no odor.
-1						1.8-2.5': Gray-black; SILT AND FINE TO COARSE SAND; dry; no odor.
-2						2.5-3.3': Orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-3	2	4-8'	3.4	1	0.0	3.3-4.5': Orange-brown; SILT; trace fine to coarse sand; dry; no odor.
-4						4.5-6.1': Orange-brown; SILT AND FINE SAND; dry; no odor.
-5						6.1-10': Tan to orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-6	3	8-10'	2.0	1	0.0	
-7						
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 2  
Deliveries Program

Well/Boring No.: B-11A-E7  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce V. Horton Geologist: Keith Klaus  
 Drill Rig: Sumco Earth Probe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/7/95 Date Completed: 8/7/95

Borehole Completion Depth: 10  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.3	Brown silty fine sand
-2.0						
-3.0	2	2-4	24	-	0.1	Brown to tan silt trace sand
-4.0						
-5.0	3	4-6	24	-	0.1	Brown to tan poorly sorted sand and gravel
-6.0						
-7.0	4	6-8	24	-	0.1	Tan poorly sorted sand + gravel
-8.0						
-9.0	5	8-10	24	-	0.1	Tan - orange poorly sorted sand and gravel
-10.0						-ECB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 2  
Decontamination Program

Well/Boring No.: B-19AW-10  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earth Probe Drilling Method: Grapple  
 Sample Spoon I.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/7/95 Date Completed: 8/7/95

Borehole Completion Depth: 10  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	0.3	Brown silty fine sand
-2.0						
-3.0	2	2-4	24	1	0.2	Tan to brown silt and sand
-4.0						
-5.0	3	4-6	24	1	0.0	Tan poorly sorted sand and gravel
-6.0						
-7.0	4	6-8	24	1	0.0	Same
-8.0						
-9.0	5	8-10	24	1	0.0	Same
-10.0						- EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B194W14</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEVIN WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>GARHPROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.4	1	0.0	0-1.6': Brown; SILT AND FINE TO MEDIUM SAND; trace fine to coarse gravel; dry; no odor.
-1						
-2						1.6-2.2': Orange-brown; SILT; trace fine to coarse gravel; dry; no odor.
-3						
-4	2	4-6'	1.7	1	0.0	2.2-6': Orange-brown to tan; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-5						
-6						
-7						
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-224A</u>
Project Name: <u>UGC Plant 12</u> <u>Dehydration Program</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KK</u> Date: <u>8/14</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>12</u>
Driller: <u>Bruce Vahorra</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>8"</u>
Drill Rig: <u>CMF-55</u> Drilling Method: <u>HSA</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>140lb</u>	
Date Started: <u>8/14/98</u> Date Completed: <u>8/14/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-						
-2-						
-3-						
-4-						
-5-						
-6-						
-7-						
-8-	1	8-10	15	15,20 22,22	0.0	Brown to tan poorly sorted sand and gravel
-9-						
-10	2	10-12	20	16,19 23,27	0.0	Tan poorly sorted sand and gravel - <b>EOB</b>

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614.00</u> Project Name: <u>UG-2 Plant 12 Deliverable Program</u>	Well/Boring No.: <u>B-22BA</u> Sheet <u>1</u> of <u>1</u> By: <u>KK</u> Date: <u>8/14</u> Chk'd: _____ Date: _____
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Drilling Contractor: <u>Emington Environmental</u> Driller: <u>Bruce Udiotta</u> Geologist: <u>Keith Klaus</u> Drill Rig: <u>CME-55</u> Drilling Method: <u>KA</u> Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>140lb</u> Date Started: <u>8/14/98</u> Date Completed: <u>8/14/98</u>	Borehole Completion Depth: <u>12</u> Borehole Diameter: <u>8"</u> Ground Surface El.: _____
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DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1						
-2						
-3						
-4						
-5						
-6						
-7						
-8	1	8-10	22	17,13 25,21	0.0	upper 5" Brown sand + gravel middle upper 7" Brown s.l. middle lower 6" Brown poorly sorted sand and gravel Lower 4" Tan-Brown Poorly sorted sand + gravel
-9						
-10	2	10-12	24	13,19 1616	6.0	Tan poorly sorted sand and gravel -FCB

Remarks: _____	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
 Dehydration Program

Well/Boring No.: B-22CA  
 Sheet 1 of 1  
 By: KK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Uchiyama Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: KA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/14/98 Date Completed: 8/14/98  
 Borehole Completion Depth: 18  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0	1	8-10	22	16,13 18,21	00	Upper 9" Brown silty poorly sorted sand and gravel Middle 6" Fine to medium gravel Lower 3" Tan poorly sorted sand and gravel
1-4	2	14-16	16	8,17 9,14	00	Orange poorly sorted sand and gravel
1-6	3	16-18	20	6,7 8,13	00	Tan poorly sorted sand and gravel
1-7						
1-8						
1-9						
20						- EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



Project No.: 1614-00  
 Project Name: UGL Plant 12  
 Dehydration Program

Well/Boring No.: R-22DA  
 Sheet 1 of 1  
 By: HK Date: 8/10  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Udiotta Geologist: Keith Klaus Borehole Completion Depth: 16'  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/10/98 Date Completed: 8/10/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-						
1-1-						
1-2-	1	12.14	24	-	60	Brown to tan poorly sorted sand and gravel
1-3-						
1-4-	2	14.16	24	-	0.0	Tan poorly sorted sand and gravel
1-5-						
1-6-						
1-7-						- EOB
1-8-						
1-9-						
20						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: UGC Plant 12  
Delamination Program

Well/Boring No.: B-22EA  
Sheet 1 of 1  
By: KK Date: 8/19  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
Driller: Bruce Viotto Geologist: Keith Klaus  
Drill Rig: CME-55 Drilling Method: HKA  
Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
Date Started: 8/19/98 Date Completed: 8/19/98

Borehole Completion Depth: 28  
Borehole Diameter: 8"  
Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0	1	8-10	24	17,23 36,20	0.0	Upper 4" Brown to black poorly sorted sand + gravel
1-1						Lower 20" Tan poorly sorted sand and gravel
2-2	2	22-24	24	30,12 38,40	0.0	Tan poorly sorted sand and gravel
2-3						
2-4	3	24-26	19	25,27 27,30	0.0	Same
2-5						
2-6	4	26-28	18	35,28 26,34	0.0	Same
2-7						
2-8						
2-9						
3-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>R-22FA</u>
Project Name: <u>UG-C Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Deliveration Program</u>	By: <u>KK</u> Date: <u>8/19</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>18</u>
Driller: <u>Bruce Vajotta</u>	Geologist: <u>Keith Klaus</u>
Drill Rig: <u>CME-55</u>	Drilling Method: <u>HSA</u>
Sample Spoon i.D.: <u>2"</u>	Drive Hammer Wt.: <u>140lb</u>
Date Started: <u>8/19/98</u>	Date Completed: <u>8/19/98</u>
	Borehole Diameter: <u>8"</u>
	Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-	1	8-10	24	15,12		Upper 6" Gray to brown sand and gravel lower 18" orange poorly sorted sand and gravel
1-1-				16,28	00	
1-2-	2	12-14	18	20,23	0.0	Upper 12" Orange-Brown medium to coarse sand Lower 6" Tan poorly sorted sand and gravel
1-3-				27,28		
1-4-	3	14-16	17	30,22	60	Tan poorly sorted sand and gravel
1-5-				20,17		
1-6-	4	16-18	14	27,33	0.0	Same
1-7-				40,45		
1-8-						- EOB
1-9-						
20						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVTIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-22GA</u>
Project Name: <u>UGC Plant 2</u> <u>Delamination Program</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KK</u> Date: <u>8/10</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>4</u>
Driller: <u>Bruce Udoltra</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco Earthprobe</u> Drilling Method: <u>Geoprobe</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/10/98</u> Date Completed: <u>8/10/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0					0.0	Brown silty fine sand and medium gravel
-1.0	1	0-2	24	-		
-2.0						
-3.0	2	2-4	24	-	0.0	Tan poorly sorted sand and gravel.
-4.0						
-5.0						- EOB
-6.0						
-7.0						
-8.0						
-9.0						
-10.0						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 12  
Decontamination Program

Well/Boring No.: B-22 GN7  
 Sheet 1 of 1  
 By: KK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce V. Jorran Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/16/95 Date Completed: 8/16/95

Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1	1	0-2	24	—	0.3	Brown fine silty sand
-2				—	0.1	Tan Poorly sorted sand and gravel
-3	2	2-4	24			
-4	3	4-6	24	—	0.3	Same
-5						- EOB
-6						
-7						
-8						
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-22657</u>
Project Name: <u>UG-2 Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Deliverables Program</u>	By: <u>KK</u> Date: <u>8/7</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>6</u>
Driller: <u>Bruce Ujotras</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Geoprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/7/95</u> Date Completed: <u>8/7/95</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	0.1	Brown silty Fine sand
-2.0						
-3.0	2	2-4	24	1	0.2	Brown to tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	1	0.1	Tan poorly sorted sand and gravel
-6.0						
-7.0						- EOB
-8.0						
-9.0						
-10.0						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UG-C Plant 2  
Delimitation Program

Well/Boring No.: B-22GE7  
 Sheet 1 of 1  
 By: KIK Date: 8/13  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Sunco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/8/95 Date Completed: 8/8/95

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	0-2	24	-	0.1	Brown fine silty sand
-2-	2	2-4	24	-	0.2	Tan-Brown poorly sorted sand and gravel
-3-	3	4-6	24	-	0.2	Tan poorly sorted sand and gravel
-4-						- EOB
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

## BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B22GE14</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KGW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>CARDORBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.6'	-	0.0	0-0.4': Dark brown; SILT; some fine to coarse sand; occasional roots; dry; no odor
-1						0.4-0.9': Orange-brown; SILT; some fine to coarse sand; dry; no odor
-2						0.9-1.5': Gray-tan; SILT AND FINE SAND; little fine gravel; dry; no odor
-3						1.5-6': Tan to orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-4	2	4-6'	1.9'	-	0.0	
-5						
-6						
-7						
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u> Project Name: <u>UGC Plant #2 Dechlorination Program</u>	Well/Boring No.: <u>B-226W7</u> Sheet <u>1</u> of <u>1</u> By: <u>KK</u> Date: <u>8/17</u> Chk'd: _____ Date: _____
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Drilling Contractor: <u>Emington Environmental</u> Driller: <u>Bruce Ugiotta</u> Geologist: <u>Keith Klaus</u> Drill Rig: <u>Simco Earthprobe</u> Drilling Method: <u>Geoprene</u> Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u> Date Started: <u>8/17/98</u> Date Completed: <u>8/17/98</u>	Borehole Completion Depth: <u>6</u> Borehole Diameter: <u>2"</u> Ground Surface El.: _____
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DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						Brown silty fine sand
-1.0	1	0-2	24	-	0.0	
-2.0						Brown to tan/gray silt & sand
-3.0	2	2-4	24	-	0.1	
-4.0	3	4-6	24	-	0.0	Brown silty sand
-5.0						-EOB
-6.0						
-7.0						
-8.0						
-9.0						
-10.0						

Remarks: _____	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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## BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B22GW14</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet 1 of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KGW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>CARDPROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	4.0'	-	0.0	0-0.9': Dark brown; SILT; some fine to coarse sand; occasional roots; dry; no odor.
-1						0.9-1.7': Orangebrown; SILT; trace fine sand; dry; no odor
-2						1.7-6': Tan; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-3						
-4	2	4-6'	2.0'	-	0.0	
-5						
-6						
-7						
-8						
-9						
-10						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Decontamination Program

Well/Boring No.: B-22HA  
 Sheet 1 of 1  
 By: KIK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/6/98 Date Completed: 8/6/98

Borehole Completion Depth: 8'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-						
-2-	1	2-4	24	-	0.0	Tan poorly sorted sand and gravel
-3-					0.0	Same
-4-	2	4-6	24	-	0.0	
-5-					0.0	Same
-6-	3	6-8	24	-	0.0	
-7-						ECB
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement	_____	Date	_____
	_____	Date	_____
	_____	Date	_____
	_____	Date	_____

# BORING LOG



Project No.: <u>1614.00</u>	Well/Boring No.: <u>B-224N7</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Dehydration Program</u>	By: <u>VK</u> Date: <u>8/6</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>8'</u>
Driller: <u>Bruce Udiotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Gasprobe</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/6/98</u> Date Completed: <u>8/6/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						Brown silty fine sand
-1.0	1	0-2	24	-	0.0	
-2.0						Tan to brown silty poorly sorted sand
-3.0	2	2-4	24	-	0.0	
-4.0						
-5.0	3	4-6	24	-	0.0	Gray silty sand
-6.0						
-7.0	4	6-8	24	-	0.0	Tan poorly sorted sand + gravel
-8.0						- EOB
-9.0						
-10.0						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 2  
Decontamination Program

Well/Boring No.: B-22457  
 Sheet 1 of 1  
 By: KIK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Udotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/6/98 Date Completed: 8/6/98

Borehole Completion Depth: 8'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1						
-1	1	0-2	24	-	0.0	Brown silty Fine sand
-2						
-3	2	2-4	24	-	0.0	Tan poorly sorted sand and gravel
-4						
-5	3	4-6	24	-	0.0	Same
-6					0.0	Same
-7	4	6-8	24	-		Same
-8						-EOB
-9						
-10						

Remarks:

Water Level Measurement

\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B224 S14</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>CARD PROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	2.8'	-	0.0	0-1.1': Dark brown; SILT AND FINE TO COARSE SAND; trace fine to coarse gravel; dry; no odor.
-1						
-2						1.1-6': Dark brown (1.1-2.4') to tan (2.4-6'); FINE TO COARSE SAND; little silt; trace fine to coarse gravel; dry; no odor.
-3						
-4	2	4-6'	1.6'	-	0.0	
-5						
-6						
-7						
-8						
-9						
-10						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u> Project Name: <u>UGC Plant 2</u> <u>Deliverable Program</u>	Well/Boring No.: <u>B-22HE7</u> Sheet <u>1</u> of <u>1</u> By: <u>KIK</u> Date: <u>8/6</u> Chk'd: _____ Date: _____
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Drilling Contractor: <u>Emington Environmental</u> Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u> Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Geoprobe</u> Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u> Date Started: <u>8/6/98</u> Date Completed: <u>8/6/98</u>	Borehole Completion Depth: <u>8'</u> Borehole Diameter: <u>2"</u> Ground Surface El.: _____
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DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1	1	0-2	24"	-	0.0	Brown silty fine sand
-2						
-3	2	2-4	24	-	0.0	Tan to brown silt + fine sand
-4						
-5	3	4-6	24	-	0.0	Brown silty fine sand
-6						
-7	4	6-8	24	-	0.0	Tan poorly sorted sand and gravel
-8						
-9						- EOB
-10						

Remarks: _____	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NGC PLANT 12  
DELINEATION PROGRAM

Well/Boring No.: B2214E14  
 Sheet 1 of 1  
 By: KW Date: 11/23/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: EMINGTON ENVIRONMENTAL  
 Driller: W. ROWLAND Geologist: KEW WENZ  
 Drill Rig: GARDHPROBE Drilling Method: GEOPROBE  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/20/98 Date Completed: 8/20/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.7'	-	0.0	0-0.8': Dark brown; SILT AND FINE TO MEDIUM SAND; trace fine gravel; occasional roots; dry; no odor.
-1						0.8-2.1': Orange-brown; SILT; little fine to medium sand; dry; no odor.
-2						2.1-3.7': Tan to orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-3						
-4	2	4-6'	2.0'	-	0.0	
-5						
-6						
-7						
-8						
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B22407</u>
Project Name: <u>UGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Dehydration Program</u>	By: <u>KK</u> Date: <u>8/6</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>8'</u>
Driller: <u>Bruce Valotta</u>	Geologist: <u>Keith Klaus</u>
Drill Rig: <u>Simco Earthprobe</u>	Drilling Method: <u>Grapple</u>
Sample Spoon i.D.: <u>2"</u>	Drive Hammer Wt.: <u>NA</u>
Date Started: <u>8/6/95</u>	Date Completed: <u>8/6/95</u>
	Borehole Diameter: <u>2"</u>
	Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	0.0	Brown silty fine sand
-2.0						
-3.0	2	2-4	24	1	0.0	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	1	0.0	Same
-6.0						
-7.0	4	6-8	24	1	0.0	Same
-8.0						-EOB
-9.0						
-10.0						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614.00  
 Project Name: UG-2 Plant 2  
Delinquent Program

Well/Boring No.: B-22JN7  
 Sheet 1 of 1  
 By: KK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/6/98 Date Completed: 8/6/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0.2						
-1.0	1	0-2	24"	-	0.0	Brown poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	-	0.0	Brown to tan poorly sorted sand and gravel
-4.0	3					
-5.0		4-6	24	-	0.0	Tan poorly sorted sand and gravel
-6.0						- EOB
-7.0						
-8.0						
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B22JN14</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/25/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEN WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>GARDPROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	1	0-4'	3.6'	—	0.0	0-1.6': Dark brown to orange-brown; SILT AND FINE TO COARSE SAND; trace fine gravel; occasional roots 0-0.9': dry; no odor.
-1-						1.6-2.2': Orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-2-						
-3-						
-4-	2	4-6'	1.4'	—	0.0	2.2-2.9': Orange-brown; SILT AND FINE TO COARSE GRAVEL; dry; no odor.
-5-						
-6-						2.9-6': Orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-7-						
-8-						
-9-						
-10						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 2  
Decontamination Program

Well/Boring No.: B-22735  
 Sheet 1 of 1  
 By: KK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Johnson Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Groutcore  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/6/98 Date Completed: 8/6/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1.	1	0-2	24"	1	0.0	Brown poorly sorted sand and gravel
-2.	2	2-4	24"	1	0.0	Tan to brown poorly sorted sand and gravel
-3.	3	4-6	24"	1	0.0	Same
-4.						-EOB
-5.						
-6.						
-7.						
-8.						
-9.						
-10.						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B225514</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet 1 of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEVIN WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>GARHPROBE</u> Drilling Method: <u>GARHPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	2.2	=	0.0	0-4': Brown; SILT AND FINE TO COARSE SAND; little fine to coarse gravel; dry to moist; no odor.
-1						
-2						4-6': Milky white gray; SILT AND CLAY AND WOOD PIECES; very wet; moderate odor (old creosote and septic).
-3						
-4	2	4-6'	1.1	-	1.2	
-5						
-6						
-7						
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UG-2 Plant 12  
Deliverance Program

Well/Boring No.: B-22E7  
 Sheet 1 of 1  
 By: KIK Date: 8/6  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Udrotta Geologist: Keith Klaus  
 Drill Rig: Sunco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/17/95 Date Completed: 8/16/95

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1					0.0	Brown poorly sorted sand and gravel
-1	1	0-2	24	-		
-2						
-3	2	2-4	24	-	0.0	Brown to tan poorly sorted sand and gravel
-4						
-5	3	4-6	24	-	0.0	Tan poorly sorted sand and gravel
-6						- ECB
-7						
-8						
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

## BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B22JE14</u>
Project Name: <u>NGC PLANT 12</u>	Sheet <u>1</u> of <u>1</u>
<u>DELINEATION PROGRAM</u>	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEN WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>CARDPROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	4.0	1	0.0	0-1.1': Dark gray-black; SILT AND FINE TO COARSE SAND; trace fine gravel; dry; no odor.
-1						1.1-2.6': Orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-2						2.6-3.0': Gray; CLAY; dry; no odor.
-4	2	4-6'	2.0	-	0.0	3.0-4.6': Gray-black; FINE TO COARSE SAND; dry; no odor.
-5						4.6-6': Tan; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-6						
-7						
-8						
-9						
-10						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-22JW7</u>
Project Name: <u>UG-2 Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Delegation Program</u>	By: <u>HK</u> Date: <u>8/6</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>Bruce Valotta</u>	Geologist: <u>Keith Klaus</u>
Drill Rig: <u>Simon Earthprobe</u>	Drilling Method: <u>Geoprobe</u>
Sample Spoon i.D.: <u>2"</u>	Drive Hammer Wt.: <u>NA</u>
Date Started: <u>8/16/95</u>	Date Completed: <u>8/16/95</u>
	Borehole Diameter: <u>2"</u>
	Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0.2						
-1	1	0-2	24	-	0.0	Tan to brown poorly sorted sand and gravel
-2						
-3	2	2-4	24	-	0.0	Same
-4						
-5	3	4-6	24	-	0.0	Wet, tan to brown poorly sorted sand and gravel some silt
-6						
-7						- EOB
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B22 JW14</u>
Project Name: <u>NGC PLANT 12</u> <u>DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KGW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>GARTH PROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0	1	0-4'	3.8'	=	0.0	0-2.3': Dark brown to brown; SILT AND FINE TO MEDIUM SAND; trace fine gravel; dry; no odor.
-1						
-2						2.3-3.4': Gray-tan; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-3						
-4	2	4-6	2.0	-	0.0	3.4-3.6': Gray; CLAY; dry; no odor. 3.6-6': Tan; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-5						
-6						
-7						
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614.00  
 Project Name: NGC Plant 12  
Decontamination Program

Well/Boring No.: B-22 LA  
 Sheet 1 of 1  
 By: KIK Date: 8/19  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: HA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/19/98 Date Completed: 8/19/98

Borehole Completion Depth: 12  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-	1	8-10	12	10,12	00	Upper 2" Brown silty fine sand Lower 10" Tan poorly sorted sand and gravel
1-1-				30,35		
1-2-	2	10-12	18	17,22	0.0	Tan poorly sorted sand and gravel
1-3-				38,42		
1-4-						EOB
1-5-						
1-6-						
1-7-						
1-8-						
1-9-						
2-0-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG Plant #2  
Delamination Program

Well/Boring No.: B-26AA  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus Borehole Completion Depth: 13  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/12/98 Date Completed: 8/12/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	7-9	24	-	0.0	Tan to orange medium sand and gravel
-2-						
-3-	2	9-11	24	-	0.0	Tan to orange medium sand and gravel
-4-						
-5-	3	11-13	24	-	0.0	Tan to orange poorly sorted sand and gravel
-6-						
-7-						- EOB
-8-						
-9-						
-10-						

Remarks: Pit 5' deep, meas from floor

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
 Dehydration Program

Well/Boring No.: B-3044  
 Sheet 1 of 1  
 By: HLK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Uliotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: KA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/14/98 Date Completed: 8/14/98

Borehole Completion Depth: 10  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-						
-2-						
-3-						
-4-						
-5-						
-6-	1	6-8	12	8,6 6,8	0.3	Brown to tan + orange poorly sorted sand and gravel
-7-						
-8-		28-10	16	6,8 10,8	0.1	Brown to tan poorly sorted sand and gravel
-9-						
-10						- EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**Project No.:** 1614-00  
**Project Name:** UGC Plant 12  
Deliverables Program  
**Well/Boring No.:** B-32AA  
**Sheet** 1 of 1  
**By:** KK **Date:** 8/10  
**Chk'd:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Drilling Contractor:** Emington Environmental  
**Driller:** Bruce Ugiotna **Geologist:** Keith Klaus  
**Drill Rig:** Simco Earthprobe **Drilling Method:** Geoprobe  
**Sample Soon i.D.:** 2 **Drive Hammer Wt.:** NA  
**Date Started:** 8/10/98 **Date Completed:** 8/10/98  
**Borehole Completion Depth:** 12'  
**Borehole Diameter:** 2"  
**Ground Surface El.:** \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-	1	10-12	24"	—	0.0	Upper 6" Brown poorly sorted sand and gravel
1-1-						
1-2-	2					Lower 18" Tan poorly sorted sand and gravel
-3-						
-4-						
-5-						- EOB
-6-						
-7-						
-8-						
-9-						
-10-						

**Remarks:** \_\_\_\_\_

<b>Water Level Measurement</b>	Date _____
_____	Date _____
_____	Date _____
_____	Date _____

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 2  
Deliveries Program

Well/Boring No.: B-35AA  
 Sheet 1 of 1  
 By: HK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vahotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Grapple  
 Sample Soon I.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/11/98 Date Completed: 8/11/98

Borehole Completion Depth: 8  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0.2						
-1.0	1	0.2	24	—	3.9	Brown poorly sorted sand and gravel
-2.0						
-3.0	2	2.4	24	~	2.3	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4.6	24	—	2.1	Same
-6.0						
-7.0	4	6.8	24	—	1.6	Same
-8.0						EOB
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 12  
Dehydration Program

Well/Boring No.: B-35AN7  
 Sheet 1 of 1  
 By: KK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce V. Diottra Geologist: Keith Klaus Borehole Completion Depth: 8  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/11/95 Date Completed: 8/11/95

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1	1	0-2	24	-	2.1	Brown poorly sorted sand and gravel
-2						
-3	2	2-4	24	-	1.1	Tan to orange poorly sorted sand and gravel
-4						
-5	3	4-6	24	-	0.9	Same
-6						
-7	4	6-8	24	-	0.6	Same
-8						- EOB
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Deliverable Program

Well/Boring No.: B-3A57  
 Sheet 1 of 1  
 By: KK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Udotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/11/98 Date Completed: 8/11/98

Borehole Completion Depth: 8  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0						
-1	1	0-2	24	-	0.5	Brown to Tan silty poorly sorted sand and gravel
-3	2	2-4	24	-	0.3	Tan poorly sorted sand and gravel
-5	3	4-6	24	-	0.1	Tan to orange poorly sorted sand and gravel
-7	4	6-8	24	-	0.1	Same
-8						- EOB
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dehydration Program

Well/Boring No.: B 35AF7  
 Sheet 1 of 1  
 By: HK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus Borehole Completion Depth: 8  
 Drill Rig: Samco Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon I.D.: 2 Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/11/98 Date Completed: 8/11/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	3.6	Brown to tan poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	1	1.8	Brown to tan silt, poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	1	2.4	Tan poorly sorted sand and gravel
-6.0						
-7.0	4	6-8	24	1	0.9	Tan to orange poorly sorted sand and gravel
-8.0						
-9.0						
-10.0						- EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-364A</u>
Project Name: <u>UG Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Deliverable Program</u>	By: <u>KIK</u> Date: <u>8/14</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>30'</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Sumco Earthprobe</u> Drilling Method: <u>Geoprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/14/95</u> Date Completed: <u>8/14/95</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
2-1-						
2-1-	1	22-24	10"	-	0.4	Brown poorly sorted sand and gravel
2-2-						
2-3-	2	24-26	22	-	0.5	Tan poorly sorted sand and gravel
2-4-						
2-5-						
2-6-	3	26-28	21	-	0.0	Tan medium to coarse sand and gravel
2-7-						
2-8-	4	28-30	22	-	0.0	Same
2-9-						
30						- EOB

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UG Plant 2  
Deliverer Program

Well/Boring No.: B-37 AA  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/7/98 Date Completed: 8/7/98

Borehole Completion Depth: 4'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	0-2	24"	-	1606	Brown poorly sorted sand & gravel significant odor
-2-						
-3-	2	2-4	24"	-	1462	Brown poorly sorted sand and gravel
-4-						
-5-						ECB
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Delegation Program

Well/Boring No.: B-37AN8  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce V. Horton Geologist: Keith Klaus Borehole Completion Depth: 8  
 Drill Rig: Simon Fartherberg Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/7/98 Date Completed: 8/7/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0.1			24	-	0.6	Silty poorly sorted sand and gravel
-1.1	1	0-2				
-2.1					0.4	Brown to tan poorly sorted sand gravel and silt
-3.1	2	2-4	24	-		
-4.1					0.2	Brown to tan poorly sorted sand + gravel
-5.1	3	4-6	24	-		
-6.1					0.1	Brown silty poorly sorted sand and gravel
-7.1	4	6-8	24	-		
-8.1						- EOB
-9.1						
-10.1						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NGC Plant 12

Well/Boring No.: B37A UWS  
Sheet 1 of 2  
By: KR Date: 1/6/99  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
Driller: Dennis Vighetto Geologist: Keith Klaus  
Drill Rig: Simco Drilling Method: Earthprobe  
Sample Spoon I.D.: \_\_\_\_\_ Drive Hammer Wt.: NA  
Date Started: 1/6/99 Date Completed: 1/6/99  
Borehole Completion Depth: 22'  
Borehole Diameter: 2"  
Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	24	NA	NA	Brown to tan poorly sorted sand and gravel
4-6		4-6	20	NA	NA	Brown moist silty poorly sorted sand and gravel
8-10		8-10	24	NA	NA	Tan to brown poorly sorted sand and gravel
12-14		12-14	21	NA	NA	Tan to orange poorly sorted sand and gravel
16-18		16-18	23	NA	NA	Tan poorly sorted sand + gravel
20-22		20-22	24	NA	NA	Tan poorly sorted sand and gravel

**Remarks:** PCB Field ~~Kit~~ Kit indicates <1ppm PCB @ 20-22'

**Water Level Measurement**

_____	Date _____
_____	Date _____
_____	Date _____
_____	Date _____

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NAC-Plant 12  
Phase II Delineation

Well/Boring No.: B37A-16  
 Sheet 1 of 1  
 By: JHE Date: 8/21  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Env.  
 Driller: W. Rowland Geologist: M. Rauber  
 Drill Rig: Earth probe Drilling Method: Geneva  
 Sample Spoon I.D.: 1.5" Drive Hammer Wt.: \_\_\_\_\_  
 Date Started: 8/21/98 Date Completed: 8/21/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 1.5"  
 Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-				-		0-6": Dk Br. fine sand, some gravel, dry
-1-		0-2'	18"	-	0.0	6"-18": Lt Br. / tan fine sand, little gravel, moist
-2-						
-3-		2-4'	24"	-	0.0	0-24": Br. / tan fine sand, little gravel, moist
-4-						
-5-		4'-6'	24"	-	0.0	0-24": Lt Br. / tan fine sand, little gravel, moist
-6-						
-7-						
-8-						
-9-						
-10-						
					EOB @ 6' bgs	

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NGC Plant 12

Well/Boring No.: B37ANW16  
Sheet 1 of       
By: KK Date: 1/6/99  
Chk'd:      Date:     

Drilling Contractor: Emington Environmental  
Driller: Dennis Vignone Geologist: Keith Klaus  
Drill Rig: Simco Drilling Method: Earthprobe  
Sample Spoon I.D.:      Drive Hammer Wt.: NA  
Date Started: 1/6/99 Date Completed: 1/6/99  
Borehole Completion Depth: 22'  
Borehole Diameter: 2"  
Ground Surface El.:     

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	16	NA	NA	Brown poorly sorted sand & gravel
4-6		4-6	18	NA	NA	Brown moist poorly sorted sand and gravel
8-10		8-10	16	NA	NA	Brown poorly sorted sand and gravel
12-14		12-14	24	NA	NA	Brown to tan poorly sorted sand and gravel
16-18		16-18	24	NA	NA	Tan poorly sorted sand and gravel
20-22		20-22	24	NA	NA	Tan poorly sorted sand and gravel

**Remarks:** PCB Field test kit indicates < 1 ppm PCB @ 20-22

**Water Level Measurement**

	Date
	Date
	Date
	Date

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NGC Plant 12

Well/Boring No.: B37ANW24  
Sheet 1 of 2  
By: KK Date: 1/7/99  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental

Driller: Dennis Vigorito

Geologist: Keith Klaus

Borehole Completion Depth: 22'

Drill Rig: Simco

Drilling Method: Earthprobe

Borehole Diameter: 2"

Sample Spoon I.D.: 2"

Drive Hammer Wt.: NA

Ground Surface El.: \_\_\_\_\_

Date Started: 1/7/99

Date Completed: 1/7/99

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2'		0-2	24	NA	NA	Brown poorly sorted sand and gravel
4-6		4-6	20	NA	NA	Tan poorly sorted sand and gravel
8-10		8-10	22	NA	NA	Brown to tan poorly sorted sand and gravel
12-14		12-14	18	NA	NA	Tan poorly sorted sand and gravel
16-18		16-18	24	NA	NA	Tan poorly sorted sand and gravel
20-22		20-22	18	NA	NA	Tan poorly sorted sand and gravel

Remarks: PCB Field test kit indicates <1ppm @ 20-22'

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dehydration Program

Well/Boring No.: B-37458  
 Sheet 1 of 1  
 By: KK Date: 8/17  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe  
 Sample Soon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/17/98 Date Completed: 8/17/98

Borehole Completion Depth: 8  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0.5						
-1.0	1	0-2	24	-	0.3	Brown silty fine sand
-2.0						
-3.0	2	2-4	24	-	0.3	Tan to brown poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	-	0.1	Same
-6.0						
-7.0	4	6-8	24	-	0.1	Tan poorly sorted sand and gravel
-8.0						
-9.0						- EOB
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37A58A</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>    </u>
	By: <u>KR</u> Date: <u>1/5/99</u>
	Chk'd: <u>    </u> Date: <u>    </u>

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Vigor</u> Geologist: <u>Keith Klus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: <u>    </u>
Sample Spoon I.D.: <u>    </u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/5/99</u> Date Completed: <u>1/5/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	1	NA	NA	NA
4-6		4-6	1	NA	NA	NA
8-10		8-10	24	NA	NA	Brown poorly sorted sand and gravel
12-14		12-14	24	NA	NA	Tan to brown silty sand
16-18		16-18	24	NA	NA	Tan Fine to medium sand Trace gravel
20-22		20-22		NA	NA	Tan Poorly sorted sand & Gravel

<p><b>Remarks:</b> PCB Field test kit indicates PCB &lt; 1-4 ppm @ 20-22'</p>	<p><b>Water Level Measurement</b></p> <table style="width: 100%;"> <tr><td>_____</td><td>Date _____</td></tr> <tr><td>_____</td><td>Date _____</td></tr> <tr><td>_____</td><td>Date _____</td></tr> <tr><td>_____</td><td>Date _____</td></tr> </table>	_____	Date _____	_____	Date _____	_____	Date _____	_____	Date _____
_____	Date _____								
_____	Date _____								
_____	Date _____								
_____	Date _____								

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NAC Plant 12  
Phase II Delineation

Well/Boring No.: B32B16  
 Sheet 1 of 1  
 By: ML Date: 8/21  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Env.  
 Driller: W. Rowland Geologist: M. Rayber  
 Drill Rig: Earthquake Drilling Method: Complete  
 Sample Spoon I.D.: 1.5" Drive Hammer Wt.: \_\_\_\_\_  
 Date Started: 8/21/98 Date Completed: 8/21/98

Borehole Completion Depth: 8'  
 Borehole Diameter: 1.5"  
 Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0				-		0-24": <sup>cf. Br.</sup> <del>br.</del> / tan fine sand, little gravel, moist
-1		0-2	24"	-	0.0	
-2				-		0-24": Br. / tan fine sand, tr. gravel, moist
-3		2-4	24"	-	0.0	
-4				-		
-5		4-6	24"	-	0.0	0-24": SAA 0-24"
-6				-		
-7		6-8	18"	-	0.0	0-18": SAA 0-18"
-8				-		
-9				-		End @ 8' bgs
-10				-		

**Remarks:** \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37A516A</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>1/5/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Viglotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: _____ Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/5/99</u> Date Completed: <u>1/5/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	-	NA	NA	NA
4-6		4-6	-	NA	NA	NA
8-10		8-10	24	NA	NA	Brown silty fine to medium sand
12-14		12-14	24	NA	NA	Tan to brown poorly sorted silty sand and gravel
16-18		16-18	24	NA	NA	Tan poorly sorted sand and gravel
20-22		20-22	24	NA	NA	Tan poorly sorted sand and gravel

<b>Remarks:</b> PCB Field test kit indicates PCB < 1.4 ppm @ 20-22'	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37A532</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>1/5/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Vigorra</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: _____ Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/5/99</u> Date Completed: <u>1/5/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	20	NA	NA	Brown silty poorly sorted sand and gravel
4-6		4-6	18	NA	NA	Moist to wet brown poorly sorted sand and gravel
8-10		8-10	18	NA	NA	Moist brown to Tan fine to medium sand trace gravel
12-14		12-14	24	NA	NA	Tan silty fine to medium sand trace gravel
16-18		16-18	24	NA	NA	Tan silty fine to medium sand
20-22		20-22	24	NA	NA	Tan poorly sorted sand and gravel

<b>Remarks:</b> PCB field test kit indicates PCB < 1.21 ppm @ 20-22'	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37ASE8</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>1/5/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Vigor</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: _____ Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/5/99</u> Date Completed: <u>1/5/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	18	NA	NA	Brown poorly sorted sand + gravel
4-6		4-6	6	NA	NA	Brown poorly sorted sand and gravel
8-10		8-10	14	NA	NA	Brown to tan poorly sorted sand and gravel
12-14		12-14	8	NA	NA	Brown moist poorly sorted silty sand and gravel
16-18		16-18	20	NA	NA	Tan-brown poorly sorted sand and gravel
20-22		20-22	23	NA	NA	Tan poorly sorted sand and gravel

<b>Remarks:</b> PCB Field Test Kit indicates <1 ppm PCB @ 20-22'	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37ASE16</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>1/5/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Vigorita</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/5/99</u> Date Completed: <u>1/5/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	8	NA	NA	Brown poorly sorted sand and gravel
4-6		4-6	24	NA	NA	Brown poorly sorted sand and gravel
8-10		8-10	24	NA	NA	Brown-tan poorly sorted sand and gravel
12-14		12-14	20	NA	NA	Tan poorly sorted sand and gravel
16-18		16-18	18	NA	NA	Tan poorly sorted sand and gravel
20-22		20-22	NA	NA	NA	Tan poorly sorted sand and gravel

<b>Remarks:</b> <u>PCB Field Test Kit indicates &lt; 1ppm PCB @ 20-22'</u>	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37ASE32</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>1/5/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Erington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Vignetta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: _____ Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/5/99</u> Date Completed: <u>1/5/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	22	NA	NA	Brown poorly sorted sand and gravel
4-6		4-6	23	NA	NA	Tan to brown moist poorly sorted sand and gravel
8-10		8-10	24	NA	NA	Tan poorly sorted sand and gravel
12-14		12-14	24	NA	NA	Tan poorly sorted sand and gravel
16-18		16-18	12	NA	NA	Tan poorly sorted sand and gravel
20-22		20-22	24	NA	NA	Tan poorly sorted sand and gravel

<b>Remarks:</b> PCB Field test kit indicates < 1 ppm @ 20-22'	<b>Water Level Measurement</b> <table style="width: 100%; border: none;"> <tr><td style="border: none;">_____</td><td style="border: none;">Date _____</td></tr> <tr><td style="border: none;">_____</td><td style="border: none;">Date _____</td></tr> <tr><td style="border: none;">_____</td><td style="border: none;">Date _____</td></tr> <tr><td style="border: none;">_____</td><td style="border: none;">Date _____</td></tr> </table>	_____	Date _____	_____	Date _____	_____	Date _____	_____	Date _____
_____	Date _____								
_____	Date _____								
_____	Date _____								
_____	Date _____								



# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
Delaware Program

Well/Boring No.: B37AES  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Uliotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/7/98 Date Completed: 8/7/98

Borehole Completion Depth: 8  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.3	Brown Fine silty sand
-2.0						
-3.0	2	2-4	24	-	0.2	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	-	0.1	Same
-6.0						
-7.0	4	6-8	24	-	0.1	Same.
-8.0						
-9.0						- ECB
-10.0						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG

B37AE16



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NAC- Plant 12  
Phase II Delineation

Well/Boring No.: 27A  
 Sheet 1 of 1  
 By: JHL Date: 8/21/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Eminigan Env.

Driller: W. Rowland Geologist: M. Pauber

Drill Rig: East note Drilling Method: geoprobe

Sample Spoon I.D.: 1.5" Drive Hammer Wt.: \_\_\_\_\_

Date Started: 8/21/98 Date Completed: 8/21/98

Borehole Completion Depth: 6'

Borehole Diameter: 1.5"

Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-				-		0-24" DK Br. frct ssm, little / some gravel, moist
-1-		0-2'	24"	-	0.0	
-2-						0-24" SAA for 0-24"
-3-		2'-4'	24"	-	0.0	
-4-						0-24" SAA for 0-24"
-5-		4'-6'	24"	-	0.0	
-6-						
-7-						Eob @ 6' bgs
-8-						
-9-						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement	_____	Date _____
	_____	Date _____
	_____	Date _____
	_____	Date _____

# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Deliveries Program

Well/Boring No.: B37AW8  
 Sheet 1 of 1  
 By: KIK Date: 8/7  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Grapple  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/7/98 Date Completed: 8/7/98

Borehole Completion Depth: 8  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.2	Brown silty Fine sand
-2.0						
-3.0	2	2-4	24	-	0.1	Tan to brown poorly sorted Sand and gravel
-4.0						
-5.0	3	4-6	24	-	0.1	Same
-6.0						
-7.0	4	6-8	24	-	0.1	Same
-8.0						- EOB
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37AV8A</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>11/6/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Vignotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>N/A</u>	
Date Started: <u>11/6/99</u> Date Completed: <u>11/6/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	-	NA	NA	NA
4-6		4-6	-	NA	NA	NA
8-10		8-10	20	NA	NA	Brown poorly sorted sand and gravel
12-14		12-14	24	NA	NA	Brown to orange poorly sorted sand and gravel
16-18		16-18	14	NA	NA	Tan to brown poorly sorted sand and gravel
20-22		20-22	12	NA	NA	Tan poorly sorted sand and gravel

<b>Remarks:</b> PCB Field <del>test</del> kit indicates < 1ppm PCB @ 20-22'	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NGC-Plant 12  
Phase II Delineation

Well/Boring No.: B37AW16  
 Sheet 1 of 1  
 By: ML Date: 8/21/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Env.  
 Driller: W. Rowland Geologist: M. Rayben  
 Drill Rig: Earth probe Drilling Method: open  
 Sample Spoon I.D.: 1.5 Drive Hammer Wt.: \_\_\_\_\_  
 Date Started: 8/21/98 Date Completed: 8/21/98

Borehole Completion Depth: 8'  
 Borehole Diameter: 1.5  
 Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0				-		0-24": Dk. Br. fine sand, little gravel, moist
-1		0-2'	24"	1	0.0	
-2						0-24": Lt. Br. / tan fine sand, little gravel, moist
-3		2-4'	24"	-	0.0	
-4						0-24": SAA for 0-24"
-5		4-6'	24"	-	0.0	
-6						0-16": <del>DK</del> Br. fine sand, little gravel, moist
-7		6-7'	16"	-	0.0	
-8						
-9					FOB Q	8' bgs
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NGC Plant 12

Well/Boring No.: B37AW16A  
Sheet 1 of 1  
By: KK Date: 1/6/99  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental

Driller: Dennis Vignone

Geologist: Keith Klaus

Borehole Completion Depth: 22'

Drill Rig: Simco

Drilling Method: Earthprobe

Borehole Diameter: 2"

Sample Spoon I.D.: \_\_\_\_\_

Drive Hammer Wt.: NA

Ground Surface El.: \_\_\_\_\_

Date Started: 1/6/99

Date Completed: 1/6/99

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-2		0-2	—	NA	NA	NA
4-6		4-6	—	NA	NA	NA
8-10		8-10	24	NA	NA	Brown poorly sorted sand and gravel
12-14		12-14	21	NA	NA	Brown moist poorly sorted sand and gravel
16-18		16-18	24	NA	NA	Brown to orange poorly sorted sand and gravel
20-22		20-22	24	NA	NA	Brown to orange poorly sorted sand and gravel

Remarks: PCB Field test kit indicates PCB < 1-4 ppm @ 20-22'

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B37AW24</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KR</u> Date: <u>1/6/99</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22'</u>
Driller: <u>Dennis Viglione</u> Geologist: <u>Keith Klus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simco</u> Drilling Method: <u>Earthprobe</u>	Ground Surface El.: _____
Sample Spoon I.D.: _____ Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>1/6/99</u> Date Completed: <u>1/6/99</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-2		0-2	21	NA	NA	Brown poorly sorted sand and gravel
4-6		4-6	24	NA	NA	Brown poorly sorted sand and gravel
8-10		8-10	24	NA	NA	Brown moist poorly sorted sand and gravel
12-14		12-14	20	NA	NA	Brown moist poorly sorted sand and gravel
16-18		16-18	23	NA	NA	Brown to orange poorly sorted sand and gravel
20-22		20-22	22	NA	NA	Brown to orange poorly sorted sand and gravel

<b>Remarks:</b> <u>PCB Field kit indicates &lt;1ppm @ 20-22'</u>	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 2  
Decontamination Program

Well/Boring No.: B-38BA  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Grapple  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/12/95 Date Completed: 8/12/95

Borehole Completion Depth: 3  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-	1	1-3	24	NA	0.0	Brown to black poorly sorted sand and gravel
-2-						
-3-						-EOB
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



Project No.: 1614-00  
 Project Name: UG-2 Plant #2  
Delegation Program

Well/Boring No.: B-38BN7  
 Sheet 1 of 1  
 By: klk Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vajntan Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 5  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	1-3	24	-	0.0	Dark brown poorly sorted sand and gravel
-2.0						
-3.0	2	3-5	24	-	0.0	Tan to brown poorly sorted sand and gravel
-4.0						
-5.0						- EOB
-6.0						
-7.0						
-8.0						
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 2  
Delegation Program

Well/Boring No.: B-38B57  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotran Geologist: Keith Klaus  
 Drill Rig: Smco Earthprobe Drilling Method: Grapple  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 5  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
1.0	1	1-3	24	-	0.0	Brown poorly sorted silty sand & gravel
2.0						
3.0	2	3-5	24	-	0.0	Brown to tan poorly sorted sand and gravel
4.0						
5.0						- EOB
6.0						
7.0						
8.0						
9.0						
10.0						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614.00  
 Project Name: NGC Plant 12  
Dehydration Program

Well/Boring No.: B-38BE7  
 Sheet 1 of 1  
 By: KK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vajont Geologist: Keith Klaus Borehole Completion Depth: 5  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprene Borehole Diameter: 2"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/12/95 Date Completed: 8/12/95

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	1-3	29	-	0.0	Light Brown to tan poorly sorted sand and gravel
-2-	2	3-5	24	-	0.0	Same
-3-						- EOB
-4-						
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1641.00  
 Project Name: UGC Plant 2  
Dehydration Program

Well/Boring No.: B-38BW  
 Sheet 1 of 1  
 By: HK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprene  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 5  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	1-3	29	-	0.0	Brown silty sand and gravel
-2-	2	3-5	24	-	0.0	Brown to tan poorly sorted sand and gravel
-3-						
-4-						← EOB
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG-C Plant 12  
Delamination Program

Well/Boring No.: B-42A  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: HKA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 14'  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	2-4	24		0.0	Tan poorly sorted sand and gravel
-2-	2	6-8	20		0.0	Tan to orange poorly sorted sand and gravel
-3-	3	10-12	22		0.0	Tan to orange poorly sorted sand and gravel
-4-	4	12-14	20		0.0	Tan poorly sorted sand and gravel
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

- EOB

Remarks:

Water Level Measurements \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG-2 Plant 12  
Deliverance Program

Well/Boring No.: B-42 ANS  
 Sheet 1 of         
 By: KIK Date: 8/12  
 Chk'd:        Date:       

Drilling Contractor: Emington Environmental  
 Driller: Bruce Veltora Geologist: Keith Klaus Borehole Completion Depth: 14  
 Drill Rig: CMF-55 Drilling Method: HA Borehole Diameter: 8"  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: 140lb Ground Surface El.:         
 Date Started: 8/12/98 Date Completed: 8/12/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-	1	0-2	22		0.0	Brown to tan poorly sorted sand and gravel
-1-						
-2-	2	2-4	20		0.0	Tan poorly sorted sand and gravel
-3-						
-4-	3	6-8	23		0.0	Tan poorly sorted sand and gravel
-5-						
-6-	4	10-12	21		0.0	Same
-7-						
-8-	5	12-14	18		0.0	Same
-9-						
-10						- EOB

Remarks:       

Water Level Measurement        Date         
       Date         
       Date         
       Date

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NGC Plant 12  
Deliveries Program

Well/Boring No.: B-42ASS  
Sheet 1 of 1  
By: KIK Date: 8/12  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
Driller: Bruce Valotta Geologist: Keith Klaus  
Drill Rig: CME-55 Drilling Method: KA  
Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 14  
Borehole Diameter: 8"  
Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-		0-2	24		0.0	Brown to tan poorly sorted sand and gravel
-1-		2-4	21		0.0	Tan-orange poorly sorted sand and gravel
-2-		4-8	23		0.0	Tan poorly sorted sand and gravel
-3-		10-12	20		0.0	Tan fine to medium sand trace coarse sand
-4-		12-14	19		0.0	Tan fine to medium sand
-5-						ECB
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks:

Water Level Measurement

\_\_\_\_ Date \_\_\_\_\_  
\_\_\_\_ Date \_\_\_\_\_  
\_\_\_\_ Date \_\_\_\_\_  
\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
Deliverian Program

Well/Boring No.: B42AES  
 Sheet 1 of 1  
 By: KK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Nohorra Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: HA  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 14  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	1	0-2	22		0.0	Brown silty poorly sorted sand and trace gravel
-1-						
-2-	2	2-4	20		0.0	Tan-Brown poorly sorted sand and gravel
-3-						
-4-	3	6-8	24		0.0	Tan poorly sorted sand and gravel
-5-						
-6-	4	10-12	18		0.0	Same
-7-						
-8-	5	12-14	20		0.0	Same
-9-						- COB
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dehydration Program

Well/Boring No.: B42 AWS  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: KA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 14  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-					0.0	Brown to tan poorly sorted sand and gravel
-1-	1	0-2	20			
-2-	2	2-4	19		0.0	Tan-orange poorly sorted sand and gravel
-3-						
-4-	3	6-8	23		0.0	Tan poorly sorted sand and gravel
-5-						
-6-	4	10-12	21		0.0	Tan fine to medium sand
-7-						
-8-	5	12-14	22		0.0	Tan fine to medium sand
-9-						
-10-						EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
Deliveries Program

Well/Boring No.: B-434A  
 Sheet 1 of 1  
 By: KK Date: 8/5/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vajotta Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/5/98 Date Completed: 8/5/98

Borehole Completion Depth: 4'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-						
-2-	1	2-4	24"	NA	0.9	Upper 2" Black poorly sorted Sand and gravel
-3-						Lower 22" Tan poorly sorted silty sand and gravel
-4-						
-5-						- EOB
-6-						
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG Plant 2  
Delaware Program

Well/Boring No.: B-43AN7  
 Sheet 1 of 1  
 By: KIK Date: 8/5/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Grapple  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/5/98 Date Completed: 8/5/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	0-2	18"	NA	1.0	Upper 13" Brown to black poorly sorted sand and gravel Lower 5" Tan poorly sorted sand and gravel
-3-	2	2-4	16"	NA	0.0	Upper 6" silty orange + gray clay trace sand Lower 10" Tan poorly sorted sand and gravel
-5-	3	4-6	21"	NA	0.0	Upper 3" Brown to black poorly sorted sand and gravel Lower 18" Tan poorly sorted sand and gravel
-6-						- EOB
-7-						
-8-						
-9-						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Dehydration Program

Well/Boring No.: B43457  
 Sheet 1 of 1  
 By: KK Date: 8/3/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Geoprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/3/98 Date Completed: 8/3/98  
 Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	NA	1.8	Brown to black poorly sorted sand and gravel
-2.0						lower 6" Tan poorly sorted sand and gravel
-3.0	2	2-4	18	NA	0.3	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	18	NA	0.3	Same
-6.0						-EOB
-7.0						
-8.0						
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: NGC PLANT 12  
DELINEATION PROGRAM

Well/Boring No.: B43A514  
 Sheet 1 of 1  
 By: KW Date: 11/23/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: EMINGTON ENVIRONMENTAL  
 Driller: W. ROWLAND Geologist: KEN WENZ  
 Drill Rig: GARDYPROBE Drilling Method: GEOPROBE  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 8/20/98 Date Completed: 8/20/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	1	0-4'	3.4'	=	0.0	0-6': Tam; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-1-						
-2-						
-3-						
-4-	2	4-6'	1.9'	-	0.0	
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

**Remarks:**

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B-23AES</u>
Project Name: <u>UGC Plant 12</u>	Sheet <u>1</u> of <u>1</u>
<u>Dehydration Program</u>	By: <u>KK</u> Date: <u>8/5/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>Bruce Uhlotta</u>	Geologist: <u>Keith Klaus</u>
Drill Rig: <u>Simco Earthprobe</u>	Drilling Method: <u>Geoprobe</u>
Sample Spoon i.D.: <u>2"</u>	Drive Hammer Wt.: <u>NA</u>
Date Started: <u>8/5/98</u>	Date Completed: <u>8/5/98</u>
	Borehole Diameter: <u>2"</u>
	Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						Upper 12" Brown silty poorly sorted sand and gravel
-1.0	1	0-2	18	NA	0.0	Lower 6" Tan poorly sorted sand + gravel
-2.0						
-3.0	2	2-4	16	NA	0.0	Tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	16	NA	0.0	Same
-6.0						
-7.0						- EOB
-8.0						
-9.0						
-10.0						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>B43 AE14</u>
Project Name: <u>NGC PLANT 12 DELINEATION PROGRAM</u>	Sheet <u>1</u> of <u>1</u>
	By: <u>KW</u> Date: <u>11/23/98</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>EMINGTON ENVIRONMENTAL</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>W. ROWLAND</u> Geologist: <u>KEW WENZ</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>CARDPROBE</u> Drilling Method: <u>GEOPROBE</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/20/98</u> Date Completed: <u>8/20/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	1	0-4'	2.9	==	0.0	0-0.7': Brown; SILT AND CLAY; trace fine to coarse gravel; moist; no odor.
-1-						0.7-6': Orange-brown; FINE TO COARSE SAND AND GRAVEL; trace silt; dry; no odor.
-2-						
-3-						
-4-	2	4-6'	1.9	-	0.0	
-5-						
-6-						
-7-						
-8-						
-9-						
-10-						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614.00  
 Project Name: UGL Plant 2  
Delegation Program

Well/Boring No.: B-43AW7  
 Sheet 1 of 1  
 By: HK Date: 8/5/98  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vahotta Geologist: Keith Klaus Borehole Completion Depth: 6  
 Drill Rig: Simon Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon I.D.: 2 Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/5/98 Date Completed: 8/5/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	18	NA	0.4	Upper 12" Black to brown poorly sorted sand and gravel
-2.0						Lower 6" Tan poorly sorted sand and gravel
-3.0	2	2-4	16	NA	0.0	Upper 8" Gray silty fine sand
-4.0						Lower 8" Tan poorly sorted sand and gravel
-5.0	3	4-6	16	NA	0.1	Tan poorly sorted sand and gravel
-6.0						-ECR
-7.0						
-8.0						
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UG-C Plant 12  
Deliveration Program

Well/Boring No.: B-451A  
 Sheet 1 of 1  
 By: KK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: KA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/14/98 Date Completed: 8/14/98

Borehole Completion Depth: 12'  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-						
-2-						
-3-						
-4-						
-5-						
-6-	1	6.5	16	23,17 14,12	1.7	Brown poorly sorted sand and gravel
-7-						
-8-	2	8.6	24	12,15 17,13	0.7	Same
-9-						
-10	3	10.12	16	12,15 17,16	0.1	light brown to tan poorly sorted sand & gravel. -EOB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: NGC Plant 2  
Deliveries Program

Well/Boring No.: PCS-AA  
Sheet 1 of 1  
By: KIK Date: 8/12  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
Driller: Bruce Valotta Geologist: Keith Klaus  
Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
Sample Spoon i.D.: 2" Drive Hammer Wt.: NA  
Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 6'  
Borehole Diameter: 2"  
Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.						
-1.	1	0-2	24	—	0.0	Brown silty poorly sorted sand and gravel
-2.						
-3.	2	2-4	24	—	0.0	Tan poorly sorted sand and gravel
-4.						
-5.	3	4-6	24	—	0.0	Tan-orange poorly sorted sand and gravel
-6.						
-7.						EUB
-8.						
-9.						
-10.						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.:	1614-00	Well/Boring No.:	PCS-ANS
Project Name:	UG-2 Plant 2 Deliverance Program	Sheet 1 of 1	
		By: KIK	Date: 8/12
		Chk'd: _____	Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>6'</u>
Driller: <u>Bruce V. Jotras</u>	Geologist: <u>Keith Klaus</u>
Drill Rig: <u>Simon Earthprobe</u>	Drilling Method: <u>Grapple</u>
Sample Spoon I.D.: <u>2</u>	Drive Hammer Wt.: <u>NA</u>
Date Started: <u>8/12/98</u>	Date Completed: <u>8/12/98</u>
	Borehole Diameter: <u>2"</u>
	Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.0	Brown poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	-	0.0	Brown-tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	-	0.0	Tan to brown poorly sorted sand and gravel
-6.0						
-7.0						
-8.0						- ECB
-9.0						
-10.0						

<b>Remarks:</b>  	<b>Water Level Measurement</b> _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Deliverable Program

Well/Boring No.: PCS-A58  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vahorra Geologist: Keith Klaus  
 Drill Rig: Sumco Earthprobe Drilling Method: Geoprobe  
 Sample Spoon I.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	1	0.0	Brown poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	1	0.0	Tan to brown poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	1	0.0	Tan to orange poorly sorted sand and gravel
-6.0						
-7.0						- EOB
-8.0						
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG-2 Plant 12  
Deliverable Program

Well/Boring No.: PCS-AE 8  
 Sheet 1 of 1  
 By: KIK Date: 8/12  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Samco Earth probe Drilling Method: Grapple  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: N/A  
 Date Started: 8/12/95 Date Completed: 8/12/95

Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0.0						
-1.0	1	0-2	24	-	0.0	Brown poorly sorted sand and gravel
-2.0						
-3.0	2	2-4	24	-	0.0	Brown-tan poorly sorted sand and gravel
-4.0						
-5.0	3	4-6	24	-	0.0	Tan to orange poorly sorted sand and gravel
-6.0						
-7.0						- EOB
-8.0						
-9.0						
-10.0						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dehydration Program

Well/Boring No.: PCS-AW4  
 Sheet 1 of 1  
 By: KIK Date: 8/17  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprene  
 Sample Spoon I.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/12/98 Date Completed: 8/12/98

Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1-	1	0-2	24	-	0.0	Brown poorly sorted sand and gravel
-3-	2	2-4	24	-	0.0	Tan to brown poorly sorted sand and gravel
-5-	3	4-6	24	-	0.0	Tan to orange poorly sorted sand and gravel
-6-						- EOB
-7-						
-8-						
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG Plant 2  
Deliverable Program

Well/Boring No.: PCS GA  
 Sheet 1 of ~~1~~ 1  
 By: KIK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vajotta Geologist: Keith Klaus  
 Drill Rig: Simco Earthprobe Drilling Method: Grapple  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: N/A  
 Date Started: 8/11/98 Date Completed: 8/11/98

Borehole Completion Depth: 6'  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-	1	0-2	24	-	6.3	Brown to black + Tan poorly sorted sand and gravel
-2-						
-3-	2	2-4	24	-	3.1	Brown to tan poorly sorted sand and gravel
-4-						
-5-	3	4-6	24	-	1.8	Orange poorly sorted sand and gravel
-6-						
-7-						
-8-						- ECB
-9-						
-10-						

Remarks: \_\_\_\_\_

Water Level Measurement	Date
_____	_____
_____	_____
_____	_____
_____	_____

# BORING LOG



**DVTREKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Decontamination Program

Well/Boring No.: PLS GNS  
 Sheet 1 of 1  
 By: BK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Geoprobe  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: NA  
 Date Started: 5/17/98 Date Completed: 8/11/98

Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-	1	0-2	24	-	6.2	Brown-black & tan poorly sorted sand and gravel
-2-						
-3-	2	2-4	24	-	3.5	Brown to tan silty poorly sorted sand and gravel
-4-	3	4-6	24	-	1.9	Tan-orange poorly sorted sand and gravel
-5-						
-6-						-ECB
-7-						
-8-						
-9-						
-10-						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
 Project Name: UGC Plant 2  
Dehydration Program

Well/Boring No.: PCS-G58  
 Sheet 1 of 1  
 By: HK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus Borehole Completion Depth: 6  
 Drill Rig: Simco Earthprobe Drilling Method: Geoprobe Borehole Diameter: 2"  
 Sample Spoon I.D.: 2 Drive Hammer Wt.: NA Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/11/98 Date Completed: 8/11/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1	1	0-2	24	-	4.3	Brown silty poorly sorted sand and gravel
-2	2	2-4	24	-	2.7	Brown poorly sorted sand and gravel
-3	3	4-6	24	-	1.0	Tan-brown silty poorly sorted sand and gravel
-4						- EOB
-5						
-6						
-7						
-8						
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>PLS-GES</u>
Project Name: <u>UGL Plant 2</u>	Sheet: <u>1</u> of <u>1</u>
<u>Decontamination Program</u>	By: <u>BK</u> Date: <u>8/11</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>6</u>
Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>2"</u>
Drill Rig: <u>Simon Earthprobe</u> Drilling Method: <u>Washcore</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2</u> Drive Hammer Wt.: <u>NA</u>	
Date Started: <u>8/11/95</u> Date Completed: <u>8/11/95</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1	1	0-2	24	-	5.8	Brown silt and poorly sorted sand and gravel
-3	2	2-4	24	-	3.2	Tan to brown silty poorly sorted sand and gravel
-5	3	4-6	24	-	1.0	Orange poorly sorted sand and gravel
-6						
-7						- EOB
-8						
-9						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UG-2 Plant 2  
Deliverable Program

Well/Boring No.: PCS-GWS  
 Sheet 1 of 1  
 By: KK Date: 8/11  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: Simon Earthprobe Drilling Method: Gasprobe  
 Sample Spoon i.D.: 2 Drive Hammer Wt.: NA  
 Date Started: 8/11/98 Date Completed: 8/11/98

Borehole Completion Depth: 6  
 Borehole Diameter: 2"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-1	1	0-2	24	-	6.1	Brown silty poorly sorted sand and gravel
-2	2	2-4	24	-	3.8	Tan to brown poorly sorted sand and gravel
-3	3	4-6	24	-	2.9	Tan-orange poorly sorted sand and gravel
-4						- EOB
-5						
-6						
-7						
-8						
-9						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 12  
Decontamination Program

Well/Boring No.: RWP-1  
 Sheet 1 of 2  
 By: KK Date: 8/13  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Vahorra Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: HA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/13/98 Date Completed: 8/13/98

Borehole Completion Depth: 20  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-						
-1-		0-2	15	14,11 16,17	0.0	Tan fine to medium sand trace medium gravel
-2-		2-4	14	15,11 19,16	0.0	Tan to brown medium sand trace medium gravel
-3-						
-4-						
-5-		4-6	12	5,7 9,7	0.0	Tan medium sand trace fine gravel
-6-						
-7-		6-8	4"	4,5 5,6	0.0	Tan-Brown medium sand trace gravel
-8-						
-9-		8-10	0	9,9 10,13	-	No Recovery
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Deliveration Program

Well/Boring No.: RWP-1  
 Sheet 2 of 2  
 By: BK Date: 8/13  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Ugiotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: KA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/13/98 Date Completed: 8/13/98

Borehole Completion Depth: 20  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-		10-12	20	4,5	0.0	Upper 16" Tan medium sand trace fine gravel
1-1-				12,15		Lower 4" gray to brown sand & gravel
1-2-						Some fibrous material
1-3-	1	12-14	21	9,10	0.0	Upper 4" Brown medium to coarse sand
1-4-				15,19		middle 5" Gray to brown silty poorly sorted silt & sand - moist
1-5-	2	14-16	16	9,10	0.0	Lower 12" Tan medium to coarse sand
1-6-				16,19		Tan to brown poorly sorted sand and gravel
1-7-	3	16-18	15	12,15	0.0	Tan medium to coarse sand
1-8-				15,23		
1-9-	4	18-20	24	16,16	0.0	Tan poorly sorted sand and gravel.
1-9-				12,13		
20						- EUB

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u>	Well/Boring No.: <u>RWP-2</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>1</u> of <u>2</u>
<u>Dehydration Program</u>	By: <u>KK</u> Date: <u>8/13</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>22</u>
Driller: <u>Bruce Udrotta</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>8"</u>
Drill Rig: <u>CME-55</u> Drilling Method: <u>RA</u>	Ground Surface El.: _____
Samole Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>140lb</u>	
Date Started: <u>8/13/98</u> Date Completed: <u>8/13/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-		0-2	14	8,13 13,15	0,0	Tan medium sand trace fine gravel
-1-		2-4	9	18,15 19,17	0,0	Tan medium sand trace medium gravel
-2-		4-6	24	7,11 12,10	0,0	Tan medium sand trace fine gravel
-3-		6-8	21	8,4 9,9	0,0	Brown-tan medium sand and fine gravel
-4-		8-10	20	7,7 5,12	0,0	Tan Medium sand trace fine gravel
-5-						
-6-						
-7-						
-8-						
-9-						
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Deliberation Program

Well/Boring No.: RWP-2  
 Sheet 2 of 2  
 By: BK Date: 8/13  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Udrotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: KA  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/12/98 Date Completed: 8/13/98

Borehole Completion Depth: 22  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-		10-12	11	6,6 7,8	0.0	Tan medium sand trace fine gravel
1-1-						
1-2-		12-14	16	4,6 6,7	0.0	Tan medium sand trace fine gravel
1-3-						
1-4-	1	14-16	10	8,9 10,13	0.0	upper 4" Tan medium sand middle 1" Gray pasty fine silty sand Lower 5" tan medium sand
1-5-						
1-6-	2	16-18	12	8,7 9,7	0.0	Tan to brown medium and coarse sand
1-7-						
1-8-	3	18-20	10	6,7 9,8	0.0	Tan medium to coarse sand
1-9-						
2-0-	4	20-22	23	11,12 15,15	0.0	Same -EOB

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: UGC Plant 12  
Delamination Program

Well/Boring No.: RWP-3  
Sheet 1 of 2  
By: KIK Date: 8/13  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
Driller: Bruce Valotta Geologist: Keith Klaus Borehole Completion Depth: 16  
Drill Rig: CMF-55 Drilling Method: ISA Borehole Diameter: 8"  
Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb Ground Surface El.: \_\_\_\_\_  
Date Started: 8/13/98 Date Completed: 8/13/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-		0-2	12	12,15 15,17	0.7	Brown to tan poorly sorted sand and gravel
-1-						
-2-		2-4	12	8,6 6,8	0.9	Brown poorly sorted silty sand and gravel
-3-						
-4-		4-6	17	8,7 8,7	0.0	Upper 8" Brown silty fine to coarse sand Lower 9" Tan fine to medium sand
-5-						
-6-		6-8	20	8,6 9,7	1.1	Upper 15" Tan to brown medium sand Lower 5" Gray moist PIT material
-7-						
-8-		8-10	16	6,8 8,10	1.4	Silty sand and gravel Tan to Brown poorly sorted sand and gravel Some gray PIT material
-9-						
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Dechlorination Program

Well/Boring No.: RWP-3  
 Sheet 2 of 2  
 By: BK Date: 8/13  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: HA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/13/98 Date Completed: 8/13/98

Borehole Completion Depth: 16  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0	2	10-12	20	6,10	1.4	Upper 2" Grayish silt + sand
1-1				20,8		Lower 16" Tan-Brown Medium Sand
1-2	3	12-14	16	6,8	0.4	Tan Medium Sand
1-3				9,7		
1-4	4	14-16	12	9,9	0.1	Tan Sand + Gravel
1-5				10,11		
1-6						- EOB
1-7						
1-8						
1-9						
2-0						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>RWP-4</u>
Project Name: <u>UGC Plant 12</u>	Sheet <u>1</u> of <u>3</u>
<u>Deliveries Program</u>	By: <u>KK</u> Date: <u>8/13</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>25</u>
Driller: <u>Bruce Ulaton</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>8"</u>
Drill Rig: <u>CME-55</u> Drilling Method: <u>KA</u>	Ground Surface El.: _____
Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>140lb</u>	
Date Started: <u>8/13/98</u> Date Completed: <u>8/13/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-		0-1				concrete
-1-		1-3	16	5,6 6,6	0.4	Tan poorly sorted sand trace fine gravel
-2-						
-3-		3-5	4	6.6 7,7	0.2	Brown tan medium sand trace coarse sand
-4-						
-5-		5-7	16	9,9 12,13	0.3	Tan to Brown medium sand + trace coarse sand
-6-						
-7-		7-9	17	8,8 10,9	0.5	Tan-Brown poorly sorted sand and gravel
-8-						
-9-		9-11	8	7,7 7,7	0.4	Brown to tan medium sand trace coarse sand
-10						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: UGC Plant 12  
Delamination Program

Well/Boring No.: RWP-4  
 Sheet 2 of 3  
 By: RK Date: 8/13  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Udiotta Geologist: Keith Klaus Borehole Completion Depth: 25  
 Drill Rig: CMF-55 Drilling Method: HSA Borehole Diameter: 8"  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/13/98 Date Completed: 8/13/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0						Upper 9" Brown/Tan medium sand
1-1		11-13	12	6,9 78	0.1	Lower 3" Slag like black coal matrix
1-2						Upper 7" Orange-brown sand
1-3		13-15	8	6,13 5,9	0.5	Lower Gray (pasty) Fine to medium sand
1-4						
1-5	1	15-17	12	15,16 19,3	0.3	Gray (pasty) Fine to medium sand
1-6						
1-7	2	17-19	14	10,15 12,18	1.1	Tan poorly sorted sand and gravel
1-8						
1-9		19-21	0	15,16	-	No recovery
20				19,23		

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: <u>1614-00</u>	Well/Boring No.: <u>RWP4</u>
Project Name: <u>NGC Plant 12</u>	Sheet <u>3</u> of <u>3</u>
<u>Dehydration Program</u>	By: <u>JK</u> Date: <u>8/13</u>
	Chk'd: _____ Date: _____

Drilling Contractor: <u>Emington Environmental</u>	Borehole Completion Depth: <u>25</u>
Driller: <u>Bruce Vahorra</u> Geologist: <u>Keith Klaus</u>	Borehole Diameter: <u>8"</u>
Drill Rig: <u>CME-53</u> Drilling Method: <u>HA</u>	Ground Surface El.: _____
Sample Spoon I.D.: <u>2"</u> Drive Hammer Wt.: <u>140lb</u>	
Date Started: <u>8/13/98</u> Date Completed: <u>8/13/98</u>	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
2-0-						
2-1-	3	21-23	16	17,13 15,16	0.3	Tan poorly sorted sand and gravel
2-2-						
2-3-	4	23-25	16	12,14 16,19	0.3	Same
2-4-						
2-5-						-EOB
2-6-						
2-7-						
2-8-						
2-9-						
3-0						

Remarks:	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
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# BORING LOG



Project No.: 1614-00  
 Project Name: NGC Plant 12  
Delamination Program

Well/Boring No.: RWP-5  
 Sheet 1 of 2  
 By: KK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus Borehole Completion Depth: 14  
 Drill Rig: CME-55 Drilling Method: HSA Borehole Diameter: 8"  
 Sample Spoon I.D.: 2" Drive Hammer Wt.: 140lb Ground Surface El.: \_\_\_\_\_  
 Date Started: 8/14/98 Date Completed: 8/14/98

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-		0-2	16	8.7	0.0	Tan to brown medium to coarse sand and gravel
-1-				6.7		
-2-		2-4	20	9.17	MD	Upper 16" Tan/Brown medium to coarse sand
-3-				13.7		Lower 4' Brown poorly sorted sand and gravel
+		4-6	4"	14.16	0.1	Brown poorly sorted sand and gravel, rock in shoe
-5-				13.13		
-6-	1	6-8	18	14.16	0.3	Upper 6" Brown poorly sorted sand and gravel
-7-				26.21		middle 5" Gray pasty resin material, fiberglass shards
-8-	2	8-10	20	16.18		Lower 7" Tan/gray ms
-9-				26.23	0.0	Tan medium to coarse sand
-10						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: 1614-00  
 Project Name: UG-C Plant 12  
Delamination Program

Well/Boring No.: RWP-5  
 Sheet 2 of 2  
 By: RK Date: 8/14  
 Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
 Driller: Bruce Valotta Geologist: Keith Klaus  
 Drill Rig: CME-55 Drilling Method: HA  
 Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
 Date Started: 8/14/98 Date Completed: 8/14/98

Borehole Completion Depth: 14  
 Borehole Diameter: 8"  
 Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0-	3	10-12	20	22,23	0.0	Tan medium to coarse sand Trace gravel
1-1-				30,28		
1-2-	4	12-14	20	25,36	0.0	Tan poorly sorted sand and gravel
1-3-				28,30		
1-4-						- ECB
1-5-						
1-6-						
1-7-						
1-8-						
1-9-						
2-0-						

Remarks: \_\_\_\_\_

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_

# BORING LOG



Project No.: <u>1614-00</u> Project Name: <u>UGC Plant 12</u> <u>Deliverables Program</u>	Well/Boring No.: <u>RWP-6</u> Sheet <u>1</u> of <u>2</u> By: <u>KIK</u> Date: <u>5/18</u> Chk'd: _____ Date: _____
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Drilling Contractor: <u>Emington Environmental</u> Driller: <u>Bruce Valotta</u> Geologist: <u>Keith Klaus</u> Drill Rig: <u>CME-55</u> Drilling Method: <u>KA</u> Sample Spoon i.D.: <u>2"</u> Drive Hammer Wt.: <u>140lb</u> Date Started: <u>5/18/98</u> Date Completed: <u>5/18/98</u>	Borehole Completion Depth: <u>18</u> Borehole Diameter: <u>8"</u> Ground Surface El.: _____
--	---

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
0-		0-2	12	12,17 20,22	0.0	Brown poorly sorted sand and gravel
-1-						
-2-		2-4	24	15,19 23,21	0.0	Same.
-3-						
-4-		4-6	20	12,13 15,17	2.5	Upper 1/8 Gray - Brown poorly sorted sand + gravel Lower 2" gray
-5-						
-6-	1	6-8	12	15,14 16,9	1.3	Black - Brown - poorly sorted sand and gravel
-7-						
-8-	2	8-10	16	20,22 21,23	2.7	Brown to black poorly sorted sand and gravel
-9-						
-10						

Remarks: _____	Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____
----------------	--

# BORING LOG



**DVIRKA  
AND  
BARTILUCCI**

Project No.: 1614-00  
Project Name: UG-C Plant 12  
Deliverable Program

Well/Boring No.: RWP-6  
Sheet 2 of 2  
By: KK Date: 8/18  
Chk'd: \_\_\_\_\_ Date: \_\_\_\_\_

Drilling Contractor: Emington Environmental  
Driller: Bruce Valotta Geologist: Keith Klaus  
Drill Rig: CME-55 Drilling Method: ISA  
Sample Spoon i.D.: 2" Drive Hammer Wt.: 140lb  
Date Started: 8/18/98 Date Completed: 8/18/98

Borehole Completion Depth: 18  
Borehole Diameter: 8"  
Ground Surface El.: \_\_\_\_\_

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
1-0	1	10-12	22	23,18 16,25	0.0	Brown poorly sorted sand and gravel
1-1						
1-2	3	12-14	24	21,22 26,20	0.0	Wet brown poorly sorted sand and gravel
1-3						
1-4		14-16	4"	22,22 23,27	0.0	Tan-or sand insufficient recovery for Lab analysis
1-5						
1-6	4	16-18	24	30,32 31,35	0.0	Tan to orange sand + gravel
1-7						
1-8						- EOB
1-9						
20						

Remarks:

Water Level Measurement \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_  
 \_\_\_\_\_ Date \_\_\_\_\_



# Appendix B

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**APPENDIX B**

**WELL CONSTRUCTION LOGS**

WELL CONSTRUCTION LOG

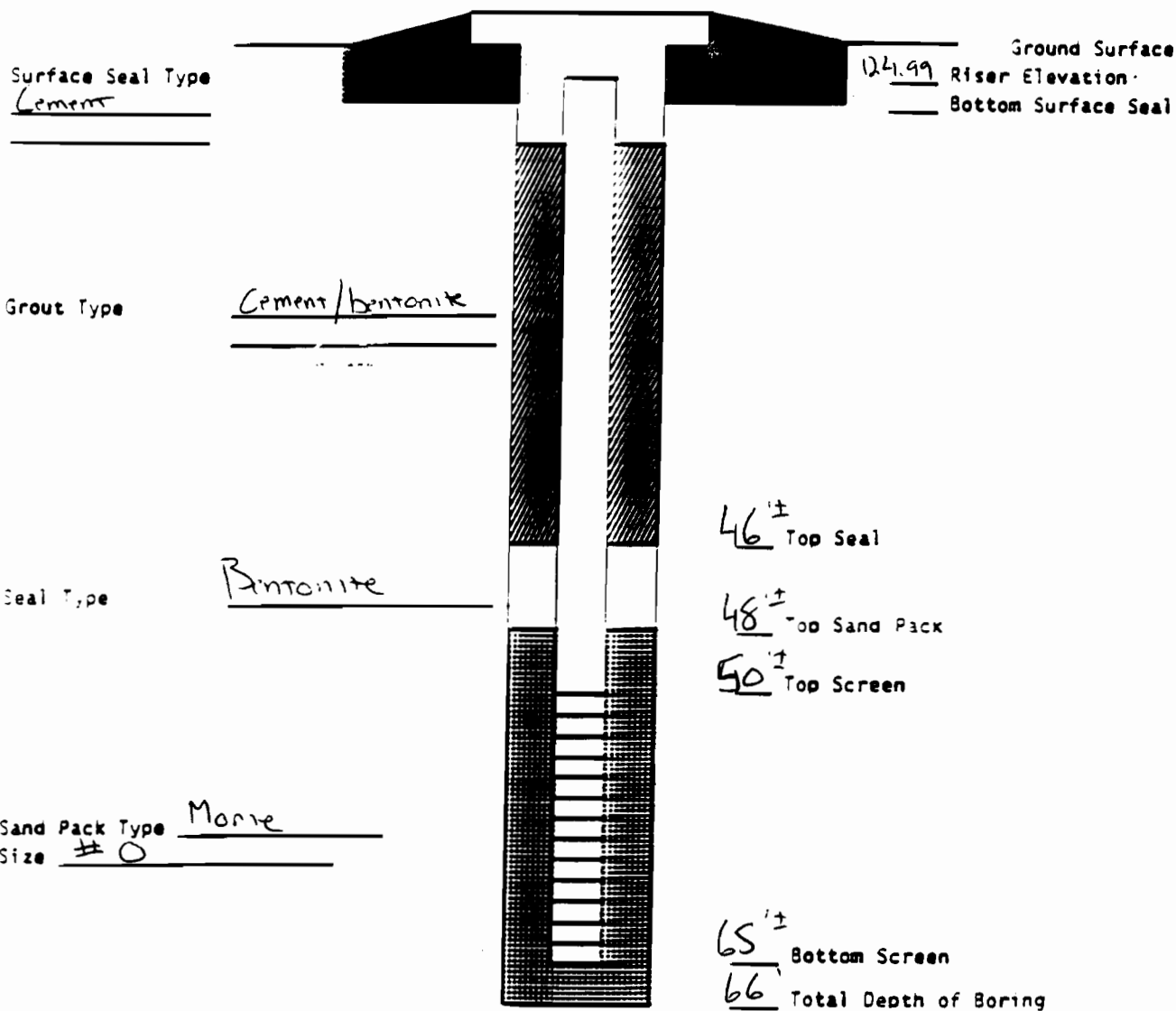
SITE NGC Plant 12 JOB NO. 1614.00 WELL NO. P12-MW2

TOTAL DEPTH 65'± SURFACE ELEV. 124.99 TOP RISER ELEV. NA

WATER LEVELS (DEPTH, DATE, TIME) \_\_\_\_\_ DATE INSTALLED 8/20/98

RISER DIA 2" MATERIAL Sch40 PVC LENGTH 50'±  
 SCREEN DIA 2" MATERIAL Sch40 PVC LENGTH 15' SLOT SIZE 010

**SCHEMATIC**

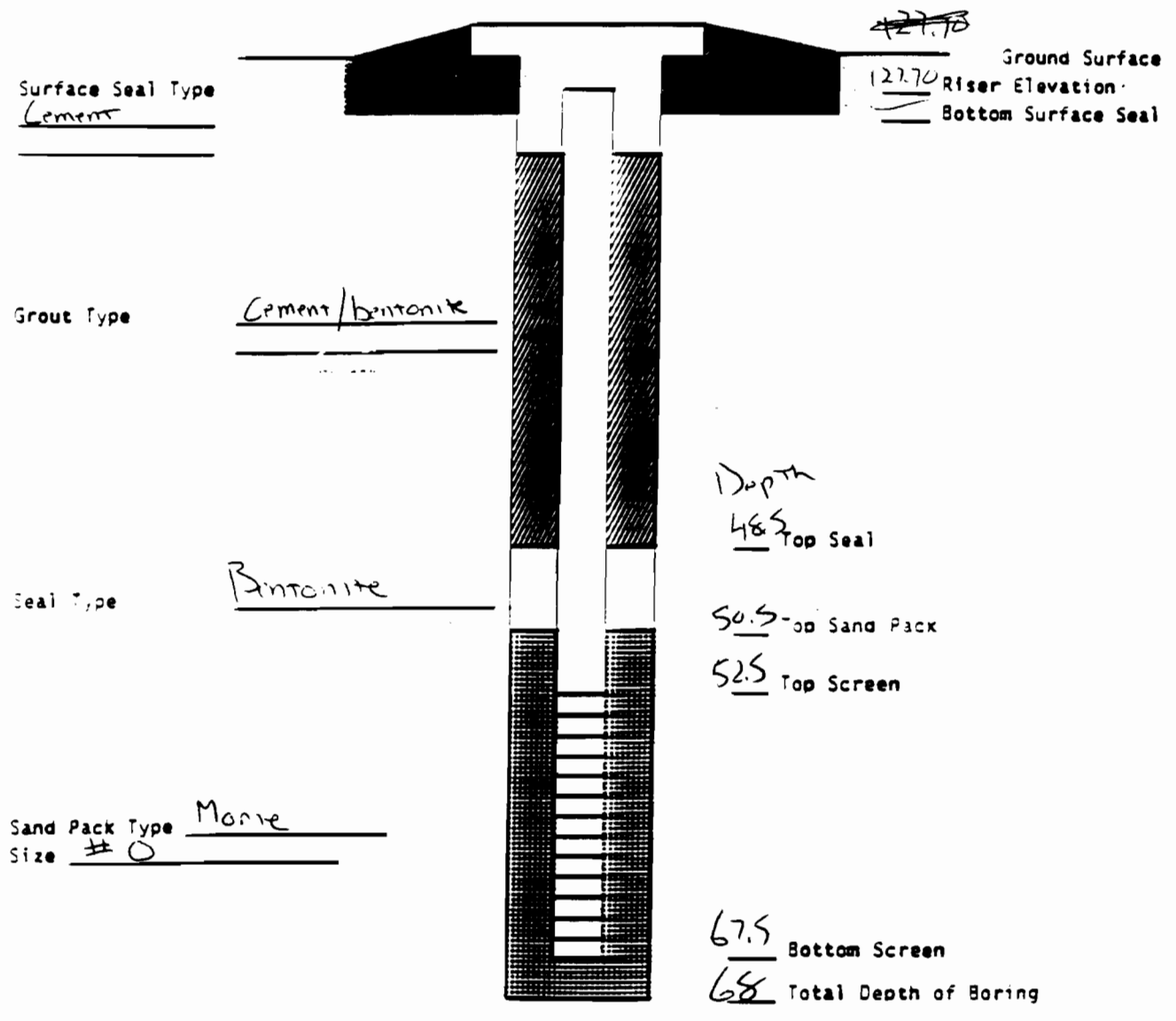




WELL CONSTRUCTION LOG

SITE NGC Plant 12 JOB NO. 1614.00 WELL NO. P12-MW3  
 TOTAL DEPTH 67.5 SURFACE ELEV. ~~127.70~~ TOP RISER ELEV. 127.70  
 WATER LEVELS (DEPTH, DATE, TIME) \_\_\_\_\_ DATE INSTALLED 4/7/99  
 RISER DIA 2 MATERIAL Sch40 PVC LENGTH 52.5  
 SCREEN DIA 2 MATERIAL Sch40 PVC LENGTH 15 SLOT SIZE 010

**SCHEMATIC**



<b>DRILLING CONTRACTOR</b> Driller <u>Emington Environmental</u> Inspector <u>Keith Klaus</u> Rig Type <u>CME-75</u> Drilling Method <u>4 1/4 HSA</u> Drive Hammer Weight <u>NA</u>	<b>DRILLING LOG</b> PROJECT NAME <u>NGC Plant 12</u> PROJECT # <u>1614-00</u> Location/Address <u>Rospage NY</u>	BORING NUMBER <u>P12-MW3</u> Sheet <u>1</u> of <u>1</u> Boring Location _____
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<b>GROUNDWATER OBSERVATIONS</b> Water Level _____ Time _____ Date _____ Casing Depth <u>67</u> <u>50</u>	Weather _____ Date/Time Start <u>1/7/99</u> Date/Time Finish <u>1/7/99</u>	Plot Plan _____
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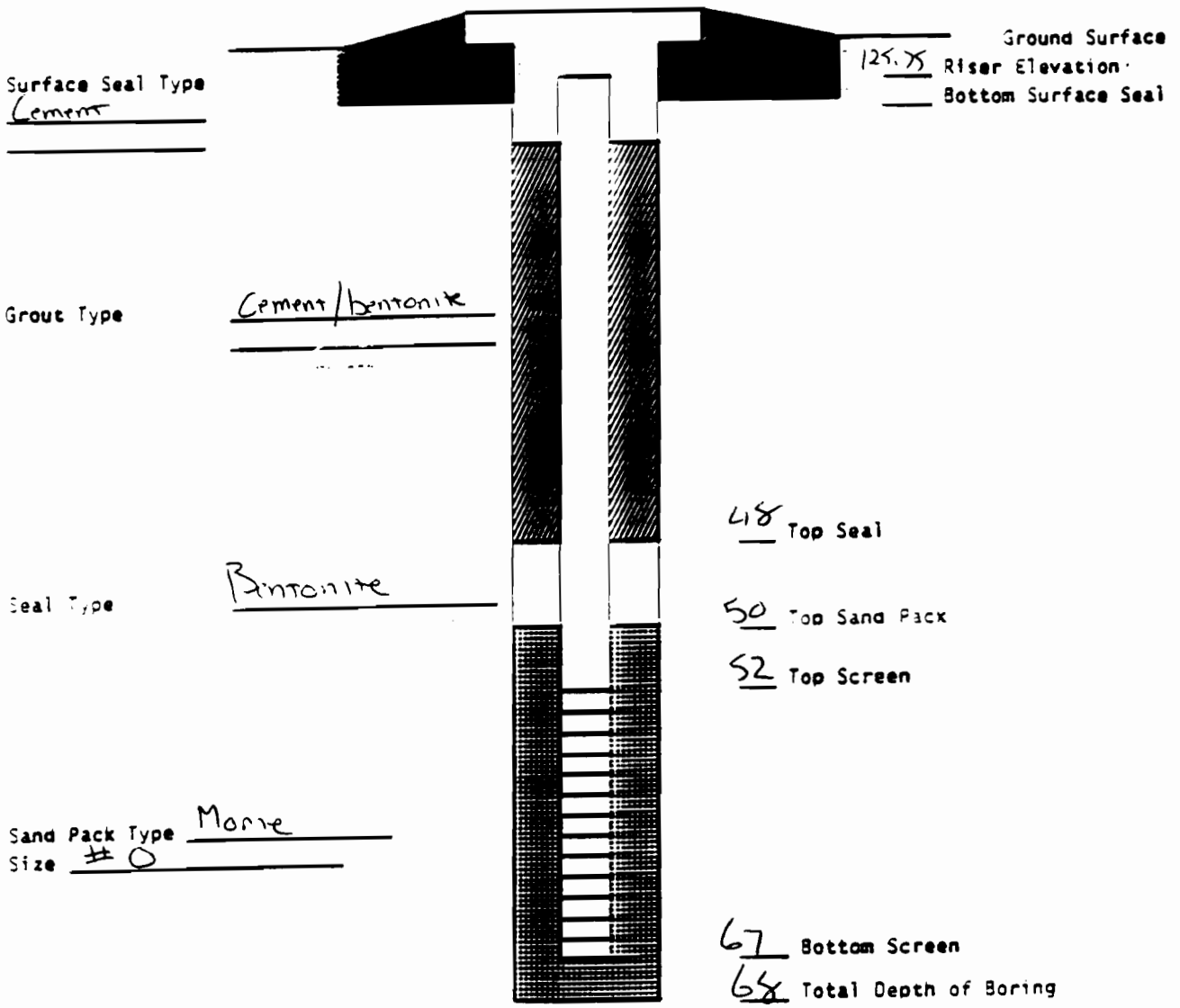
Sample Depth	Sample Type	SPT	PID/FID Reading	FIELD IDENTIFICATION OF MATERIAL	WELL SCHEMATIC	COMMENTS
0-5				Tan-brown poorly sorted sand and gravel		
5-10			Tan poorly sorted sand and gravel			
10-15			S4A			
15-20			S4A			
20-25			S4A			
25-30			S4A			
30-35			S4A			
35-40			S4A			
40-45			S4A			
45-50			S4A			
50-55			<del>S4A</del> Orange-brown silty fine to medium sand trace			
55-60			S4A gravel + gray silt			
60-68			S4A			

S = Split Spec. W = Wash  
 Soil Stratigraphy Summary \_\_\_\_\_

WELL CONSTRUCTION LOG

SITE NGC Plant 12 JOB NO. 161400 WELL NO. P12-MW4  
 TOTAL DEPTH 66.96 SURFACE ELEV. ~~125.75~~ TOP RISER ELEV. 125.75  
 WATER LEVELS (DEPTH, DATE, TIME) \_\_\_\_\_ DATE INSTALLED 1/13/99  
 RISER DIA 2" MATERIAL SH40 PVC LENGTH 52  
 SCREEN DIA 2" MATERIAL SH40 PVC LENGTH 15 SLOT SIZE 010

**SCHEMATIC**







# Appendix C



**APPENDIX C**

**LABORATORY RESULTS**

**TAMM**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**VOLATILE ORGANIC COMPOUNDS**

SAMPLE IDENTIFICATION	Leaching Chamber North of Shop		Area Outside of Machine Shop												NYSDEC TAGM.4046 APPENDIX A CRITERIA (ug/kg)	
	B-16AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA	B-19AA		B-19AA
	10' - 12' 8/14/98	4' - 6' 8/07/98	6' - 8' 8/07/98	8' - 10' 8/07/98	0' - 2' 8/07/98	0' - 2' 8/07/98	2' - 4' 8/07/98	2' - 4' 8/07/98	0' - 2' 8/07/98	0' - 2' 8/07/98	2' - 4' 8/07/98	2' - 4' 8/07/98	0' - 2' 8/07/98	2' - 4' 8/07/98		
LABORATORY	Envirotech															
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	84	98	97	97	95	97	97	97	97	97	97	93	97	97		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Chloromethane	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Bromomethane	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Chloroethane	4.8 B	1.8 JB	1.5 JB	1.8 JB	2.2 JB	1.1 JB	1.1 JB	2.1 JB	2.1 JB	1.1 JB	1.1 JB	2.1 JB	1.1 JB	1.1 JB		
Methylene Chloride	160	16	11	17	29	17	17	47	47	17	17	47	17	17		
Acetone	2.2 J	U	U	U	U	U	U	U	U	U	U	U	U	U		
Carbon Disulfide	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
1,1-Dichloroethene	5.6 J	U	U	U	2.5	1.6 J	1.6 J	6.4	6.4	1.6 J	1.6 J	1.2 J	1.2 J	1.2 J		
1,1-Dichloroethane	U	U	U	U	9.6	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J		
trans-1,2-Dichloroethene	0.9 J	U	U	U	1.1 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J	0.6 J		
cis-1,2-Dichloroethene	2.4 J	U	U	U	3.7	1.7 J	1.7 J	1.7 J	1.7 J	1.7 J	1.7 J	1.7 J	1.7 J	1.7 J		
Chloroform	39	U	U	U	U	U	U	U	U	U	U	U	U	U		
1,2-Dichloroethane	30	3.8 J	6.7	4.1 J	190	120	120	49	49	120	120	49	120	120		
2-Butanone	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Trichloroethene	32	0.7 J	0.8 J	0.5 J	86	42	42	0.7 J	0.7 J	42	42	0.7 J	42	42		
Dibromochloromethane	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
1,1,2-Trichloroethane	1.7	U	U	U	2.5	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J	0.8 J		
Benzene	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Bromoform	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Tetrachloroethene	57	U	U	U	3.0	0.9 J	0.9 J	0.9 J	0.9 J	0.9 J	0.9 J	0.9 J	0.9 J	0.9 J		
1,1,2,2-Tetrachloroethane	2.8 J	0.5 J	U	0.7 J	1.2	U	U	1.0 J	1.0 J	U	U	1.0 J	1.0 J	1.0 J		
Toluene	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Chlorobenzene	1.0 J	1.8 J	U	4.0 J	U	U	U	2.1 J	2.1 J	U	U	2.1 J	2.1 J	2.1 J		
Ethylbenzene	3.0 J	U	U	U	U	U	U	U	U	U	U	U	U	U		
Styrene	2.9 J	U	U	U	U	U	U	U	U	U	U	U	U	U		
Xylene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
MTBE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
i-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TOTAL VOCs	345.3	24.6	20	28.1	330.8	175.1	114.6	2540	10,000							

Qualifiers:  
 U: Compound analyzed for but not detected.  
 B: Compound found in the method blank as well as the sample.  
 J: Compound found at a concentration below the detection limit.  
 NA: Compound not analyzed for.

Notes:  
 ....: Not established.

*Copy*

TABLE (Continued)  
 NORTHROP GRUMLAND CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Area Outside of Machine Shop		Sanitary Leaching Pools (North and South)								NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-19AW/10 0'-2' 8/07/98	B-19AW/10 2'-4' 8/07/98	B-22AA 8'-10' 8/18/98	B-22BA 8'-10' 8/18/98	B-22CA 8'-10' 8/18/98	B-22FA 8'-10' 8/19/98	B-22LA 8'-10' 8/19/98	B-22LA 10'-12' 8/19/98			
LABORATORY	1	1	1	1	1	1	1	1	1	1	
DILUTION FACTOR	91	94	97	90	94	93	95	96			
PERCENT SOLIDS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
UNITS											
Chloromethane	U	U	U	U	U	U	U	U	U	U	U
Bromomethane	U	U	U	U	U	U	U	U	U	U	U
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	U
Chloroethane	U	U	U	U	U	U	U	U	U	U	U
Methylene Chloride	1.7 JB	1.4 JB	3.0 B	3.4 B	2.5 JB	3.3 B	2.4 JB	2.5 JB			
Acetone	35	29	26	82	30	40	19				
Carbon Disulfide	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U	U	U
2-Butanone	U	U	U	U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	4.6 J	130	1.1 J	2.4	0.8 J	11	10	0.9			
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U	U	U
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	U
Trichloroethene	1.5	9.5	3.0	1.8	0.6 J	U	U	U	U	U	U
Dibromochloromethane	U	U	U	U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U	U	U
Benzene	U	0.8	U	U	U	U	U	U	U	U	U
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	U
Bromoform	U	U	U	U	U	U	U	U	U	U	U
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	U	U	U
2-Hexanone	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	U	U	U	U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U	U	U
Toluene	U	U	0.7 J	1.0	0.6 J	0.7 J	0.6 J	0.6 J			
Chlorobenzene	U	U	U	U	U	U	U	U	U	U	U
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U
Styrene	U	U	U	U	U	U	U	U	U	U	U
Xylene (total)	U	U	U	U	U	U	U	U	U	U	U
MTBE	U	U	U	U	U	U	U	U	U	U	U
Naphthalene	U	U	U	U	U	U	U	U	U	U	U
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	U
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	U
Isopropylbenzene	U	U	U	U	U	U	U	U	U	U	U
n-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U
n-Propylbenzene	U	U	U	U	U	U	U	U	U	U	U
p-Isopropyltoluene	U	U	U	U	U	U	U	U	U	U	U
sec-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U
TOTAL VOCs	42.8	171.5	33.8	93.9	35	57.3	31.4	3.4			

Qualifiers:  
 U: Compound analyzed for but not detected.  
 B: Compound found in the method blank as well as the sample.  
 J: Compound found at a concentration below the detection limit.  
 NA: Compound not analyzed for.

Notes:  
 ----: Not established.

TABLE C.1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Drainage Chamber North of Lobby/Loading Area		Former Drainage Basin						NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-30AA 6' - 8' 8/14/98	B-30AA 8' - 10' 8/14/98	B-37AA 0' - 2' 8/07/98	B-37AA 2' - 4' 8/07/98	B-37AN8 0' - 2' 8/07/98	B-37AN8 2' - 4' 8/07/98	B-37AS8 0' - 2' 8/07/98	B-37AS8 2' - 4' 8/07/98	
LABORATORY	Envirotech								
DILUTION FACTOR	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	94	94	89	96	94	93	97	96	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Chloromethane	U	U	U	U	U	U	U	U	---
Bromomethane	U	U	U	U	U	U	U	U	---
Vinyl Chloride	U	U	U	U	U	U	U	U	200
Chloroethane	U	U	U	U	U	U	U	U	1,900
Methylene Chloride	U	U	1.7 JB	1.8 JB	1.6 JB	1.7 JB	1.3 JB	1.2 JB	100
Acetone	U	U	28	22	41	29	24	20	200
Carbon Disulfide	U	U	U	U	U	U	U	U	2,700
1,1-Dichloroethane	U	U	U	U	U	U	U	U	400
1,1-Dichloroethene	U	U	U	U	U	U	U	U	200
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	300
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	---
Chloroform	U	U	U	U	U	U	U	U	300
1,2-Dichloroethane	U	U	U	U	U	U	U	U	100
2-Butanone	U	U	U	U	U	U	U	U	300
1,1,1-Trichloroethane	U	U	1.0 J	1.1 J	0.8 J	2.0 J	1.3 J	3.0 J	800
Carbon Tetrachloride	U	U	U	U	U	U	U	U	600
Bromodichloromethane	U	U	U	U	U	U	U	U	---
1,2-Dichloropropane	U	U	U	U	U	U	U	U	---
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	---
Trichloroethene	U	U	U	U	U	U	U	U	700
Dibromochloromethane	U	U	2.2	2.0	1.1	U	1.8	2.9	---
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	---
Benzene	U	U	U	U	U	U	U	U	60
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	---
Bromoform	U	U	U	U	U	U	U	U	1,000
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	---
2-Hexanone	U	U	2.4	1.7	1.1	1.4	1.4	2.8	1,400
Tetrachloroethene	U	U	U	U	U	U	U	U	600
1,1,2,2-Tetrachloroethane	U	U	0.8 J	1.0 J	0.6 J	0.5 J	0.6 J	0.8 J	1,500
Toluene	12 J	0.8	U	U	U	U	U	U	1,700
Chlorobenzene	U	U	U	U	U	U	U	U	5,500
Ethylbenzene	U	U	U	U	U	U	U	U	---
Styrene	U	U	U	U	U	U	U	U	1,200
Xylene (total)	0.8 J	U	U	0.7 J	U	U	0.6 J	U	---
MTBE	U	U	U	U	U	U	U	U	---
Naphthalene	U	U	U	U	U	U	U	U	13,000
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	---
Isopropylbenzene	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	---
TOTAL VOCs	2	0.8	36.1	30.3	46.2	35.4	31	30.7	10,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 B: Compound found in the method blank as well as the sample.  
 J: Compound found at a concentration below the detection limit.  
 NA: Compound not analyzed for.

Notes:  
 ---: Not established.

TABLE C (Continued)  
 NORTHROP GRUPO, INCORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Former Drainage Basin				Former Trenches to Resin Waste Pit (Sump #1)				NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AEB 0'-2' 8/07/98	B-37AE8 2'-4' 8/07/98	B-37AW8 0'-2' 8/07/98	B-37AW8 2'-4' 8/07/98	B-43AA 2'-4' 8/05/98	B-43AN7 0'-2' 8/05/98	B-43AN7 2'-4' 8/05/98	B-43AS7 0'-2' 8/05/98	
LABORATORY	Envirotech								
DILUTION FACTOR	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	96	97	95	92	97	93	92	98	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Chloromethane	U	U	U	U	U	U	U	U	---
Bromomethane	U	U	U	U	U	U	U	U	---
Vinyl Chloride	U	U	U	U	U	U	U	U	200
Chloroethane	1.7 JB	1.3 JB	1.6 JB	1.6 JB	2.1 JB	1.6 JB	3.2 JB	2.7 JB	1,900
Acetone	54	17	19	17	18	22	63	69	200
Carbon Disulfide	U	U	U	U	U	U	1.2 J	1.7 J	2,700
1,1-Dichloroethene	U	U	U	U	U	U	U	U	400
1,1-Dichloroethane	U	U	U	U	U	U	U	U	200
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	200
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	300
Chloroform	U	U	U	U	U	U	U	U	---
1,2-Dichloroethane	U	U	U	U	U	U	U	U	300
2-Butanone	11	U	U	U	U	U	18	19	100
1,1,1-Trichloroethane	3.0 J	0.7 J	0.9 J	0.9 J	0.9 J	0.9 J	1.8 J	3.6 J	300
Carbon Tetrachloride	U	U	U	U	U	U	U	U	800
Bromodichloromethane	U	U	U	U	U	U	U	U	600
1,2-Dichloropropane	U	U	U	U	U	U	U	U	---
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	---
Trichloroethene	14	0.6 J	0.9 J	0.9 J	U	0.7 J	1.9 J	9.7	700
Dibromochloromethane	U	U	U	U	U	U	U	U	---
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	---
Benzene	U	U	U	U	U	U	0.8 J	U	60
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	---
Bromoform	U	U	U	U	U	U	U	U	---
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	1,000
2-Hexanone	U	U	U	U	U	U	U	U	---
Tetrachloroethene	8.5	U	0.7 J	0.8 J	U	U	1.4 J	2.6	1,400
1,1,2,2-Tetrachloroethane	2.9 J	0.5 J	0.6 J	U	0.6 J	0.7 J	2 J	3.7 J	600
Toluene	U	U	U	U	U	U	U	U	1,500
Chlorobenzene	U	U	U	U	U	U	U	U	5,500
Ethylbenzene	U	U	U	U	U	U	U	U	---
Styrene	U	U	U	U	U	U	0.6 J	U	---
Xylene (total)	U	U	U	U	U	U	0.9 J	U	---
MBTE	U	U	U	U	1.3 J	U	2.5 J	2.6 J	1,200
Naphthalene	NA	NA	NA	NA	NA	NA	U	U	---
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	U	U	13,000
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	U	U	---
Isopropylbenzene	NA	NA	NA	NA	NA	NA	U	U	---
n-Butylbenzene	NA	NA	NA	NA	NA	NA	U	U	---
n-Propylbenzene	NA	NA	NA	NA	NA	NA	U	U	---
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	U	U	---
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	U	U	---
TOTAL VOCs	95.1	20.1	23.7	21.2	22.9	25.9	97.3	114.6	10,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 B: Compound found in the method blank as well as the sample.  
 J: Compound found at a concentration below the detection limit.  
 NA: Compound not analyzed for.

Notes:  
 ---: Not established.

TABLE OF RESULTS (continued)  
 NORTHROP GRUMLIN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Former Trenches to Resin Waste Pit (Sump #1)				Resin Waste Pit (Sump #1)				NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-43AS7 2' - 4' 8/05/98	B-43AE5 0 - 2' 8/05/98	B-43AE5 2' - 4' 8/05/98	B-43AW7 0 - 2' 8/05/98	B-43AW7 2' - 4' 8/05/98	B-43AW7 12' - 14' 8/13/98	RWP-1 14' - 16' 8/13/98	RWP-1 16' - 18' 8/13/98	
LABORATORY	Envirotech								
DILUTION FACTOR	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	99	94	97	96	97	93	96	97	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Chloromethane	U	U	U	U	U	U	U	U	U
Bromomethane	U	U	U	U	U	U	U	U	U
Vinyl Chloride	U	U	U	U	U	U	U	U	U
Chloroethane	U	U	U	U	U	U	U	U	U
Methylene Chloride	2.2 JB	2.3 JB	2.4 JB	2.1 JB	1.9 JB	U	2.4 JB	1.2 JB	U
Acetone	22	14	25	23	17	U	27	22	U
Carbon Disulfide	U	U	1.1 J	U	U	U	U	U	U
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U
trans-1,2-Dichloroethane	U	U	U	U	U	U	U	U	U
cis-1,2-Dichloroethane	U	U	U	U	U	U	U	U	U
Chloroform	U	U	U	U	U	U	U	U	U
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U
2-Butanone	U	U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	U	U	1.2 J	U	U	U	160	52	U
Carbon Tetrachloride	1.0 J	0.9	U	U	0.6 J	1,100	U	U	U
Bromodichloromethane	U	U	U	U	U	U	U	U	U
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U
Trichloroethene	U	U	1 J	U	U	U	1.3	U	U
Dibromochloromethane	U	U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U
Benzene	U	U	U	U	U	U	U	U	U
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U
Bromoform	U	U	U	U	U	U	U	U	U
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	U
2-Hexanone	U	U	U	U	U	U	U	U	U
Tetrachloroethene	U	U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U
Toluene	1.6 J	0.8 J	1 J	0.7	U	U	5.6	1.2	U
Chlorobenzene	U	U	U	U	U	U	U	U	U
Ethylbenzene	U	U	U	U	U	U	0.6 J	U	U
Styrene	U	U	U	U	U	U	U	U	U
Xylene (total)	0.7 J	0.7 J	1.4 J	U	U	U	2.1 J	1.1	U
MBTE	U	U	U	U	U	U	0.6 J	U	U
Naphthalene	U	U	U	U	U	U	NA	NA	NA
1,2,4-Trimethylbenzene	U	U	U	U	U	U	NA	NA	NA
1,3,5-Trimethylbenzene	U	U	U	U	U	U	NA	NA	NA
Isopropylbenzene	U	U	U	U	U	U	NA	NA	NA
n-Butylbenzene	U	U	U	U	U	U	NA	NA	NA
n-Propylbenzene	U	U	U	U	U	U	NA	NA	NA
p-Isopropyltoluene	U	U	U	U	U	U	NA	NA	NA
sec-Butylbenzene	U	U	U	U	U	U	NA	NA	NA
TOTAL VOCs	27.5	18.7	33.1	25.8	19.5	1,100	199.6	77.5	10,000

Qualifiers:  
 U: Compound analyzed for but not detected  
 B: Compound found in the method blank as well as the sample  
 J: Compound found at a concentration below the detection limit  
 NA: Compound not analyzed for.

Notes:  
 ---: Not established  
 [ ]: Value exceeds NYSDEC TAGM 4046 Appendix A criteria

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	RWP-1		RWP-2		RWP-2		RWP-3		RWP-3			
	18' - 20'	14' - 16'	16' - 18'	18' - 20'	20' - 22'	8' - 10'	10' - 12'	12' - 14'	8/13/98	8/13/98		
DATE OF COLLECTION	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	96	95	96	96	96	93	94	94	94	94	94	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Chloromethane	U	U	U	U	U	U	U	U	U	U	U	
Bromomethane	U	U	U	U	U	U	U	U	U	U	U	
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	U	
Chloroethane	U	U	U	U	U	U	U	U	U	U	U	
Methylene Chloride	2.9 JB	2.6 JB	1.4 JB	1.9 JB	2.2 JB	1.8 JB	2.8 JB	4.8 B	72	1,900		
Acetone	36	30	36	31	20	59	70	200	2,700			
Carbon Disulfide	U	U	U	U	U	U	U	U	U			
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U			
1,1-Dichloroethane	U	U	2.4 J	2.0 J	U	U	U	U	U			
trans-1,2-Dichloroethane	U	U	U	U	U	U	U	U	U			
cis-1,2-Dichloroethane	U	U	U	U	U	U	U	U	U			
Chloroform	U	U	U	U	U	U	U	U	U			
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U			
2-Butanone	U	U	U	U	U	U	U	U	U			
1,1,1-Trichloroethane	72	1.6 J	78	190	43	62	120	130	700			
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U			
Bromodichloromethane	U	U	U	U	U	U	U	U	U			
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U			
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U			
Trichloroethene	0.5 J	U	U	0.6 J	U	16	42	21	60			
Dibromochloromethane	U	U	U	U	U	U	U	U	U			
1,1,2-Trichloroethane	0.7 J	U	U	1.3	1.2 J	U	1.1	U	U			
Benzene	U	U	U	U	U	U	U	U	U			
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U			
Bromolorm	U	U	U	U	U	U	U	U	U			
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	U			
2-Hexanone	U	U	U	U	U	U	U	U	U			
Tetrachloroethene	4.9	U	3.4	13	4.2	3.5	13	16	1,400			
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U			
Toluene	0.9 J	0.6 J	0.6 J	1.1 J	1.4 J	0.6 J	1.2 J	0.7 J	600			
Chlorobenzene	U	U	U	U	U	U	U	U	U			
Ethylbenzene	3.2 J	U	U	8.9	1.1 J	U	U	U	1,500			
Styrene	0.7 J	U	0.7 J	0.9 J	0.9 J	1.6 J	3.8 J	1.3 J	5,500			
Xylenes (total)	U	U	U	U	U	0.7 J	1.1 J	0.9 J	1,200			
MBTE	NA	NA	NA	NA	NA	NA	NA	NA	13,000			
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA			
TOTAL VOCs	121.8	34.8	123.7	250.7	98.1	145.2	255.9	246.7	10,000			

Qualifiers:  
 U: Compound analyzed for but not detected  
 B: Compound found in the method blank as well as the sample.  
 J: Compound found at a concentration below the detection limit.  
 NA: Compound not analyzed for.  
 Notes:  
 ----: Not established



TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	RWP-3	RWP-4	RWP-4	RWP-4	RWP-4	RWP-4	RWP-4	RWP-5	RWP-5	RWP-5	
	14' - 16' 8/13/98	15' - 17' 8/13/98	17' - 19' 8/13/98	21' - 23' 8/13/98	23' - 25' 8/13/98	23' - 25' 8/13/98	6' - 8' 8/14/98	8' - 10' 8/14/98	10' - 12' 8/14/98		
LABORATORY	Envirotech										
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	96	91	96	97	95	95	82	95	95	95	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Chloromethane	U	U	U	U	U	U	U	U	U	U	---
Bromomethane	U	U	U	U	U	U	U	U	U	U	---
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	---
Chloroethane	U	U	U	U	U	U	U	U	U	U	---
Methylene Chloride	3.2 B	5.7 B	1.8 JB	1.8 JB	2.6 JB	2.6 JB	4.5 B	7.6 B	5.4 B	5.4 B	1,900
Acetone	38	80	21	U	22	22	73	41	26	0.7	100
Carbon Disulfide	U	U	U	U	U	U	U	U	U	U	---
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U	U	---
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U	U	---
trans-1,2-Dichloroethane	U	U	U	U	U	U	U	U	U	U	---
cis-1,2-Dichloroethane	U	U	U	U	U	U	U	U	U	U	---
Chloroform	U	0.7 J	U	U	U	U	U	U	U	U	---
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U	U	---
2-Butanone	U	U	U	U	U	U	U	U	U	U	---
1,1,1-Trichloroethane	77	58	5.4	6.5	6.9	6.9	16	74	56	56	300
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U	U	---
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	---
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U	U	---
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	---
Trichloroethene	11	U	U	U	U	U	1.4	U	1.4	U	700
Dibromochloromethane	U	U	U	U	U	U	U	U	U	U	---
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U	U	---
Benzene	0.9 J	U	U	U	U	U	2.6	1.2	0.9 J	0.9 J	60
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	---
Bromoform	U	U	U	U	U	U	U	U	U	U	---
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	U	U	---
2-Hexanone	U	U	U	U	U	U	U	U	U	U	---
Tetrachloroethene	28	U	0.6 J	0.8 J	2.0	2.0	5.6	5.6	7.5	7.5	1,400
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U	U	---
Toluene	1.1 J	0.9 J	0.7 J	U	0.9 J	0.9 J	2.4 J	1.3 J	4.1 J	4.1 J	600
Chlorobenzene	U	U	U	U	U	U	U	U	U	U	---
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	---
Styrene	4.2 J	U	3.7 J	3.8 J	0.5 J	0.5 J	1.0 J	1.3 J	3.0 J	3.0 J	1,700
Xylene (total)	1.0 J	1.5 J	0.6 J	U	0.9 J	0.9 J	1.9 J	1.9 J	1.9 J	1.9 J	5,500
MBTE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
TOTAL VOCs	164.4	146.8	33.8	12.9	42.8	108.4	132	106.9	10,000	10,000	

Qualifiers:  
 U: Compound analyzed for but not detected  
 B: Compound found in the method blank as well as the sample  
 J: Compound found at a concentration below the detection limit.  
 NA: Compound not analyzed for.  
 Notes:  
 ---: Not established.

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)							FB-2	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	RWP-5	RWP-6	RWP-6	RWP-6	RWP-6	RWP-6	RWP-6		
SAMPLE DEPTH	12' - 14'	6' - 8'	8' - 10'	12' - 14'	12' - 14'	16' - 18'	16' - 18'	FB-2	
DATE OF COLLECTION	8/14/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/19/98	
LABORATORY	Envirotech							8/19/98	
DILUTION FACTOR	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	96	90	96	88	97	97	97	1	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/L)	
Chloromethane	U	U	U	U	U	U	U	U	---
Bromomethane	U	U	U	U	U	U	U	U	---
Vinyl Chloride	U	U	U	U	U	U	U	U	---
Chloroethane	U	U	U	U	U	U	U	U	---
Methylene Chloride	4.6 B	5.2 B	U	1.8 JB	2.3 JB	U	U	1.4 JB	1,900
Acetone	36	62	U	16	24	U	U	U	200
Carbon Disulfide	U	2.3 J	U	U	U	U	U	U	2,700
1,1-Dichloroethane	U	3.8 J	U	U	U	U	U	U	400
1,1-Dichloroethane	U	U	U	U	U	U	U	U	200
trans-1,2-Dichloroethane	U	U	U	U	U	U	U	U	300
cis-1,2-Dichloroethane	U	U	U	U	U	U	U	U	300
Chloroform	U	U	U	U	U	U	U	U	100
1,2-Dichloroethane	U	U	U	U	U	U	U	U	100
2-Butanone	U	1.70	U	4.0 J	26	U	U	U	300
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	800
Carbon Tetrachloride	U	U	U	U	U	U	U	U	600
Bromodichloromethane	U	U	U	U	U	U	U	U	---
1,2-Dichloropropane	U	U	U	U	U	U	U	U	---
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	---
Trichloroethene	U	U	U	U	U	U	U	U	---
Dibromochloromethane	U	U	U	U	U	U	U	U	---
1,1,2-Trichloroethane	U	1.0 J	U	U	U	U	U	U	---
Benzene	U	U	U	U	U	U	U	U	60
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	---
Bromodiform	U	U	U	U	U	U	U	U	---
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	1,000
2-Hexanone	U	U	U	U	U	U	U	U	---
Tetrachloroethene	U	4.2	U	U	6.7	U	U	U	1,400
1,1,2,2-Tetrachloroethane	3.4	U	U	U	U	U	U	U	600
Toluene	2.4 J	U	U	U	0.6 J	U	U	U	1,500
Chlorobenzene	0.5 J	U	U	U	U	U	U	U	1,700
Ethylbenzene	3.4 J	0.9 J	U	U	1.9 J	U	U	U	5,500
Styrene	1.7 J	2.9 J	U	U	1.0 J	U	U	U	---
Xylene (total)	U	680	U	U	U	U	U	U	1,200
MBTE	U	U	U	U	U	U	U	U	---
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	---
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	13,000
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	---
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	---
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	---
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	---
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	---
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	---
TOTAL VOCs	75	252.3	4,480	218	62.5	0	1.7	1.4	10,000

Qualifiers:  
 U : Compound analyzed for but not detected  
 B : Compound found in the method blank as well as the sample.  
 J : Compound found at a concentration below the detection limit.  
 NA : Compound not analyzed for.

Notes:  
 --- : Not established.

**TAB -2**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS**

SAMPLE LOCATION	Trench in EMT Lab No. 1		Chemical Storage Area/Concrete Platform						STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES  (ug/kg)
	B-7AA 0 - 2' 8/5/98	B-7AA 2' - 4' 8/5/98	B-17BA 4' - 6' 8/6/98	B-17BA 6' - 8' 8/6/98	B-17BN7 0 - 2' 8/6/98	B-17BN7 2' - 4' 8/6/98	B-17BS7 0 - 2' 8/6/98	B-17BS7 2' - 4' 8/6/98	
LABORATORY	1	1	1	1	1	1	1	1	
DILUTION FACTOR	98	99	96	95	93	97	96	98	
PERCENT SOLIDS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
UNITS									
<b>VOLATILE COMPOUNDS</b>									
Benzene	U	U	U	0.7 J	U	U	U	U	24,000
Toluene	U	1.1 J	0.8 J	0.9 J	U	U	0.7 J	U	20,000,000
Ethylbenzene	U	U	U	U	U	U	0.6 J	U	8,000,000
Isopropylbenzene	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	---
Xylene (total)	U	3.1 J	U	U	U	U	U	U	200,000,000
Naphthalene	U	U	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 --- : Not established.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Chemical Storage Area/Concrete Platform				Sanitary Leaching Pools (North and South)				STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-17BE7 0 - 2' 8/6/98	B-17BE7 2' - 4' 8/6/98	B-17BW7 0 - 2' 8/6/98	B-17BW7 2' - 4' 8/6/98	B-22AA 10' - 12' 8/18/98	B-22BA 10' - 12' 8/18/98	B-22CA 14' - 16' 8/18/98	B-22CA 16' - 18' 8/18/98	
LABORATORY	Envirotech								
DILUTION FACTOR	1	1	1	1	1	1	1	1	
PERCENT SOILS	94	94	95	96	98	94	96	96	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
<u>VOLATILE COMPOUNDS</u>									
Benzene	U	U	U	U	U	U	U	U	24,000
Toluene	0.6 J	0.7 J	U	0.7 J	U	0.6 J	0.6 J	0.5 J	20,000,000
Ethylbenzene	U	U	U	U	U	U	U	U	8,000,000
Isopropylbenzene	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	---
Xylene (total)	U	U	U	U	U	U	U	U	200,000,000
Naphthalene	U	U	U	U	U	U	0.6 J	0.5 J	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 --- : Not established.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Sanitary Leaching Pool (South) Beneath Megapound		Former Leaching Pool Beneath Megapound		Southern Parking Lot				STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-22DA 12' - 14' 8/10/98	B-22DA 14' - 16' 8/10/98	B-32AA 10' - 12' 8/10/98	B-35AA 0 - 2' 08/11/98	B-35AA 2' - 4' 08/11/98	B-35AA 4' - 6' 08/11/98	B-35AA 6' - 8' 08/11/98	B-35AN7 0 - 2' 08/11/98	
LABORATORY	1	1	1	1	1	1	1	1	
DILUTION FACTOR	98	97	98	90	98	98	98	86	
PERCENT SOILS									
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
VOLATILE COMPOUNDS									
Benzene	U	U	U	U	U	U	U	U	24,000
Toluene	0.7 J	0.6 J	0.5 J	U	U	U	U	U	20,000,000
Ethylbenzene	U	0.5 J	U	U	U	U	U	U	8,000,000
Isopropylbenzene	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	---
Xylene (total)	0.6 J	U	U	U	U	U	U	U	200,000,000
Naphthalene	U	U	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.  
 Notes:  
 ---: Not established.

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Southern Parking Lot				Former Drainage Trench East of Plant 12A		STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-35AN7 2' - 4' 08/11/98	B-35AS7 2' - 4' 08/11/98	B-35AE7 0 - 2' 08/11/98	B-35AE7 2' - 4' 08/11/98	B-38BA 1' - 3' 8/12/98	B-38BN7 1' - 3' 8/12/98	
LABORATORY	Envirotech						
DILUTION FACTOR	1	1	1	1	1	1	
PERCENT SOILS	98	98	91	92	93	96	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
VOLATILE COMPOUNDS							
Benzene	U	U	U	U	U	U	24,000
Toluene	U	U	U	U	U	U	20,000,000
Ethylbenzene	U	U	U	U	U	U	8,000,000
Isopropylbenzene	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	---
Xylene (total)	U	U	U	U	U	U	200,000,000
Naphthalene	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.  
 Notes:  
 ---: Not established.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Former Drainage Trench East of Plant 12A										Former Trenches to Resin Pit		STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)	
	B-38BS7 1' - 3' 8/12/98	B-38BE7 1' - 3' 8/12/98	B-38BE7 3' - 5' 8/12/98	B-38BE7 1' - 3' 8/12/98	B-38BW7 1' - 3' 8/12/98	B-38BW7 3' - 5' 8/12/98	B-43AA 2' - 4' 8/5/98	B-43AN7 0 - 2' 8/5/98	DILUTION FACTOR	PERCENT SOILS	UNITS	FORMER TRENCHES TO RESIN PIT B-43AA 2' - 4' 8/5/98		FORMER TRENCHES TO RESIN PIT B-43AN7 0 - 2' 8/5/98
VOLATILE COMPOUNDS	1	1	1	1	1	1	1	1	1	1	1	1	1	
Benzene	90	96	97	97	94	97	97	97	97	97	97	93	93	(ug/kg)
Toluene	U	U	U	U	U	U	U	U	U	U	U	U	U	24,000
Ethylbenzene	0.6 J	U	U	U	U	U	U	U	U	U	U	U	U	20,000,000
Isopropylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	8,000,000
n-Propylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	1.0 J	U	U	U	U	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	U	U	U	U	U	---
Xylene (total)	0.7 J	0.7 J	0.6 J	U	U	U	U	U	U	U	U	U	U	200,000,000
Naphthalene	1.2 J	1.4 J	U	U	U	U	U	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.  
 Notes:  
 --- : Not established.

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS

STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Former Trenches to Resin Waste Pit (Sump #1)						Dry Well Northeast of Plant 12	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-43AN7 2' - 4' 8/5/98	B-43AS7 2' - 4' 8/5/98	B-43AE5 0 - 2' 8/5/98	B-43AE5 2' - 4' 8/5/98	B-43AW7 0 - 2' 8/5/98	B-43AW7 2' - 4' 8/5/98		
LABORATORY	Envirotech							
DILUTION FACTOR	1	1	1	1	1	1	92	
PERCENT SOLIDS	92	98	94	97	96	97	93	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
<b>VOLATILE COMPOUNDS</b>								
Benzene	0.8 J	0.6 J	U	U	U	U	24,000	
Toluene	2	3.7	1.6 J	0.8 J	0.7 J	U	20,000,000	
Ethylbenzene	U	U	U	U	U	U	8,000,000	
Isopropylbenzene	U	U	U	U	U	U	---	
n-Propylbenzene	U	U	U	U	U	U	---	
1,3,5-Trimethylbenzene	U	U	U	U	U	U	---	
tert-Butylbenzene	U	U	U	U	U	U	---	
1,2,4-Trimethylbenzene	U	U	U	U	U	U	---	
sec-Butylbenzene	U	U	U	U	U	U	---	
p-Isopropyltoluene	U	U	U	U	U	U	---	
n-Butylbenzene	U	U	U	U	U	U	---	
MTBE	U	U	U	U	U	U	---	
Xylene (total)	U	U	U	U	U	U	200,000,000	
Naphthalene	U	U	U	U	U	U	300,000	

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration  
 below the detection limit.



TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Dry Well Northeast of Plant 12		Petroleum/Chemical Storage Area						STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES  (ug/kg)
	Sample ID	Date	PCS-AA	PCS-AA	PCS-AA	PCS-AN8	PCS-AN8	PCS-AN8	
B-45AA	8' - 10'	8/14/98	0' - 2'	4' - 6'	4' - 6'	0' - 2'	2' - 4'	4' - 6'	
B-45AA	10' - 12'	8/14/98	8/12/98	8/12/98	8/12/98	8/12/98	8/12/98	8/12/98	
LABORATORY									
Envirotech									
DILUTION FACTOR	92	96	1	1	1	1	1	1	
PERCENT SOLIDS	92	96	98	97	95	95	95	97	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
<b>VOLATILE COMPOUNDS</b>									
Benzene	0.7 J	U	U	U	U	U	U	U	24,000
Toluene	12	8.0	U	U	U	0.6 J	U	U	20,000,000
Ethylbenzene	1.0 J	0.7 J	U	U	U	U	U	U	8,000,000
Isopropylbenzene	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	4.1 J	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	---
Xylene (total)	6.0	3.9 J	U	0.8 J	U	U	U	U	200,000,000
Naphthalene	U	U	46	1.8 J	U	4.9 J	18	0.9 J	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.  
 ---: Not established.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Petroleum/Chemical Storage Area										STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES  (ug/kg)	
	PCS-AS8 0 - 2' 8/12/98	PCS-AS8 2' - 4' 8/12/98	PCS-AS8 4' - 6' 8/12/98	PCS-AE8 0 - 2' 8/12/98	PCS-AE8 2' - 4' 8/12/98	PCS-AE8 4' - 6' 8/12/98	PCS-AW8 0 - 2' 8/12/98	PCS-AW8 2' - 4' 8/12/98	PCS-AW8 4' - 6' 8/12/98	PCS-AW8 6' - 8' 8/12/98		
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOILS	93	98	98	92	97	97	91	91	98	98		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
<b>VOLATILE COMPOUNDS</b>												
Benzene	0.9 J	U	U	U	U	U	U	U	U	U	U	24,000
Toluene	0.8 J	U	U	U	U	U	U	U	U	U	U	20,000,000
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U	8,000,000
Isopropylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	8.6	U	U	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	8.2	U	U	3.7 J	U	U	3.6 J	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	U	U	U	---
Xylene (total)	1.0 J	0.7 J	U	110	6.0	4.7 J	0.6 J	1.3 J	U	U	U	200,000,000
Naphthalene	3.5 J	0.8 J	U	U	U	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 --- : Not established.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Petroleum/Chemical Storage Area										STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	PCS-AW8 4' - 6' 8/12/98	PCS-GA 0 - 2' 08/11/98	PCS-GA 2' - 4' 08/11/98	PCS-GA 4' - 6' 08/11/98	PCS-GN8 0 - 2' 08/11/98	PCS-GN8 2' - 4' 08/11/98	PCS-GN8 4' - 6' 08/11/98	PCS-GS8 0 - 2' 08/11/98	Envirotech		
LABORATORY	1	1	1	1	1	1	1	1	1	1	
DILUTION FACTOR	96	96	94	98	94	91	98	94	98	94	
PERCENT SOILS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
UNITS											
<b>VOLATILE COMPOUNDS</b>											
Benzene	U	U	U	U	U	U	U	U	U	U	24,000
Toluene	U	0.9 J	U	U	U	U	U	U	U	1.5 J	20,000,000
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	8,000,000
Isopropylbenzene	U	0.6 J	U	U	U	U	U	U	U	1.8 J	---
n-Propylbenzene	U	U	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	U	U	---
Xylene (total)	U	U	U	U	U	U	U	U	U	U	200,000,000
Naphthalene	U	U	U	U	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 --- : Not established.

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS VOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Petroleum/Chemical Storage Area										STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES  (ug/kg)	
	PCS-GS8 2' - 4' 08/11/98	PCS-GS8 4' - 6' 08/11/98	PCS-GS8 0 - 2' 08/11/98	PCS-GE8 2' - 4' 08/11/98	PCS-GE8 4' - 6' 08/11/98	PCS-GW8 0 - 2' 08/11/98	PCS-GW8 2' - 4' 08/11/98	PCS-GW8 4' - 6' 08/11/98	PCS-GW8 0 - 2' 08/11/98	PCS-GW8 2' - 4' 08/11/98		PCS-GW8 4' - 6' 08/11/98
LABORATORY	1	1	1	1	1	1	1	1	1	1	1	
DILUTION FACTOR	93	91	93	90	98	93	94	93	94	98	98	
PERCENT SOLIDS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
UNITS												
VOLATILE COMPOUNDS												
Benzene	U	U	U	U	U	U	U	U	U	U	U	24,000
Toluene	1.1 J	U	U	U	U	U	U	U	U	U	U	20,000,000
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U	8,000,000
Isopropylbenzene	2.6 J	U	U	U	U	U	U	U	U	U	U	---
n-Propylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
tert-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
sec-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
p-Isopropyltoluene	U	U	U	U	U	U	U	U	U	U	U	---
n-Butylbenzene	U	U	U	U	U	U	U	U	U	U	U	---
MTBE	U	U	U	U	U	U	U	U	U	U	U	---
Xylene (total)	U	U	U	U	U	U	U	U	U	U	U	200,000,000
Naphthalene	U	U	U	U	U	U	U	U	U	U	U	300,000

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 --- : Not established.

**TAB**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**SEMIVOLATILE ORGANIC COMPOUNDS**

SAMPLE LOCATION	Leaching Chamber North of Carpentry Shop				Area Outside of Machine Shop				LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
	B-16AA 10' - 12' 8/14/98	B-16AA 14' - 16' 8/14/98	B-16AA 16' - 18' 8/14/98	B-19AN12 0 - 2' 08/07/98	B-19AN12 2' - 4' 08/07/98	B-19AN12 4' - 6' 8/07/98	B-19AN12 6' - 8' 8/07/98	B-19AN12 8' - 10' 8/07/98		
DILUTION FACTOR	1	1	1	1	5	1	1	1		
PERCENT SOLIDS	84	92	94	95	97	97	96	98		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	64 J	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	66 J	U	U	24 J	130 J	U	U	U	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	10 J	65 J	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	360	1,600
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	360	8,500
Pentachlorophenol	36 J	U	U	U	U	U	U	U	360	7,900
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	360	1,600
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	360	8,500
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	360	7,900
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	360	1,600
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	360	8,500
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	360	1,600
Hexachloroethane	U	U	U	U	U	U	U	U	360	200 or MDL
Nitrobenzene	U	U	U	U	U	U	U	U	360	4,400
Isophorone	U	U	U	U	U	U	U	U	360	3,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	18	13,000
1,2,4-Trichlorobenzene	64 J	U	U	26 J	2,400	U	22 J	U	360	220 or MDL
Naphthalene	U	U	U	U	U	U	U	U	360	3,400
4-Chloroaniline	U	U	U	U	U	U	U	U	360	13,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	360	36,400
2-Methylnaphthalene	63 J	U	U	32 J	940 J	11 J	23 J	U	360	430 or MDL
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	360	2,000
2-Chloronaphthalene	U	U	U	U	U	U	U	U	360	41,000
2-Nitroaniline	U	U	U	U	U	U	U	U	360	1,000
Dimethylphthalate	U	U	U	U	U	U	U	U	360	430 or MDL
Acenaphthylene	34 J	U	U	19 J	37 J	U	U	U	18	2,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	360	41,000

TABLE C  
NORTHROP GRUMMAN CORPORATION  
PLANT 12  
PHASE II DELINEATION PROGRAM  
SOIL SAMPLING RESULTS  
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Leaching Chamber North of Carpentry Shop				Area Outside of Machine Shop				LABORATORY QUANTITATION LIMITS (ug/kg)	NY/DEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-16AA	B-16AA	B-16AA	B-16AA	B-19AN12	B-19AN12	B-19AN12	B-19AN12		
	10' - 12' 8/14/98	14' - 16' 8/14/98	16' - 18' 8/14/98	0 - 2' 08/07/98	2' - 4' 08/07/98	4' - 6' 8/07/98	6' - 8' 8/07/98	8' - 10' 8/07/98		
LABORATORY										
DILUTION FACTOR										
PERCENT SOLIDS	84	92	94	95	97	97	96	98		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U
Acenaphthene	110 J	U	U	130 J	3,800	76 J	140 J	U	U	50,000
Dibenzofuran	60 J	U	U	48 J	1,600 J	24 J	38 J	U	U	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	---
Diethylphthalate	U	U	U	U	U	U	U	U	U	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	---
Fluorene	100 J	U	U	110 J	3,100	61 J	87 J	U	U	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	---
N-Nitrosodiphenylamine	43 J	U	U	U	U	U	U	U	U	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	410
Phenanthrene	780 J	U	U	1,100	20,000	530	750	U	U	50,000
Anthracene	210 J	U	U	290 J	5,700	140 J	180 J	U	U	50,000
Carbazole	110 J	U	U	120 J	2,700	42 J	66 J	U	U	---
Di-n-butylphthalate	4,400	470	580	80 J	U	U	U	U	U	360
Fluoranthene	1,100	U	10 J	2,000	22,000	990 J	1,400	U	U	8,100
Pyrene	1,100	U	10 J	1,700	17,000	800	1,100	18 J	18	50,000
Butylbenzylphthalate	3,000	83 J	87 J	210 J	U	110 J	89 J	17 J	18	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	---
Benzo(a)anthracene	550	U	12 J	1,100	11,000	470	650	U	U	224 or MDL
Chrysene	730	U	U	1,200	10,000	490	690	U	U	400
bis(2-Ethylhexyl)phthalate	4,500	2,000	2,200	350 J	U	U	U	U	U	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	50,000
Benzo(b)fluoranthene	950	U	U	1,700	11,000	560	840	U	U	1,100
Benzo(k)fluoranthene	380	U	U	660	4,600	220	400	U	U	1,100
Benzo(a)pyrene	560	U	U	1,100	8,600	430	620	U	U	61 or MDL
Indeno(1,2,3-cd)pyrene	180	U	U	730	4,700	270	390	U	U	3,200
Dibenz(a,h)anthracene	52	U	U	190	1,200	54	90	U	U	14 or MDL
Benzo(g,h,i)perylene	140 J	U	U	640	3,500	240 J	340 J	U	U	50,000
TOTAL CaPAHs	3,402	0	12	6,680	51,100	2,494	3,680	0	0	10,000*
TOTAL SVOCs	19,382	2,553	2,899	13,569	134,072	5,518	7,915	35	35	500,000

Notes  
 ---: Not established  
 MDL: Method Detection Limit  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C-1 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Area Outside of Machine Shop										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-19AN14 0-2' 8/20/98	B-19AN14 2'-4' 8/20/98	B-19AN14 4'-6' 8/20/98	B-19AN14 6'-8' 8/20/98	B-19AN14 8'-10' 8/20/98	B-19AE7 0-2' 08/07/98	B-19AE7 2'-4' 08/07/98	B-19AE7 4'-6' 08/07/98	B-19AE7 6'-8' 08/07/98	B-19AE7 8'-10' 08/07/98		
PERCENT SOLIDS	95	94	95	99	96	93	88	91	88	91	5	5
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	U	U	U	U	U	U
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	U	U
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U
4-Methylphenol	34 J	U	U	U	U	75 J	U	U	U	U	350 J	U
2-Nitrophenol	33 J	U	U	U	U	U	U	U	U	U	U	U
2,4-Dimethylphenol	U	U	U	U	U	28 J	U	U	170 J	U	120 J	U
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	U	U
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	U
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	U
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	U	U
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	U	U
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	U
Isophorone	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	U
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U
Naphthalene	59 J	U	U	U	U	28 J	U	U	U	U	71 J	U
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	U	U
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	U
2-Methylnaphthalene	67 J	U	U	U	U	19 J	U	U	U	U	93 J	U
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	U	U
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	U
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthylene	16 J	U	U	U	U	12 J	U	U	U	U	U	U
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Area Outside of Machine Shop										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-19AN14 0 - 2' 8/20/98	B-19AN14 2' - 4' 8/20/98	B-19AN14 4' - 6' 8/20/98	B-19AN14 6' - 8' 8/20/98	B-19AN14 8' - 10' 8/20/98	B-19AE7 0 - 2' 08/07/98	B-19AE7 2' - 4' 08/07/98	B-19AE7 4' - 6' 08/07/98	B-19AE7 6' - 8' 08/07/98	B-19AE7 8' - 10' 08/07/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	5	
PERCENT SOLIDS	95	94	95	99	96	93	88	91	91	91		
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	360
Acenaphthene	190 J	U	U	U	U	73 J	U	U	U	U	U	18
Dibenzofuran	61 J	U	U	U	U	28 J	U	U	U	U	U	360
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	360
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	360
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	360
Fluorene	120 J	U	U	U	U	62 J	U	U	U	U	U	18
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	50,000
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U	U	U	50,000
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	50,000
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	410
Phenanthrene	1,100	U	U	U	U	U	U	U	U	U	U	50,000
Anthracene	270 J	U	U	U	24 J	600	39 J	140 J	U	U	U	50,000
Carbazole	130 J	U	U	U	U	160 J	8 J	U	U	U	U	18
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U	U	U	50,000
Fluoranthene	2,000	U	U	U	U	100 J	U	U	U	U	U	360
Pyrene	1,700	U	13 J	U	U	1,200	50 J	180 J	U	U	U	18
Butylbenzylphthalate	160 J	U	11 J	U	U	980	43 J	170 J	U	U	U	18
3,3'-Dichlorobenzidine	U	U	U	U	U	180 J	U	U	U	U	U	360
Benzo(a)anthracene	960	U	U	U	U	U	U	U	U	U	U	720
Chrysene	1,100	U	U	U	U	670	34 J	U	U	U	U	18
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	690	21 J	U	U	U	U	400
Di-n-octylphthalate	U	U	U	U	U	200 J	U	U	U	U	U	50,000
Benzo(b)fluoranthene	1,400	U	U	U	U	790	33 J	690	U	U	U	50,000
Benzo(k)fluoranthene	500	U	U	U	U	330	13 J	220	U	U	U	1,100
Benzo(a)pyrene	990	U	U	U	U	580	14 J	110 J	U	U	U	1,100
Indeno(1,2,3-cd)pyrene	790	U	U	U	U	440	25 J	350	U	U	U	61 or MDL
Dibenz(a,h)anthracene	160	U	U	U	U	110	U	92 J	U	U	U	3,200
Benzo(g,h,i)perylene	850	U	U	U	U	430	38 J	360 J	U	U	U	14 or MDL
TOTAL CaPAHs	5,900	0	0	0	135	3,610	140	1,462	140	1,462	10,000*	
TOTAL SVOCs	12,690	0	24	0	264	7,849	560	2,946	560	2,946	500,000	

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 ---: Not established  
 MDL: Method Detection Limit  
 \* : Value exceeds TAGM 4046 Appendix A criteria  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A



TABLE C. (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Area Outside of Machine Shop B-19AW10	Sanitary Leaching Pools (North and South)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)				
		B-22AA 8' - 10' 8/18/98	B-22BA 8' - 10' 8/18/98	B-22CA 8' - 10' 8/18/98	B-22FA 8' - 10' 8/19/98	B-22FA 12' - 14' 8/19/98	B-22FA 14' - 16' 8/19/98	B-22FA 16' - 18' 8/19/98	Envirotech								
SAMPLE IDENTIFICATION	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
SAMPLE DEPTH	2' - 4'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'	8' - 10'		
DATE OF COLLECTION	08/07/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98		
LABORATORY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
DILUTION FACTOR	94	97	90	94	94	93	94	94	94	94	94	94	94	94	97		
PERCENT SOLIDS	94	97	90	94	94	93	94	94	94	94	94	94	94	94	97		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Phenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	U	U	U	U	U	14 J	U	U	U	U	U	U	U	U	U	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	1,600
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	8,500
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	7,900
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Isophorone	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	4,400
Naphthalene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	3,400
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	13,000
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	220 or MDL
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	36,400
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	360	2,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	18	41,000
																360	1,000

TABLE C-1 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Area Outside of Machine Shop B-19AW10	Sanitary Leaching Pools (North and South)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
		B-22AA 8' - 10' 8/18/98	B-22BA 8' - 10' 8/18/98	B-22CA 8' - 10' 8/18/98	B-22FA 8' - 10' 8/19/98	B-22FA 12' - 14' 8/19/98	B-22FA 14' - 16' 8/19/98	B-22FA 16' - 18' 8/19/98	DILUTION FACTOR	PERCENT SOLIDS	UNITS			LABORATORY QUANTITATION LIMITS (ug/kg)	
	1	1	1	1	1	1	1	1	1	1	1	1	1		
	94	97	90	94	93	94	94	94	94	94	94	94	97		
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	U	360	500 or MDL
Acenaphthene	U	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Dibenzofuran	U	U	U	U	U	U	U	U	U	U	U	U	U	360	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	360	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Fluorene	U	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
N-Nitrosophenylamine	U	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U	360	410
Phenanthrene	U	22 J	51 J	U	U	U	U	U	U	U	U	U	U	18	50,000
Anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Carbazole	U	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	360	8,100
Fluoranthene	U	10 J	61 J	U	12 J	U	U	U	U	U	U	U	U	18	50,000
Pyrene	U	13 J	66 J	U	14 J	U	U	U	U	U	U	U	U	18	50,000
Butylbenzylphthalate	U	92 J	200 J	U	1,100 J	U	U	U	U	U	U	U	U	360	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	U	U	720	-----
Benzo(a)anthracene	U	19 J	30 J	U	22 J	U	U	U	U	U	U	U	U	18	224 or MDL
Chrysene	U	13 J	43 J	U	860 J	U	U	U	U	U	U	U	U	18	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Benzo(b)fluoranthene	22 J	U	89 J	U	28 J	U	12 J	U	U	U	U	U	U	18	1,100
Benzo(k)fluoranthene	8.6 J	U	U	U	U	U	U	U	U	U	U	U	U	18	1,100
Benzo(a)pyrene	U	U	U	U	8.0 J	U	U	U	U	U	U	U	U	18	61 or MDL
Indeno(1,2,3-cd)pyrene	10 J	U	U	U	U	U	U	U	U	U	U	U	U	18	3,200
Dibenz(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	18	14 or MDL
Benzo(g,h,i)perylene	11 J	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
TOTAL CaPAHs	41	32	162	0	58	12	0	0	0	0	0	0	0	10,000*	
TOTAL SVOCS	52	189	590	2,113	472	177	80	80	80	80	80	80	80	500,000	

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 -----: Not established  
 MDL: Method Detection Limit  
 [ ]: Value exceeds TAGM 4046 Appendix A criteria  
 \*: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-22HA 2' - 4' 08/06/98	B-22HA 4' - 6' 08/06/98	B-22HA 6' - 8' 08/06/98	B-22HN7 0 - 2' 08/06/98	B-22HN7 2' - 4' 08/06/98	B-22HN7 0 - 2' 08/06/98	B-22HS7 2' - 4' 08/06/98	B-22HS7 2' - 4' 08/06/98	B-22HS14 0 - 2' 8/20/98	DILUTION FACTOR		
SAMPLE DEPTH	Envirotech										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
DATE OF COLLECTION	1 94 (ug/kg)	1 98 (ug/kg)	1 93 (ug/kg)	1 84 (ug/kg)	2 93 (ug/kg)	1 98 (ug/kg)	1 94 (ug/kg)	1 94 (ug/kg)	1 94 (ug/kg)	1 94 (ug/kg)		
Phenol	U	U	9.1 J	U	U	U	U	U	U	130 J	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	U	53 J	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	360	---
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	360	400
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	360	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	360	100
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	720	---
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	360	1,000 or MDL
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	360	---
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	1,600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	8,500
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	7,900
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	360	4,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	360	---
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	---
Naphthalene	U	7.6 J	7.8 J	U	570 J	U	U	44 J	U	U	360	3,400
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	18	13,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	360	220 or MDL
2-Methylnaphthalene	U	U	11 J	U	280 J	U	U	49 J	U	U	360	---
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	360	36,400
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	360	---
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	360	---
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Acenaphthylene	U	U	7.4 J	U	40 J	U	U	U	U	9.0 J	360	2,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	18	41,000
											360	1,000

TABLE C. (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	B-22HA 2' - 4' 08/06/98	B-22HA 4' - 6' 08/06/98	B-22HA 6' - 8' 08/06/98	B-22HN7 0 - 2' 08/06/98	B-22HN7 2' - 4' 08/06/98	B-22HS7 0 - 2' 08/06/98	B-22HS7 2' - 4' 08/06/98	B-22HS7 2' - 4' 08/06/98	B-22HS14 0 - 2' 8/20/98	LABORATORY QUANTITATION LIMITS (ug/kg)			
DILUTION FACTOR	Envirotech												
PERCENT SOLIDS	1	1	1	1	1	1	1	1	1	1	1		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	360	500 or MDL
Acenaphthene	25 J	29 J	U	29 J	U	U	U	U	240 J	U	U	18	50,000
Dibenzofuran	8.8 J	12 J	U	9.5 J	U	U	U	U	120 J	U	U	360	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	360	7,100
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	360	50,000
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Fluorene	22 J	26 J	U	24 J	U	U	U	U	240 J	U	U	18	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	360	50,000
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U	U	U	360	50,000
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Phenanthrene	190 J	220 J	U	330 J	U	U	U	U	1,600	U	U	360	410
Anthracene	52 J	60 J	U	71 J	U	U	U	U	490	U	U	18	50,000
Carbazole	22 J	26 J	U	36 J	U	U	U	U	200 J	U	U	360	50,000
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Fluoranthene	280 J	310 J	U	750	U	U	U	U	2,000	U	U	18	8,100
Pyrene	220 J	240 J	U	610	U	U	U	U	1,700	U	U	18	50,000
Bulkybenzylphthalate	U	U	U	120 J	U	U	U	U	U	U	U	360	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	720	224 or MDL
Benzo(a)anthracene	140	160	U	390	U	U	U	U	7,400	1,100	1,900	18	400
Chrysene	120 J	140 J	U	420	U	U	U	U	6,800	1,000	2,100	18	50,000
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Benzo(b)fluoranthene	120	130	U	450	U	U	U	U	6,900	870	2,300	18	1,100
Benzo(k)fluoranthene	51	54	U	190	U	U	U	U	2,600	390	980	18	1,100
Benzo(a)pyrene	97	100	U	340	U	U	U	U	5,400	750	1,800	18	61 or MDL
Indeno(1,2,3-cd)pyrene	54	58	U	220	U	U	U	U	2,700	410	1,100	18	3,200
Dibenz(a,h)anthracene	16 J	16 J	U	52	U	U	U	U	700	110	250	18	14 or MDL
Benzo(g,h,i)perylene	53 J	60 J	U	220 J	U	U	U	U	2,400	390	1,100	18	50,000
TOTAL CaPAHs	598	658	0	2,062	0	0	0	0	32,500	4,630	10,430		10,000*
TOTAL SVOCs	1,471	1,649	0	4,297	0	0	0	0	79,318	11,751	25,384		500,000

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 ----: Not established  
 MDL: Method Detection Limit  
 [ ]: Value exceeds TAGM 4046 Appendix A criteria  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	B-22HS14 2' - 4' 8/20/98	B-22HS14 4' - 6' 8/20/98	B-22HE7 0 - 2' 08/06/98	B-22HE7 2' - 4' 08/06/98	B-22HW7 0 - 2' 08/06/98	B-22HW7 2' - 4' 08/06/98	B-22JN7 0 - 2' 08/06/98	B-22JN7 2' - 4' 08/06/98	DILUTION FACTOR	PERCENT SOLIDS			
Phenol	U	U	U	U	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	19 J	U	U	U	U	U	U	U	U	U	U	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	U	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	360	1,600
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	8,500
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	7,900
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	360	---
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	U	360	4,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	360	---
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	3,400
Naphthalene	150 J	36 J	140 J	U	20 J	U	U	U	U	U	U	360	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	U	18	220 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Methylnaphthalene	74 J	U	U	U	U	U	U	U	U	U	U	360	---
Hexachlorocyclopentadiene	U	55 J	73 J	U	24 J	U	U	U	U	U	U	360	36,400
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	360	---
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Acenaphthylene	9.1 J	19 J	9.4 J	U	18 J	U	U	U	U	U	U	360	2,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	360	41,000
													1,000

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	B-22HS14 2' - 4' 8/20/98	B-22HE7 0 - 2' 08/06/98	B-22HE7 2' - 4' 08/06/98	B-22HE7 0 - 2' 08/06/98	B-22HW7 0 - 2' 08/06/98	B-22HW7 2' - 4' 08/06/98	B-22JN7 0 - 2' 08/06/98	B-22JN7 0 - 2' 08/06/98	B-22JN7 2' - 4' 08/06/98	B-22JN7 2' - 4' 08/06/98			B-22JN7 2' - 4' 08/06/98
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	5	5	5
PERCENT SOLIDS	96	96	91	95	99	96	96	96	96	96	96	96	96
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthene	340 J	130 J	520	80 J	U	U	U	U	U	U	41 J	U	U
Dibenzofuran	170 J	41 J	200 J	31 J	U	U	U	U	U	U	53 J	U	U
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U	U
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U	U
Fluorene	290 J	96 J	450	71 J	U	U	U	U	U	U	46 J	U	U
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	U
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U	U	U	U	U
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U	U
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	U
Phenanthrene	2,500	1,100	3,000	690	U	U	U	U	U	U	470 J	190 J	U
Anthracene	650	280 J	960	180 J	U	U	U	U	U	U	90 J	49 J	U
Carbazole	280 J	130 J	370	78 J	U	U	U	U	U	U	U	U	U
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	U
Fluoranthene	3,300	2,300	3,700	1,200	U	U	U	U	U	U	600 J	220 J	U
Pyrene	3,000	2,100	3,200	1,000	U	U	U	U	U	U	510 J	170 J	U
Butylbenzylphthalate	500	870	U	2,300	U	U	U	U	U	U	U	24,000	U
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	U	U
Benzo(a)anthracene	1,500	1,300	2,200	640	U	U	U	U	U	U	310	130 J	U
Chrysene	1,400	1,400	1,900	680	U	U	U	U	U	U	340 J	97 J	U
bis(2-Ethylhexyl)phthalate	U	U	U	160 J	U	U	U	U	U	U	U	2,700	U
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	U	1,200 J	U
Benzo(b)fluoranthene	1,500	1,600	1,700	700	U	U	U	U	U	U	380	110 J	U
Benzo(k)fluoranthene	820	640	840	250	U	U	U	U	U	U	150 J	42 J	U
Benzo(a)pyrene	1,400	1,200	1,500	510	U	U	U	U	U	U	210	81 J	U
Indeno(1,2,3-cd)pyrene	530	660	750	310	U	U	U	U	U	U	92 J	53 J	U
Dibenz(a,h)anthracene	130	170	210	80	U	U	U	U	U	U	U	U	U
Benzo(g,h,i)perylene	450	610	670	320 J	U	U	U	U	U	U	92 J	51 J	U
TOTAL CaPAHs	7,280	6,970	9,100	3,170	0	1,482	513	10,000*	10,000*	10,000*	1,482	513	10,000*
TOTAL SVOCs	19,012	15,337	22,392	9,522	0	3,834	33,571	500,000	500,000	500,000	3,834	33,571	500,000

Notes  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit  
 ---: Not established  
 MDL: Method Detection Limit  
 \* : Value exceeds TAGM 4046 Appendix A criteria  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
	B-22JS7 0 - 2' 08/06/98	B-22JS7 2' - 4' 08/06/98	B-22JS14 0 - 2' 8/20/98	B-22JS14 2' - 4' 8/20/98	B-22JS14 4' - 6' 8/20/98	B-22JE7 0 - 2' 08/06/98	B-22JE7 2' - 4' 08/06/98	B-22JE7 2' - 4' 08/06/98	B-22JW7 0 - 2' 08/06/98	DILUTION FACTOR				
SAMPLE DEPTH	5		1		1		5		5		1		LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	94	96	92	91	57	95	93	95	95	95	95	95		
DATE OF COLLECTION	Envirotech										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
UNITS	(ug/kg)													
Phenol	U	380 J	U	U	U	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	U	U	U	79 J	340 J	U	U	U	U	U	U	U	360	900
2-Nitrophenol	U	U	U	U	8,700	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	20 J	9,100	U	U	U	U	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	1,600
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	8,500
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	7,900
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,4-Dichlorobenzene	U	U	U	U	150 J	U	U	U	U	U	U	U	360	---
1,2-Dichlorobenzene	U	U	U	U	140 J	U	U	U	U	U	U	U	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	U	U	360	4,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	U	360	3,400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	13,000
Naphthalene	98 J	U	U	U	770	U	U	U	U	U	U	U	18	220 or MDL
4-Chloroaniline	U	U	U	U	240 J	U	U	U	U	U	U	U	360	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Hexachlorocyclopentadiene	190 J	U	U	45 J	260 J	U	U	U	U	U	U	U	360	---
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Acenaphthylene	U	U	U	U	320 J	U	U	U	U	U	U	U	360	2,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U	18	41,000
													360	1,000

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-22JS7 0-2' 08/06/98	B-22JS7 2'-4' 08/06/98	B-22JS14 0-2' 8/20/98	B-22JS14 2'-4' 8/20/98	B-22JS14 4'-6' 8/20/98	B-22JE7 0-2' 08/06/98	B-22JE7 2'-4' 08/06/98	B-22JE7 2'-4' 08/06/98	B-22JW7 0-2' 08/06/98	Envirotech		
DILUTION FACTOR	5	20	1	1	5	5	10	1	1	1	1	1
PERCENT SOLIDS	94	96	92	91	57	95	93	95	95	95	95	95
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U
Acenaphthene	310 J	U	U	53 J	120 J	160 J	U	U	U	U	U	83 J
Dibenzofuran	98 J	U	U	23 J	82 J	47 J	U	U	U	U	U	35 J
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U
Diethylphthalate	U	2,100 J	U	U	650 J	U	U	U	U	U	U	U
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U
Fluorene	190 J	U	U	43 J	130 J	94 J	U	U	U	U	U	70 J
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U
N-Nitrosodiphenylamine	67 J	U	U	21 J	U	65 J	U	U	U	U	U	U
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U
Phenanthrene	1,900	U	28 J	420	890 J	910 J	U	U	U	U	U	860
Anthracene	440 J	U	7.8 J	110 J	160 J	200 J	U	U	U	U	U	190 J
Carbazole	230 J	U	U	43 J	94 J	110 J	U	U	U	U	U	96 J
Di-n-butylphthalate	U	130,000	U	900	4,400	490 J	U	U	U	U	U	320 J
Fluoranthene	4,300	160 J	29 J	720	610 J	1,500 J	U	U	U	U	U	1,700
Pyrene	3,600	150 J	28 J	710	520 J	1,200 J	U	U	U	U	U	1,400
Butylbenzylphthalate	2,500	25,000	U	3,600	32	11,000	U	U	U	U	U	440
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	U
Benzofluoranthene	2,400	U	16 J	380	270 J	760 J	U	U	U	U	U	720
Chrysene	2,400	U	14 J	460	280 J	780 J	U	U	U	U	U	18
bis(2-Ethylhexyl)phthalate	U	1,800 J	U	180 J	18,000	U	U	U	U	U	U	360
Di-n-octylphthalate	U	U	U	U	6,500	U	U	U	U	U	U	360
Benzo(b)fluoranthene	2,800	U	U	560	260 J	700	U	U	U	U	U	1,100
Benzo(k)fluoranthene	1,100	U	U	260	130 J	280	U	U	U	U	U	18
Benzo(e)pyrene	1,900	U	U	380	180 J	540 J	U	U	U	U	U	18
Indeno(1,2,3-cd)pyrene	1,200	U	U	180	62 J	290	U	U	U	U	U	18
Dibenz(a,h)anthracene	320	U	U	81	U	86 J	U	U	U	U	U	18
Benzo(g,h,i)perylene	1,200 J	U	U	150 J	65 J	300 J	U	U	U	U	U	18
TOTAL CaPAHs	12,120	0	30	2,301	1,182	3,436	2,980	4,820	10,000*	10,000*	10,000*	10,000*
TOTAL SVOCS	27,243	159,590	123	9,418	53,455	19,550	175,060	10,830	500,000	500,000	500,000	500,000

Notes  
 ---: Not established  
 MDL: Method Detection Limit  
 J: Value exceeds TAGM 4046 Appendix A criteria  
 \*: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit



TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/ Unknown Buried Structures (North)	Sanitary Leaching Pools (North and South)		Drainage Chamber North of Lobby/Loading Area		Former Drainage Basin		LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
		B-22LA 8' - 10' 8/19/98	B-22LA 10' - 12' 8/19/98	B-30AA 6' - 8' 8/14/98	B-30AA 8' - 10' 8/14/98	B-37AA 0 - 2' 08/07/98	B-37AA 2' - 4' 08/07/98		
DILUTION FACTOR	5	1	1	1	1	2	2		
PERCENT SOLIDS	92 (ug/kg)	95	96	94	94	89	96	5	
UNITS								94	
Phenol	U	370	U	U	U	U	U	U	360
2-Chlorophenol	U	U	U	U	U	U	U	U	360
2-Methylphenol	U	U	U	U	U	U	U	U	360
4-Methylphenol	U	38 J	U	U	9.2 J	U	U	U	100 or MDL
2-Nitrophenol	U	U	U	U	U	U	U	U	360
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330 or MDL
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	400
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	240 or MDL
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	100
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	200 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	100 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	720
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	720
Pentachlorophenol	U	U	U	U	U	U	U	U	720
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	360
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	1,600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	360
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	360
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	8,500
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	7,900
Hexachloroethane	U	U	U	U	U	U	U	U	200 or MDL
Nitrobenzene	U	U	U	U	U	U	U	U	4,400
Isophorone	U	U	U	U	U	U	U	U	360
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	360
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	360
Naphthalene	U	65 J	U	21 J	14 J	28 J	61 J	18	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	220 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	U	U	360
2-Methylnaphthalene	U	U	U	U	U	U	U	U	360
Hexachlorocyclopentadiene	U	54 J	U	54 J	33 J	51 J	46 J	360	36,400
2-Chloronaphthalene	U	U	U	U	U	U	U	U	360
2-Nitroaniline	U	U	U	U	U	U	U	U	360
Dimethylphthalate	38 J	U	U	U	U	U	U	U	430 or MDL
Acenaphthylene	39 J	U	U	U	U	U	U	U	2,000
2,6-Dinitrotoluene	U	8.0 J	U	U	U	16 J	U	U	41,000
									360

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Anomalous Features/ Unknown Buried Structures (North)	Sanitary Leaching Pools (North and South)		Drainage Chamber North of Lobby/Loading Area		Former Drainage Basin		LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg or MDL)
		B-22LA 8' - 10' 8/19/98	B-22LA 10' - 12' 8/19/98	B-30AA 6' - 8' 8/14/98	B-30AA 8' - 10' 8/14/98	B-37AA 0 - 2' 08/07/98	B-37AA 2' - 4' 08/07/98		
DILUTION FACTOR	5	1	1	1	1	2	2	2	5
PERCENT SOLIDS	92	95	96	94	94	89	96	94	94
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
3-Nitroaniline	U	U	U	U	U	U	U	U	U
Acenaphthene	66 J	180 J	U	20 J	14 J	20 J	150 J	U	U
Dibenzofuran	U	73 J	U	15 J	12 J	19 J	65 J	U	U
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U
Diethylphthalate	U	U	U	U	U	U	U	U	U
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U
Fluorene	67 J	140 J	U	21 J	16 J	16 J	110 J	U	U
4-Nitroaniline	U	U	U	U	U	U	U	U	U
N-Nitrosodiphenylamine	93 J	U	U	U	18 J	U	U	U	U
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U
Hexachlorobenzene	U	U	U	U	U	U	U	U	U
Phenanthrene	580 J	1,300	U	130 J	110 J	200 J	940	110 J	U
Anthracene	180 J	310 J	U	28 J	29 J	39 J	190 J	18	U
Carbazole	50 J	140 J	U	30 J	18 J	32 J	120 J	360	U
Di-n-butylphthalate	3,500	450	130 J	78 J	U	U	U	360	U
Fluoranthene	920 J	2,200	U	160 J	160 J	420 J	1,300	180 J	U
Pyrene	800 J	1,800	U	140 J	150 J	350 J	1,100	160 J	U
Butylbenzylphthalate	12,000	4,000	U	210 J	92 J	170 J	U	360	U
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	720	U
Benzo(a)anthracene	600	960	U	80	92	210	560	18	224 or MDL
Chrysene	580 J	1,200	U	140 J	130 J	320 J	620 J	18	400
bis(2-Ethylhexyl)phthalate	1,400 J	1,200	390	400	230 J	1,100	460 J	360	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	360	50,000
Benzo(k)fluoranthene	630	1,200	U	160	150	520	760	18	1,100
Benzo(a)pyrene	240	580	U	U	U	180	300	18	1,100
Indeno(1,2,3-cd)pyrene	440	950	U	69	52	250	520	18	61 or MDL
Dibenz(a,h)anthracene	200	560	U	60	60	240	360	18	3,200
Benzo(g,h,i)perylene	U	130	U	U	U	57 J	83	18	14 or MDL
	160 J	580	U	59 J	58 J	240 J	340 J	18	50,000
TOTAL CaPAHs	2,690	5,580	0	509	484	1,777	3,203	868	10,000*
TOTAL SVOCs	22,563	18,488	520	1,891	1,447	4,478	8,085	1,828	500,000

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 ----: Not established  
 MDL: Method Detection Limit  
 [ ]: Value exceeds TAGM 4046 Appendix A criteria  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Former Drainage Basin										Resin Waste Pit (Sump #1)	LABORATORY QUANTITATION LIMITS (ug/kg)	NYSEEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AN8 2' - 4' 08/07/98	B-37AS8 0 - 2' 08/07/98	B-37AS8 2' - 4' 08/07/98	B-37AE8 0 - 2' 08/07/98	B-37AE8 2' - 4' 08/07/98	B-37AW8 0 - 2' 08/07/98	B-37AW8 2' - 4' 08/07/98	B-37AW8 2' - 4' 08/07/98	B-37AW8 12' - 14' 8/13/98	20			
DILUTION FACTOR	1	1	2	1	1	1	1	1	1	1	20		
PERCENT SOLIDS	93	97	96	96	97	92	92.6	92.6	92.6	92.6	92.6		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Phenol	U	U	U	U	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	400
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	100
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	720	1,000 or MDL
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	360	---
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	360	1,600
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	8,500
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	7,900
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	U	360	4,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	360	---
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	360	3,400
Naphthalene	U	U	U	U	U	U	U	U	U	U	U	360	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	U	360	220 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	U	360	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	U	360	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	U	360	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	18	1,000

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Former Drainage Basin						Resin Waste Pit (Sump #1) RWP-1	LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AN8 2'-4' 08/07/98	B-37AS8 2'-4' 08/07/98	B-37AE8 0-2' 08/07/98	B-37AE8 0-2' 08/07/98	B-37AW8 0-2' 08/07/98	B-37AW8 2'-4' 08/07/98			
DILUTION FACTOR	1	2	1	1	1	1	20		
PERCENT SOLIDS	93	96	96	97	92	92.6	92.6		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
3-Nitroaniline	U	U	U	U	U	U	U	500 or MDL	
Acenaphthene	U	U	11 J	U	U	30 J	U	50,000	
Dibenzofuran	U	U	12 J	U	U	17 J	U	6,200	
2,4-Dinitrotoluene	U	U	U	U	U	U	U	---	
Diethylphthalate	U	U	U	U	U	U	U	7,100	
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	---	
Fluorene	U	U	10 J	U	U	25 J	U	50,000	
4-Nitroaniline	U	U	U	U	U	U	U	---	
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	---	
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	---	
Hexachlorobenzene	U	U	U	U	U	U	U	410	
Phenanthrene	U	U	U	U	U	U	620 J	---	
Anthracene	U	U	22 J	U	U	U	U	360	
Carbazole	U	U	18 J	U	61 J	260 J	U	50,000	
Di-n-butylphthalate	U	U	16 J	U	13 J	51 J	U	50,000	
Fluoranthene	14 J	170 J	U	U	180 J	U	U	8,100	
Pyrene	12 J	150 J	U	U	140 J	490	U	50,000	
Butylbenzylphthalate	U	U	91 J	U	130 J	400	U	50,000	
3,3'-Dichlorobenzidine	U	U	U	U	240 J	U	U	50,000	
Benzo(a)anthracene	16 J	96	U	U	U	U	U	---	
Chrysene	8.2 J	94 J	120	41	82	240	U	224 or MDL	
bis(2-Ethylhexyl)phthalate	U	230 J	170 J	48 J	96 J	290 J	U	400	
Di-n-octylphthalate	U	U	210 J	U	130 J	360 J	U	50,000	
Benzo(k)fluoranthene	10 J	210	U	U	110	450	U	50,000	
Benzo(a)pyrene	7.7 J	83	260	52	47	160	U	1,100	
Indeno(1,2,3-cd)pyrene	U	110	140	18 J	78	260	U	1,100	
Dibenz(a,h)anthracene	U	89	110	29 J	54	180	U	61 or MDL	
Benzo(g,h,i)perylene	U	23 J	28 J	27 J	13 J	49	U	3,200	
	U	84 J	100 J	24 J	54 J	180 J	U	14 or MDL	
TOTAL CaPAHs	42	705	923	223	480	1,629	0	10,000*	
TOTAL SVOCS	68	1,482	2,006	429	1,451	3,543	94,620	500,000	

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 ---: Not established  
 MDL: Method Detection Limit  
 [ ]: Value exceeds TAGM 4046 Appendix A criteria  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C-3 (revised)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	RWP-1 14' - 16' 8/13/98	RWP-1 16' - 18' 8/13/98	RWP-1 18' - 20' 8/13/98	RWP-1 20' - 22' 8/13/98	RWP-2 14' - 16' 8/13/98	RWP-2 16' - 18' 8/13/98	RWP-2 18' - 20' 8/13/98	RWP-2 20' - 22' 8/13/98	RWP-3 8' - 10' 8/13/98	DILUTION FACTOR			PERCENT SOLIDS
Phenol	U	U	U	U	U	U	U	U	U	U	50	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	93	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	96	360	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	U	U	5	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	96	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	5	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	96	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	5	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	96	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	5	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	96	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	50	360	---
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	96	360	---
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	93	360	1,600
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	5	360	8,500
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	96	360	7,900
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	5	360	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	96	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	50	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	96	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	5	360	200 or MDL
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	96	360	4,400
Isophorone	U	U	U	U	U	U	U	U	U	U	5	360	---
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	96	360	3,400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	50	360	13,000
Naphthalene	U	U	U	U	U	U	U	U	U	U	96	360	220 or MDL
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	5	360	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	96	360	36,400
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	50	360	---
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	96	360	---
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	5	360	430 or MDL
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	96	360	2,000
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	50	360	41,000
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	96	18	---
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	5	360	1,000

TABLE C-3 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
	RWP-1 14' - 16' 8/13/98	RWP-1 16' - 18' 8/13/98	RWP-1 18' - 20' 8/13/98	RWP-2 14' - 16' 8/13/98	RWP-2 16' - 18' 8/13/98	RWP-2 18' - 20' 8/13/98	RWP-2 20' - 22' 8/13/98	RWP-3 8' - 10' 8/13/98	DILUTION FACTOR					
PERCENT SOLIDS	5	2	2	20	96	96	5	5	5	50	93			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	360	500 or MDL
Acenaphthene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Dibenzofuran	U	U	U	U	U	U	U	U	U	U	U	U	360	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	360	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Fluorene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	410
Phenanthrene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Anthracene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Carbazole	U	U	U	U	U	U	U	U	U	U	U	U	360	-----
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	360	8,100
Fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Pyrene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Butylbenzophthalate	18,000	9,700	10,000	84,000	14,000	20,000	16,000	11,000	160,000	720	224 or MDL	400	50,000	
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	360	50,000
Chrysene	U	U	U	U	U	U	U	U	U	U	U	U	360	50,000
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	U	U	U	U	18	1,100
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	18	1,100
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	18	61 or MDL
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	18	3,200
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	U	U	18	14 or MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Dibenz(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	U	U	18	50,000
TOTAL CaPAHs	0	0	0	84,000	14,000	20,000	16,000	11,000	160,000	0	171,000	0	10,000*	
TOTAL SVOCs	18,000	9,700	10,000	84,000	14,000	20,000	16,000	11,000	160,000	0	171,000	0	500,000	

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 -----: Not established  
 MDL: Method Detection Limit  
 [ ]: Value exceeds TAGM 4046 Appendix A criteria  
 \* : Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C-3 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	RWP-3	RWP-3	RWP-3	RWP-4	RWP-4	RWP-4	RWP-4	RWP-4	RWP-4	RWP-5		
SAMPLE IDENTIFICATION	10' - 12'	12' - 14'	14' - 16'	15' - 17'	17' - 19'	21' - 23'	23' - 25'	25' - 27'	27' - 29'	29' - 31'		
SAMPLE DEPTH	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/13/98	8/14/98		
DATE OF COLLECTION	5	5	2	50	1	2	1	1	25	81.5		
LABORATORY	94	94	96	91	96	97	95	95	95	81.5		
DILUTION FACTOR	Envirotech											
PERCENT SOLIDS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Phenol	U	U	U	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	U	U	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	360	1,600
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	360	8,500
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	360	7,900
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	360	---
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	360	4,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	360	---
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	360	---
Naphthalene	U	U	U	U	U	U	U	U	U	U	360	3,400
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	18	13,000
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	360	220 or MDL
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	360	---
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	360	36,400
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	360	---
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	360	---
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	360	2,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	18	41,000
											360	1,000

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										LABORATORY QUANTIFICATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg or MDL)
	RWP-3 10' - 12' 8/13/98	RWP-3 12' - 14' 8/13/98	RWP-3 14' - 16' 8/13/98	RWP-3 15' - 17' 8/13/98	RWP-4 17' - 19' 8/13/98	RWP-4 21' - 23' 8/13/98	RWP-4 23' - 25' 8/13/98	RWP-4 25' 8/14/98	RWP-5 6' - 8' 8/14/98	RWP-5 81.5		
DILUTION FACTOR	5	5	2	1	1	2	1	1	25	25		
PERCENT SOLIDS	94	94	96	91	96	97	95	95	81.5	81.5		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	360	500 or MDL
Acenaphthene	U	U	U	U	U	U	U	U	U	U	18	50,000
Dibenzofuran	U	U	U	U	U	U	U	U	U	U	360	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	360	---
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	360	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	360	---
Fluorene	U	U	U	U	U	U	U	U	U	U	18	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	U	U	360	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	360	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	360	410
Phenanthrene	72 J	U	U	U	U	U	U	U	U	U	18	50,000
Anthracene	U	U	U	U	U	U	U	U	U	U	18	50,000
Carbazole	U	U	U	U	U	U	U	U	U	U	360	---
Di-n-butylphthalate	2,900	1,600 J	290 J	U	U	U	U	U	U	U	360	8,100
Fluoranthene	69 J	U	U	U	U	U	U	78 J	U	U	18	50,000
Pyrene	66 J	U	U	U	U	U	U	U	U	U	18	50,000
Butylbenzylphthalate	22,000	16,000	9,200	U	3,600	6,700	U	4,200	160,000	160,000	360	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	720	---
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	18	224 or MDL
Chrysene	U	U	U	U	U	U	U	U	U	U	18	400
bis(2-Ethylhexyl)phthalate	1,200 J	1,200 J	660 J	U	U	U	U	U	U	U	360	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	360	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	18	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	18	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	18	61 or MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	18	3,200
Dibenz(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	18	14 or MDL
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	18	50,000
TOTAL CaPAHs	0	0	0	0	0	0	0	0	0	0		10,000*
TOTAL SVOCs	26,307	18,800	10,172	160,520	3,608	6,736	4,278	160,000				500,000

Qualifiers  
 U: Compound analyzed for but not detected  
 J: Compound found at a concentration below the detection limit

Notes  
 ---: Not established  
 MDL: Method Detection Limit  
 [ ]: Value exceeds TAGM 4046 Appendix A criteria  
 \*: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A



TABLE C-3 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										FB-1	LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	RWP-5	RWP-5	RWP-5	RWP-5	RWP-6	RWP-6	RWP-6	RWP-6	RWP-6	RWP-6				FB-1
SAMPLE IDENTIFICATION	8' - 10'	10' - 12'	12' - 14'	12' - 14'	6' - 8'	8' - 10'	8' - 10'	12' - 14'	16' - 18'	16' - 18'				
DATE OF COLLECTION	8/14/98	8/14/98	8/14/98	8/14/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/18/98	8/19/98			
LABORATORY	Envirotech													
DILUTION FACTOR	5	2	5	5	50	25	5	1	1	1				
PERCENT SOLIDS	95	95	96	96	89.6	96	88	97	97	97				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/L)	(ug/kg)	(ug/kg)	
Phenol	U	U	U	U	U	U	U	U	U	U	U	U	360	30 or MDL
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	800
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	100 or MDL
4-Methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	900
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	240 or MDL
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	100
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	720	200 or MDL
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	720	100 or MDL
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	720	1,000 or MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	1,600
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U	360	8,500
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	U	U	360	7,900
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	U	360	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	U	U	360	---
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	200 or MDL
Isophorone	U	U	U	U	U	U	U	U	U	U	U	U	360	4,400
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	U	360	---
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	360	3,400
Naphthalene	U	U	U	U	U	1,100 J	71 J	U	U	U	U	U	18	13,000
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	U	U	360	220 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Methylnaphthalene	U	U	U	U	2,400 J	3,000 J	350 J	U	U	U	U	U	360	36,400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	U	360	---
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U	360	430 or MDL
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	U	U	360	2,000
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	U	U	18	41,000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	U	360	1,000

TABLE C-3 (in used)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	RWP-5 8' - 10' 8/14/98	RWP-5 10' - 12' 8/14/98	RWP-5 12' - 14' 8/14/98	RWP-6 6' - 8' 8/18/98	RWP-6 8' - 10' 8/18/98	RWP-6 12' - 14' 8/18/98	RWP-6 16' - 18' 8/18/98	FB-1 -- 8/19/98	DILUTION FACTOR			
	5 95 (ug/kg)	2 95 (ug/kg)	5 96 (ug/kg)	50 89.6 (ug/kg)	25 96 (ug/kg)	5 88 (ug/kg)	1 97 (ug/kg)	1 -- (ug/L)	1 -- (ug/L)	1 -- (ug/L)		
PERCENT SOLIDS												
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	500 or MDL
Acenaphthene	U	U	U	640 J	940 J	93 J	U	U	U	U	U	50,000
Dibenzofuran	U	U	U	380 J	600 J	53 J	U	U	U	U	U	6,200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	U	---
Diethylphthalate	U	U	U	U	U	U	U	U	U	U	U	7,100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	---
Fluorene	U	U	U	U	U	U	U	U	U	U	U	50,000
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	---
N-Nitrosodiphenylamine	U	U	U	620 J	1,000 J	64 J	U	U	U	U	U	---
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	U	U	U	---
Hexachlorobenzene	U	U	U	U	U	U	U	U	U	U	U	410
Phenanthrene	U	U	U	U	U	U	U	U	U	U	U	50,000
Anthracene	U	U	U	U	U	U	U	U	U	U	U	50,000
Carbazole	U	U	U	U	U	U	U	U	U	U	U	---
Di-n-butylphthalate	U	U	U	U	U	U	U	U	U	U	U	---
Fluoranthene	U	U	U	U	U	450 J	U	U	U	U	U	8,100
Pyrene	U	U	U	U	U	U	U	U	U	U	U	50,000
Butylbenzylphthalate	27,000	9,800	15,000	190,000	110,000	20,000	2,600	U	U	U	U	50,000
3,3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	50,000
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	U	224 or MDL
Chrysene	U	U	U	U	U	U	U	U	U	U	U	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	U	U	U	U	U	50,000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	U	U	U	50,000
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	1,100
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	1,100
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	U	61 or MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	U	3,200
Dibenz(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	U	14 or MDL
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	U	50,000
TOTAL CaPAHs	0	0	0	0	0	0	0	0	0	0	0	10,000*
TOTAL SVOCS	27,000	9,800	15,000	194,040	116,640	21,081	2,600	0	0	0	0	500,000

Qualifiers  
 U - Compound analyzed for but not detected  
 J - Compound found at a concentration below the detection limit

Notes  
 ---: Not established  
 MDL: Method Detection Limit  
 Value exceeds TAGM 4046 Appendix A criteria  
 \*: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	FB-2										LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	DATE OF COLLECTION	LABORATORY	DILUTION FACTOR	PERCENT SOLIDS	UNITS						(ug/kg)	(ug/kg)
Phenol	U										360	30 or MDL
2-Chlorophenol	U										360	800
2-Methylphenol	U										360	100 or MDL
4-Methylphenol	U										360	900
2-Nitrophenol	U										360	330 or MDL
2,4-Dimethylphenol	U										360	400
2,4-Dichlorophenol	U										360	240 or MDL
4-Chloro-3-methylphenol	U										360	100
2,4,6-Trichlorophenol	U										720	200 or MDL
2,4,5-Trichlorophenol	U										720	100 or MDL
2,4-Dinitrophenol	U										720	1,000 or MDL
4-Nitrophenol	U										360	1,600
4,6-Dinitro-2-methylphenol	U										360	8,500
Pentachlorophenol	U										360	7,900
bis(2-Chloroethyl)ether	U										360	
1,3-Dichlorobenzene	U										360	
1,4-Dichlorobenzene	U										360	
1,2-Dichlorobenzene	U										360	
bis(2-chloroisopropyl)ether	U										360	
N-Nitroso-di-n-propylamine	U										360	
Hexachloroethane	U										360	
Nitrobenzene	U										360	200 or MDL
Isophorone	U										360	4,400
bis(2-Chloroethoxy)methane	U										360	
1,2,4-Trichlorobenzene	U										360	
Naphthalene	U										360	3,400
4-Chloroaniline	U										18	13,000
Hexachlorobutadiene	U										360	220 or MDL
2-Methylnaphthalene	U										360	36,400
Hexachlorocyclopentadiene	U										360	
2-Chloronaphthalene	U										360	
2-Nitroaniline	U										360	430 or MDL
Dimethylphthalate	U										360	2,000
Acenaphthylene	U										18	41,000
2,6-Dinitrotoluene	U										360	1,000

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	FB-2	UNITS	LABORATORY QUANTITATION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	--	(ug/L)	(ug/kg)	(ug/kg)
DATE OF COLLECTION	8/19/98			500 or MDL
DILUTION FACTOR	1			50,000
PERCENT SOLIDS	--			6,200
3-Nitroaniline	U		360	7,100
Acenaphthene	U		18	50,000
Dibenzofuran	U		360	---
2,4-Dinitrotoluene	U		360	---
Diethylphthalate	U		360	---
4-Chlorophenyl-phenylether	U		360	---
Fluorene	U		18	50,000
4-Nitroaniline	U		360	---
N-Nitrosodiphenylamine	U		360	---
4-Bromophenyl-phenylether	U		360	---
Hexachlorobenzene	U		360	410
Phenanthrene	U		18	50,000
Anthracene	U		18	50,000
Carbazole	U		360	---
Di-n-butylphthalate	U		360	---
Fluoranthene	U		360	8,100
Pyrene	U		18	50,000
Butylbenzylphthalate	U		18	50,000
3,3'-Dichlorobenzidine	U		360	50,000
Benzo(a)anthracene	U		720	50,000
Chrysene	U		18	---
bis(2-Ethylhexyl)phthalate	U		18	224 or MDL
Di-n-octylphthalate	U		18	400
Benzo(b)fluoranthene	U		360	50,000
Benzo(k)fluoranthene	U		360	50,000
Benzo(a)pyrene	U		18	1,100
Indeno(1,2,3-cd)pyrene	U		18	1,100
Dibenz(a,h)anthracene	U		18	61 or MDL
Benzo(g,h,i)perylene	U		18	3,200
	U		18	14 or MDL
	U		18	50,000
TOTAL CaPAHs	0			10,000*
TOTAL SVOCs	0			500,000

Notes  
 ----: Not established  
 MDL: Method Detection Limit  
 \*: Proposed criterion for total CaPAHs in TAGM 4046 Appendix A

Qualifiers  
 U: Compound analyzed for but not detected

**TAB - 4**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS**

SAMPLE LOCATION	Trench in EMT Lab No. 1		Chemical Storage Area/ Concrete Platform						CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-7AA 0'-2' 8/11/98	B-7AA 2'-4' 8/11/98	B-17BA 4'-6' 8/6/98	B-17BA 6'-8' 8/6/98	B-17BN7 2'-4' 8/6/98	B-17BN7 0'-2' 8/6/98	B-17BS7 0'-2' 8/6/98	B-17BS7 2'-4' 8/6/98		
LABORATORY	Envirotech									
DILUTION FACTOR	5	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	98	99	96	95	97	93	96	98	98	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
<b>SEMIVOLATILE COMPOUNDS</b>										
Naphthalene	U	U	13 J	U	U	18 J	U	9.1 J	U	
Acenaphthene	U	U	59 J	U	U	150 J	U	51 J	9.3 J	
Fluorene	U	U	8.7 J	U	U	110 J	U	41 J	8.7 J	
Phenanthrene	U	U	44 J	U	U	1,200	U	500	84 J	
Anthracene	U	U	11 J	U	U	280 J	U	97 J	22 J	
Fluoranthene	U	U	130 J	U	U	1,900	U	880	160 J	
Pyrene	U	U	150 J	U	U	1,800	U	750	140 J	
Benzo(a)anthracene	U	U	52	U	U	<b>1,000</b>	U	<b>470</b>	89	
Chrysene	U	U	77 J	U	U	1,000	U	460	66 J	
Benzo(b)fluoranthene	U	U	87	U	U	<b>1,400</b>	U	<b>460</b>	73	
Benzo(k)fluoranthene	U	U	31 J	U	U	510	U	190	28 J	
Benzo(a)pyrene	U	U	46	U	U	<b>860</b>	U	<b>360</b>	58	
Indeno(1,2,3-cd)pyrene	U	U	43	U	U	270	U	190	30 J	
Dibenzo(a,h)anthracene	U	U	11 J	U	U	<b>71</b>	U	<b>52</b>	14	
Benzo(g,h,i)perylene	U	U	43 J	U	U	220 J	U	180 J	29 J	

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.  
 Notes:  
 --- : Not established  
 □ : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Chemical Storage Area/ Concrete Platform		Sanitary Leaching Pools (North and South)				CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-17BE7 0 - 2' 8/6/98	B-17BE7 2' - 4' 8/6/98	B-17BW7 0 - 2' 8/6/98	B-17BW7 2' - 4' 8/6/98	B-22AA 10' - 12' 8/18/98	B-22BA 10' - 12' 8/18/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1
PERCENT SOLIDS	94	94	96	96	98	97	96	96
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
<b>SEMIVOLATILE COMPOUNDS</b>								
Naphthalene	U	U	16 J	U	U	U	U	10
Acenaphthene	U	U	43 J	U	U	U	U	10
Fluorene	U	U	8.3 J	U	U	U	U	10
Phenanthrene	130 J	66 J	48 J	17 J	U	U	U	10
Anthracene	280 J	18 J	11 J	U	U	U	U	10
Fluoranthene	240 J	66 J	76 J	15 J	U	U	U	10
Pyrene	170 J	54 J	69 J	20 J	U	U	U	10
Benzo(a)anthracene	140 J	28 J	45	10 J	U	U	U	10
Chrysene	220	29 J	52 J	18 J	U	U	U	10
Benzo(b)fluoranthene	88 J	20 J	49	6.4 J	U	U	U	10
Benzo(k)fluoranthene	130 J	20 J	16 J	U	U	U	U	10
Benzo(a)pyrene	52 J	U	35 J	U	U	U	U	10
Indeno(1,2,3-cd)pyrene	U	U	22 J	U	U	U	U	10
Dibenzo(a,h)anthracene	U	U	8.6 J	U	U	U	U	10
Benzo(g,h,i)perylene	66 J	U	23 J	U	U	U	U	10

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.  
 Notes:  
 ---- : Not established  
 □ : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Sanitary Leaching Pools (South) Beneath Megapound		Former Leaching Pool Beneath Megapound		Southern Parking Lot				CONTRACT REQUIRED DETECTION LIMITS  (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES  (ug/kg)
	B-22DA 12' - 14' 8/10/98	B-22DA 14' - 16' 8/10/98	B-32AA 10' - 12' 8/10/98	B-35AA 0 - 2' 8/11/98	B-35AA 2' - 4' 8/11/98	B-35AA 4' - 6' 8/11/98	B-35AA 6' - 8' 8/11/98	B-35AN7 0 - 2' 8/11/98		
LABORATORY	Envirotech									
DILUTION FACTOR	1	1	20	1	1	2	1	1		
PERCENT SOLIDS	98	97	98	90	98	98	98	86		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
SEMIVOLATILE COMPOUNDS										
Naphthalene	U	U	U	U	U	76 J	U	U	10	300,000
Acenaphthene	U	U	U	U	U	100 J	U	U	10	5,000,000
Fluorene	U	U	U	U	U	210 J	U	U	10	3,000,000
Phenanthrene	U	U	U	U	U	240 J	U	U	10	----
Anthracene	U	U	U	U	U	U	U	U	10	20,000,000
Fluoranthene	U	U	U	U	U	U	U	U	10	3,000,000
Pyrene	U	U	U	U	U	67 J	U	U	10	2,000,000
Benzo(a)anthracene	U	U	U	U	U	U	U	U	10	220
Chrysene	U	U	U	U	U	U	U	U	10	----
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	10	220
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	10	220
Benzo(a)pyrene	U	U	U	U	U	U	U	U	10	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	10	----
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	10	14
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	10	----

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.

Notes:  
 ---- : Not established

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS

STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Southern Parking Lot			Former Drainage Trench East of Plant 12A			CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-35AN7 2' - 4' 8/11/98	B-35AS7 0 - 2' 8/11/98	B-35AS7 2' - 4' 8/11/98	B-35AE7 0 - 2' 8/11/98	B-35AE7 1' - 3' 8/12/98	B-38BN7 3' - 5' 8/12/98		
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	98	91	98	91	93	96		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
SEMIVOLATILE COMPOUNDS								
Naphthalene	U	U	U	U	40 J	160 J	10	300,000
Acenaphthene	U	U	U	U	U	38 J	10	5,000,000
Fluorene	U	U	U	U	U	20 J	10	3,000,000
Phenanthrene	U	U	U	U	93 J	290 J	10	-----
Anthracene	U	U	U	U	17 J	90 J	10	20,000,000
Fluoranthene	U	U	U	U	74 J	210 J	10	3,000,000
Pyrene	U	U	U	U	65 J	37 J	10	2,000,000
Benzo(a)anthracene	U	U	U	U	47	130	10	220
Chrysene	U	U	U	U	38 J	120 J	10	-----
Benzo(b)fluoranthene	U	U	U	U	43	130	10	220
Benzo(k)fluoranthene	U	U	U	U	18 J	55 J	10	220
Benzo(a)pyrene	U	U	U	U	31 J	96	10	61
Indeno(1,2,3-cd)pyrene	U	U	U	U	21 J	62 J	10	-----
Dibenzo(a,h)anthracene	U	U	U	U	U	U	10	14
Benzo(g,h,i)perylene	U	U	U	U	20 J	80 J	10	-----

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.

Notes:  
 ----- : Not established  
 [ ] : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value



TABLE C-4 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Former Drainage Trench East of Plant 12A				Former Trenches to Resin Waste Pit (Sump #1)		CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	B-38BS7	B-38BE7	B-38BW7	B-38BE7	B-43AA	B-43AN7		
SAMPLE IDENTIFICATION	B-38BS7	B-38BE7	B-38BW7	B-38BE7	B-43AA	B-43AN7		
SAMPLE DEPTH	1' - 3'	1' - 3'	3' - 5'	1' - 3'	2' - 4'	0 - 2'		
DATE OF COLLECTION	8/12/98	8/12/98	8/12/98	8/12/98	8/5/98	8/5/98		
LABORATORY	Envirotech							
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	90	97	96	97	97	93		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
<u>SEMIVOLATILE COMPOUNDS</u>								
Naphthalene	1,400 J	U	U	U	U	21 J	300,000	
Acenaphthene	2,600 J	U	U	U	U	17 J	5,000,000	
Fluorene	2,900 J	U	U	U	U	U	3,000,000	
Phenanthrene	6,200	10 J	U	7.7 J	26 J	91 J	----	
Anthracene	600 J	12 J	U	U	36 J	11 J	20,000,000	
Fluoranthene	620 J	U	U	U	30 J	120 J	3,000,000	
Pyrene	740 J	U	U	U	26 J	110 J	2,000,000	
Benzo(a)anthracene	300 J	U	U	U	16 J	74	220	
Chrysene	240 J	U	U	U	16 J	130 J	----	
Benzo(b)fluoranthene	300 J	U	U	U	16 J	160	220	
Benzo(k)fluoranthene	120 J	U	U	U	7.4 J	52	220	
Benzo(a)pyrene	200 J	U	U	U	12 J	69	61	
Indeno(1,2,3-cd)pyrene	120 J	U	U	U	U	62	----	
Dibenzo(a,h)anthracene	U	U	U	U	U	16 J	14	
Benzo(g,h,i)perylene	120 J	U	U	U	U	50 J	----	

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.

Notes:  
 ---- : Not established  
 □ : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Former Trenches to Resin Waste Pit (Sump #1)						Dry Well Northeast of Plant 12A	CONTRACT REQUIRED DETECTION LIMITS	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES
	B-43AN7 2' - 4' 8/5/98	B-43AS7 0 - 2' 8/5/98	B-43AE5 0 - 2' 8/5/98	B-43AE5 2' - 4' 8/5/98	B-43AW7 0 - 2' 8/5/98	B-43AW7 2' - 4' 8/5/98			
LABORATORY	Envirotech								
DILUTION FACTOR	1	2	1	1	1	1	93		
PERCENT SOLIDS	92	98	94	97	96	97	93		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
<b>SEMIVOLATILE COMPOUNDS</b>									
Naphthalene	U	58 J	U	U	U	U	100 J	10	300,000
Acenaphthene	U	24 J	7.1 J	13 J	29 J	U	260 J	10	5,000,000
Fluorene	U	U	U	U	33 J	U	220 J	10	3,000,000
Phenanthrene	U	140 J	75 J	80 J	280 J	12 J	2,000	10	---
Anthracene	U	28 J	16 J	19 J	48 J	U	550	10	20,000,000
Fluoranthene	U	220 J	100 J	120 J	270 J	20 J	3,400	10	3,000,000
Pyrene	U	210 J	97 J	110 J	220 J	18 J	2,900	10	2,000,000
Benzo(a)anthracene	U	150	56	63	120	21 J	1,600	10	220
Chrysene	U	170 J	59 J	55 J	140 J	12 J	1,800	10	---
Benzo(b)fluoranthene	U	270	63	71	120	13 J	2,600	10	220
Benzo(k)fluoranthene	U	75	30 J	32 J	49	U	990	10	220
Benzo(a)pyrene	U	170	44	52	77	8.3 J	1,600	10	61
Indeno(1,2,3-cd)pyrene	U	85	25 J	28 J	U	U	530	10	---
Dibenzo(a,h)anthracene	U	23 J	U	U	U	U	110	10	14
Benzo(g,h,i)perylene	U	69 J	20 J	26 J	33 J	U	440	10	---

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.

Notes:  
 --- : Not established  
 □ : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C-4 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Dry Well Northeast of Plant 12A		Petroleum/ Chemical Storage Areas								CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)	
	B-45AA 8' - 10' 8/14/98	B-45AA 10' - 12' 8/14/98	PCS-AA 0 - 2' 8/12/98	PCS-AA 2' - 4' 8/12/98	PCS-AA 4' - 6' 8/12/98	PCS-AA 0 - 2' 8/12/98	PCS-AA 2' - 4' 8/12/98	PCS-AA 4' - 6' 8/12/98	PCS-AA 8' - 12' 8/12/98	PCS-AN8 4' - 6' 8/12/98			
LABORATORY	Envirotech												
DILUTION FACTOR	1	1	5	1	1	1	1	1	10	2	1		
PERCENT SOLIDS	92	96	92	98	97	95	95	95	95	95	97		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
SEMIVOLATILE COMPOUNDS													
Naphthalene	110 J	U	360 J	U	U	1,800 J	U	U	1,800 J	320 J	580	10	300,000
Acenaphthene	240 J	U	2,200	U	10 J	7,800	U	10 J	7,800	1,400	1,100	10	5,000,000
Fluorene	210 J	U	1,900	U	U	4,800	U	U	4,800	1,000	1,000	10	3,000,000
Phenanthrene	1,900	9.6 J	17,000	18 J	71 J	38,000	19 J	71 J	38,000	9,000	7,900	10	----
Anthracene	500	U	4,700	22 J	120 J	10,000	22 J	120 J	10,000	2,400	2,200	10	20,000,000
Fluoranthene	3,100	U	27,000	20 J	96 J	57,000	20 J	96 J	57,000	13,000	7,700	10	3,000,000
Pyrene	2,800	13 J	22,000	18 J	56	46,000	18 J	56	46,000	10,000	6,300	10	2,000,000
Benzo(a)anthracene	1,500	U	12,000	8.9 J	48 J	26,000	8.9 J	48 J	26,000	6,000	3,500	10	220
Chrysene	1,800	U	11,000	11 J	56	27,000	11 J	56	27,000	5,900	3,200	10	----
Benzo(b)fluoranthene	2,600	U	12,000	7.5 J	23 J	10,000	7.5 J	23 J	10,000	2,400	1,400	10	220
Benzo(k)fluoranthene	1,100	U	5,200	U	48	22,000	U	48	22,000	5,200	2,700	10	220
Benzo(a)pyrene	1,700	U	10,000	U	27 J	15,000	U	27 J	15,000	3,300	1,400	10	61
Indeno(1,2,3-cd)pyrene	500	U	6,700	U	U	3,400	U	U	3,400	510	350	10	----
Dibenzo(a,h)anthracene	120	U	1,800	U	23 J	13,000	U	23 J	13,000	2,900	1,100	10	14
Benzo(g,h,i)perylene	410	U	6,800	U	U	U	U	U	U	U	U	10	----

Qualifiers:  
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Notes:  
 ---- : Not established  
 [ ] : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS

STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Petroleum/ Chemical Storage Areas										CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)					
	PCS-AS8 0 - 2' 8/12/98	PCS-AS8 2' - 4' 8/12/98	PCS-AS8 4' - 6' 8/12/98	PCS-AE8 0 - 2' 8/12/98	PCS-AE8 2' - 4' 8/12/98	PCS-AE8 4' - 6' 8/12/98	PCS-AW8 0 - 2' 8/12/98	PCS-AW8 2' - 4' 8/12/98	DILUTION FACTOR	PERCENT SOLIDS							
Naphthalene	160 J	U	U	210 J	86 J	U	U	U	93	1	1	1	1	1	1	10	300,000
Acenaphthene	820	U	U	1,500 J	290 J	U	U	U	98	98	98	98	98	98	98	10	5,000,000
Fluorene	750	U	U	950 J	260 J	U	U	U	92	92	92	92	92	92	92	10	3,000,000
Phenanthrene	7,000	11 J	U	9,200	2,000	U	U	U	5	5	5	5	5	5	5	10	---
Anthracene	2,000	U	U	2,600	560	U	U	U	1	1	1	1	1	1	1	10	20,000,000
Fluoranthene	11,000	21 J	U	17,000	2,700	U	U	U	1	1	1	1	1	1	1	10	3,000,000
Pyrene	9,100	18 J	U	18,000	2,300	U	U	U	1	1	1	1	1	1	1	10	2,000,000
Benzo(a)anthracene	5,000	18 J	U	8,500	1,300	U	U	U	1	1	1	1	1	1	1	10	220
Chrysene	4,700	8.2 J	U	9,200	1,200	U	U	U	1	1	1	1	1	1	1	10	---
Benzo(b)fluoranthene	5,000	10 J	U	10,000	1,300	U	U	U	1	1	1	1	1	1	1	10	220
Benzo(k)fluoranthene	1,900	U	U	4,400	520	U	U	U	1	1	1	1	1	1	1	10	220
Benzo(a)pyrene	4,200	7.5 J	U	8,300	1,100	U	U	U	1	1	1	1	1	1	1	10	61
Indeno(1,2,3-cd)pyrene	2,600	U	U	5,900	580	U	U	U	1	1	1	1	1	1	1	10	---
Dibenzo(a,h)anthracene	680	U	U	1,400	160	U	U	U	1	1	1	1	1	1	1	10	14
Benzo(g,h,i)perylene	2,200	U	U	5,100	450	U	U	U	1	1	1	1	1	1	1	10	---

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.

Notes:  
 --- : Not established  
 [ ] : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Petroleum/ Chemical Storage Areas										CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)
	PCS-AW8 4' - 6' 8/12/98	PCS-GA 0 - 2' 8/11/98	PCS-GA 2' - 4' 8/11/98	PCS-GA 4' - 6' 8/11/98	PCS-GN8 0 - 2' 8/11/98	PCS-GN8 2' - 4' 8/11/98	PCS-GN8 4' - 6' 8/11/98	PCS-GN8 0 - 2' 8/11/98	PCS-GS8 0 - 2' 8/11/98	LABORATORY		
DILUTION FACTOR	1	2	1	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	96	96	94	98	94	91	98	98	94	98	94	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
<u>SEMIVOLATILE COMPOUNDS</u>												
Naphthalene	U	230 J	U	U	49 J	U	U	U	13 J	U	10	300,000
Acenaphthene	U	1,100	U	U	270 J	U	U	U	11 J	U	10	5,000,000
Fluorene	U	1,200	U	U	250 J	U	U	U	11 J	U	10	3,000,000
Phenanthrene	U	7,800	9 J	U	2,400	U	U	U	130 J	U	10	----
Anthracene	U	2,300	U	U	740	U	U	U	30 J	U	10	20,000,000
Fluoranthene	U	9,200	22 J	U	3,400	U	U	U	210 J	U	10	3,000,000
Pyrene	U	8,900	19 J	U	3,300	U	U	U	170 J	U	10	2,000,000
Benzo(a)anthracene	U	5,400	14 J	U	2,000	U	U	U	100	U	10	220
Chrysene	U	5,100	11 J	U	2,000	U	U	U	110 J	U	10	----
Benzo(b)fluoranthene	U	5,000	U	U	2,000	U	U	U	110	U	10	220
Benzo(k)fluoranthene	U	2,100	U	U	780	U	U	U	48	U	10	220
Benzo(a)pyrene	U	4,300	U	U	1,700	U	U	U	85	U	10	61
Indeno(1,2,3-cd)pyrene	U	2,600	U	U	1,000	U	U	U	50	U	10	----
Dibenzo(a,h)anthracene	U	830	U	U	240	U	U	U	13 J	U	10	14
Benzo(g,h,i)perylene	U	2,100	U	U	870	U	U	U	53 J	U	10	----

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the contract required detection limit.  
 Notes:  
 ---- : Not established  
 [ ] : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

TABLE C-1 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TOTAL ANALYSIS

SAMPLE LOCATION	Petroleum/ Chemical Storage Areas										CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	STARS TABLES 1 and 2 HUMAN HEALTH GUIDANCE VALUES (ug/kg)		
	PCS-GS8 2' - 4' 8/11/98	PCS-GS8 4' - 6' 8/11/98	PCS-GE8 0 - 2' 8/11/98	PCS-GE8 2' - 4' 8/11/98	PCS-GE8 4' - 6' 8/11/98	PCS-GW8 0 - 2' 8/11/98	PCS-GW8 2' - 4' 8/11/98	PCS-GW8 4' - 6' 8/11/98	PCS-GW8 0 - 2' 8/11/98	PCS-GW8 2' - 4' 8/11/98			PCS-GW8 4' - 6' 8/11/98	
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	93	91	93	90	98	93	94	98	93	94	98			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
SEMIVOLATILE COMPOUNDS														
Naphthalene	14 J	U	U	U	U	U	U	U	U	U	U	U	10	300,000
Acenaphthene	14 J	350 J	120 J	16 J	U	U	U	U	U	U	U	U	10	5,000,000
Fluorene	14 J	350 J	120 J	12 J	U	U	U	U	U	U	U	U	10	3,000,000
Phenanthrene	150 J	4,400	1,000	33 J	U	U	U	U	40 J	33 J	U	U	10	----
Anthracene	38 J	940	260 J	U	U	U	U	U	U	U	U	U	10	20,000,000
Fluoranthene	220 J	5,200	1,300	42 J	U	U	U	U	59 J	65 J	U	U	10	3,000,000
Pyrene	200 J	6,200	1,200	36 J	U	U	U	U	49 J	64 J	U	U	10	2,000,000
Benzo(a)anthracene	110	3,200	670	26 J	U	U	U	U	34 J	38	U	U	10	220
Chrysene	120 J	3,400	650	16 J	U	U	U	U	35 J	42 J	U	U	10	----
Benzo(b)fluoranthene	140	2,300	660	12 J	U	U	U	U	40	43	U	U	10	220
Benzo(k)fluoranthene	52	1,100	280	U	U	U	U	U	12 J	16 J	U	U	10	220
Benzo(a)pyrene	99	1,700	570	14 J	U	U	U	U	26 J	30 J	U	U	10	61
Indeno(1,2,3-cd)pyrene	63	930	340	U	U	U	U	U	U	15 J	U	U	10	----
Dibenzo(a,h)anthracene	U	260	81	U	U	U	U	U	U	U	U	U	10	14
Benzo(g,h,i)perylene	56 J	770	320 J	U	U	U	U	U	U	U	U	U	10	----

Notes:  
 --- : Not established  
 U : Compound analyzed for but not detected.  
 J : Compound found at a concentration below the contract required detection limit.  
 □ : Value exceeds STARS Tables 1 and 2 Human Health Guidance Value

**TAB 5**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS**

SAMPLE LOCATION	Trench in EMT Lab No.1		Chemical Storage Area/ Concrete Platform						CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES
	B-7AA 0 - 2' 8/11/98	B-7AA 2' - 4' 8/11/98	B-17BA 4' - 6' 8/6/98	B-17BA 6' - 8' 8/6/98	B-17BN7 0 - 2' 8/6/98	B-17BN7 2' - 4' 8/6/98	B-17BS7 0 - 2' 8/6/98	B-17BS7 2' - 4' 8/6/98		
LABORATORY	Envirotech									
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	
<b>SEMIVOLATILE COMPOUNDS</b>										
Naphthalene	U	U	U	U	U	U	U	U	10	
Acenaphthene	U	U	U	U	U	U	U	U	20	
Fluorene	U	U	U	U	U	U	U	U	50	
Phenanthrene	U	U	U	U	U	U	U	U	50	
Anthracene	U	U	U	U	U	U	U	U	50	
Fluoranthene	U	U	U	U	U	U	U	U	50	
Pyrene	U	U	U	U	U	U	U	U	50	
Benzo(a)anthracene	U	U	U	U	U	U	U	U	0.002	
Chrysene	U	U	U	U	U	U	U	U	0.002	
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	0.002	
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	0.002	
Benzo(a)pyrene	U	U	U	U	U	U	U	U	0.002	
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	0.002	
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	0.002	
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	50	
									0.002	

Qualifiers:  
 U: Compound analyzed for but not detected.

TABLE C-3 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Chemical Storage Area/ Concrete Platform				Area Outside of Machine Shop				CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES (ug/L)
	B-17BE7 0 - 2' 8/6/98	B-17BE7 2' - 4' 8/6/98	B-17BW7 0 - 2' 8/6/98	B-17BW7 2' - 4' 8/6/98	B-19AN12 0 - 2' 8/7/98	B-19AN12 2' - 4' 8/7/98	B-19AE7 0 - 2' 8/7/98	B-19AE7 2' - 4' 8/7/98		
LABORATORY	Envirotech									
DILUTION FACTOR	1	1	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
SEMIVOLATILE COMPOUNDS										
Naphthalene	U	U	U	U	U	U	U	U	10	10
Acenaphthene	U	U	U	U	U	U	U	U	10	20
Fluorene	U	U	U	U	U	U	U	U	10	50
Phenanthrene	U	U	U	U	U	U	U	U	10	50
Anthracene	U	U	U	U	U	U	U	U	10	50
Fluoranthene	U	U	U	U	U	U	U	U	10	50
Pyrene	U	U	U	U	U	U	U	U	10	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	10	0.002
Chrysene	U	U	U	U	U	U	U	U	10	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	10	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	10	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	10	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	10	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	10	0.002
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	10	50
									10	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.



TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Area Outside of Machine Shop		Sanitary Leaching Pools (North and South)						CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES
	B-19AW10 0 - 2' 8/7/98	B-19AW10 2'-4' 8/7/98	B-22AA 8' - 10' 8/18/98	B-22AA 10' - 12' 8/18/98	B-22BA 8' - 10' 8/18/98	B-22BA 10' - 12' 8/18/98	B-22CA 8' - 10' 8/18/98	B-22CA 14' - 16' 8/18/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	
<b>SEMIVOLATILE COMPOUNDS</b>										
Naphthalene	U	U	U	U	U	U	U	U	U	10
Acenaphthene	U	U	U	U	U	U	U	U	U	20
Fluorene	U	U	U	U	U	U	U	U	U	50
Phenanthrene	U	U	U	U	U	U	U	U	U	50
Anthracene	U	U	U	U	U	U	U	U	U	50
Fluoranthene	U	U	U	U	U	U	U	U	U	50
Pyrene	U	U	U	U	U	U	U	U	U	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	0.002
Chrysene	U	U	U	U	U	U	U	U	U	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	50
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	0.002

Qualifiers:  
 U : Compound analyzed for but not detected.

TABLE C-5 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12

PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Sanitary Leaching Pools (North and South)	Sanitary Leaching Pool (South) Beneath Megapound	Drainage Chamber North of Lobby/ Loading Area	Former Leaching Pool Beneath Megapound	Southern Parking Lot		CONTRACT REQUIRED DETECTION LIMITS	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES
					B-22CA 16' - 18' 8/18/98	B-22DA 14' - 16' 8/10/98		
DILUTION FACTOR	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
UNITS	1	1	1	1	1	1	1	1
SEMIVOLATILE COMPOUNDS								
Naphthalene	U	U	U	U	U	U	U	10
Acenaphthene	U	U	U	U	U	U	U	20
Fluorene	U	U	U	U	U	U	U	50
Phenanthrene	U	U	U	U	U	U	U	50
Anthracene	U	U	U	U	U	U	U	50
Fluoranthene	U	U	U	U	U	U	U	50
Pyrene	U	U	U	U	U	U	U	50
Benzo(a)anthracene	U	U	U	U	U	U	U	0.002
Chrysene	U	U	U	U	U	U	U	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	0.002
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	50
	U	U	U	U	U	U	U	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.

TABLE C-5 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Southern Parking Lot										CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES
	B-35AA 4'-6' 8/11/98	B-35AA 6'-8' 8/11/98	B-35AN7 0-2' 8/11/98	B-35AN7 2'-4' 8/11/98	B-35AN7 2'-4' 8/11/98	B-35AS7 0-2' 8/11/98	B-35AS7 2'-4' 8/11/98	B-35AE7 0-2' 8/11/98	B-35AE7 2'-4' 8/11/98	DILUTION FACTOR		
SEMIVOLATILE COMPOUNDS												
Naphthalene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Acenaphthene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Fluorene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Phenanthrene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Anthracene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Fluoranthene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Pyrene	U	U	U	U	U	U	U	U	U	1	(ug/L)	10
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002
Chrysene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	1	(ug/L)	50
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	1	(ug/L)	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.

TABLE C-3 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Former Drainage Pit East of Plant 12A										CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES (ug/L)
	B-38BA 1' - 3' 8/12/98	B-38BN7 1' - 3' 8/12/98	B-38N7 3' - 5' 8/12/98	B-38BS7 1' - 3' 8/12/98	B-38BS7 3' - 5' 8/12/98	B-38BE7 1' - 3' 8/12/98	B-38BE7 3' - 5' 8/12/98	B-38BW7 1' - 3' 8/12/98	DILUTION FACTOR			
UNITS	1	1	1	1	1	1	1	1	1	1	(ug/L)	(ug/L)
<b>SEMIVOLATILE COMPOUNDS</b>												
Naphthalene	U	U	U	U	U	U	U	U	U	U	10	10
Acenaphthene	U	U	U	U	U	U	U	U	U	U	10	20
Fluorene	U	U	U	U	U	U	U	U	U	U	10	50
Phenanthrene	U	U	U	U	U	U	U	U	U	U	10	50
Anthracene	U	U	U	U	U	U	U	U	U	U	10	50
Fluoranthene	U	U	U	U	U	U	U	U	U	U	10	50
Pyrene	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	10	0.002
Chrysene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	10	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	10	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	10	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.

TABLE C-3 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Former Drainage Pit East of Plant 12A	Former Trenches to Resin Waste Pit (Sump #1)										CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES		
		B-38BW7 3' - 5' 8/12/98	B-43AA 2' - 4' 8/5/98	B-43AN7 0 - 2' 8/5/98	B-43AN7 2' - 4' 8/5/98	B-43AS7 0 - 2' 8/5/98	B-43AS7 2' - 4' 8/5/98	B-43AE5 0 - 2' 8/5/98	B-43AE5 2' - 4' 8/5/98	Envirotech					
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)		
<b>SEMIVOLATILE COMPOUNDS</b>															
Naphthalene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	10
Acenaphthene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	20
Fluorene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	50
Phenanthrene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	50
Anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	50
Fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	50
Pyrene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Chrysene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	U	U	U	10	50
															0.002

Qualifiers:  
 U: Compound analyzed for but not detected.

TABLE C- (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Former Trenches to Resin Waste Pit (Sump #1)		Dry Well Northeast of Plant 12A		Petroleum/ Chemical Storage Areas		CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES
	B-43AW7 0 - 2' 8/5/98	B-43AW7 2' - 4' 8/5/98	B-45AA 6 - 8' 8/14/98	B-45AA 8' - 10' 8/14/98	B-45AA 10' - 12' 8/14/98	PCS-AA 0 - 2' 8/12/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
<b>SEMIVOLATILE COMPOUNDS</b>								
Naphthalene	U	U	U	U	U	U	U	10
Acenaphthene	U	U	U	U	U	U	U	20
Fluorene	U	U	U	U	U	U	U	50
Phenanthrene	U	U	U	U	U	U	U	50
Anthracene	U	U	U	U	U	U	U	50
Fluoranthene	U	U	U	U	U	U	U	50
Pyrene	U	U	U	U	U	U	U	50
Benzo(a)anthracene	U	U	U	U	U	U	U	0.002
Chrysene	U	U	U	U	U	U	U	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	50
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

TABLE C-3 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Petroleum/ Chemical Storage Areas										CONTRACT REQUIRED DETECTION LIMITS	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES
	PCS-AN8 0 - 2' 8/12/98	PCS-AN8 2' - 4' 8/12/98	PCS-AN8 4' - 6' 8/12/98	PCS-AS8 0 - 2' 8/12/98	PCS-AS8 2' - 4' 8/12/98	PCS-AS8 4' - 6' 8/12/98	PCS-AE8 0 - 2' 8/12/98	PCS-AE8 2' - 4' 8/12/98	DILUTION FACTOR			
	1	1	1	1	1	1	1	1	1	1	(ug/L)	(ug/L)
SEMIVOLATILE COMPOUNDS												
Naphthalene	5.6 J	U	4.3 J	U	U	0.03 J	U	U	U	U	10	10
Acenaphthene	8.1 J	1.3 J	2.4 J	U	U	U	U	U	U	U	10	20
Fluorene	1.6 J	U	U	U	U	U	U	U	U	U	10	50
Phenanthrene	4 J	2 J	3.6 J	U	U	2.3 J	U	U	U	U	10	50
Anthracene	U	U	0.49 J	U	U	U	U	U	U	U	10	50
Fluoranthene	U	U	U	U	U	U	U	U	U	U	10	50
Pyrene	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	10	0.002
Chrysene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	10	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	10	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	10	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Petrolium/ Chemical Storage Areas										CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES (ug/L)
	PCS-AE8 4' - 6' 8/12/98	PCS-AW8 0 - 2' 8/12/98	PCS-AW8 2' - 4' 8/12/98	PCS-AW8 4' - 6' 8/12/98	PCS-GA 0 - 2' 8/11/98	PCS-GA 2' - 4' 8/11/98	PCS-GA 4' - 6' 8/11/98	PCS-GN8 0 - 2' 8/11/98				
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
SEMIVOLATILE COMPOUNDS												
Naphthalene	U	U	U	U	U	U	U	U	U	U	10	10
Acenaphthene	U	U	U	U	U	U	U	U	U	U	10	20
Fluorene	U	U	U	U	U	U	U	U	U	U	10	50
Phenanthrene	U	U	U	U	U	U	U	U	U	U	10	50
Anthracene	U	U	U	U	U	U	U	U	U	U	10	50
Fluoranthene	U	U	U	U	U	U	U	U	U	U	10	50
Pyrene	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	10	0.002
Chrysene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	10	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	10	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	10	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	10	50
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	10	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.



TABLE C-3 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Petroleum/ Chemical Storage Areas										CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES (ug/L)
	PCS-GN8 2'-4' 8/11/98	PCS-GN8 4'-6' 8/11/98	PCS-GS8 0'-2' 8/11/98	PCS-GS8 2'-4' 8/11/98	PCS-GS8 4'-6' 8/11/98	PCS-GS8 0'-2' 8/11/98	PCS-GE8 2'-4' 8/11/98	PCS-GE8 4'-6' 8/11/98	PCS-GE8 2'-4' 8/11/98	PCS-GE8 4'-6' 8/11/98		
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
<b>SEMIVOLATILE COMPOUNDS</b>												
Naphthalene	U	U	U	U	U	U	U	U	U	U	U	10
Acenaphthene	U	U	U	U	U	U	U	U	U	U	U	20
Fluorene	U	U	U	U	U	U	U	U	U	U	U	50
Phenanthrene	U	U	U	U	U	U	U	U	U	U	U	50
Anthracene	U	U	U	U	U	U	U	U	U	U	U	50
Fluoranthene	U	U	U	U	U	U	U	U	U	U	U	50
Pyrene	U	U	U	U	U	U	U	U	U	U	U	50
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	U	0.002
Chrysene	U	U	U	U	U	U	U	U	U	U	U	0.002
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	0.002
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	U	0.002
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	U	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	U	0.002
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	U	0.002
Benzo(g,h,i)perylene	U	U	U	U	U	U	U	U	U	U	U	50
												0.002

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 : Value exceeds STARS Tables 1 and 2 TCLP Extraction Guidance Value

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 STARS SEMIVOLATILE ORGANIC COMPOUNDS - TCLP ANALYSIS

SAMPLE LOCATION	Petroleum/ Chemical Storage Areas				CONTRACT REQUIRED DETECTION LIMITS (ug/L)	STARS TABLES 1 and 2 TCLP EXTRACTION GUIDANCE VALUES (ug/L)
	PCS-GW8 0 - 2' 8/11/98	PCS-GW8 2' - 4' 8/11/98	PCS-GW8 4' - 6' 8/11/98	PCS-GW8 1 (ug/L)		
<b>SEMIVOLATILE COMPOUNDS</b>						
Naphthalene	U	U	U	U	10	10
Acenaphthene	U	U	U	U	10	20
Fluorene	U	U	U	U	10	50
Phenanthrene	U	U	U	U	10	50
Anthracene	U	U	U	U	10	50
Fluoranthene	U	U	U	U	10	50
Pyrene	U	U	U	U	10	50
Benzo(a)anthracene	U	U	U	U	10	0.002
Chrysene	U	U	U	U	10	0.002
Benzo(b)fluoranthene	U	U	U	U	10	0.002
Benzo(k)fluoranthene	U	U	U	U	10	0.002
Benzo(a)pyrene	U	U	U	U	10	0.002
Indeno(1,2,3-cd)pyrene	U	U	U	U	10	0.002
Dibenzo(a,h)anthracene	U	U	U	U	10	50
Benzo(g,h,i)perylene	U	U	U	U	10	0.002

Qualifiers:  
 U: Compound analyzed for but not detected.

**TAB -6**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**POLYCHLORINATED BIPHENYLS**

SAMPLE LOCATION	Leaching Chamber North of Carpentry Shop				Chemical Storage Area/Concrete Platform				LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-16AA 10' - 12' 8/14/98	B-16AA 14' - 16' 8/14/98	B-16AA 16' - 18' 8/14/98	B-17BA 4' - 6' 8/6/98	B-17BA 6' - 8' 8/6/98	B-17BN7 0 - 2' 8/6/98	B-17BN7 2' - 4' 8/6/98	B-17BS7 0 - 2' 8/6/98		
DILUTION FACTOR	1	1	1	100	10	2	1	1		
PERCENT SOILS	84	92	94	96	95	93	97	96		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Aroclor-1016	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	1,700	U	U	130,000	12,000	2,200	U	690	71	----
Aroclor-1254	940	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	U	U	U	U	71	----
Aroclor-1262	U	U	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	U	U	71	----
<b>TOTAL PCBs</b>	<b>2,640</b>	<b>0</b>	<b>0</b>	<b>130,000</b>	<b>12,000</b>	<b>2,200</b>	<b>0</b>	<b>690</b>		<b>10,000*</b>

**Qualifiers**

U: Compound analyzed for but not detected

**Notes**

----: Not established

\*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHRUP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Chemical Storage Area/Concrete Platform			Sanitary Leaching Pools (North and South)			LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-17BS7 2' - 4' 8/6/98	B-17BE7 0 - 2' 8/6/98	B-17BW7 2' - 4' 8/6/98	B-22AA 8' - 10' 8/18/98	B-22BA 8' - 10' 8/18/98	B-22CA 8' - 10' 8/18/98		
LABORATORY DILUTION FACTOR	1	2	1	1	1	1		
PERCENT SOILS	98	94	95	97	90	94		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Aroclor-1016	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	71	----
Aroclor-1248	U	2,100	U	U	510	740	71	----
Aroclor-1254	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	150	U	71	----
Aroclor-1262	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	71	----
TOTAL PCBs	0	2,100	0	0	660	740		10,000*

Qualifiers

U: Compound analyzed for but not detected

Notes

----: Not established

\*: Criteria is for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHTROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Sanitary Leaching Pools (North and South)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-22EA 8' - 10' 8/19/98	B-22EA 22' - 24' 8/19/98	B-22EA 24' - 26' 8/19/98	B-22EA 26' - 28' 8/19/98	B-22FA 8' - 10' 8/19/98	B-22FA 12' - 14' 8/19/98	B-22FA 14' - 16' 8/19/98	B-22FA 16' - 18' 8/19/98	DILUTION FACTOR			
SAMPLE IDENTITY	94	97	98	94	93	94	94	94	94	97	97	
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1248	U	240	U	U	180	U	U	U	U	U	U	71
Aroclor-1254	320	U	U	U	120	U	U	U	U	U	U	71
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	71
TOTAL PCBs	320	240	0	0	300	350	0	0	0	0	0	10,000*

Qualifiers

U: Compound analyzed for but not detected

Notes

----: Not established

\*: Criteria is for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-22JN7 0 - 2' 8/6/98	B-22JN7 2' - 4' 8/6/98	B-22JN14 0 - 2' 8/20/98	B-22JN14 2' - 4' 8/20/98	B-22JN14 4' - 6' 8/20/98	B-22JN14 0 - 2' 8/6/98	B-22JN14 2' - 4' 8/6/98	B-22JN14 2' - 4' 8/6/98	B-22JN14 2' - 4' 8/6/98	B-22JN14 0 - 2' 8/20/98		
DILUTION FACTOR	200	1	1	1	1	100	1	1	1	5		
PERCENT SOILS	96	96	96	98	94	94	94	94	94	92		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1248	200,000	490	4,700	1,300	91,000	91,000	91,000	91,000	91,000	6,300	6,300	71
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1260	U	U	U	U	U	U	U	U	U	430	430	71
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	71
<b>TOTAL PCBs</b>	<b>200,000</b>	<b>490</b>	<b>4,700</b>	<b>1,300</b>	<b>91,000</b>	<b>91,000</b>	<b>91,000</b>	<b>91,000</b>	<b>91,000</b>	<b>6730</b>	<b>6730</b>	<b>10,000*</b>

Notes

U: Compound analyzed for but not detected

---: Not established

\*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-22JS14 2' - 4' 8/20/98	B-22JE7 0 - 2' 8/6/98	B-22JE7 2' - 4' 8/6/98	B-22JE14 0 - 2' 8/20/98	B-22JE14 2' - 4' 8/20/98	B-22JE14 4' - 6' 8/20/98	B-22JE14 4' - 6' 8/20/98	B-22JE14 4' - 6' 8/20/98	B-22JW7 0 - 2' 8/6/98			
LABORATORY	Envirotech											
DILUTION FACTOR	1	20	1	1	1	1	1	1	5			
PERCENT SOILS	91	95	95	85	91	96	95	95	95			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)			(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1248	760	24,000	720	490	340	88	3,900	3,900	3,900	3,900	3,900	71
Aroclor-1254	630	U	U	U	100	U	U	U	U	U	U	71
Aroclor-1260	93	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	71
<b>TOTAL PCBs</b>	<b>1,483</b>	<b>24,000</b>	<b>720</b>	<b>490</b>	<b>440</b>	<b>88</b>	<b>3,900</b>	<b>3,900</b>	<b>3,900</b>	<b>3,900</b>	<b>3,900</b>	<b>10,000*</b>

Qualifiers  
 U: Compound analyzed for but not detected

Notes  
 ----: Not established  
 \*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C- (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Anomalous Features/ Unknown Buried Structures (North)	Sanitary Leaching Pools (North and South)		Drainage Chamber North of Lobby/ Loading Area		Existing and Former Recharge Basins		Former Drainage Basin B-37AA 0 - 2'	LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
		B-22LA 8' - 10' 8/19/98	B-22LA 10' - 12' 8/19/98	B-30AA 6' - 8' 8/14/98	B-30AA 8' - 10' 8/14/98	B-36AA 24' - 26' 8/18/98	B-36AA 24' - 26' 8/18/98			
LABORATORY		Envirotech		Envirotech		Mitekem		Envirotech		
DILUTION FACTOR	5	1	1	5	5	1	1	200		
PERCENT SOILS	92	95	96	94	94	96	96	89		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	71	---
Aroclor-1221	U	U	U	U	U	U	U	U	71	---
Aroclor-1232	U	U	U	U	U	U	U	U	71	---
Aroclor-1242	U	U	U	U	U	U	U	U	71	---
Aroclor-1248	2,700	9,600	U	1,600	1,600	U	39 P	150,000	71	---
Aroclor-1254	5,500	U	U	2,800	2,800	U	U	U	71	---
Aroclor-1260	U	U	U	U	U	U	U	U	71	---
Aroclor-1262	U	U	U	U	U	U	U	U	71	---
Aroclor-1268	U	U	U	U	U	U	U	U	71	---
TOTAL PCBs	8,200	9,600	0	4,400	4,400	0	39	150,000		10,000*

Qualifiers

U: Compound analyzed for but not detected

Notes

---: Not established

\*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils



TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AA 2' - 4' 8/7/98	B-37AN8 0 - 2' 8/7/98	B-37AN16 0 - 2' 8/21/98	B-37AN8 2' - 4' 8/7/98	B-37AN16 2' - 4' 8/21/98	B-37AN16 4' - 6' 8/21/98	B-37ANW8 0' - 2' 1/06/99	B-37ANW8 4' - 6' 1/06/99	Mikem			
LABORATORY	Envirotech											
DILUTION FACTOR	100	200	1	1	1	1	1	1	1	1	20	1
PERCENT SOILS	96	95	95	96	98	97	73					
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Atroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1248	88,000	210,000	670	120	24,000	810						
Atroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1262	U	U	U	U	U	U	U	U	U	U	U	U
Atroclor-1268	U	U	U	U	U	U	U	U	U	U	U	U
<b>TOTAL PCBs</b>	<b>88,000</b>	<b>210,000</b>	<b>670</b>	<b>120</b>	<b>0</b>	<b>24,000</b>	<b>810</b>	<b>0</b>	<b>0</b>	<b>24,000</b>	<b>810</b>	<b>10,000*</b>

Qualifiers

U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.  
 D: Results obtained from a diluted analysis.

Notes

----: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 □: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)	
	B-37ANW8 8' - 10' 1/06/99	B-37ANW8 12' - 14' 1/06/99	B-37ANW8 16' - 18' 1/06/99	B-37ANW8 20' - 22' 1/06/99	B-37ANW16 0' - 2' 1/06/99	B-37ANW16 4' - 6' 1/06/99	B-37ANW16 8' - 10' 1/06/99	B-37ANW16 12' - 14' 1/06/99	Miktem				
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	1	1
PERCENT SOILS	95	96	96	96	94	88	96	95	95	95	95	95	95
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1248	1,300	430	430	430	12,000 D	400	1,600	400	1,600	400	1,600	400	1,600
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1262	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCBs	1,300	430	0	0	12,000	400	1,600	0	1,600	400	1,600	0	10,000*

Qualifiers  
 U: Compound analyzed for but not detected  
 NA : Compound not analyzed for.  
 D: Results obtained from a diluted analysis.

Notes  
 ----: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 □: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37ANW16 16' - 18' 1/06/99	B-37ANW16 20' - 22' 1/06/99	B-37ANW24 0' - 2' 1/07/99	B-37ANW24 4' - 6' 1/07/99	B-37ANW24 8' - 10' 1/07/99	B-37ANW24 12' - 14' 1/07/99	B-37ANW24 16' - 18' 1/07/99	B-37ANW24 16' - 18' 1/07/99	B-37ANW24 20' - 22' 1/07/99	Milkem		
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	1
PERCENT SOILS	92	95	97	99	97	89	99	99	98			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1248	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	---
Aroclor-1262	NA	NA	NA	NA	66 P	NA	NA	NA	NA	NA	NA	---
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	---
TOTAL PCBs	0	0	240	160	66	0	0	0	0	0	0	10,000*

Qualifiers

U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.  
 P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.

Notes

---: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 ☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE IDENTIFICATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
	B-37AS8 0 - 2' 8/7/98	B-37AS8 2' - 4' 8/7/98	B-37AS8 4' - 6' 8/7/98	B-37AS8 6' - 8' 8/7/98	B-37AS8A 8' - 10' 1/05/99	B-37AS8A 12' - 14' 1/05/99	B-37AS8A 16' - 18' 1/05/99	B-37AS8A 20' - 22' 1/05/99	Mitekem					
DILUTION FACTOR	5	200	100	200	93	1	10	1	1	1	1	1		
PERCENT SOILS	97	96	97	91	10	94	93	96						
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1248	4,300	170,000	83,000	210,000	3,800 DP	370 P	3,100 D	44 P	44 P	44 P	44 P	44 P	44 P	71
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	U	U	71
<b>TOTAL PCBs</b>	<b>4,300</b>	<b>170,000</b>	<b>83,000</b>	<b>210,000</b>	<b>3,800</b>	<b>370</b>	<b>3,100</b>	<b>44</b>	<b>44</b>	<b>3,100</b>	<b>3,100</b>	<b>44</b>	<b>44</b>	<b>10,000*</b>

Qualifiers  
 U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.  
 D: Results obtained from a diluted analysis.  
 P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.

Notes  
 ---: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 □: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AS16 0 - 2' 8/21/98	B-37AS16 2' - 4' 8/21/98	B-37AS16 4' - 6' 8/21/98	B-37AS16 6' - 8' 8/21/98	B-37AS16A 8' - 10' 1/05/99	B-37AS16A 12' - 14' 1/05/99	B-37AS16A 16' - 18' 1/05/99	B-37AS16A 20' - 22' 1/05/99	Mikern			
LABORATORY	Envirotech											
DILUTION FACTOR	2	20	50	100	1000	1	1	1	1	10	10	
PERCENT SOILS	97	95	94	96	87	96	96	96	96	96	96	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/L)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1248	1,400	25,000	59,000	120,000	410,000	640 P	640 P	640 P	640 P	6,000 D	6,000 D	71
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	71
<b>TOTAL PCBs</b>	<b>1,400</b>	<b>25,000</b>	<b>59,000</b>	<b>120,000</b>	<b>410,000</b>	<b>640</b>	<b>640</b>	<b>640</b>	<b>640</b>	<b>6,000</b>	<b>6,000</b>	<b>10,000*</b>

Qualifiers

U: Compound analyzed for but not detected

NA: Compound not analyzed for.

D: Results obtained from a diluted analysis.

P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.

Notes

---: Not established

\*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

**TABLE C-6 (continued)**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**POLYCHLORINATED BIPHENYLS**

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AS32 0' - 2' 1/05/99	B-37AS32 4' - 6' 1/05/99	B-37AS32 8' - 10' 1/05/99	B-37AS32 12' - 14' 1/05/99	B-37AS32 16' - 18' 1/05/99	B-37AS32 20' - 22' 1/05/99	B-37ASE8 0' - 2' 1/05/99	B-37ASE8 4' - 6' 1/05/99	Mitkem			
DILUTION FACTOR	10	10	100	1	1	1	100	100	1	1	100	100
PERCENT SOILS	94	93	94	96	94	95	95	94	95	95	95	94
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1248	9,700 D	5,800 D	44,000 D	U	U	U	U	U	U	130,000 DP	20,000 DP	U
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1262	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>TOTAL PCBs</b>	<b>9,700</b>	<b>5,800</b>	<b>44,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>130,000</b>	<b>20,000</b>	<b>10,000*</b>

**Qualifiers**

- U: Compound analyzed for but not detected
- NA: Compound not analyzed for.
- D: Results obtained from a diluted analysis.
- P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.

**Notes**

- : Not established
- \*: Criteria is for total PCBs in subsurface soils
- ☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
	B-37ASE8 8' - 10" 1/05/99	B-37ASE8 12' - 14" 1/05/99	B-37ASE8 16' - 18" 1/05/99	B-37ASE8 20' - 22" 1/05/99	B-37ASE16 0' - 2' 1/05/99	B-37ASE16 4' - 6" 1/05/99	B-37ASE16 8' - 10" 1/05/99	B-37ASE16 12' - 14" 1/05/99	Miktem					
LABORATORY PERCENT SOILS	100	1	1	1	100	1	1	1	1	1	1	1		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	9,600 D	770	530	100,000 D	100,000 D	410	410	260	260	260	260	260	71	----
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1262	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71	----
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71	----
TOTAL PCBs	9,600	770	530	0	100,000	410	410	0	0	260	260	260		10,000*

Qualifiers

U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.  
 D: Results obtained from a diluted analysis.

Notes

----: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 □: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)			
	B-37ASE16 16' - 18' 1/05/99	B-37ASE16 20' - 22' 1/05/99	B-37ASE32 0' - 2' 1/05/99	B-37ASE32 4' - 6' 1/05/99	B-37ASE32 8' - 10' 1/05/99	B-37ASE32 12' - 14' 1/05/99	B-37ASE32 16' - 18' 1/05/99	B-37ASE32 20' - 22' 1/05/99	Milkem						
DILUTION FACTOR	1	1	100	1	1	1	1	1	1	1	1	1			
PERCENT SOILS	94	93	93	92	96	93	92	92	92	93	92	96			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1248	1,600	U	19,000 D	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	U	71	---
Aroclor-1262	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71	---
Aroclor-1268	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71	---
TOTAL PCBs	1,600	0	19,000	0	0	0	0	0	0	0	0	0	0	10,000*	

Qualifiers

U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.  
 D: Results obtained from a diluted analysis.

Notes

---: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils



TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AE8 0 - 2' 8/7/98	B-37AE8 2' - 4' 8/7/98	B-37AE16 0 - 2' 8/21/98	B-37AE16 2' - 4' 8/21/98	B-37AE16 4' - 6' 8/21/98	B-37AE16 0 - 2' 8/7/98	B-37AE16 2' - 4' 8/7/98	B-37AE16 4' - 6' 8/7/98	B-37AE16 0 - 2' 8/7/98	B-37AE16 2' - 4' 8/7/98		
LABORATORY DILUTION FACTOR	1	1	10	1	1	1	1	1	1	1	5	
PERCENT SOILS	96	97	96	98	92	92	92	92	92.6	88		
UNITS	(ug/kg)	(ug/kg)	(ug/L)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1248	38,000	1,100	7,200	580	U	1,600	U	U	120,000	2,900	U	71
Aroclor-1254	U	340	U	U	U	400	U	U	U	U	U	71
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	71
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	71
<b>TOTAL PCBs</b>	<b>38,000</b>	<b>1,440</b>	<b>7,200</b>	<b>580</b>	<b>0</b>	<b>2,000</b>	<b>120,000</b>	<b>2,900</b>	<b>10,000*</b>	<b>10,000*</b>		

Qualifiers

U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.

Notes

----: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-8 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)			
	B-37AW8 6' - 8' 8/7/98	B-37AW8A 8' - 10' 1/06/99	B-37AW8A 12' - 14' 1/06/99	B-37AW8A 16' - 18' 1/06/99	B-37AW8A 20' - 22' 1/06/99	B-37AW16 0 - 2' 8/21/98	B-37AW16 2' - 4' 8/21/98	B-37AW16 4' - 6' 8/21/98	Envirotech						
DILUTION FACTOR	500	1	1	20	1	1	2	1	1	1	1	1			
PERCENT SOILS	94	96	94	93	96	94	94	96	93	96	93	93			
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	230,000	290	1,600	19,000 D	U	2,200	U	430	970	U	U	U	U	71	----
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	U	U	71	----
<b>TOTAL PCBs</b>	<b>230,000</b>	290	1,600	<b>19,000</b>	0	2,200	430	970	970	970	970	970	970	10,000*	

Qualifiers

U: Compound analyzed for but not detected  
 NA : Compound not analyzed for.  
 D: Results obtained from a diluted analysis.

Notes

----: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 □: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
	B-37AW16 6' - 8' 8/21/98	B-37AW16A 8' - 10' 1/06/99	B-37AW16A 12' - 14' 1/06/99	B-37AW16A 16' - 18' 1/06/99	B-37AW16A 20' - 22' 1/06/99	B-37AW24 0' - 2' 1/06/99	B-37AW24 4' - 6' 1/06/99	B-37AW24 8' - 10' 1/06/99	Milkem					
DILUTION FACTOR	100	1	1	1	1	1	1	1	1	1	1	1		
PERCENT SOILS	94	93	92	95	94	95	93	93	93	93	93	93		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	110,000	71	140	210	52 P	1,300	30,000	130 P	71	71	71	71	71	----
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	U	71	----
<b>TOTAL PCBs</b>	<b>110,000</b>	<b>71</b>	<b>140</b>	<b>210</b>	<b>52</b>	<b>1,300</b>	<b>30,000</b>	<b>130</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>10,000*</b>

Qualifiers

U: Compound analyzed for but not detected

NA: Compound not analyzed for.

P: Concentration between primary and confirmatory columns had a percent difference greater than 25%. Therefore, the lower value was reported.

Notes

----: Not established

\*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-4 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Drainage Basin		Former Trenches to Resin Waste Pit (Sump#1)				LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-37AW24 12' - 14' 1/06/99	B-37AW24 16' - 18' 1/06/99	B-37AW24 20' - 22' 1/06/99	B-43AN7 0 - 2' 8/5/98	B-43AN7 2' - 4' 8/5/98	B-43AS7 0 - 2' 8/5/98		
LABORATORY	Envirotech							
DILUTION FACTOR	1	1	1	5	10	10	10	
PERCENT SOILS	91	95	96	93	98	99	99	
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	ug/kg	ug/kg	ug/kg	ug/kg	
Aroclor-1016	U	U	U	U	U	U	71	
Aroclor-1221	U	U	U	U	U	U	71	
Aroclor-1232	U	U	U	U	U	U	71	
Aroclor-1242	U	U	U	U	U	U	71	
Aroclor-1248	220	1,100	410	4,400	11,000	7,800	71	
Aroclor-1254	U	U	U	U	U	U	71	
Aroclor-1260	U	U	U	U	U	U	71	
Aroclor-1262	NA	NA	NA	U	U	U	71	
Aroclor-1268	NA	NA	NA	U	U	U	71	
TOTAL PCBs	220	1,100	410	4,400	11,000	7,800	10,000*	

Qualifiers

U: Compound analyzed for but not detected  
 NA: Compound not analyzed for.

Notes

----: Not established  
 \*: Criteria is for total PCBs in subsurface soils  
 ☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-8 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Trenches to Resin Waste Pit (Sump#1)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-43AS14 0 - 2' 8/20/98	B-43AS14 2' - 4' 8/20/98	B-43AS14 4' - 6' 8/20/98	B-43AE5 0 - 2' 8/5/98	B-43AE5 2' - 4' 8/5/98	B-43AE5 4' - 6' 8/05/98	B-43AE14 0 - 2' 8/20/98	B-43AE14 2' - 4' 8/20/98	B-43AE14 4' - 6' 8/20/98	B-43AE14 6' - 8' 8/20/98		
LABORATORY DILUTION FACTOR	1	1	1	1	20	1	1	1	1	1	1	1
PERCENT SOILS	99	99	98	94	97	96	92	97	97	97	97	97
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	ug/kg	ug/kg	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1248	120	U	U	390	19,000	2,000	U	U	U	U	U	U
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	U
TOTAL PCBs	120	0	0	390	19,000	2,000	0	0	0	0	0	10,000*

Qualifiers

U: Compound analyzed for but not detected

Notes

----: Not established

\*: Criteria is for total PCBs in subsurface soils

☐: Value exceeds TAGM 4046 Appendix A criteria for total PCBs in subsurface soils

TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Former Trenches to Resin Waste Pit (Sump#1)				Resin Waste Pit (Sump#1)				LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	B-43AE14 4' - 6' 8/20/98	B-43AW7 0 - 2' 8/5/98	B-43AW7 2' - 4' 8/5/98	B-43AW7 12' - 14' 8/13/98	RWP-1 14' - 16' 8/13/98	RWP-1 16' - 18' 8/13/98	RWP-1 18' - 20' 8/13/98	RWP-2 14' - 16' 8/13/98		
LABORATORY	Envirotech									
DILUTION FACTOR	1	5	1	1	1	1	1	1		
PERCENT SOILS	97	96	97	92.6	96	97	96	95		
UNITS	(ug/kg)	ug/kg	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Aroclor-1016	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	U	2,500	200	130	120	U	77	U	71	----
Aroclor-1254	U	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	U	U	U	U	71	----
Aroclor-1262	U	U	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	U	U	71	----
TOTAL PCBs	0	2,500	200	0	250	0	0	77		10,000*

Qualifiers

U : Compound analyzed for but not detected

Notes

----: Not established

\* : Criteria is for total PCBs in subsurface soils

TABLE C-8 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Resin Waste Pit (Sump#1)								LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	RWP-2 16' - 18' 8/13/98	RWP-2 18' - 20' 8/13/98	RWP-2 20' - 22' 8/13/98	RWP-3 8' - 10' 8/13/98	RWP-3 10' - 12' 8/13/98	RWP-3 12' - 14' 8/13/98	RWP-3 14' - 16' 8/13/98	RWP-4 15' - 17' 8/13/98		
LABORATORY DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOILS	96	96	96	93	94	94	96	91		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		
Aroclor-1016	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	U	U	U	560	400	U	U	U	71	----
Aroclor-1254	U	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	95	U	U	U	71	----
Aroclor-1262	U	U	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	U	U	71	----
TOTAL PCBs	0	0	0	560	495	0	0	0		10,000*

Qualifiers

U: Compound analyzed for but not detected

Notes

----: Not established

\* : Criteria is for total PCBs in subsurface soils

TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Resin Waste Pit (Sump#1)										LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)		
	RWP-4 17' - 19' 8/13/98	RWP-4 21' - 23' 8/13/98	RWP-4 23' - 25' 8/13/98	RWP-5 6' - 8' 8/14/98	RWP-5 8' - 10' 8/14/98	RWP-5 10' - 12' 8/14/98	RWP-5 12' - 14' 8/14/98	RWP-6 6' - 8' 8/18/98	DILUTION FACTOR					
PERCENT SOILS	1	1	1	1	1	1	1	1	1	1	1	1		
UNITS	96 (ug/kg)	97 (ug/kg)	95 (ug/kg)	82 (ug/kg)	95 (ug/kg)	95 (ug/kg)	96 (ug/kg)	90 (ug/kg)	97 (ug/kg)	95 (ug/kg)	96 (ug/kg)	90 (ug/kg)		
Aroclor-1016	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1221	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1232	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1242	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1248	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1254	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1260	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1262	U	U	U	U	U	U	U	U	U	U	U	U	71	----
Aroclor-1268	U	U	U	U	U	U	U	U	U	U	U	U	71	----
TOTAL PCBs	0	0	0	0	0	0	0	0	0	0	0	189		10,000*

Notes

U: Compound analyzed for but not detected  
 ---: Not established  
 \*: Criteria is for total PCBs in subsurface soils



TABLE C-6 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 POLYCHLORINATED BIPHENYLS

SAMPLE LOCATION	Resin Waste Pit (Sump#1)				FB-1	FB-2	LABORATORY QUANTITATION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
	RWP-6 8' - 10' 8/18/98	RWP-6 12' - 14' 8/18/98	RWP-6 16' - 18' 8/18/98	Envirotech				
LABORATORY DILUTION FACTOR	1	1	1	1	1			
PERCENT SOILS	96	88	97					
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/L)	(ug/L)			
Aroclor-1016	U	U	U	U	U		71	----
Aroclor-1221	U	U	U	U	U		71	----
Aroclor-1232	U	U	U	U	U		71	----
Aroclor-1242	U	U	U	U	U		71	----
Aroclor-1248	810	180	U	U	U		71	----
Aroclor-1254	U	U	U	U	U		71	----
Aroclor-1260	U	U	U	U	U		71	----
Aroclor-1262	U	U	U	U	U		71	----
Aroclor-1268	U	U	U	U	U		71	----
TOTAL PCBs	810	180	0	0	0	0	0	10,000*

Qualifiers

U: Compound analyzed for but not detected

----: Not established

--: Not applicable

\*: Criteria is for total PCBs in subsurface soils

**TABL 7**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**PRIORITY POLLUTANT METALS**

SAMPLE LOCATION	Trench In EMT Lab No 1										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	Machine Shop	B-3AA	B-7AA	B-7AA	B-7AN7	B-7AN7	B-7AS7	B-7AS7	B-7AE7	B-7AE7		
SAMPLE IDENTIFICATION	B-3AA	B-7AA	B-7AA	B-7AN7	B-7AN7	B-7AS7	B-7AS7	B-7AE7	B-7AE7	B-7AE7		
SAMPLE DEPTH	0 - 2'	0 - 2'	2' - 4'	0 - 2'	2' - 4'	0 - 2'	2' - 4'	0 - 2'	2' - 4'	0 - 2'		
DATE OF COLLECTION	8/11/98	8/11/98	8/21/98	8/21/98	8/21/98	8/21/98	8/21/98	8/21/98	8/21/98	8/21/98		
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	89.5	98	99	96	99.2	98	99.3	99.7	99.7	99.7		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(ug/L)	(mg/kg)	(ug/L)	(mg/kg)		
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	----
Arsenic	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Mercury	NA	NA	0.09	10.6	0.14	U	U	U	U	U	0.053	0.001 - 0.2
Nickel	13.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL, but greater than the IDL.  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 ☐ : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Trench In EMT Lab No 1		Trench In Staffed Machine Shop EMT Lab No 1				Resin Transfer Molding Lab		EASTERN USA BACKGROUND LEVELS
	B-7AE7 2' - 4' 8/21/98	B-7AW7 0' - 2' 8/21/98	B-7AW7 2' - 4' 8/21/98	B-8AA 2' - 4' 8/19/98	B-8AA 2' - 4' 8/19/98	B-8BA 0' - 2' 8/19/98	B-12AA 4' - 6' 8/10/98	INSTRUMENT DETECTION LIMITS	
LABORATORY	Envirotech		Mitkem	Envirotech	Envirotech	Mitkem	Envirotech	(mg/kg)	
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	99.2	95.3	99	97	98.8	98.8	98		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	
Arsenic	NA	NA	NA	NA	NA	NA	NA	0.48	
Beryllium	NA	NA	NA	NA	NA	NA	NA	0.32	
Cadmium	NA	NA	NA	NA	NA	NA	NA	0.021	
Chromium	NA	NA	NA	NA	NA	NA	NA	0.042	
Copper	NA	NA	NA	NA	NA	NA	NA	0.11	
Lead	NA	NA	NA	NA	NA	NA	NA	0.43	
Mercury	U	0.05	U	0.9	1.1	0.63	1.5	0.18	
Nickel	NA	NA	NA	NA	NA	NA	NA	0.053	
Selenium	NA	NA	NA	NA	NA	NA	NA	0.17	
Silver	NA	NA	NA	NA	NA	NA	NA	0.49	
Thallium	NA	NA	NA	NA	NA	NA	NA	0.095	
Zinc	NA	NA	NA	NA	NA	NA	NA	0.46	
								0.38	

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 ☐ : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Resin Transfer Molding Lab										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-12AA 6' - 8' 8/10/98	B-12AA 8' - 10' 8/10/98	B-12AN7 2' - 4' 8/10/98	B-12AN7 0 - 2' 8/10/98	B-12AS7 0 - 2' 8/10/98	B-12AS7 2' - 4' 8/10/98	B-12AE5 0 - 2' 8/10/98	B-12AE5 2' - 4' 8/10/98	LABORATORY			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	100	99.6	98.5	96	96	96	96	97.5	97.4			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	----
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1.5 - 40*, (50***)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	U	1.1	2.4	4.4	3.3	3.2	4.3				0.18	200 - 500**
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:

- U: Constituent analyzed for but not detected.
- B: Constituent concentration is less than the CRDL, but greater than the IDL.
- NA: Constituent not analyzed for.

Notes:

- : Not established.
- \* : New York State Background.
- \*\* : Background for metropolitan or suburban areas.
- \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Resin Transfer Molding Lab		Leaching Chamber North of Carpentry Shop				Chemical Storage Area/Concrete Platform		INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-12AW7 0 - 2' 8/10/98	B-12AW7 2' - 4' 8/10/98	B-16AA 10' - 12' 8/14/98	B-16AA 12' - 14' 8/14/98	B-16AA 14' - 16' 8/14/98	B-16AA 16' - 18' 8/14/98	B-17BA 4' - 6' 8/6/98	B-17BA 6' - 8' 8/6/98		
LABORATORY	Envirotech									
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	91	84	86	92	94	96	95	95	95	
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Antimony	NA	NA	NA	U	U	U	U	U	U	
Arsenic	NA	7.4	NA	2.1	7.1	0.91	NA	NA	3 - 12*	
Beryllium	NA	0.34	NA	0.09	0.34	0.34	NA	NA	0.32	
Cadmium	NA	1.9	NA	0.74	0.55	0.55	NA	NA	0.021	
Chromium	NA	14.4	19.7	3.2	30.7	30.7	NA	NA	0.042	
Copper	NA	29.9	NA	3.6	36.8	36.8	NA	NA	0.11	
Lead	3.1	23.8	NA	3.1	102	102	NA	NA	0.43	
Mercury	NA	0.08	0.07	U	0.2	0.2	NA	NA	0.18	
Nickel	NA	10.1	NA	2.0	67.9	67.9	0.16	0.02	0.053	
Selenium	NA	0.99	NA	U	1.1	1.1	NA	NA	0.17	
Silver	NA	U	NA	U	U	U	NA	NA	0.49	
Thallium	NA	U	NA	U	U	U	NA	NA	0.095	
Zinc	NA	142	NA	23.3	98.9	98.9	NA	NA	0.46	
									0.38	

Qualifiers:  
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Notes:  
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 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Chemical Storage Area/Concrete Platform										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-17BN7 0 - 2' 8/6/98	B-17BN7 2' - 4' 8/6/98	B-17BN14 0 - 2' 8/20/98	B-17BN14 2' - 4' 8/20/98	B-17BN14 4' - 6' 8/20/98	B-17BS7 0 - 2' 8/6/98	B-17BS7 2' - 4' 8/6/98	B-17BS14 0 - 2' 8/20/98				
LABORATORY	1	1	1	1	1	1	1	1	1	1		
DILUTION FACTOR	93	97	93	98	98	96	98	92				
PERCENT SOLIDS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)				
UNITS	U	U	NA	NA	NA	U	U	NA	U	U	NA	NA
Antimony	83.6	10.9	55.5	12.4	22.5	49.6	1.1	26.6	0.48	0.48	NA	NA
Arsenic	0.19	0.13	NA	NA	NA	0.06	0.05	NA	0.32	0.32	3 - 12*	3 - 12*
Beryllium	6.3	2.9	NA	NA	NA	0.84	0.11	NA	0.021	0.021	0 - 1.75	0 - 1.75
Cadmium	34	7.3	NA	NA	NA	12.5	3.7	NA	0.042	0.042	0.1 - 1, (10***)	0.1 - 1, (10***)
Chromium	48.8	8.3	NA	NA	NA	16.1	2.9	NA	0.11	0.11	1.5 - 40*, (50****)	1.5 - 40*, (50****)
Copper	84.2	3.3	NA	NA	NA	21.4	1.5	NA	0.43	0.43	1 - 50	1 - 50
Lead	0.50	0.07	0.36	U	0.05	0.06	0.02	NA	0.18	0.18	200 - 500**	200 - 500**
Mercury	16.4	15	NA	NA	NA	5.3	2.2	NA	0.053	0.053	0.001 - 0.2	0.001 - 0.2
Nickel	2.8	U	NA	NA	NA	U	U	NA	0.17	0.17	0.5 - 25	0.5 - 25
Selenium	U	U	NA	NA	NA	U	U	NA	0.49	0.49	0.1 - 3.9	0.1 - 3.9
Silver	U	U	NA	NA	NA	U	U	NA	0.095	0.095	-----	-----
Thallium	U	U	NA	NA	NA	U	U	NA	0.46	0.46	-----	-----
Zinc	681	80.5	194	7.9	59.5	34.1	7.9	NA	0.38	0.38	9 - 50	9 - 50

Qualifiers:  
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Notes:  
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 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Chemical Storage Area/Concrete Platform										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-17BS14 2' - 4' 8/20/98	B-17BS14 4' - 6' 8/20/98	B-17BE7 0 - 2' 8/6/98	B-17BE14 0 - 2' 8/20/98	B-17BE14 2' - 4' 8/20/98	B-17BE14 4' - 6' 8/20/98	B-17BE14 0 - 2' 8/20/98	B-17BE14 2' - 4' 8/20/98	B-17BE14 4' - 6' 8/20/98	B-17BW7 0 - 2' 8/6/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	89	94	94	96	90	92	95					
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
Antimony	NA	NA	U	NA	NA	NA	NA	NA	NA	U	0.48	----
Arsenic	<b>14.8</b>	2.5	<b>14.5</b>	4.5	2.0	2.0	2.3	2.0	2.0	2.3	0.32	3 - 12*
Beryllium	NA	NA	0.11 B	0.3 B	NA	NA	0.13 B	NA	NA	0.13 B	0.021	0 - 1.75
Cadmium	NA	NA	4.4	0.88 B	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	NA	NA	39.8	8.8	NA	NA	4.7	NA	NA	4.7	0.11	1.5 - 40*, (50***)
Copper	NA	NA	31.1	9.4	NA	NA	7.4	NA	NA	7.4	0.43	1 - 50
Lead	NA	NA	57.2	10	NA	NA	10.6	NA	NA	10.6	0.18	200 - 500**
Mercury	NA	NA	<b>1.90</b>	0.03 B	U	U	0.03 B	U	U	0.03 B	0.053	0.001 - 0.2
Nickel	NA	NA	14.9	7.5 B	NA	NA	2.8 B	NA	NA	2.8 B	0.17	0.5 - 25
Selenium	NA	NA	U	U	NA	NA	U	NA	NA	U	0.49	0.1 - 3.9
Silver	NA	NA	1.8 B	U	NA	NA	U	NA	NA	U	0.095	----
Thallium	NA	NA	U	U	NA	NA	U	NA	NA	U	0.46	----
Zinc	NA	NA	<b>183</b>	20.2	NA	NA	34.3	NA	NA	34.3	0.38	9 - 50

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 NA: Constituent not analyzed for.

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 ☐ : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Chemical Storage Area/Concrete Platform	Area Outside of Machine Shop										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)				
		B-19AN12 0 - 2' 8/7/98	B-19AN12 2' - 4' 8/7/98	B-19AN14 0 - 2' 8/20/98	B-19AN14 2' - 4' 8/20/98	B-19AN14 4' - 6' 8/20/98	B-19AE7 0 - 2' 8/7/98	B-19AE7 2' - 4' 8/7/98	DILUTION FACTOR	PERCENT SOLIDS	UNITS			ENVIROTECH			
Antimony	U	U	U	NA	NA	NA	NA	1	95	94	95	1	93	1	U	0.48	-----
Arsenic	1.3	6	7.0	NA	NA	NA	NA	1	95	94	95	1	93	1	2.3	0.32	3 - 12*
Beryllium	0.09	0.32	0.2	NA	NA	NA	NA	1	95	94	95	1	93	1	0.43	0.021	0 - 1.75
Cadmium	U	0.75	0.14	NA	NA	NA	NA	1	95	94	95	1	93	1	B	0.042	0.1 - 1, (10***)
Chromium	3.8	10.9	6.9	NA	NA	NA	NA	1	95	94	95	1	93	1	10.3	0.11	1.5 - 40*, (50****)
Copper	7.3	20	5.8	NA	NA	NA	NA	1	95	94	95	1	93	1	4.9	0.43	1 - 50
Lead	5.1	28.4	9.4	NA	NA	NA	NA	1	95	94	95	1	93	1	4.4	0.18	200 - 500**
Mercury	0.04	0.24	0.10	NA	NA	0.16	NA	1	95	94	95	1	93	1	5.4	0.053	0.001 - 0.2
Nickel	1.7	5.9	3.1	NA	NA	NA	NA	1	95	94	95	1	93	1	B	0.17	0.5 - 25
Selenium	U	U	U	NA	NA	NA	NA	1	95	94	95	1	93	1	U	0.49	0.1 - 3.9
Silver	U	U	U	NA	NA	NA	NA	1	95	94	95	1	93	1	U	0.095	-----
Thallium	U	U	U	NA	NA	NA	NA	1	95	94	95	1	93	1	U	0.46	-----
Zinc	8	78.7	13.4	NA	NA	NA	NA	1	95	94	95	1	93	1	17.4	0.38	9 - 50

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 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

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TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Area Outside of Machine Shop				Sanitary Leaching Pools (North and South)				INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-19AW10 0 - 2' 8/7/98	B-19AW10 2' - 4' 8/7/98	B-19AW14 0 - 2' 8/20/98	B-19AW14 2' - 4' 8/20/98	B-19AW14 4' - 6' 8/20/98	B-22AA 8' - 10' 8/18/98	B-22BA 8' - 10' 8/18/98	B-22CA 8' - 10' 8/18/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91	94	87	96	97	97	90	94		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	U				NA	NA	U	U	0.48	----
Arsenic	40.6	1.6	14.7	4.6	5.2	NA	1.7	4.5	0.32	3 - 12*
Beryllium	0.54	0.16	NA	NA	NA	NA	0.13	0.14	0.021	0 - 1.75
Cadmium	U	U	NA	NA	NA	NA	U	0.59	0.042	0.1 - 1, (10***)
Chromium	97.2	5.2	38.7	30.0	3.0	B	11.1	19.3	0.11	1.5 - 40*, (50****)
Copper	56.3	3.4			NA	NA	5.0	149	0.43	1 - 50
Lead	60.8	2.0			NA	NA	3.5	23.4	0.18	200 - 500**
Mercury	10.2				NA	NA	U	0.4	0.053	0.001 - 0.2
Nickel	9.6	3.1			NA	NA	3.8	6.1	0.17	0.5 - 25
Selenium	U	U			NA	NA	U	U	0.49	0.1 - 3.9
Silver	U	U			NA	NA	U	3.0	0.095	----
Thallium	5.4	U			NA	NA	U	U	0.46	----
Zinc	90	9.8			NA	NA	18.2	33.3	0.38	9 - 50

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TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Sanitary Leaching Pools (North and South)				Anomalous Features/Unknown Buried Structures (North)				INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22EA 22' - 24' 8/19/98	B-22EA 24' - 26' 8/19/98	B-22EA 26' - 28' 8/19/98	B-22FA 8' - 10' 8/19/98	B-22GA 0 - 2' 8/10/98	B-22GA 2' - 4' 8/10/98	B-22GN7 0 - 2' 8/7/98			
LABORATORY	Envirotech				Mitekem					
DILUTION FACTOR	1	1	1	1	1	1	1			
PERCENT SOLIDS	97 (mg/kg)	98 (mg/kg)	94 (mg/kg)	93 (mg/kg)	96.7 (mg/kg)	98.5 (mg/kg)	94 (mg/kg)			
Antimony	NA	NA	NA	U	NA	NA	NA	NA	0.48	----- 3 - 12*
Arsenic	NA	NA	NA	0.82 B	22.4	U	NA	U	0.32	0 - 1.75
Beryllium	NA	NA	NA	U	NA	NA	NA	NA	0.021	0.1 - 1, (10***)
Cadmium	NA	NA	NA	U	NA	NA	NA	NA	0.042	1.5 - 40*, (50****)
Chromium	NA	NA	NA	4.5	NA	NA	NA	NA	0.11	1 - 50
Copper	NA	NA	NA	15.1	NA	NA	NA	NA	0.43	200 - 500**
Lead	NA	NA	NA	5.5	NA	NA	NA	NA	0.18	0.001 - 0.2
Mercury	0.03 B	U	U	0.10	0.14	U	U	U	0.053	0.5 - 25
Nickel	NA	NA	NA	1.0 B	NA	NA	NA	NA	0.17	0.1 - 3.9
Selenium	NA	NA	NA	U	NA	NA	NA	NA	0.49	-----
Silver	NA	NA	NA	U	NA	NA	NA	NA	0.095	-----
Thallium	NA	NA	NA	U	NA	NA	NA	NA	0.46	-----
Zinc	NA	NA	NA	4.6 B	NA	NA	NA	NA	0.38	9 - 50

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TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22GN7 2' - 4' 8/07/98	B-22GN7 4' - 6' 8/07/98	B-22GS7 0 - 2' 8/7/98	B-22GE7 0 - 2' 8/7/98	B-22GE7 2' - 4' 8/07/98	B-22GE7 4' - 6' 8/07/98	B-22GE14 0 - 2' 8/20/98	B-22GE14 2' - 4' 8/20/98	Envirotech			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	98	98	96	95	92	92	94	94	99.7	99.7		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.70	1.5	11.6	50.5	4.7	4.1	6.2	1.5	B	0.48	3 - 12*	
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	0 - 1.75	
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0.1 - 1, (10***)	
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	1.5 - 40*, (50****)	
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1 - 50	
Lead	NA	NA	0.11	0.62	U	U	0.04	U	U	0.18	200 - 500**	
Mercury	U	U	NA	NA	NA	NA	NA	NA	NA	0.053	0.001 - 0.2	
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25	
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9	
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	-----	
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	-----	
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50	

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**TABLE C-7 (continued)**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**PRIORITY POLLUTANT METALS**

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22GE14 4' - 6' 8/20/98	B-22GW7 0 - 2' 8/7/98	B22-GW7 2' - 4' 8/07/98	B-22GW14 0 - 2' 8/20/98	B-22GW14 2' - 4' 8/20/98	B-22GW14 4' - 6' 8/20/98	B-22GW14 2' - 4' 8/20/98	B-22GW14 4' - 6' 8/20/98	B-22HA 2' - 4' 8/6/98			
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	98.7 (mg/kg)	96 (mg/kg)	83 (mg/kg)	90.8 (mg/kg)	87 (mg/kg)	98.5 (mg/kg)	95.7 (mg/kg)	94 (mg/kg)				
UNITS												
Antimony	NA	NA	NA	NA	NR	NA	NA	NA	NA	NA	0.48	----
Arsenic	1.4 B	21.6	4.0	14.2	3.6	1.2 B	2.2	1.5	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Mercury	U	0.34	U	0.13	U	U	U	U	U	U	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

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TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22HA 4' - 6' 8/6/98	B-22HA 6' - 8' 8/6/98	B-22HN7 0 - 2' 8/6/98	B-22HN7 2' - 4' 8/6/98	B-22HS7 0 - 2' 8/6/98	B-22HS7 2' - 4' 8/6/98	B-22HE7 0 - 2' 8/6/98	B-22HE7 2' - 4' 8/6/98	Envirotech			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	90	98	93	84	93	98	96	91				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.6	1.4	45.8	4	10.1	1.3	32	7.1	0.48	3 - 12*		
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	0.32	0 - 1.75		
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0.1 - 1, (10***)		
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	0.042	1.5 - 40*, (50****)		
Copper	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1 - 50		
Lead	NA	NA	NA	NA	NA	NA	NA	NA	0.43	200 - 500**		
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	0.18	0.001 - 0.2		
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	0.053	0.5 - 25		
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.1 - 3.9		
Silver	NA	NA	NA	NA	NA	NA	NA	NA	0.49	----		
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	0.095	----		
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	0.46	9 - 50		

Qualifiers:

U: Constituent analyzed for but not detected.  
 NA: Constituent not analyzed for.

Notes:

---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22HE14 0 - 2' 8/20/98	B-22HE14 2' - 4' 8/20/98	B-22HE14 4' - 6' 8/20/98	B-22HW7 0 - 2' 8/6/98	B-22HW7 2' - 4' 8/6/98	B-22JN7 0 - 2' 8/6/98	B-22JN7 2' - 4' 8/6/98	B-22JN14 0 - 2' 8/20/98	Envirotech			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	91.7	98.4	98	95	99	96	96	90				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	----
Arsenic	23.4	U	2.8	14.6	1.5	15.1	7.4	6.8	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Mercury	NA	NA	NA	NA	NA	0.21	0.05	0.03	NA	NA	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL, but greater than the IDL.  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-1 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22JN14 2' - 4' 8/20/98	B-22JN14 4' - 6' 8/20/98	B-22JS7 0 - 2' 8/6/98	B-22JS7 2' - 4' 8/6/98	B-22JS14 0 - 2' 8/20/98	B-22JS14 2' - 4' 8/20/98	B-22JS14 4' - 6' 8/20/98	B-22JE7 0 - 2' 8/6/98				
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	96	98	94	96	91.5	91	57	92				
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	-----
Arsenic	2.0	1.5	12.5	1 B	9.6	7.6	8.0	9.7	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Mercury	U	U	0.21	0.03	0.04	0.03	15.7	0.16	NA	NA	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	-----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	-----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL, but greater than the IDL.  
 NA: Constituent not analyzed for.

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 ----- : Not established.  
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 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Anomalous Features/Unknown Buried Structures (North)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-22JE7	B-22JE14	B-22JE14	B-22JE14	B-22JW7	B-22JW7	B-22JW14	B-22JW14	B-22JW14			
	2' - 4' 8/6/98	0' - 2' 8/20/98	2' - 4' 8/20/98	4' - 6' 8/20/98	2' - 4' 8/6/98	0' - 2' 8/6/98	0 - 2' 8/20/98	2' - 4' 8/20/98	0 - 2' 8/20/98	2' - 4' 8/20/98		
LABORATORY	Envirotech											
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	91	85	91	96	92	95	92	90.1	95.4			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	11.8	NA	NA	NA	8.9	27.4	NA	24.5	3.4	NA	0.48	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0.1 - 1, (10***)
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	200 - 500**
Mercury	0.28	0.11	0.24	0.07	0.51	0.21	0.33	0.07	0.053	0.17	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:

U: Constituent analyzed for but not detected.  
 NA: Constituent not analyzed for.

Notes:

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 : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.



TABLE C-7 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Anomalous Features/ Unknown Buried Structures (North)	Sanitary Leaching Pools (North and South)		Dry Wells Beneath Lobby/Loading Area, Facilities Maintenance Room and Carpentry Shop		Drainage Chamber North of Lobby/Loading Area		Former Drainage Basin B-37AA 0 - 2' 8/7/98	EASTERN USA BACKGROUND LEVELS (mg/kg)
		B-22LA 8' - 10' 8/19/98	B-22LA 10' - 12' 8/19/98	B-26AA 7' - 9' 8/5/98	B-26AA 7' - 9' 8/5/98	B-30AA 6' - 8' 8/14/98	B-30AA 8' - 10' 8/14/98		
LABORATORY	1	1	1	1	1	1	1	1	
DILUTION FACTOR	97	95	96	97.6	76	94	94	89	
PERCENT SOLIDS UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	INSTRUMENT DETECTION LIMITS (mg/kg)
Antimony	NA	U	U	NA	NA	U	U	U	0.48
Arsenic	3.3	6.6	1.3	NA	NA	9.2	2.1	4.7	0.32
Beryllium	NA	0.16	0.12	NA	NA	0.20	0.15	0.35	0.021
Cadmium	NA	U	U	NA	NA	3.0	1.0	1.2	0.042
Chromium	NA	11.9	3.9	NA	NA	25.4	9.9	192	0.11
Copper	NA	7.7	4.3	NA	NA	53.7	18.2	712	0.43
Lead	NA	9.6	0.67	NA	NA	23.2	15.4	163	0.18
Mercury	U	0.08	0.67	U	U	0.15	0.17	0.21	0.053
Nickel	NA	2.9	1.5	NA	NA	10.9	3.3	6.6	0.17
Selenium	NA	U	U	NA	NA	U	U	1.1	0.49
Silver	NA	U	U	NA	NA	U	U	14.2	0.095
Thallium	NA	U	U	NA	NA	U	U	U	0.46
Zinc	NA	11.1	5.5	NA	NA	280	109	144	0.38

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 ☐ : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

**TABLE C-7 (continued)**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**PRIORITY POLLUTANT METALS**

SAMPLE LOCATION	Former Drainage Basin										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)				
	B-37AA 2' - 4' 8/7/98	B-37AN8 0 - 2' 8/7/98	B-37AN8 2' - 4' 8/7/98	B-37AS8 0 - 2' 8/7/98	B-37AS8 2' - 4' 8/7/98	B-37AS8 4' - 6' 8/07/98	B-37AS8 6' - 8' 8/07/98	B-37AS8A 8' - 10' 1/05/99	Mitkem	1			95			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS UNITS	96	94	93	97	96	96	96	96	91	91	91	95	95			
Antimony	U	1.1 B	U	U	U	U	U	U	NA	NA	NA	NA	NA	0.48	NA	----
Arsenic	3.5	3.7	2.4	2.6	1.9	1.9	1.9	1.9	NA	NA	NA	NA	NA	0.32	NA	3 - 12*
Beryllium	0.22 B	0.25 B	0.18 B	0.15 B	0.18 B	0.18 B	0.18 B	0.18 B	NA	NA	NA	NA	NA	0.021	NA	0 - 1.75
Cadmium	0.83 B	0.41 B	U	0.082 U	0.45 B	0.45 B	0.45 B	0.45 B	NA	NA	NA	NA	NA	0.042	NA	0.1 - 1, (10***)
Chromium	<b>72.8</b>	44.8	5.4	10.2	<b>50.3</b>	<b>84.1</b>	<b>100.0</b>	<b>100.0</b>				25.0		0.11	NA	1.5 - 40*, (50***)
Copper	<b>32.7</b>	<b>153</b>	3.8 B	23.8	<b>249</b>				NA	NA	NA	NA	NA	0.43	NA	1 - 50
Lead	70.7	67.6	29.6	11.1	55.3				NA	NA	NA	NA	NA	0.18	NA	200 - 500**
Mercury	0.10	0.08	0.04	0.03 B	0.07	0.07	0.07	0.07	NA	NA	NA	NA	NA	0.053	NA	0.001 - 0.2
Nickel	4.3 B	8.6	2.8	2.6 B	3.6 B	3.6 B	3.6 B	3.6 B	NA	NA	NA	NA	NA	0.17	NA	0.5 - 25
Selenium	U	U	U	U	U	U	U	U	NA	NA	NA	NA	NA	0.49	NA	0.1 - 3.9
Silver	6.6	3.4	U	1.9 B	4.6	4.6	4.6	4.6	NA	NA	NA	NA	NA	0.095	NA	----
Thallium	U	U	U	U	U	U	U	U	NA	NA	NA	NA	NA	0.46	NA	----
Zinc	<b>80.0</b>	<b>54.8</b>	15.8	13.6	<b>56</b>				NA	NA	NA	NA	NA	0.38	NA	9 - 50

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 B: Constituent concentration is less than the CRDL, but greater than the IDL.  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
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TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Former Drainage Basin										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)		
	B-37AS8A 12' - 14' 1/05/99	B-37AS8A 16' - 18' 1/05/99	B-37AS8A 20' - 22' 1/05/99	B-37AS16 0 - 2' 8/21/98	B-37AS16 2' - 4' 8/21/98	B-37AS16 4' - 6' 8/21/98	B-37AS16 6' - 8' 8/21/98	B-37AS16A 8' - 10' 1/05/99	Mitkem				Envirotech	
LABORATORY	Mitkem													
DILUTION FACTOR	1										1			
PERCENT SOLIDS	93										93	86		
UNITS	(mg/kg)										(mg/kg)	(mg/kg)		
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	----
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Chromium	13.4	11.6	4.4	9.3	80.4	33.1	90.2	268					0.11	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:  
 NA: Constituent not analyzed for.

Notes:

- : Not established.
- \* : New York State Background.
- \*\* : Background for metropolitan or suburban areas.
- \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.
- ☐ : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Former Drainage Basin										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-37AS16A 12' - 14' 1/05/99	B-37AS16A 16' - 18' 1/05/99	B-37AS16A 20' - 22' 01/05/99	B-37AS32 0' - 2' 1/05/99	B-37AS32 4' - 6' 1/05/99	B-37AS32 8' - 10' 1/05/99	B-37AS32 12' - 14' 1/05/99	B-37AS32 16' - 18' 1/05/99	Milkem			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS UNITS	95 (mg/kg)	96 (mg/kg)	96 (mg/kg)	95 (mg/kg)	94 (mg/kg)	95 (mg/kg)	95 (mg/kg)	95 (mg/kg)	95 (mg/kg)	94 (mg/kg)		
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	-----
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	3 - 12*
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10****)
Chromium	6.6	3.6	8.6	22.3	26.9	<b>67.6</b>	4.2	5.9	5.9	5.9	0.11	1.5 - 40*, (50****)
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.053	0.001 - 0.2
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.5 - 25
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	0.1 - 3.9
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	-----
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	-----
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	9 - 50

Qualifiers:  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
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TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Former Drainage Basin										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-37AS32 20' - 22' 1/05/99	B-37ASE8 0' - 2' 1/05/99	B-37ASE8 4' - 6' 01/05/99	B-37ASE8 8' - 10' 1/05/99	B-37ASE8 12' - 14' 1/05/99	B-37ASE8 16' - 18' 1/05/99	B-37ASE8 20' - 22' 1/05/99	B-37ASE16 0' - 2' 1/05/99	Milkem			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	96	94	92	94	88	95	96	95	96	95		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	4.8	67.9	67.1	17.4	9.0	9.4	9.3	79.3				
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	---
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	3 - 12*
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0 - 1.75
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	0.1 - 1, (10***)
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1.5 - 40*, (50***)
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	1 - 50
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	200 - 500**
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.053	0.001 - 0.2
											0.17	0.5 - 25
											0.49	0.1 - 3.9
											0.095	---
											0.46	---
											0.38	9 - 50

Qualifiers:  
 NA: Constituent not analyzed for.

Notes:  
 --- : Not established.  
 \* : New York State Background.  
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TABLE C-7 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Former Drainage Basin										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-37ASE16 4' - 6' 1/05/99	B-37ASE16 8' - 10' 1/05/99	B-37ASE16 12' - 14' 1/05/99	B-37ASE16 16' - 18' 1/05/99	B-37ASE16 20' - 22' 1/05/99	B-37ASE32 0' - 2' 1/05/99	B-37ASE32 4' - 6' 1/05/99	B-37ASE32 8' - 10' 1/05/99	Mikem			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	96	92	96	94	94	94	94	94	94	94		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	24.1	4.9	4.4	6.0	1.9	161	6.3	2.5			0.48	3 - 12*
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.32	0 - 1.75
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	0.1 - 1, (10***)
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	1.5 - 40*, (50****)
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	1 - 50
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	200 - 500**
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18	0.001 - 0.2
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.053	0.5 - 25
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	0.1 - 3.9
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.49	-----
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	9 - 50
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	

Qualifiers:  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Background for metropolitan or suburban areas.  
 \*\*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 [ ] : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Former Drainage Basin						Former Pit East of Sump # 2	INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-37ASE32 12' - 14' 1/05/99	B-37ASE32 16' - 18' 1/05/99	B-37ASE32 20' - 22' 01/05/99	B-37AE8 0 - 2' 8/7/98	B-37AE8 2' - 4' 8/7/98	B-37AW8 2' - 4' 8/7/98			
LABORATORY	Mikem						Envirotech		
DILUTION FACTOR	1	1	1	1	1	1	1	1	
PERCENT SOLIDS	92	93	96	96	97	92.6	97.2		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Antimony	NA	NA	NA	NA	U	U	NA	NA	
Arsenic	NA	NA	NA	3.3	1.4	4.8	U	NA	
Beryllium	NA	NA	NA	0.36	0.1	0.24	B	NA	
Cadmium	NA	NA	NA	0.27	0.1	0.95	B	NA	
Chromium	2.1	5.0	3.1	45.5	33.5	27	45.8	0.1 - 1, (10***) 1.5 - 40*, (50****)	
Copper	NA	NA	NA	163	75.2	23.1	207	NA	
Lead	NA	NA	NA	47	21.5	32.9	49.8	1 - 50	
Mercury	NA	NA	NA	0.06	0.04	0.03	0.07	200 - 500**	
Nickel	NA	NA	NA	5	2.1	5.6	2.9	0.001 - 0.2	
Selenium	NA	NA	NA	U	U	U	U	0.5 - 25	
Silver	NA	NA	NA	6.1	3.4	3.3	5	0.1 - 3.9	
Thallium	NA	NA	NA	U	U	U	U	-----	
Zinc	NA	NA	NA	46.5	13.9	32.3	41.2	----- 9 - 50	

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL, but greater than the IDL.  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.  
 ☐ : Value exceeds TAGM 4046 criteria for cadmium or chromium or Eastern USA Background Levels for all other metals.

TABLE C-7 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Former Pit East of Sump # 2				Resin Waste Pit (Sump #1)				INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	B-42AA 2' - 4' 8/5/98 Mitekem	B-42AA 10' - 12' 8/5/98 Envirotech	B-42AA 10' - 12' 8/5/98 Mitekem	B-42AA 12' - 14' 8/13/98	RWP-1 14' - 16' 8/13/98	RWP-1 16' - 18' 8/13/98	RWP-1 18' - 20' 8/13/98	RWP-2 14' - 16' 8/13/98		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	98	95.6	72	92.6	96	96	96	95		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	NA	NA	NA	U	U	U	U	U	0.48	----
Arsenic	NA	NA	NA	1.2	U	U	U	0.72	0.32	3 - 12*
Beryllium	NA	NA	NA	0.10	B	U	U	0.06	0.021	0 - 1.75
Cadmium	NA	NA	NA	U	U	U	U	U	0.042	0.1 - 1, (10***)
Chromium	NA	NA	NA	17.6	U	U	U	2.7	0.11	1.5 - 40*, (50***)
Copper	NA	NA	NA	5.6	B	B	B	2.8	0.43	1 - 50
Lead	NA	NA	NA	3.8	B	B	B	2.8	0.18	200 - 500**
Mercury	U	U	U	0.02	B	U	U	U	0.053	0.001 - 0.2
Nickel	NA	NA	NA	1.6	B	U	U	1.3	0.17	0.5 - 25
Selenium	NA	NA	NA	U	U	U	U	U	0.49	0.1 - 3.9
Silver	NA	NA	NA	U	U	U	U	0.30	0.095	----
Thallium	NA	NA	NA	U	U	U	U	U	0.46	----
Zinc	NA	NA	NA	6.4	7.3	3.5	3.8	9.6	0.38	9 - 50

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL, but greater than the IDL.  
 NA: Constituent not analyzed for.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.



TABLE C-7 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	RWP-2 16' - 18' 8/13/98	RWP-2 18' - 20' 8/13/98	RWP-2 20' - 22' 8/13/98	RWP-3 8' - 10' 8/13/98	RWP-3 10' - 12' 8/13/98	RWP-3 12' - 14' 8/13/98	RWP-3 14' - 16' 8/13/98	RWP-4 15' - 17' 8/13/98	Envirotech			
DILUTION FACTOR	1	1	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	96	96	96	93	94	94	94	94	94	96	91	
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Antimony	U	U	U	1.1 B	1.1 B	U	U	U	1.0 B	0.98 B	0.48	----
Arsenic	0.65 B	1.0	0.92 B	1.8	1.3	U	U	U	U	0.76 B	0.32	3 - 12*
Beryllium	0.07 B	U	U	0.09 B	0.09 B	U	U	U	0.05 B	0.09 B	0.021	0 - 1.75
Cadmium	U	U	U	U	U	U	U	U	U	U	0.042	0.1 - 1, (10***)
Chromium	3.7	3.7	5.1	11.4	9.5	5.1	5.1	4.3	4.3	6.4	0.11	1.5 - 40*, (50****)
Copper	4.3 B	2.1 B	2.1 B	8.2	5.7	3.8 B	3.8 B	2.3 B	2.3 B	4.7 B	0.43	1 - 50
Lead	3.3	4.4	5.5	8.4	4.6	1.2	1.2	0.86 B	0.86 B	6.1	0.18	200 - 500**
Mercury	0.02 B	U	U	0.03 B	0.02 B	U	U	U	U	0.10	0.053	0.001 - 0.2
Nickel	1.8 B	1.4 B	1.0 B	2.5 B	2.9 B	1.5 B	1.5 B	1.0 B	1.0 B	3.8 B	0.17	0.5 - 25
Selenium	U	U	U	U	U	U	U	U	U	U	0.49	0.1 - 3.9
Silver	U	U	U	U	U	U	U	U	U	U	0.095	----
Thallium	U	U	U	U	U	U	U	U	U	U	0.46	----
Zinc	6.3	3.7 B	3.0 B	12.9	12.0	6.7	6.7	4.8 B	4.8 B	18.0	0.38	9 - 50

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL,  
 but greater than the IDL.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.

TABLE C-7 (inued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)										INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)	
	RWP-4 17' - 19' 8/13/98	RWP-4 21' - 23' 8/13/98	RWP-4 23' - 25' 8/13/98	RWP-5 6' - 8' 8/14/98	RWP-5 8' - 10' 8/14/98	RWP-5 10' - 12' 8/14/98	RWP-5 12' - 14' 8/14/98	RWP-6 6' - 8' 8/18/98	DILUTION FACTOR				
SAMPLE DEPTH	Envirotech										(mg/kg)	(mg/kg)	
	1	1	1	1	1	1	1	1	1	1			
DATE OF COLLECTION											(mg/kg)	(mg/kg)	
LABORATORY											(mg/kg)	(mg/kg)	
PERCENT SOLIDS											(mg/kg)	(mg/kg)	
UNITS											(mg/kg)	(mg/kg)	
Antimony	U	U	U	U	U	U	U	U	U	U	U	0.48	----
Arsenic	U	1.3	U	2.8	U	0.61	U	U	U	0.32	U	0.32	3 - 12*
Beryllium	U	U	U	0.13	U	0.14	U	U	U	0.021	U	0.021	0 - 1.75
Cadmium	U	U	U	0.12	U	0.14	U	U	U	0.042	U	0.042	0.1 - 1, (10***)
Chromium	3.0	6.7	1.8	7.6	3.6	5.8	2.9	7.7	5.8	0.11	U	0.11	1.5 - 40*, (50****)
Copper	1.7	2.6	1.3	5.8	2.5	2.6	1.7	5.7	2.6	0.43	U	0.43	1 - 50
Lead	1.2	5.8	U	5.8	0.95	1.1	0.66	8.0	1.1	0.18	U	0.18	200 - 500**
Mercury	1.0	1.3	U	0.02	U	U	U	0.03	1.5	0.053	U	0.053	0.001 - 0.2
Nickel	U	U	U	2.1	1.0	1.0	U	2.9	1.0	0.17	U	0.17	0.5 - 25
Selenium	U	U	U	U	U	U	U	U	U	0.49	U	0.49	0.1 - 3.9
Silver	U	U	U	U	U	U	U	U	U	0.095	U	0.095	----
Thallium	U	U	U	U	U	U	U	U	U	0.46	U	0.46	----
Zinc	4.2	8.7	3.6	6.9	3.4	5.2	5.8	29.1	5.2	0.38	B	0.38	9 - 50

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL, but greater than the IDL.

Notes:  
 ---- : Not established.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in TAGM 4046 Appendix A.

TABLE C-7 (Continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 SOIL SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Resin Waste Pit (Sump #1)				FB-1 (ug/L)	FB-2 (ug/L)	INSTRUMENT DETECTION LIMITS (mg/kg)	EASTERN USA BACKGROUND LEVELS (mg/kg)
	RWP-6 8' - 10' 8/18/98	RWP-6 12' - 14' 8/18/98	RWP-6 16' - 18' 8/18/98	Envirotech 1 97				
DILUTION FACTOR	1	1	1	1	1	1		
PERCENT SOLIDS	96	88			--	--		
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(ug/L)	(mg/kg)	(mg/kg)
Antimony	U	U	U	U	U	U	0.48	----
Arsenic	1.6	2.3	0.99	0.99	U	U	0.32	3 - 12*
Beryllium	0.14	0.26	0.07	0.07	U	U	0.021	0 - 1.75
Cadmium	U	U	U	U	U	U	0.042	0.1 - 1, (10***)
Chromium	7.1	7.3	4.3	4.3	U	U	0.11	1.5 - 40*, (50****)
Copper	4.2	6.2	2.0	2.0	U	U	0.43	1 - 50
Lead	6.7	31.3	0.94	0.94	U	U	0.18	200 - 500**
Mercury	0.02	0.02	U	U	U	U	0.053	0.001 - 0.2
Nickel	2.4	5.7	1.5	1.5	U	U	0.17	0.5 - 25
Selenium	U	U	U	U	U	U	0.49	0.1 - 3.9
Silver	U	U	U	U	U	U	0.095	----
Thallium	U	U	U	U	U	U	0.46	----
Zinc	18.5	30.8	6.1	6.1	10.7	11.5	0.38	9 - 50

Qualifiers:

U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL,  
 but greater than the IDL.

Notes:

---- : Not established.  
 -- : Not applicable.  
 \* : New York State Background.  
 \*\* : Background for metropolitan or suburban areas.  
 \*\*\* : Proposed revised criteria for cadmium and chromium in  
 TAGM 4046 Appendix A.

**TABLE C-8**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**SOIL SAMPLING RESULTS**  
**HEXAVALENT CHROMIUM**

SAMPLE LOCATION	Machine Shop	Sanitary Leaching Pools (North and South)				INSTRUMENT DETECTION LIMITS	COMPARISON VALUE
		B-3AA	B-22BA	B-22CA	B-22CA		
SAMPLE IDENTIFICATION	B-3AA	B-22BA	B-22CA	B-22CA			
SAMPLE DEPTH	0 - 2'	10' - 12'	14' - 16'	16' - 18'			
DATE OF COLLECTION	8/11/98	8/18/98	8/18/98	8/18/98			
LABORATORY		Envirotech					
DILUTION FACTOR	1	1	1	1			
PERCENT SOLIDS	89.5	94	96	96			
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Hexavalent Chromium	3.0	2.5	2.3	U	0.11	50*	

Qualifiers:

U: Constituent analyzed for but not detected.

Notes:

\*: NYSDEC Guidance Value

**TABLE -9**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**GROUNDWATER SAMPLING RESULTS**  
**VOLATILE ORGANIC COMPOUNDS**

SAMPLE LOCATION	Monitoring Well P12MW-1		Monitoring Well P12MW-2		Monitoring Well P12MW-3		Monitoring Well P12MW-4		Monitoring Well GM-10S (P-5)		Trip Blank TB-1 08/31/98	Trip Blank 01/14/99	QUANTITATION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/GUIDELINES (ug/L)
	P-12 MW-1	P-12 MW-2	P-12 MW-2	P-12 MW-2	P-12 MW-3	P-12 MW-3	P-12 MW-4	P-12 MW-4	GM-10S	GM-10S				
	01/21/99	08/31/98	01/14/99	01/14/99	01/14/99	01/14/99	01/21/99	01/21/99	01/21/99	01/21/99				
DILUTION FACTOR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Chloromethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Bromomethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	U	U	U	U	5.0	2 ST
Chloroethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Methylene Chloride	U	U	U	U	U	U	U	U	U	U	U	U	3.0	5 ST
Acetone	U	U	U	U	U	U	U	U	U	U	U	U	5.0	50 GV
Carbon Disulfide	U	U	U	U	U	U	U	U	U	U	U	U	---	---
1,1-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
1,1-Dichloroethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	7 ST
Chloroform	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	U	U	U	U	2.0	5 ST
2-Butanone	U	U	U	U	U	U	U	U	U	U	U	U	5.0	50 GV
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	U	U	2.0	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	U	U	U	U	1.0	50 GV
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	U	U	1.0	1 ST
Trichloroethene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	4 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	U	U	U	U	1.0	5 ST
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	50 GV
Benzene	U	U	U	U	U	U	U	U	U	U	U	U	3.0	1 ST
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	U	U	U	U	1.0	1 ST
Bromoform	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
4-Methyl-2-pentanone	U	U	U	U	U	U	U	U	U	U	U	U	4.0	4 ST
2-Hexanone	U	U	U	U	U	U	U	U	U	U	U	U	5.0	50 GV
Tetrachloroethene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	---
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	U	U	U	U	5.0	50 GV
Toluene	U	U	U	U	U	U	U	U	U	U	U	U	1.0	5 ST
Chlorobenzene	U	U	U	U	U	U	U	U	U	U	U	U	1.0	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Styrene	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
Xylene (total)	U	U	U	U	U	U	U	U	U	U	U	U	5.0	5 ST
TOTAL VOCs	10	15.8	20	34	13	6	1.6	4	---	---	---	---	---	---

**Qualifiers:**  
U: Compound analyzed for but not detected  
J: Compound found at a concentration below the detection limit.  
B: Compound found in the method blank as well as the sample.

**Notes:**  
ST : Standard  
GV : Guidance Value  
--- : Not established  
\* : Applies to each isomer individually.  
☐ : Value exceeds NYSDEC Class GA Groundwater Standards/Guidelines.

TABLE C-9 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 GROUNDWATER SAMPLING RESULTS  
 VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	Trip Blank									QUANTITATION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/GUIDELINES (ug/L)
SAMPLE IDENTIFICATION	Trip Blank										
DATE OF COLLECTION	01/21/99										
DILUTION FACTOR	1.0										
UNITS	(ug/L)										
Chloromethane	U									5.0	5 ST
Bromomethane	U									5.0	5 ST
Vinyl Chloride	U									5.0	2 ST
Chloroethane	U									5.0	5 ST
Methylene Chloride	2 J									3.0	5 ST
Acetone	5									5.0	50 GV
Carbon Disulfide	U									---	---
1,1-Dichloroethene	U									2.0	5 ST
1,1-Dichloroethane	U									5.0	5 ST
trans-1,2-Dichloroethene	U									5.0	5 ST
cis-1,2-Dichloroethene	U									5.0	5 ST
Chloroform	U									7.0	5 ST
1,2-Dichloroethane	U									2.0	5 ST
2-Butanone	U									5.0	50 GV
1,1,1-Trichloroethane	U									5.0	5 ST
Carbon Tetrachloride	U									5.0	5 ST
Bromodichloromethane	U									2.0	5 ST
1,2-Dichloropropane	U									1.0	50 GV
cis-1,3-Dichloropropene	U									1.0	1 ST
Trichloroethene	U									5.0	4 ST
Dibromochloromethane	U									1.0	5 ST
1,1,2-Trichloroethane	U									5.0	50 GV
Benzene	U									3.0	1 ST
trans-1,3-Dichloropropene	U									1.0	1 ST
Bromoform	U									5.0	4 ST
4-Methyl-2-pentanone	U									4.0	50 GV
2-Hexanone	U									5.0	---
Tetrachloroethene	U									5.0	50 GV
1,1,2,2-Tetrachloroethane	U									1.0	5 ST
Toluene	U									5.0	5 ST
Chlorobenzene	U									5.0	5 ST
Ethylbenzene	U									5.0	5 ST
Styrene	U									4.0	5 ST
Xylene (total)	U									5.0	5 ST
TOTAL VOCs	7									---	---

Qualifiers:  
 U: Compound analyzed for but not detected.  
 J: Compound found at a concentration below the detection limit.

Notes:  
 ST : Standard  
 GV : Guidance Value  
 --- : Not established  
 \* : Applies to each isomer individually.

**TABLE 10-10**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**GROUNDWATER SAMPLING RESULTS**  
**SEMIVOLATILE ORGANIC COMPOUNDS**

SAMPLE LOCATION	Monitoring Well P12MW-1		Monitoring Well P12MW-2		Monitoring Well P12MW-3		Monitoring Well P12MW-4		Monitoring Well GM-10S (P-5)		QUANTITATION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/GUIDELINES (ug/L)
	P-12 MW-1	01/21/99	P-12 MW-2	08/31/98	P-12 MW-3	01/14/99	P-12 MW-4	01/21/99	GM-10S	01/21/99		
DATE OF COLLECTION												
DILUTION FACTOR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)		
Phenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2-Chlorophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2-Methylphenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
4-Methylphenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2-Nitrophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
4-Nitrophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
Pentachlorophenol	U	U	U	U	U	U	U	U	U	U	10	1 ST*
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	10	1 ST*
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	10	1 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	10	3 ST**
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	U	U	10	3 ST**
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	10	---
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	U	U	10	---
Hexachloroethane	U	U	U	U	U	U	U	U	U	U	10	5 ST
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	10	0.4 ST
Isophorone	U	U	U	U	U	U	U	U	U	U	10	50 GV
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	10	5 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	U	U	10	5 ST
Naphthalene	U	U	U	U	U	U	U	U	U	U	10	10 GV
4-Chloroaniline	U	U	U	U	U	U	U	U	U	U	10	5 ST
Hexachlorobutadiene	U	U	U	U	U	U	U	U	U	U	10	0.5 ST
2-Methylnaphthalene	U	U	U	U	U	U	U	U	U	U	10	---
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	U	U	10	5 ST
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	10	10 GV
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	10	---
Dimethylphthalate	U	U	U	U	U	U	U	U	U	U	10	5 ST
Acenaphthylene	U	U	U	U	U	U	U	U	U	U	10	10 GV
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	U	U	10	5 ST

**TABLE C-10 (continued)**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**GROUNDWATER SAMPLING RESULTS**  
**SEMIVOLATILE ORGANIC COMPOUNDS**

SAMPLE LOCATION	Monitoring Well	Monitoring Well	Monitoring Well	Monitoring Well	Monitoring Well	Monitoring Well	QUANTITATION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/GUIDELINES (ug/L)
	P-12 MW-1	P-12 MW-2	P-12 MW-3	P-12 MW-4	P-12 MW-3	P-12 MW-4		
SAMPLE IDENTIFICATION	01/21/99	08/31/98	01/14/99	01/21/99	01/14/99	01/21/99		
DATE OF COLLECTION	1.0	1.0	1.0	1.0	1.0	1.0		
DILUTION FACTOR	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)		
3-Nitroaniline	U	U	U	U	U	U	10	5 ST
Acenaphthene	U	U	U	U	U	U	10	20 GV
Dibenzofuran	U	U	U	U	U	U	10	---
2,4-Dinitrotoluene	U	U	U	U	U	U	10	5 ST
Diethylphthalate	U	U	U	U	U	U	10	50 GV
4-Chlorophenyl-phenylether	U	U	U	U	U	U	10	---
Fluorene	U	U	U	U	U	U	10	50 GV
4-Nitroaniline	U	U	U	U	U	U	10	5 ST
N-Nitrosodiphenylamine	U	U	U	U	U	U	10	50 GV
4-Bromophenyl-phenylether	U	U	U	U	U	U	10	---
Hexachlorobenzene	U	U	U	U	U	U	10	0.4 ST
Phenanthrene	U	U	U	U	U	U	10	50 GV
Anthracene	U	U	U	U	U	U	10	50 GV
Carbazole	U	U	U	U	U	U	10	---
Di-n-butylphthalate	U	U	U	U	U	U	10	50 ST
Fluoranthene	U	U	U	U	U	U	10	50 GV
Pyrene	U	U	U	U	U	U	10	50 GV
Butylbenzylphthalate	U	U	U	U	U	U	10	50 GV
3,3'-Dichlorobenzidine	U	U	U	U	U	U	10	5 ST
Benzo(a)anthracene	U	U	U	U	U	U	10	0.002 GV
Chrysene	U	U	U	U	U	U	10	0.002 GV
bis(2-Ethylhexyl)phthalate	U	U	U	U	U	U	10	5 ST
Di-n-octylphthalate	U	U	U	U	U	U	10	50 GV
Benzo(b)fluoranthene	U	U	U	U	U	U	10	0.002 GV
Benzo(k)fluoranthene	U	U	U	U	U	U	10	0.002 GV
Benzo(a)pyrene	U	U	U	U	U	U	10	ND ST
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	10	0.002 GV
Dibenzo(a,h)anthracene	U	U	U	U	U	U	10	---
Benzo(g,h,i)perylene	U	U	U	U	U	U	10	---
TOTAL CaPAHs	0	0	0	0	0	0		
TOTAL SVOCs	0	0	0	0	0	0		

Qualifiers:  
U: Compound analyzed for but not detected.

Notes:  
ST : Standard.  
GV : Guidance Value.  
ND ST: Standard is for not detection.  
--- : Not established.  
\* : Value is for total Phenols.  
\*\* : Applies to each isomer individually.



**TABLE 11-11**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**GROUNDWATER SAMPLING RESULTS**  
**POLYCHLORINATED BIPHENYLS**

SAMPLE LOCATION	Monitoring Well P12MW-1		Monitoring Well P12MW-2		Monitoring Well P12MW-3		Monitoring Well P12MW-4		Monitoring Well GM-10S (P-5)	QUANTITATION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
	P-12 MW-1 01/21/99 1.0 (ug/L)	P-12 MW-2 08/31/98 1.0 (ug/L)	P-12 MW-2 01/14/99 1.0 (ug/L)	P-12 MW-3 01/14/99 1.0 (ug/L)	P-12 MW-4 01/21/99 1.0 (ug/L)	GM-10S 01/21/99 1.0 (ug/L)					
Aroclor-1016	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1221	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1232	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1242	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1248	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1254	U	0.94	U	U	U	U	U	U	U	0.50	---
Aroclor-1260	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1262	U	U	U	U	U	U	U	U	U	0.50	---
Aroclor-1268	U	U	U	U	U	U	U	U	U	0.50	---
<b>TOTAL PCBs</b>	<b>0</b>	<b>0.94</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>.09 ST *</b>

**Qualifiers**  
U: Compound analyzed for but not detected.  
Notes:  
ST : Standard  
--- : Not established.  
\* : Standard is for total PCBs.  
 : Value exceeds NYSDEC Class GA Groundwater Standard for total PCBs.

**TABLE 12**  
**NORTHROP GRUMMAN CORPORATION**  
**PLANT 12**  
**PHASE II DELINEATION PROGRAM**  
**GROUNDWATER SAMPLING RESULTS**  
**PRIORITY POLLUTANT METALS**

SAMPLE LOCATION	Monitoring Well P12MW-1		Monitoring Well P12MW-2		Monitoring Well P12MW-3		INSTRUMENT DETECTION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
	P-12 MW-1 01/21/99	P-12 MW-1-Dis 01/21/99	P-12 MW-2 08/31/98	P-12 MW-2-Dis 08/31/98	P-12 MW-2 01/14/99	P-12 MW-2-Dis 01/14/99		
DILUTION FACTOR	1.0	1.0	1.0	1.0	1.0	1.0		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Antimony	U	U	U	U	U	U	U	3 ST
Arsenic	U	U	10.6	5.4	U	U	U	25 ST
Beryllium	U	U	1.8	U	U	U	U	3 ST
Cadmium	U	U	0.77	1.8	U	U	U	5 ST
Chromium	U	U	2.7	2.8	2.4 B	U	U	50 ST
Copper	U	U	51.3	5.7	U	U	U	200 ST
Lead	U	U	7.7	U	4.6 B	U	U	25 ST
Mercury	U	U	0.45	0.36	U	U	U	0.7 ST
Nickel	U	U	5.8	3.5	3.0 B	1.3 B	U	100 ST
Selenium	U	U	U	U	U	U	U	10 ST
Silver	U	U	U	U	2.6 B	1.4 B	U	50 ST
Thallium	U	U	U	U	U	U	U	0.5 GV
Zinc	0.05	0.06	128	49.9	25.9 B	22.3 B	16.2 B	2,000 GV

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 B: Constituent concentration is less than the CRDL,  
 but greater than the IDL.

Notes:  
 ST : Standard  
 GV : Guidance Value

TABLE C-12 (continued)  
 NORTHROP GRUMMAN CORPORATION  
 PLANT 12  
 PHASE II DELINEATION PROGRAM  
 GROUNDWATER SAMPLING RESULTS  
 PRIORITY POLLUTANT METALS

SAMPLE LOCATION	Monitoring Well P-12 MW-4		Monitoring Well GM-10S (P-5)		INSTRUMENT DETECTION LIMITS (ug/L)	NYSDEC CLASS GA GROUNDWATER STANDARDS/ GUIDELINES (ug/L)
	P-12 MW-4 DATE OF COLLECTION DILUTION FACTOR	P-12 MW-4-Dis 01/21/99 1.0 (ug/L)	GM-10S 01/21/99 1.0 (ug/L)	GM-10S-Dis 01/21/99 1.0 (ug/L)		
Antimony					4.6	3 ST
Arsenic	U	U	U	U	3.8	25 ST
Beryllium	U	U	U	U	0.2	3 ST
Cadmium	U	U	U	U	0.4	5 ST
Chromium	U	U	U	U	1.0	50 ST
Copper	U	U	U	U	3.5	200 ST
Lead	U	U	U	U	2.5	25 ST
Mercury	U	U	U	U	0.10	0.7 ST
Nickel	U	U	U	U	2.1	100 ST
Selenium	U	U	U	U	4.8	10 ST
Silver	U	U	U	U	1.4	50 ST
Thallium	U	U	U	U	4.8	0.5 GV
Zinc	U	U	U	U	4.5	2,000 GV

Qualifiers:  
 U: Constituent analyzed for but not detected.  
 Notes:  
 ST : Standard  
 GV : Guidance Value