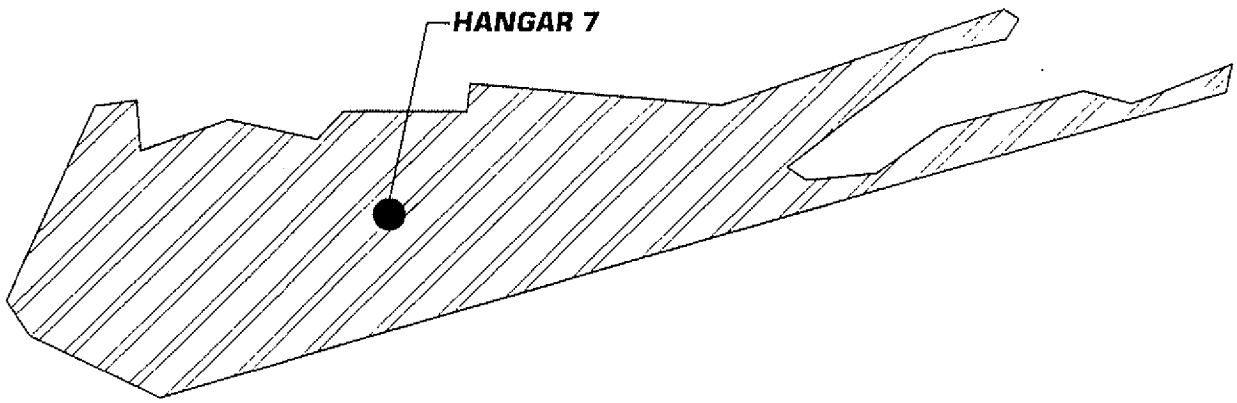
NORTHROP GRUMMAN

BETHPAGE FACILITY



PHASE II SITE ASSESSMENT
HANGAR 7

NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

Dvirka and Bartilucci
Consulting Engineers

FEBRUARY 1997

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February 28, 1997

John Ohlmann, P.E.
Consultant for
Northrop Grumman Corporation
Mail Stop: D08-001
Bethpage, NY 11714-3582

Re: Phase II Site Assessment
Hangar 7
Bethpage, New York
D&B No. 1167-LL

Dear Mr. Ohlmann:

Enclosed please find six (6) copies of the document entitled,

"Phase II Site Assessment
Hangar 7
Bethpage, New York"

If you have any questions and/or comments, please do not hesitate to contact Mr. Richard Russell or me at (516) 364-9890.

Very truly yours,

Richard M. Walka
Vice President

RMW/de
Enclosure
cc: A. Postyn (NGC)
R. Russell (D&B)
♦1167\RMW97-11.LTR

PHASE II SITE ASSESSMENT

NORTHROP GRUMMAN CORPORATION

HANGAR 7
BETHPAGE, NEW YORK

PREPARED BY

DVIRKA AND BARTILUCCI
CONSULTING ENGINEERS
WOODBURY, NEW YORK

FEBRUARY 1997

PHASE II SITE ASSESSMENT
NORTHROP GRUMMAN CORPORATION
HANGAR 7
BETHPAGE, NEW YORK

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Section 1

1.0 INTRODUCTION

This report presents the findings of a Phase II Site Assessment undertaken at the Northrop Grumman Corporation (NGC) property referred to as Hanger 7.

The Hangar 7 site is located on the southwest side of the Long Island Rail Road tracks in Bethpage, New York. A site location map is presented on Figure 1-1. The Hanger 7 property comprises approximately 15 acres (current Tax I.D. Number: Section 46, Block 323, portions of Lots 17E and 19), and is currently owned by NGC. The property is zoned Industrial H and, with the exception of a high density residential area to the northeast, is surrounded by commercial development. A site plan is presented on Figure 1-2.

NGC completed a Phase I Site Assessment of the Hangar 7 site in June 1996. The objective of the Phase II Site Assessment is to document the investigative activities undertaken in accordance with recommendations of the Phase I Site Assessment report; present the results obtained from the laboratory analysis of environmental samples; and provide an interpretation of analytical results with respect to appropriate environmental criteria. Section 2 of this document presents an overview of the findings, conclusions, and recommendations of the Phase I Site Assessment. The procedures followed throughout the course of the Phase II field program are described in Section 3. The findings and conclusions of the Phase II field program are presented in Section 4. The recommendations of the Phase II Site Assessment are presented in Section 5.

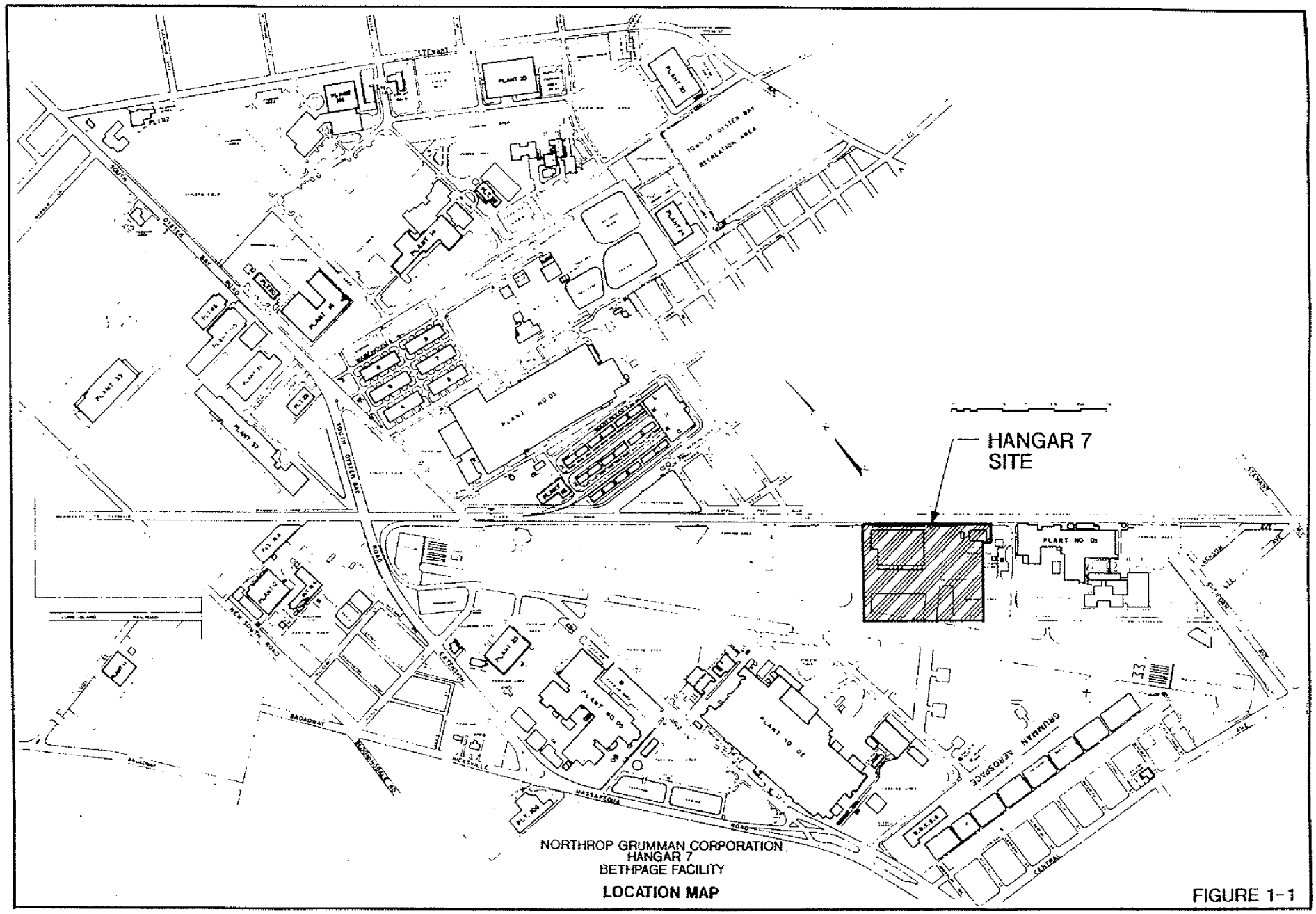
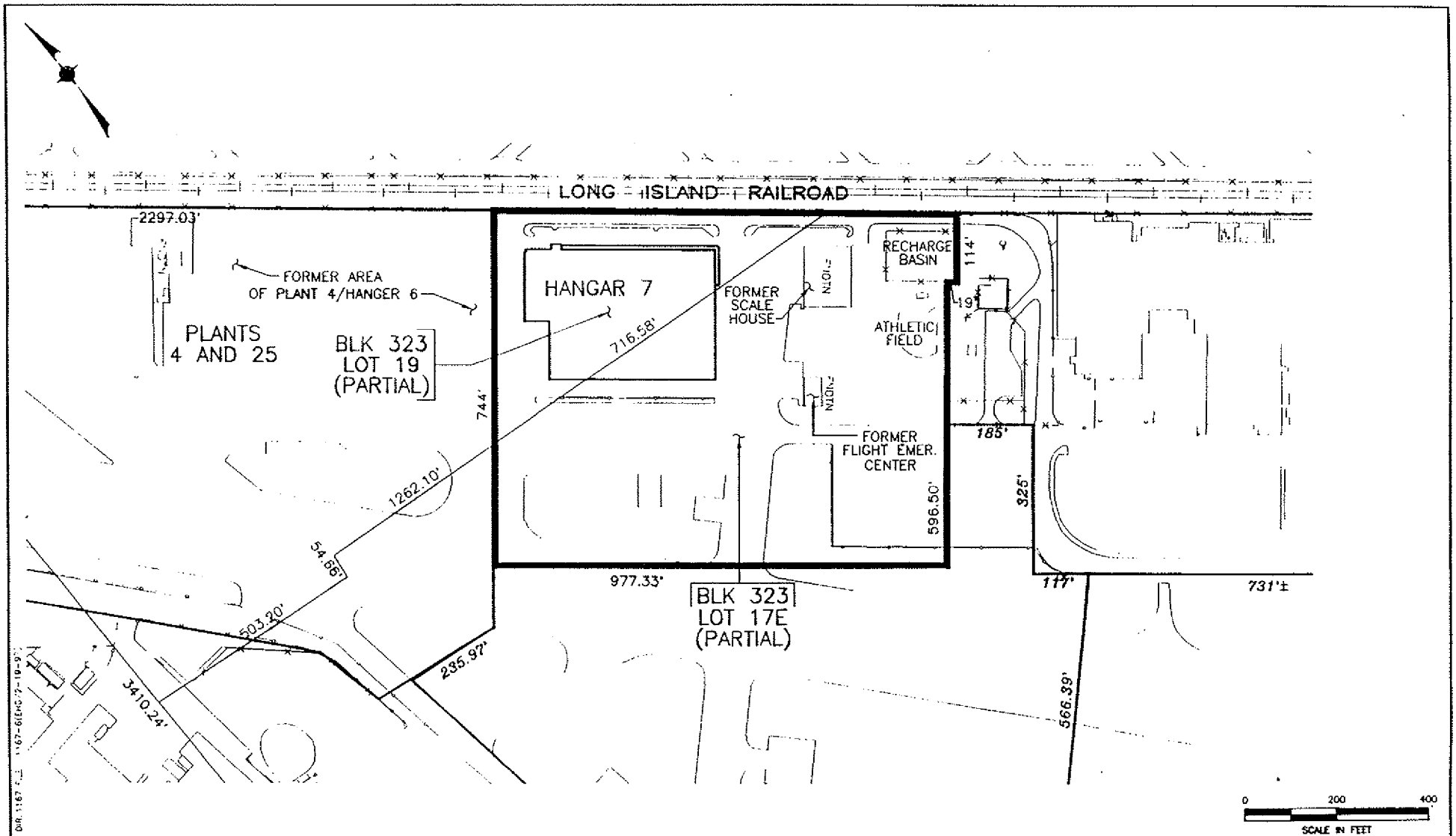


FIGURE 1-1



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NORTHROP GRUMMAN CORPORATION
HANGAR 7
BETHPAGE FACILITY

SITE PLAN

FIGURE 1-2

Section 2

2.0 PHASE I SITE ASSESSMENT - OVERVIEW

This section presents an overview of the potential areas of environmental concern identified in the Phase I Site Assessment and the investigative activities recommended for each. The areas of environmental concern, requiring additional investigation, included the following:

- Hangar 7 Building
  - Exterior Drum Storage Area
  - Exterior Trench Drain/Recharge Basin
  - Exterior Underground Storage Tanks
- Former Flight Emergency Center
  - Floor Drains
  - Dry Well
- Hangar 7 Site Area
  - Dry Wells/Catch Basins
  - Filled Leaching Pools

2.1 Hangar 7 Building

2.1.1 Exterior Drum Storage Area

The exterior drum storage area adjacent to the southern corner of the Hangar 7 Building was identified as an on-site indicator of contamination. This conclusion was made due to observations of stains in the area, and the potential for contaminant transport to surrounding areas by storm water runoff.

It was recommended that one boring be installed in the exterior drum storage area with continuous split spoon sampling to 10 feet below grade. Additionally, an oil sheen was observed emanating from the exterior drum storage area during the February 21, 1996 site inspection. The oil sheen appeared to extend southward toward unpaved areas. Therefore, it was also recommended that several surficial soil samples be collected from the unpaved areas south of the drum storage area.

Based upon field instrumentation and visual observations, it was recommended that the surficial soil samples, and select samples from the boring, be collected and analyzed for volatile organic compounds (VOCs) (Method 8240), semivolatile organic compounds (SVOCs) (Method 8270), total petroleum hydrocarbons (TPHCs) (Method 418.1), and a fuels and glycol scan.

2.1.2 Exterior Trench Drain and Recharge Basin

According to NGC representatives, deicing activities had once occurred adjacent to the western corner of the Hangar 7 building. It appears that any runoff from this area is collected in a trench drain which, based on NGC Quadrangle Maps, appears to discharge to the on-site recharge basin. Although this recharge basin was previously sampled, soil samples collected in this area were not analyzed for glycols. As a result, this area remains a potential environmental concern.

It was recommended that one boring be installed adjacent to the low point of the trench drain with continuous split spoon sampling to a 10-foot depth. It was also recommended that one boring be installed within the recharge basin with split spoon sampling at 5-foot intervals to the depth of groundwater. Based upon field instrumentation and visual observations, it was recommended that select soil samples be collected from each boring and analyzed for a glycol scan, TPHCs (trench drain only) and fuels (trench drain only).

2.1.3 Exterior Underground Storage Tanks

Based on information provided by NGC representatives, a trench drain which runs along the center of the interior of the Hangar 7 building drains to two exterior 2,000-gallon underground fiberglass storage/holding tanks. Based upon the former operations conducted inside Hangar 7, as well as the prior deicing activities, these tanks remain potential areas of environmental concern.

Tightness testing has apparently not been performed on these tanks. Therefore, tightness testing of each tank was recommended. As of the writing of this report, these activities were scheduled to be performed by NGC.

2.2 Former Flight Emergency Center

Based on historical operations at the former Flight Emergency Center, and the nature of the prior discharges from this facility to the sanitary leaching pools, it was determined that the dry well and the structural integrity of the floor drains remain potential environmental concerns.

It was recommended that borings be installed at each floor drain to a depth of 10 feet with continuous split spoon sampling. It was also recommended that a boring be installed at the dry well with continuous split spoon sampling from the depth of the dry well invert to a depth of 10 feet below the invert. Based upon field instrumentation and visual observations, it was recommended that select samples from each boring be collected and analyzed for VOCs (Method 8240), SVOCs (Method 8270), TPHC's (Method 418.1), fuels and a glycol scan.

2.3 Hangar 7 Site Area

2.3.1 Dry Wells/Catch Basins

As stated in the Phase I report, the end point sample that was collected during the February 1994 Additional Baseline Sampling Activities from a storm water drainage "tee" of pools, indicated elevated levels of TPHCs as "lubricating oil." It does not appear that any additional investigation or remedial activities were undertaken in this area.

It was recommended that one additional soil boring be installed in each pool of this system with continuous split spoon sampling from the depth of the dry well inverts to a depth of 10 feet below the inverts. Based upon field instrumentation and visual observations, it was

recommended that select soil samples be collected and analyzed for TPHCs, fuels, and a glycol scan.

2.3.2 Filled Leaching Pools

Several on-site backfilled leaching pools were identified from a review of the NGC Quadrangle maps for the Hangar 7 site area. These leaching pools are located along the southwestern exterior of the Hangar 7 building adjacent to the storm water drainage "tee" of pools discussed above. Based upon the historical operations which occurred at the Hangar 7 facility, and the apparent prior discharges of lubricating oil to the adjacent storm water drainage system, it was determined that these pools remain a potential environmental concern. Based upon a review of prior assessments, it does not appear that these filled leaching pools were investigated.

It was recommended that a soil boring be installed in each of the pools with continuous split spoon sampling from the depth of the pool invert to a depth of 10 feet below the pool invert. Based upon field instrumentation and visual observations, it was recommended that select soil samples be collected and analyzed for VOCs (Method 8240), SVOCs (Method 8270), TPHCs (Method 418.1), fuels and a glycol scan.

3.0 PHASE II SITE ASSESSMENT-FIELD PROGRAM

This section describes the field activities undertaken in support of the Phase II Site Assessment. Field activities were undertaken in accordance with the recommendations of the June 1996 Phase I report.

3.1 Air Monitoring Activities

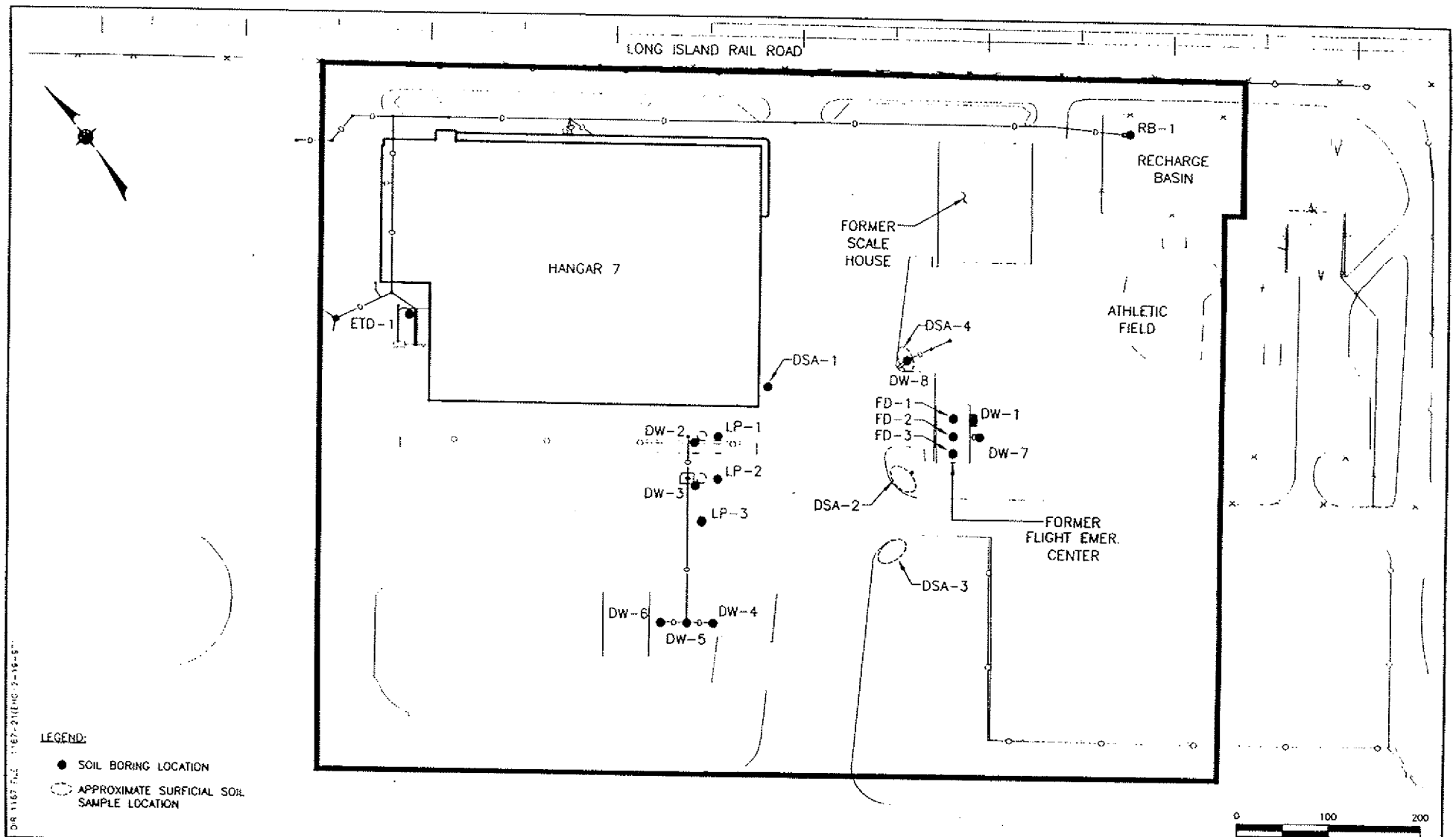
During the installation of the soil borings, monitoring for volatile organic vapors in the workers' breathing zone and at the boreholes was conducted utilizing a photoionization detector (PID). Prior to use, the PID was calibrated using a 100 ppm concentration isobutylene gas. The PID was also utilized to screen the soil samples collected. Soil sample screening results are presented on Boring Logs contained in Appendix A.

3.2 Soil Sampling Program

Soil borings were installed in each of the following potential areas of environmental concern:

- Hangar 7 Building
  - Exterior Drum Storage Areas
  - Exterior Trench Drain/Recharge Basin
- Former Flight Emergency Center
  - Floor Drains
  - Dry Well
- Hangar 7 Site Area
  - Dry Wells/Catch Basins
  - Filled Leaching Pools

The soil boring and corresponding soil sampling locations in these areas of potential environmental concern are shown on Figure 3-1.



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SOIL SAMPLING LOCATION MAP

FIGURE 3-1

Except for the borings in the former leaching pools (LP-1, LP-2 and LP-3) and in the on-site recharge basin (RB-1), all soil borings were installed using the hollow stem auger method of drilling with 4 1/4-inch hollow stem augers and a 2-inch diameter by 2-foot split spoon sampler.

An all-terrain, four wheel drive Geoprobe sampling rig was utilized to advance the boring in the on-site recharge basin. The rig was necessary due to physical access constraints in the recharge basin area. The Geoprobe sampling rig was also used to complete the advancement of the borings in areas with significant thicknesses of concrete. The Geoprobe sampling rig can penetrate concrete more efficiently than a conventional hollow stem auger drilling rig.

In accordance with general practice, borings were installed through the targeted system structures, unless the potential existed to damage the structural integrity of an active system. If this potential existed, the borings were advanced *adjacent* to the system to avoid structural damage to the system components. For inactive systems, borings were advanced *through* the system structures. However, it should also be noted that borings LP-1 and LP-2 had to be installed adjacent to the leaching pools since these pools were apparently previously backfilled with concrete.

Prior to drilling and sampling, the split spoons and augers were decontaminated with high pressure steam and air dried. The decontamination water was contained in 55-gallon drums for proper disposal.

It should also be noted that seven of the eight dry wells that were sampled had standing water that had to be pumped out prior to advancement of the borings. To facilitate the assessment of these dry wells, and the implementation of the appropriate drilling activities, NGC pumped out the standing water and disposed of the liquid material in NGC's Industrial Wastewater Pretreatment Facility.

All soil samples were screened utilizing a PID and/or an FID, and were physically and visually characterized and inspected for staining or discoloration. Based upon visual characterization

and field instrumentation measurements, soil samples were selected from each soil boring sampling location and submitted to an approved laboratory for analysis.

3.2.1 Hangar 7 Building

Exterior Drum Storage Areas

One soil boring, DSA-1, was installed with continuous split spoon sampling from 0 to 10 feet below grade. Based upon visual characterization and field instrumentation measurements, two soil samples were collected from this soil boring sampling location for laboratory analysis. Each soil sample was analyzed for VOCs (Method 8240), SVOCs (Method 8270), TPHCs (Method 418.1), fuels and a glycol scan.

The unpaved areas to the south and southwest of the Hangar 7 building receive storm water runoff from the drum storage area adjacent to the southwest corner of the building. Therefore, three surface soil samples, DSA-2, DSA-3, and DSA-4, were collected from the unpaved/grassy areas. The surface samples were collected by hand using a disposal polyethylene scoop.

In addition, a soil boring was advanced through an active, dirt-bottom dry well (DW-8) northeast of the building, with continuous split spoon sampling from the pool invert to a depth of 10 feet below the pool invert (11 to 21 feet below grade). These samples were also analyzed for VOCs (Method 8240), SVOCs (Method 8270), TPHCs (Method 418.1), fuels and a glycol scan. The results of the laboratory analysis of the soil samples are presented in Section 4.

Exterior Trench Drain/Recharge Basin

One soil boring, ETD-1, was installed adjacent to the low point of the exterior trench drain with continuous split spoon sampling from 0 to 10 feet below grade. Two samples were selected for laboratory analysis of TPHCs, fuels, and a glycol scan.

One soil boring, RB-1, was installed in the recharge basin with split spoon sampling at 5-foot intervals, starting at grade, to the groundwater interface (approximately 32 feet below grade). Due to access constraints, a 4-wheel-drive Geoprobe drilling unit was utilized. Three samples were selected for laboratory analysis of a glycol scan. Results of the laboratory analysis are presented in Section 4.

3.2.2 Former Flight Emergency Center

Floor Drains

One soil boring was advanced through each of the three floor drains in the Former Flight Emergency Center building. These borings, designated as FD-1, FD-2, and FD-3, were installed with continuous split spoon sampling from 0 to 10 feet below grade. Two samples from each soil boring were analyzed for VOCs (Method 8240), SVOCs (Method 8270), TPHCs (Method 418.1), fuels and a glycol scan. The results of the laboratory analysis of the soil samples are presented in Section 4.

Dry Wells

One soil boring, DW-1, was installed through the dry well adjacent to the Former Flight Emergency Center building, with continuous split spoon sampling from the dry well invert (4 feet below grade) to a depth of 10 feet below the dry well invert (14 feet below grade).

A soil boring was also advanced through a dry well south of the building (DW-7) which, based on NGC construction drawings, is actually a perforated 55-gallon drum, filled with cobbles. The DW-7 boring was also installed with continuous split spoon sampling from the perforated drum invert to a depth of 10 feet below the invert (4 to 14 feet below grade).

Two samples from each of the soil borings described above were selected for laboratory analysis of VOCs (Method 8240), SVOCs (Method 8270), TPHCs (Method 418.1), fuels and a glycol scan. The results of the laboratory analysis are presented in Section 4.

3.2.3 Hangar 7 Site Area

Dry Wells/Catch Basins

One boring was installed within, or adjacent to, the distribution boxes (designated as DW-2 and DW-3), and dry wells (designated as DW-4, DW-5, and DW-6). The distribution boxes DW-2 and DW-3 are active systems with concrete bottoms. Therefore, the borings were drilled *adjacent* to the system, as opposed to *through* the system as was the case with dry wells DW-4, DW-5, and DW-6. The thickness of the concrete in DW-2 and DW-3 caused hollow stem auger "refusal" in these systems, therefore a Geoprobe unit was required to complete the borings. In each case, the borings were installed with continuous split spoon sampling from the distribution box or dry well invert to a depth of 10 feet below the invert (4 - 14 feet below grade for DW-2 and DW-3; 17.5 - 27.5 feet below grade for DW-4, and 17 - 27 feet below grade for DW-5 and DW-6). Two samples from each boring were selected for laboratory analysis of TPHCs (Method 418.1), fuels, and a glycol scan. The analytical results are presented in Section 4.

Filled Leaching Pools

One soil boring associated with each of the three former leaching pools south of the Hangar 7 building (LP-1, LP-2, and LP-3) was installed. In each case, split spoon sampling was performed from the pool invert to a depth of 10 feet below the pool invert (16 - 26 feet below grade for LP-1 and LP-2, and 18 - 28 feet below grade for LP-3). Soil borings LP-1 and LP-2 were advanced adjacent to the leaching pools, since these pools both appeared to have been previously backfilled with concrete. The LP-3 boring was installed through the pool since it was not previously backfilled and it had a dirt bottom. Installation of the borings was completed with a 4-1/4" hollow stem auger. Two samples from each of the borings described above were analyzed for VOCs (Method 8240),

SVOCs (Method 8270), TPHCs (Method 418.1), fuels and a glycol scan.. The results of the laboratory analysis of the soil samples are presented in Section 4.

Section 4

4.0 FINDINGS AND CONCLUSIONS

This section presents the findings of the Phase II Site Assessment including a summary of the analytical results of the soil samples obtained during the Phase II field program. Soil sample results are compared to the criteria derived in Appendix A of NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) No. 4046, and published Eastern USA Background levels.

4.1 Soil Sampling Program

As described in Section 3.2, soil borings were installed in each of the following potential areas of environmental concern:

- Hangar 7 Building
  - Exterior Drum Storage Areas
  - Exterior Trench Drain/Recharge Basin
- Former Flight Emergency Center
  - Floor Drains
  - Dry Wells
- Hangar 7 Site Area
  - Dry Wells/Catch Basins
  - Filled Leaching Pools

Analytical results from soil samples collected from the above referenced soil borings are presented on Tables 4-1 through 4-10. The following presents a summary of the findings obtained from each of the above referenced sampling areas.

4.1.1 Hangar 7 Building

Exterior Drum Storage Area

As described in Section 3.2, one soil boring (DSA-1), was installed in the exterior drum storage area with two samples collected and analyzed for VOCs, SVOCs, TPHCs, fuels and a glycol scan. In addition, one surface soil sample was collected from each of three unpaved areas to the south and southwest of the Hangar 7 building (DSA-2, DSA-3, and DSA-4), and one soil boring, (DW-8), was advanced through an active, dirt-bottom dry well that receives storm water runoff from the drum storage area. These samples were also analyzed for VOCs, SVOCs, TPHCs, fuels and a glycol scan.

Volatile Organic Compounds

As indicated on Table 4-1, methylene chloride was detected in some of the drum storage area samples. However, methylene chloride was also detected in the field blank. Since this substance is a common laboratory contaminant, and the concentration in the environmental samples was less than 5 times the concentration in the field blank, its presence in the soil samples can be attributed to blank contamination.

Semivolatile Organic Compounds

As indicated on Table 4-2, SVOCs were not detected, in the DSA-1 and DW-8 soil samples, at concentrations above the criteria derived in Appendix A of NYSDEC's TAGM No. 4046.

Several individual SVOCs were detected in surface soil samples DSA-2, DSA-3, and DSA-4 that exceed the criteria derived in Appendix A of NYSDEC's TAGM No. 4046. Exceedances of benzo(a)anthracene, chrysene, benzo(b)flouranthene, benzo(k)flouranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene were detected in samples DSA-2 and DSA-3. DSA-4 contained

TABLE 4-1
NORTHROP GRUMMAN CORPORATION - HANGAR 7

EXTERIOR DRUM STORAGE AREA
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	DSA-1A	DSA-1E	DSA-2	DSA-3	DSA-4	DW-8	DW-8	FLDBLK	CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	0-2 FT	8-10 FT	0-0.5 FT	0-0.5 FT	0-0.5 FT	11-13 FT	19-21 FT	NA		
DATE OF COLLECTION	8/29/96	8/29/96	8/28/96	8/28/96	8/28/96	9/4/96	9/4/96	8/29/96		
DILUTION FACTOR	1	1	1	1	1	1	1	1		
PERCENT SOLIDS	95	98	93	94	92	96	95	NA		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/kg)	(ug/kg)
Chloromethane	U	U	U	U	U	U	U	U	10	---
Bromomethane	U	U	U	U	U	U	U	U	10	---
Vinyl Chloride	U	U	U	U	U	U	U	U	10	200
Chloroethane	U	U	U	U	U	U	U	U	10	1900
Methylene Chloride	3 JB	2 JB	3 JB	3 JB	5 JB	U	U	4 JB	10	100
Acetone	U	U	U	U	U	U	U	13	10	200
Carbon Disulfide	U	U	U	U	U	U	U	U	10	2700
1,1-Dichloroethene	U	U	U	U	U	U	U	U	10	400
1,1-Dichloroethane	U	U	U	U	U	U	U	U	10	200
1,2-Dichloroethene (total)	U	U	U	U	U	U	U	U	10	300
Chloroform	U	U	U	U	U	U	U	U	10	300
1,2-Dichloroethane	U	U	U	U	U	U	U	U	10	100
2-Butanone	U	U	U	U	U	U	U	U	10	300
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	10	800
Carbon Tetrachloride	U	U	U	U	U	U	U	U	10	600
Bromodichloromethane	U	U	U	U	U	U	U	U	10	---
1,2-Dichloropropane	U	U	U	U	U	U	U	U	10	---
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	10	---
Trichloroethene	U	U	U	U	U	U	U	U	10	700
Dibromochloromethane	U	U	U	U	U	U	U	U	10	---
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	10	---
Benzene	U	U	U	U	U	U	U	U	10	60
Trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	10	---
Bromoform	U	U	U	U	U	U	U	U	10	---
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	U	10	1000
2-Hexanone	U	U	U	U	U	U	U	U	10	---
Tetrachloroethene	U	U	U	U	U	U	U	U	10	1400
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	10	600
Toluene	U	U	U	U	U	U	U	U	10	1500
Chlorobenzene	U	U	U	U	U	U	U	U	10	1700
Ethylbenzene	U	U	U	U	U	U	U	U	10	5500
Styrene	U	U	U	U	U	U	U	U	10	---
Total Xylenes	U	U	U	U	U	U	U	U	10	1200
Vinyl Acetate	U	U	U	U	U	U	U	U	10	---
TOTAL VOCs	3	2	3	3	5	0	0	17		10000

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
---: Not established

TABLE 4-2
NORTHROP GRUMMAN CORPORATION - HANGAR 7

EXTERIOR DRUM STORAGE AREA
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	DSA-1A	DSA-1E	DSA-2	DSA-3	DSA-4	DW-8	DW-8	FLDBLK	CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	0-2 FT	8-10 FT	0-0.5 FT	0-0.5 FT	0-0.5 FT	11-13 FT	19-21 FT	NA		
DATE OF COLLECTION	8/29/96	8/29/96	8/28/96	8/28/96	8/28/96	9/4/96	9/4/96	8/29/96		
DILUTION FACTOR	4	2	1	1	1	1	1	1		
PERCENT SOLIDS	95	98	93	94	93	96	95	NA		
UNITS	(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	330	30 OR MDL
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	330	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	330	8500
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	330	7900
2-Methylphenol	U	U	U	U	U	U	U	U	330	100 OR MDL
2,2'-oxybis(1-chloropropane)	U	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	U	330	200 OR MDL
Isophorone	U	U	U	U	U	U	U	U	330	4400
2-Nitrophenol	U	U	U	U	U	U	U	U	330	330 OR MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	330	---
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	U	330	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	U	330	3400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	330	13000
Naphthalene	U	U	U	38 J	U	U	U	U	330	220 OR MDL
4-Chloroaniline	U	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	330	240 OR MDL
2-Methylnaphthalene	U	U	U	37 J	U	U	U	U	330	36400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	U	800	100
2-Chloronaphthalene	U	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	U	800	430 OR MDL
Dimethylphthalate	U	U	U	U	37 J	U	U	U	330	2000
Acenaphthylene	U	U	U	39 J	U	U	U	U	330	41000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	U	330	1000
3-Nitroaniline	U	U	U	U	U	U	U	U	800	500 OR MDL
Acenaphthene	U	U	160 J	220 J	U	U	U	U	330	50000
2,4-Dinitrophenol	U	U	U	U	U	U	U	U	800	200 OR MDL
4-Nitrophenol	U	U	U	U	U	U	U	U	800	100 OR MDL

TABLE 4-2 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

EXTERIOR DRUM STORAGE AREA
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	DSA-1A	DSA-1E	DSA-2	DSA-3	DSA-4	DW-8	DW-8	FLDBLK	CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	0-2 FT	8-10 FT	0-0.5 FT	0-0.5 FT	0-0.5 FT	11-13 FT	19-21 FT	NA		
DATE OF COLLECTION	8/29/96	8/29/96	8/28/96	8/28/96	8/28/96	9/4/96	9/4/96	8/29/96		
DILUTION FACTOR	4	2	1	1	1	1	1	1		
PERCENT SOLIDS	95	98	93	94	93	96	95	NA		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/kg)	(ug/kg)
Dibenzofuran	U	U	48 J	71 J	U	U	U	U	330	6200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	U	330	----
Diethylphthalate	U	U	U	U	U	U	36 J	U	330	7100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	U	330	----
Fluorene	U	U	130 J	180 J	U	U	U	U	330	50000
4-Nitroaniline	U	U	U	U	U	U	U	U	800	----
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	800	----
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	U	330	----
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	U	330	----
Hexachlorobenzene	U	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	U	800	1000 OR MDL
Phenanthrene	U	U	2100	2500	250 J	U	U	U	330	50000
Anthracene	U	U	450	480	59 J	U	U	U	330	50000
Di-n-butylphthalate	U	U	55 J	U	U	U	U	U	330	8100
Fluoranthene	U	U	4000 D*	4800 D*	850	U	U	U	330	50000
Pyrene	U	U	2200	2100	590	U	U	U	330	50000
Butylbenzylphthalate	U	U	U	U	84 J	U	U	U	330	50000
3-3'-Dichlorobenzidine	U	U	U	U	U	U	U	U	330	----
Benzo (a) anthracene	U	U	2800	2500 D*	620	U	U	U	330	224 OR MDL
Chrysene	U	U	2500 D*	3000 D*	750	U	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	91 J	46 J	120 J	120 J	120 J	U	330	50000
Di-n-octylphthalate	U	U	U	U	U	U	U	U	330	50000
Benzo(b)flouranthene	U	U	1900 D*	2400 D*	700	U	U	U	330	1100
Benzo(k)flouranthene	U	U	2600	2100 D*	570	U	U	U	330	1100
Benzo(a)pyrene	U	U	2700	2300 D*	560	U	U	U	330	61 OR MDL
Indeno(1,2,3-cd)pyrene	U	U	520	450	220 J	U	U	U	330	3200
Dibenz(a,h)anthracene	U	U	61 J	45 J	U	U	U	U	330	14 OR MDL
Benzo(g,h,i)perylene	U	U	420	370	200 J	U	U	U	330	50000
Benzyl alcohol	U	U	U	U	U	U	U	U	330	----
Benzoic acid	U	U	U	84 J	45 J	U	U	U	800	----
						U	U			
TOTAL SVOCs	0	0	22735	23676	5510	120	156	0		500000

QUALIFIERS
U: Compound analyzed for but not detected
J: Compound found at a concentration below the detection limit
D*: Result taken from the reanalysis at a 1:5 dilution

NOTES
----: Not established
: Value exceeds NYSDEC TAGM 4046 Appendix A criteria
MDL: Method Detection Limit

exceedances of benzo(a)anthracene, chrysene, and benzo(a)pyrene. However, *total* SVOCs were not detected at concentrations above the criterion of 500,000 ug/kg for *total* SVOCs established in Appendix A of NYSDEC's TAGM 4046. Therefore, additional investigation and/or remediation does not appear to be warranted.

Total Petroleum Hydrocarbons, Fuel Fingerprint and Glycol Scan

As shown in Table 4-3, TPHCs were detected in the drum storage area soil samples, DSA-1A and DSA-1E, at concentrations of 1160 mg/kg and 42 mg/kg, respectively. To determine if these TPHC results were attributable to fuel-related compounds, the samples were also analyzed for a fuel fingerprint. The results on Table 4-3 indicate that "TPH (as 10W40 motor oil)" was detected at a level of 250 mg/kg in the DSA-1A sample (0 - 2 feet). As a result, it appears that the TPHCs detected in sample DSA-1A may be attributable to a prior release of 10W40 motor oil. Fuel related constituents were not detected in the deeper sample DSA-1E (8 - 10 feet below grade).

TPHCs were detected in the surface soil samples DSA-2, DSA-3, and DSA-4 at concentrations ranging from 298 mg/kg to 520 mg/kg. "TPH (as gasoline)" was also detected in surface samples DSA-2 and DSA-3. Therefore, it appears that the TPHCs detected in samples DSA-2 and DSA-3 may be attributable to a prior release of gasoline.

Glycol was not detected in any of the drum storage area samples.

TPHCs were detected in the dry well soil samples DW-8 at concentrations ranging from 40.8 to 42.1 mg/kg. However, fuel-related constituents were not detected at concentrations above method detection limits.

Based on the analytical results described above, additional investigation appears to be warranted in the drum storage area (DSA-1) and the areas receiving storm water runoff from the drum storage area (DSA-2, 3 and 4). (See recommendations in Section 5.)

TABLE 4-3
NORTHROP GRUMMAN CORPORATION - HANGAR 7

EXTERIOR DRUM STORAGE AREA
SOIL SAMPLING RESULTS
TPHCs, FUEL FINGERPRINT AND GLYCOL SCAN

SAMPLE LOCATION	DSA-1A	DSA-1E	DSA-2	DSA-3	DSA-4	DW-8	DW-8	FLDBLK
SAMPLE DEPTH	0-2 FT	8-10 FT	0-0.5 FT	0-0.5 FT	0-0.5 FT	11-13 FT	19-21 FT	----
DATE OF COLLECTION	8/29/96	8/29/96	8/28/96	8/28/96	8/28/96	9/4/96	9/4/96	8/29/96
DILUTION FACTOR	1	1	1	1	1	1	1	1
PERCENT SOLIDS	95	98	93	94	93	96	95	----
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/l)
Total Petroleum Hydrocarbons	1160	42.0	520	298	310	40.8	42.1	U
Gasoline	U	U	U	U	U	U	U	U
TPH (as Gasoline)	U	U	90	57 J	U	U	U	U
Kerosene	U	U	U	U	U	U	U	U
TPH (as Kerosene)	U	U	U	U	U	U	U	U
#2 Fuel Oil	U	U	U	U	U	U	U	U
TPH(as #2 Fuel Oil)	U	U	U	U	U	U	U	U
#6 Fuel Oil	U	U	U	U	U	U	U	U
Lubricating Oil	U	U	U	U	U	U	U	U
TPH(Jet Fuel)	U	U	U	U	U	U	U	U
TPH(as Hydraulic Oil)	U	U	U	U	U	U	U	U
TPH(as 10W40 Motor Oil)	260	U	U	U	U	U	U	U
Propylene Glycol	U	U	U	U	U	U	U	U
Ethylene Glycol	U	U	U	U	U	U	U	U

QUALIFIERS
U: Compound analyzed for but not detected
J: Compound found at a concentration below the detection limit

NOTES:
----: Not Applicable

Exterior Trench Drain/Recharge Basin

As stated in Section 3.2.1, one soil boring, (ETD-1), was installed adjacent to the low point of the exterior trench drain. Two samples were selected for laboratory analysis of TPHCs, fuels, and a glycol scan. In addition, three samples from the soil boring installed in the recharge basin, (RB-1) were collected and analyzed for a glycol scan.

Total Petroleum Hydrocarbons, Fuel Fingerprint and Glycol Scan

As shown in Table 4-4, TPHCs were detected in the exterior trench drain samples EDT-1A and ETD-1E at concentrations of 79.9 mg/kg and 24.8 mg/kg, respectively. To determine if the TPHCs detected were attributable to fuel-related compounds, the soil samples were also analyzed for a fuel fingerprint. The results on Table 4-4 indicate that fuel-related constituents were not detected. As a result, it appears that the detected levels of TPHCs are not associated with any prior fuel-related releases.

Table 4-4 also shows the results of the glycol scan. Glycol was not detected above the method detection limit in any of the recharge basin samples.

Based upon the findings described above, additional investigation or remediation associated with the exterior trench drain and recharge basin does not appear to be warranted.

4.1.2 Former Flight Emergency Center

Floor Drains and Dry Wells

As described in Section 3.2.2, one soil boring was advanced through each of the three floor drains in the Former Flight Emergency Center building. These borings, designated as FD-1, FD-2, and FD-3, were installed with continuous split spoon sampling from 0 to 10 feet below grade. Two samples from each soil boring were analyzed for VOCs, SVOCs, TPHCs, fuels and a glycol scan.

TABLE 4-4
NORTHROP GRUMMAN CORPORATION - HANGAR 7

EXTERIOR TRENCH DRAIN/RECHARGE BASIN
SOIL SAMPLING RESULTS
TPHCs, FUEL FINGERPRINT AND GLYCOL SCAN

SAMPLE LOCATION	ETD-1A	ETD-1E	RB-1	RB-1	RB-1			FB-2
SAMPLE DEPTH	0-2 FT	8-10 FT	5-7 FT	15-17 FT	30-32 FT			—
DATE OF COLLECTION	8/29/96	8/29/96	9/3/96	9/3/96	9/3/96			9/4/96
DILUTION FACTOR	1	1	1	1	1			1
PERCENT SOLIDS	95	97	94	96	94			—
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(mg/l)
Total Petroleum Hydrocarbons	79.9	24.8	NA	NA	NA			U
Gasoline	U	U	NA	NA	NA			U
TPH (as Gasoline)	U	U	NA	NA	NA			U
Kerosene	U	U	NA	NA	NA			U
TPH (as Kerosene)	U	U	NA	NA	NA			U
#2 Fuel Oil	U	U	NA	NA	NA			U
TPH (as #2 Fuel Oil)	U	U	NA	NA	NA			U
#6 Fuel Oil	U	U	NA	NA	NA			U
Lubricating Oil	U	U	NA	NA	NA			U
TPH(Jet Fuel)	U	U	NA	NA	NA			U
TPH(as Hydraulic Oil)	U	U	NA	NA	NA			U
TPH(as 10W40 Motor Oil)	U	U	NA	NA	NA			U
Propylene Glycol	U	U	U	U	U			U
Ethylene Glycol	U	U	U	U	U			U

QUALIFIERS
U: Compound analyzed for but not detected

NOTES
—: Not applicable
NA: Not analyzed for

One soil boring, DW-1, was installed through the dry well adjacent to the Former Flight Emergency Center building. Another soil boring, DW-7, was advanced through a dry well south of the building which, based on NGC construction drawings, is actually a perforated 55-gallon drum, filled with cobbles.

Two samples from each of the soil borings described above were selected for laboratory analysis of VOCs, SVOCs, TPHCs, fuels and a glycol scan.

Volatile Organic Compounds

As shown on Table 4-5, several VOCs were detected at concentrations above the method detection limits in the floor drain and dry well samples. Methylene chloride was detected in all of the floor drain samples, and in dry well samples DW-1 and DW-7. However, this substance is a common laboratory contaminant and the concentration in the environmental samples was less than 5 times the concentration in the field blank. Therefore, its presence in the soil samples can be attributed to blank contamination. Acetone, 2-butanone, toluene and ethylbenzene were also detected in the soil samples, but none were detected at concentrations exceeding the criteria derived in Appendix A of NYSDEC's TAGM No. 4046.

Total xylenes were the only VOCs detected at a concentration above the criteria derived in Appendix A of NYSDEC's TAGM 4046. The exceedance of total xylenes in the floor drain sample FD-1B (1300 ug/kg) occurred in a shallow sample (2-4 feet below grade). It should be noted that VOCs were not detected above method detection limits in the deeper floor drain sample (8 -10 feet below grade) collected from the adjacent boring FD-3E.

Semivolatile Organic Compounds

As indicated on Table 4-6, two individual SVOCs (naphthalene and benzo(a)pyrene), were detected in floor drain samples at concentrations exceeding the criteria derived in Appendix A of NYSDEC's TAGM 4046. The exceedance of naphthalene occurred in FD-1B and the exceedance

TABLE 4-6
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	FD-1A	FD-1B	FD-2A	FD-2B	FD-3A	FD-3E		CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	0-2 FT	2-4 FT	0-2 FT	2-4 FT	0-2 FT	8-10 FT			
DATE OF COLLECTION	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96			
DILUTION FACTOR	1	1	1	1	1	1			
PERCENT SOLIDS	83	96	83	98	98	91			
UNITS	(ug/l)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(ug/kg)	(ug/kg)
Chloromethane	U	U	U	U	U	U		10	---
Bromomethane	U	U	U	U	U	U		10	---
Vinyl Chloride	U	U	U	U	U	U		10	200
Chloroethane	U	U	U	U	U	U		10	1900
Methylene Chloride	4 JB	2 JB	2 JB	2 JB	2 JB	5 JB		10	100
Acetone	U	17	U	18	4 J	U		10	200
Carbon Disulfide	U	U	U	U	U	U		10	2700
1,1-Dichloroethene	U	U	U	U	U	U		10	400
1,1-Dichloroethane	U	U	U	U	U	U		10	200
1,2-Dichloroethene (total)	U	U	U	U	U	U		10	300
Chloroform	U	U	U	U	U	U		10	300
1,2-Dichloroethane	U	U	U	U	U	U		10	100
2-Butanone	U	6 J	U	4 J	U	U		10	300
1,1,1-Trichloroethane	U	U	U	U	U	U		10	800
Carbon Tetrachloride	U	U	U	U	U	U		10	600
Bromodichloromethane	U	U	U	U	U	U		10	---
1,2-Dichloropropane	U	U	U	U	U	U		10	---
cis-1,3-Dichloropropene	U	U	U	U	U	U		10	---
Trichloroethene	U	U	U	U	U	U		10	700
Dibromochloromethane	U	U	U	U	U	U		10	---
1,1,2-Trichloroethane	U	U	U	U	U	U		10	---
Benzene	U	U	U	U	U	U		10	60
Trans-1,3-Dichloropropene	U	U	U	U	U	U		10	---
Bromoform	U	U	U	U	U	U		10	---
4-Methyl-2-Pentanone	U	U	U	U	U	U		10	1000
2-Hexanone	U	U	U	U	U	U		10	---
Tetrachloroethene	U	U	U	U	U	U		10	1400
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U		10	600
Toluene	U	17	U	U	U	U		10	1500
Chlorobenzene	U	U	U	U	U	U		10	1700
Ethylbenzene	U	55	U	U	U	U		10	5500
Styrene	U	U	U	U	U	U		10	---
Total Xylenes	U	1300 D*	U	U	U	U		10	1200
Vinyl Acetate	U	U	U	U	U	U		10	---
TOTAL VOCs	4	1397	2	24	6	5			10000

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
D*: Result taken from the reanalysis at a 1:5 dilution

NOTES
---: Not established
: Value exceeds NYSDEC TAGM 4046 Appendix A criteria

TABLE 4-6 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER - FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	DW-1	DW-1	DW-7	DW-7	FLDBLK			CONTRACT REQUIRED DETECTION LIMIT	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	3-5 FT	11-13 FT	8-10 FT	10-12 FT	NA				
DATE OF COLLECTION	9/3/96	9/3/96	9/3/96	9/3/96	8/29/96				
DILUTION FACTOR	1	1	1	1	1				
PERCENT SOLIDS	94	96	93	95	NA				
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)			(ug/kg)	(ug/kg)
Chloromethane	U	U	U	U	U			10	----
Bromomethane	U	U	U	U	U			10	----
Vinyl Chloride	U	U	U	U	U			10	200
Chloroethane	U	U	U	U	U			10	1900
Methylene Chloride	10 JB	9 JB	9 JB	7 JB	4 JB			10	100
Acetone	8 JB	31 B	5 J	U	13			10	200
Carbon Disulfide	U	U	U	U	U			10	2700
1,1-Dichloroethene	U	U	U	U	U			10	400
1,1-Dichloroethane	U	U	U	U	U			10	200
1,2-Dichloroethene (total)	U	U	U	U	U			10	300
Chloroform	U	U	U	U	U			10	300
1,2-Dichloroethane	U	U	U	U	U			10	100
2-Butanone	U	U	U	U	U			10	300
1,1,1-Trichloroethane	U	U	U	U	U			10	800
Carbon Tetrachloride	U	U	U	U	U			10	600
Bromodichloromethane	U	U	U	U	U			10	----
1,2-Dichloropropane	U	U	U	U	U			10	----
cis-1,3-Dichloropropene	U	U	U	U	U			10	----
Trichloroethene	U	U	U	U	U			10	700
Dibromochloromethane	U	U	U	U	U			10	----
1,1,2-Trichloroethane	U	U	U	U	U			10	----
Benzene	U	U	U	U	U			10	60
Trans-1,3-Dichloropropene	U	U	U	U	U			10	----
Bromoform	U	U	U	U	U			10	----
4-Methyl-2-Pentanone	U	U	U	U	U			10	1000
2-Hexanone	U	U	U	U	U			10	----
Tetrachloroethene	U	U	U	U	U			10	1400
1,1,2,2-Tetrachloroethane	U	U	U	U	U			10	600
Toluene	U	U	U	U	U			10	1500
Chlorobenzene	U	U	U	U	U			10	1700
Ethylbenzene	U	U	U	U	U			10	5500
Styrene	U	U	U	U	U			10	----
Total Xylenes	U	U	U	U	U				1200
Vinyl Acetate	U	U	U	U	U			10	----
TOTAL VOCs	18	40	14	7	17				10000

QUALIFIERS
U: Compound analyzed for but not detected
J: Compound found at a concentration below the detection limit
B: Compound found in the blank as well as the sample

NOTES
----: Not established
: Value exceeds NYSDEC TAGM 4046 Appendix A criteria

TABLE 4-6
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER - FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	FD-1A	FD-1B	FD-2A	FD-2B	FD-3A	FD-3E	FLDBLK	CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	0-2 FT	2-4 FT	0-2 FT	2-4 FT	0-2 FT	8-10 FT	NA		
DATE OF COLLECTION	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/29/96		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	83	96	83	98	79	91	NA		
UNITS	(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	330	30 OR MDL
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	330	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	330	8500
1,2-Dichlorobenzene	U	U	U	U	U	U	U	330	7900
2-Methylphenol	U	U	U	U	U	U	U	330	100 OR MDL
2,2'-oxybis(1-chloropropane)	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	330	---
Hexachloroethane	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	330	200 OR MDL
Isophorone	U	U	U	U	U	U	U	330	4400
2-Nitrophenol	U	U	U	U	U	U	U	330	330 OR MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	330	---
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	330	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	330	3400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	330	13000
Naphthalene	100 J	380	U	U	U	U	U	330	220 OR MDL
4-Chloroaniline	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	330	---
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	330	240 OR MDL
2-Methylnaphthalene	220 J	600	U	U	U	U	U	330	36400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	330	---
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	330	---
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	800	100
2-Chloronaphthalene	U	U	U	U	U	U	U	330	---
2-Nitroaniline	U	U	U	U	U	U	U	800	430 OR MDL
Dimethylphthalate	U	U	U	U	U	U	U	330	2000
Acenaphthylene	U	U	U	U	U	U	U	330	41000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	330	1000
3-Nitroaniline	U	U	U	U	U	U	U	800	500 OR MDL
Acenaphthene	U	U	U	U	U	U	U	330	50000
2,4-Dinitrophenol	U	U	U	U	U	U	U	800	200 OR MDL
4-Nitrophenol	U	U	U	U	U	U	U	800	100 OR MDL

TABLE 4-6 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER - FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	FD-1A	FD-1B	FD-2A	FD-2B	FD-3A	FD-3E	FLDBLK	CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	0-2 FT	2-4 FT	0-2 FT	2-4 FT	0-2 FT	8-10 FT	NA		
DATE OF COLLECTION	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/29/96		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	83	96	83	98	79	91	NA		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/kg)	(ug/kg)
Dibenzofuran	U	U	U	U	U	U	U	330	6200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	330	----
Diethylphthalate	U	U	U	U	110 J	U	U	330	7100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	330	----
Fluorene	U	U	U	U	U	U	U	330	50000
4-Nitroaniline	U	U	U	U	U	U	U	800	----
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	800	----
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	330	----
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	330	----
Hexachlorobenzene	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	800	1000 OR MDL
Phenanthrene	140 J	39 J	200 J	51 J	160 J	U	U	330	50000
Anthracene	59 J	U	57 J	U	U	U	U	330	50000
Di-n-butylphthalate	U	U	U	U	U	U	U	330	8100
Fluoranthene	660	U	410	86 J	320 J	U	U	330	50000
Pyrene	320 J	U	200 J	52 J	150 J	U	U	330	50000
Butylbenzylphthalate	U	U	90 J	U	1000	U	U	330	50000
3-3'-Dichlorobenzidine	U	U	U	U	U	U	U	330	----
Benzo (a) anthracene	170 J	U	170 J	46 J	120 J	U	U	330	224 OR MDL
Chrysene	220 J	U	190 J	60 J	140 J	U	U	330	400
bis(2-Ethylhexyl)phthalate	1000	69 J	240 J	90 J	970	U	U	330	50000
Di-n-octylphthalate	U	U	U	U	180 J	U	U	330	50000
Benzo(b)flouranthene	420	U	210 J	68 J	190 J	U	U	330	1100
Benzo(k)flouranthene	360 J	U	220 J	62 J	180 J	U	U	330	1100
Benzo(a)pyrene	U	U	170 J	66 J	170 J	U	U	330	61 OR MDL
Indeno(1,2,3-cd)pyrene	U	U	63 J	U	52 J	U	U	330	3200
Dibenz(a,h)anthracene	U	U	U	U	U	U	U	330	14 OR MDL
Benzo(g,h,i)perylene	U	U	58 J	U	51 J	U	U	330	50000
Benzyl alcohol	U	U	U	U	U	U	U	330	----
Benzoic acid	U	U	U	U	52 J	U	U	800	----
TOTAL SVOCs	3669	1068	2278	581	3793	0	0		500000

QUALIFIERS
U: Compound analyzed for but not detected
J: Compound found at a concentration below the detection limit

NOTES
----: Not established
: Value exceeds NYSDEC TAGM 4046 Appendix A criteria
MDL: Method Detection Limit

TABLE 4-6 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER - FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	DW-1	DW-1	DW-7	DW-7				CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	3-5 FT	11-13 FT	8-10 FT	10-12 FT					
DATE OF COLLECTION	9/3/96	9/3/96	9/3/96	9/3/96					
DILUTION FACTOR	1	1	1	1					
PERCENT SOLIDS	94	96	93	95					
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)				(ug/kg)	(ug/kg)
Phenol	U	U	U	U				330	30 OR MDL
bis(2-Chloroethyl)ether	U	U	U	U				330	----
2-Chlorophenol	U	U	U	U				330	800
1,3-Dichlorobenzene	U	U	U	U				330	1600
1,4-Dichlorobenzene	U	U	U	U				330	8500
1,2-Dichlorobenzene	U	U	U	U				330	7900
2-Methylphenol	U	U	U	U				330	100 OR MDL
2,2'-oxybis(1-chloropropane)	U	U	U	U				330	----
4-Methylphenol	U	U	U	U				330	900
N-Nitroso-di-n-propylamine	U	U	U	U				330	----
Hexachloroethane	U	U	U	U				330	----
Nitrobenzene	U	U	U	U				330	200 OR MDL
Isophorone	U	U	U	U				330	4400
2-Nitrophenol	U	U	U	U				330	330 OR MDL
2,4-Dimethylphenol	U	U	U	U				330	----
bis(2-Chloroethoxy)methane	U	U	U	U				330	400
2,4-Dichlorophenol	U	U	U	U				330	3400
1,2,4-Trichlorobenzene	U	U	U	U				330	13000
Naphthalene	U	U	U	U				330	220 OR MDL
4-Chloroaniline	U	U	U	U				330	----
Hexachlorobutadiene	U	U	U	U				330	----
4-Chloro-3-methylphenol	U	U	U	U				330	240 OR MDL
2-Methylnaphthalene	U	U	130 J	U				330	36400
Hexachlorocyclopentadiene	U	U	U	U				330	----
2,4,6-Trichlorophenol	U	U	U	U				330	----
2,4,5-Trichlorophenol	U	U	110 J	U				800	100
2-Chloronaphthalene	U	U	U	U				330	----
2-Nitroaniline	U	U	U	U				800	430 OR MDL
Dimethylphthalate	U	U	U	U				330	2000
Acenaphthylene	U	U	U	U				330	41000
2,6-Dinitrotoluene	U	U	U	U				330	1000
3-Nitroaniline	U	U	U	U				800	500 OR MDL
Acenaphthene	U	U	U	U				330	50000
2,4-Dinitrophenol	U	U	U	U				800	200 OR MDL
4-Nitrophenol	U	U	U	U				800	100 OR MDL

TABLE 4-6 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER - FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATION	DW-1	DW-1	DW-7	DW-7				CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	3-5 FT	11-13 FT	8-10 FT	10-12 FT					
DATE OF COLLECTION	9/3/96	9/3/96	9/3/96	9/3/96					
DILUTION FACTOR	1	1	1	1					
PERCENT SOLIDS	94	96	93	95					
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)				(ug/kg)	(ug/kg)
Dibenzofuran	U	U	U	U				330	6200
2,4-Dinitrotoluene	U	U	U	U				330	----
Diethylphthalate	U	U	U	U				330	7100
4-Chlorophenyl-phenylether	U	U	U	U				330	----
Fluorene	U	U	U	U				330	50000
4-Nitroaniline	U	U	U	U				800	----
4,6-Dinitro-2-methylphenol	U	U	U	U				800	----
N-Nitrosodiphenylamine	U	U	U	U				330	----
4-Bromophenyl-phenylether	U	U	U	U				330	----
Hexachlorobenzene	U	U	U	U				330	410
Pentachlorophenol	U	U	U	U				800	1000 OR MDL
Phenanthrene	U	U	U	U				330	50000
Anthracene	U	U	U	U				330	50000
Di-n-butylphthalate	U	U	39 J	U				330	8100
Fluoranthene	U	U	U	U				330	50000
Pyrene	U	U	U	U				330	50000
Butylbenzylphthalate	U	U	170 J	U				330	50000
3-3'-Dichlorobenzidine	U	U	U	U				330	----
Benzo (a) anthracene	U	U	U	U				330	224 OR MDL
Chrysene	U	U	U	U				330	400
bis(2-Ethylhexyl)phthalate	U	U	230 J	51 J				330	50000
Di-n-octylphthalate	U	U	U	U				330	50000
Benzo(b)flouranthene	U	U	U	U				330	1100
Benzo(k)flouranthene	U	U	U	U				330	1100
Benzo(a)pyrene	U	U	U	U				330	61 OR MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U				330	3200
Dibenz(a,h)anthracene	U	U	U	U				330	14 OR MDL
Benzo(g,h,i)perylene	U	U	U	U				330	50000
Benzyl alcohol	U	U	U	U				330	----
Benzoic acid	U	U	U	U				800	----
TOTAL SVOCs	0	0	679	51					500000

QUALIFIERS
U: Compound analyzed for but not detected
J: Compound found at a concentration below the detection limit

NOTES
----: Not established
▒▒: Value exceeds NYSDEC TAGM 4046 Appendix A criteria
MDL: Method Detection Limit

of benzo(a)pyrene occurred in samples FD-2A, FD-2B, and FD-3A. However, it should be noted that exceedances were not detected at depths below 2 - 4 feet below grade.

Table 4-6 also shows results of the laboratory analysis of dry well samples collected from DW-1 and DW-7. As shown, with the exception of 2,4,5-trichlorophenol, detected at 110 ug/kg in sample DW-7 (8-10 feet below grade), there were no SVOCs detected at concentrations exceeding the criteria derived in Appendix A of NYSDEC's TAGM 4046. The 2,4,5-trichlorophenol exceedance was detected in the sample taken from 8-10 feet below grade. This substance was not detected above the method detection limit in the sample taken from 10 - 12 feet below grade.

It should be noted that the soil samples described above that exhibited exceedances of individual SVOCs, did not exceed the criteria established in Appendix A of NYSDEC's TAGM 4046 for *total* SVOCs (500,000 ug/kg).

Hydrocarbons, Fuel Total Petroleum Fingerprint and Glycol Scan

As shown in Table 4-7, TPHCs were detected in the floor drain samples at concentrations ranging from 40.5 mg/kg to 1390 mg/kg (decreasing with depth). To determine if these TPHC results were attributable to fuel-related compounds, the samples were also analyzed for a fuel fingerprint. The results on Table 4-7 indicate that "TPH (as gasoline)" was detected in floor drain samples FD-1A and FD-1B at 360 mg/kg and 220 mg/kg, respectively. In addition, "TPH (as 10W40 motor oil)" was also detected in Sample FD-1B at a concentration of 890 mg/kg. Therefore, TPHCs detected in samples FD-1A and FD-1B may be attributable to a prior release of petroleum. Fuel related constituents were not detected in soil samples from FD-2 or FD-3. Glycol was not detected in any of the floor drain samples.

Table 4-7 also shows that TPHCs, fuel related constituents and glycol were not detected in the soil samples from dry well DW-1. However, TPHCs were detected in soil samples from dry well DW-7 at concentrations ranging from 31.6 mg/kg to 599 mg/kg (decreasing with depth). To determine if these TPHC results were attributable to fuel-related compounds, the samples were also

TABLE 4-7
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
TPHCs, FUEL FINGERPRINT AND GLYCOL SCAN

SAMPLE LOCATION	FD-1A	FD-1B	FD-2A	FD-2B	FD-3A	FD-3E	FLDBLK
SAMPLE DEPTH	0-2 FT	2-4 FT	0-2 FT	2-4 FT	0-2 FT	8-10 FT	----
DATE OF COLLECTION	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/28/96	8/29/96
DILUTION FACTOR	1	1	1	1	1	1	1
PERCENT SOLIDS	83	96	83	98	79	91	----
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/l)
Total Petroleum Hydrocarbons	1300	282	377	107	1390	40.5	U
Gasoline	U	U	U	U	U	U	U
TPH (as Gasoline)	360	220	U	U	U	U	U
Kerosene	U	U	U	U	U	U	U
TPH (as Kerosene)	U	U	U	U	U	U	U
#2 Fuel Oil	U	U	U	U	U	U	U
TPH (as #2 Fuel Oil)	U	U	U	U	U	U	U
#6 Fuel Oil	U	U	U	U	U	U	U
Lubricating Oil	U	U	U	U	U	U	U
TPH (Jet Fuel)	U	U	U	U	U	U	U
TPH (as Hydraulic Oil)	U	U	U	U	U	U	U
TPH (as 10W40 Motor Oil)	U	890	U	U	U	U	U
Propylene Glycol	U	U	U	U	U	U	U
Ethylene Glycol	U	U	U	U	U	U	U

QUALIFIERS
U: Compound analyzed for but not detected

NOTES
----: Not applicable

TABLE 4-7 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

FORMER FLIGHT EMERGENCY CENTER FLOOR DRAINS/DRY WELLS
SOIL SAMPLING RESULTS
TPHCs, FUEL FINGERPRINT AND GLYCOL SCAN

SAMPLE LOCATION	DW-1	DW-1	DW-7	DW-7			FB-2
SAMPLE DEPTH	3-5 FT	11-13 FT	8-10 FT	10-12 FT			----
DATE OF COLLECTION	9/3/96	9/3/96	9/3/96	9/3/96			9/4/96
DILUTION FACTOR	1	1	1	1			1
PERCENT SOLIDS	94	96	93	95			----
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(mg/l)
Total Petroleum Hydrocarbons	U	U	599	31.6			U
Gasoline	U	U	U	U			U
TPH (as Gasoline)	U	U	U	U			U
Kerosene	U	U	U	U			U
TPH (as Kerosene)	U	U	U	U			U
#2 Fuel Oil	U	U	U	U			U
TPH (as #2 Fuel Oil)	U	U	420	U			U
#6 Fuel Oil	U	U	U	U			U
Lubricating Oil	U	U	U	U			U
TPH(Jet Fuel)	U	U	U	U			U
TPH(as Hydraulic Oil)	U	U	U	U			U
TPH(as 10W40 Motor Oil)	U	U	U	U			U
Propylene Glycol	U	U	U	U			U
Ethylene Glycol	U	U	U	U			U

QUALIFIERS
U: Compound analyzed for but not detected

NOTES
----: Not applicable

analyzed for a fuel fingerprint. The results on Table 4-7 indicate that "TPH (as #2 fuel oil)" was detected in dry well soil sample DW-7 (8 - 10 feet below grade) at a concentration of 420 mg/kg. Therefore, TPHCs detected in sample DW-7 may be attributable to a prior release of #2 fuel oil. Glycol was not detected in any of the dry well samples.

Based on the findings described above, particularly the exceedance of total xylenes in FD-1 and the presence of fuel-related constituents in FD-1 and DW-7, the floor drains and dry well 7 (DW-7) appear to warrant further investigation/remediation (see recommendations in Section 5).

4.1.3 Hangar 7 Site Area

As previously discussed in Section 3.2.3, one boring was installed within, or adjacent to, distribution boxes and dry wells, designated as DW-2, DW-3, DW-4, DW-5, and DW-6. Two samples from each dry well boring were selected for laboratory analysis of TPHCs, fuels, and a glycol scan.

Also as described in Section 3.2.3, one soil boring associated with each of the three former leaching pools south of the Hangar 7 building (LP-1, LP-2, and LP-3) was installed. Two samples from each of the leaching pool borings were analyzed for VOCs, SVOCs, TPHCs, fuels and a glycol scan.

Volatile Organic Compounds

As shown on Table 4-8, methylene chloride and acetone were detected in all of the leaching pool samples. With the exception of the 240 ug/mg of methylene chloride detected in sample LP-3, none exceeded the criteria established in Appendix A of NYSDEC's TAGM 4046. Furthermore, the concentrations of methylene chloride in the leaching pool samples were greater than five times the field blank concentration (4 ug/kg) and, with the exception of LP-3, were greater than five times the concentration in the method blank (9 ug/kg). Therefore, the

TABLE 4-8
NORTHROP GRUMMAN CORPORATION - HANGAR 7

HANGAR 7 SITE AREA
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	LP-1	LP-1	LP-2	LP-2	LP-3	LP-3	FLDBLK		
SAMPLE DEPTH	18-20 FT	24-26 FT	18-20 FT	24-26 FT	20-22 FT	26-28 FT	NA	CONTRACT REQUIRED DETECTION LIMIT	NYSDEC TAGM 4046 APPENDIX A CRITERIA
DATE OF COLLECTION	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	8/29/96		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	97	97	97	96	88	97	NA		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/kg)	(ug/kg)
Chloromethane	U	U	U	U	U	U	U	10	—
Bromomethane	U	U	U	U	U	U	U	10	—
Vinyl Chloride	U	U	U	U	U	U	U	10	200
Chloroethane	U	U	U	U	U	U	U	10	1900
Methylene Chloride	48 B	56 B	71 B	55 B	240 D*	29	4 JB	10	100
Acetone	25	30	74	65	200	30	13	10	200
Carbon Disulfide	U	U	U	U	U	U	U	10	2700
1,1-Dichloroethene	U	U	U	U	U	U	U	10	400
1,1-Dichloroethane	U	U	U	U	U	U	U	10	200
1,2-Dichloroethene (total)	U	U	U	U	U	U	U	10	300
Chloroform	U	U	U	U	U	U	U	10	300
1,2-Dichloroethane	U	U	U	U	U	U	U	10	100
2-Butanone	U	U	U	U	U	U	U	10	300
1,1,1-Trichloroethane	U	U	U	U	U	U	U	10	800
Carbon Tetrachloride	U	U	U	U	U	U	U	10	600
Bromodichloromethane	U	U	U	U	U	U	U	10	—
1,2-Dichloropropane	U	U	U	U	U	U	U	10	—
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	10	—
Trichloroethene	U	U	U	U	U	U	U	10	700
Dibromochloromethane	U	U	U	U	U	U	U	10	—
1,1,2-Trichloroethane	U	U	U	U	U	U	U	10	—
Benzene	U	U	U	U	U	U	U	10	60
Trans-1,3-Dichloropropene	U	U	U	U	U	U	U	10	—
Bromoform	U	U	U	U	U	U	U	10	—
4-Methyl-2-Pentanone	U	U	U	U	U	U	U	10	1000
2-Hexanone	U	U	U	U	U	U	U	10	—
Tetrachloroethene	U	U	U	U	U	U	U	10	1400
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	10	600
Toluene	U	U	U	U	U	U	U	10	1500
Chlorobenzene	U	U	U	U	U	U	U	10	1700
Ethylbenzene	U	U	U	U	U	U	U	10	5500
Styrene	U	U	U	U	U	U	U	10	—
Total Xylenes	U	U	U	U	U	U	U		1200
Vinyl Acetate	U	U	U	U	U	U	U	10	—
TOTAL VOCs	73	86	145	120	440	59	17		10000

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
D*: Result taken from the reanalysis at a 1:5 dilution

NOTES
—: Not established
: Value exceeds NYSDEC TAGM 4046 Appendix A criteria

concentrations of methylene chloride in the environmental samples cannot be attributed to either field or laboratory contamination. Similarly, concentrations of Acetone in samples LP-2 and LP-3 exceeding five times the concentration in the field blank were also detected. Likewise, the presence of Acetone in the environmental sample cannot be attributed to blank contamination. However, it should be noted that the total VOCs detected in these samples did not exceed the criteria established in Appendix A of NYSDEC's TAGM 4046 for *total* VOCs (10,000 ug/kg). Therefore, additional investigation does not appear to be warranted.

Semivolatile Organic Compounds

As indicated on Table 4-9, several SVOCs were detected in samples taken from LP-3, including one, benzo(a)pyrene, which exceeded the criteria established in Appendix A of NYSDEC's TAGM 4046. However, the total SVOCs did not exceed the TAGM 4046 limit for *total* SVOCs. Therefore, additional investigation does not appear to be warranted.

Total Petroleum Hydrocarbons, Fuel Fingerprint and Glycol Scan

As shown on Table 4-10, TPHCs were detected in soil samples from DW-2, DW-3, DW-4, DW-5, and DW-6 at concentrations ranging from 28 mg/kg to 1240 mg/kg. To determine if the TPHCs detected were attributable to fuel-related compounds, the soil samples were also analyzed for a fuel fingerprint. The results on Table 4-10 indicate that fuel-related constituents were not detected in soil samples from DW-2 and DW-4. Although "TPH (as 10W40 motor oil") was detected in sample DW-3 (4'-6'), the detected concentration of 20 mg/kg was below the detection limit and was an estimated value. As a result, it appears that the detected levels of TPHCs in these samples do not warrant any additional investigation. However, "TPH (as 10W40 motor oil)" was detected at elevated concentrations in soil samples collected at the invert depth from dry wells DW-5 and DW-6 (both at 17 - 19 feet below grade) at concentrations of 950 mg/kg and 420 mg/kg, respectively. Therefore, TPHCs detected in DW-5 and DW-6 may be attributable to a prior release of motor oil. Glycol was not detected in any of the dry well samples. The presence of

TABLE 4-8
NORTHROP GRUMMAN CORPORATION - HANGAR 7

HANGAR 7 SITE AREA
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	LP-1	LP-1	LP-2	LP-2	LP-3	LP-3	FLDBLK	CONTRACT REQUIRED DETECTION LIMIT	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	18-20 FT	24-26 FT	18-20 FT	24-26 FT	20-22 FT	26-28 FT	NA		
DATE OF COLLECTION	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	8/29/96		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	97	97	97	96	88	97	NA		
SEMIVOLATILE ORGANIC COMPOUNDS	(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	330	30 OR MDL
bis(2-Chloroethyl)ether	U	U	U	U	U	U	U	330	---
2-Chlorophenol	U	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	U	330	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	U	330	8500
1,2-Dichlorobenzene	U	U	U	U	U	U	U	330	7900
2-Methylphenol	U	U	U	U	U	U	U	330	100 OR MDL
2,2'-oxybis(1-chloropropane)	U	U	U	U	U	U	U	330	---
4-Methylphenol	U	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	U	330	----
Hexachloroethane	U	U	U	U	U	U	U	330	---
Nitrobenzene	U	U	U	U	U	U	U	330	200 OR MDL
Isophorone	U	U	U	U	U	U	U	330	4400
2-Nitrophenol	U	U	U	U	U	U	U	330	330 OR MDL
2,4-Dimethylphenol	U	U	U	U	U	U	U	330	----
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	U	330	400
2,4-Dichlorophenol	U	U	U	U	U	U	U	330	3400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	330	13000
Naphthalene	U	U	U	U	U	U	U	330	220 OR MDL
4-Chloroaniline	U	U	U	U	U	U	U	330	---
Hexachlorobutadiene	U	U	U	U	U	U	U	330	----
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	330	240 OR MDL
2-Methylnaphthalene	U	U	U	U	U	U	U	330	36400
Hexachlorocyclopentadiene	U	U	U	U	U	U	U	330	----
2,4,6-Trichlorophenol	U	U	U	U	U	U	U	330	----
2,4,5-Trichlorophenol	U	U	U	U	U	U	U	800	100
2-Chloronaphthalene	U	U	U	U	U	U	U	330	----
2-Nitroaniline	U	U	U	U	U	U	U	800	430 OR MDL
Dimethylphthalate	U	U	U	U	U	U	U	330	2000
Acenaphthylene	U	U	U	U	U	U	U	330	41000
2,6-Dinitrotoluene	U	U	U	U	U	U	U	330	1000
3-Nitroaniline	U	U	U	U	U	U	U	800	500 OR MDL
Acenaphthene	U	U	U	U	U	U	U	330	50000
2,4-Dinitrophenol	U	U	U	U	U	U	U	800	200 OR MDL
4-Nitrophenol	U	U	U	U	U	U	U	800	100 OR MDL

TABLE 4-9 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

HANGAR 7 SITE AREA
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	LP-1	LP-1	LP-2	LP-2	LP-3	LP-3	FLDBLK	CONTRACT REQUIRED DETECTION LIMIT	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	18-20 FT	24-26 FT	18-20 FT	24-26 FT	20-22 FT	26-28 FT	NA		
DATE OF COLLECTION	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	9/6/96	8/29/96		
DILUTION FACTOR	1	1	1	1	1	1	1		
PERCENT SOLIDS	97	97	97	96	88	97	NA		
SEMIVOLATILE ORGANIC COMPOUNDS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/kg)	(ug/kg)
Dibenzofuran	U	U	U	U	U	U	U	330	6200
2,4-Dinitrotoluene	U	U	U	U	U	U	U	330	----
Diethylphthalate	U	U	U	U	U	U	U	330	7100
4-Chlorophenyl-phenylether	U	U	U	U	U	U	U	330	----
Fluorene	U	U	U	U	U	U	U	330	50000
4-Nitroaniline	U	U	U	U	U	U	U	800	----
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	800	----
N-Nitrosodiphenylamine	U	U	U	U	U	U	U	330	----
4-Bromophenyl-phenylether	U	U	U	U	U	U	U	330	----
Hexachlorobenzene	U	U	U	U	U	U	U	330	410
Pentachlorophenol	U	U	U	U	U	U	U	800	1000 OR MDL
Phenanthrene	U	U	U	U	45 J	U	U	330	50000
Anthracene	U	U	U	U	U	U	U	330	50000
Di-n-butylphthalate	U	U	U	U	U	U	U	330	8100
Fluoranthene	U	U	U	U	110 J	U	U	330	50000
Pyrene	U	U	U	U	120 J	U	U	330	50000
Butylbenzylphthalate	U	U	U	U	U	U	U	330	50000
3-3'-Dichlorobenzidine	U	U	U	U	U	U	U	330	----
Benzo (a) anthracene	U	U	U	U	48 J	U	U	330	224 OR MDL
Chrysene	U	U	U	U	80 J	U	U	330	400
bis(2-Ethylhexyl)phthalate	U	U	U	U	170 J	39 J	U	330	50000
Di-n-octylphthalate	U	U	U	U	U	U	U	330	50000
Benzo(b)flouranthene	U	U	U	U	69 J	U	U	330	1100
Benzo(k)flouranthene	U	U	U	U	60 J	U	U	330	1100
Benzo(a)pyrene	U	U	U	U	64 J	U	U	330	61 OR MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U	58 J	U	U	330	3200
Dibenz(a,h)anthracene	U	U	U	U	U	U	U	330	14 OR MDL
Benzo(g,h,i)perylene	U	U	U	U	72 J	U	U	330	50000
Benzyl alcohol	U	U	U	U	U	U	U	330	----
Benzoic acid	U	U	U	U	U	U	U	800	----
TOTAL SVOCs	0	0	0	0	896	39	0		

QUALIFIERS
J: Compound found at a concentration below the detection limit
U: Compound analyzed for but not detected

NOTES
—: Not established
MDL: Method Detection Limit

TABLE 4-10
NORTHROP GRUMMAN CORPORATION - HANGAR 7

HANGAR 7 SITE AREA
SOIL SAMPLING RESULTS
TPHCs, FUEL FINGERPRINT AND GLYCOL SCAN

SAMPLE LOCATION	DW-2	DW-2	DW-3	DW-3	DW-4C	DW-4E	DW-5A	DW-5B	FLDBLK
SAMPLE DEPTH	4-6 FT	12-14 FT	4-6 FT	12-14 FT	21.5-23.5 FT	25.5-27.5 FT	17-19 FT	19-21 FT	—
DATE OF COLLECTION	9/3/96	9/3/96	9/3/96	9/3/96	8/30/96	8/30/96	8/29/96	8/29/96	8/29/96
DILUTION FACTOR	1	1	1	1	1	1	1	1	1
PERCENT SOLIDS	91	95	92	95	95	96	54	92	—
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/l)
Total Petroleum Hydrocarbons	62.6	59.9	117	103	51.5	38.4	1240	28.3	U
Gasoline	U	U	U	U	U	U	U	U	U
TPH (as Gasoline)	U	U	U	U	U	U	U	U	U
Kerosene	U	U	U	U	U	U	U	U	U
TPH (as Kerosene)	U	U	U	U	U	U	U	U	U
#2 Fuel Oil	U	U	U	U	U	U	U	U	U
TPH (as #2 Fuel Oil)	U	U	U	U	U	U	U	U	U
#6 Fuel Oil	U	U	U	U	U	U	U	U	U
Lubricating Oil	U	U	U	U	U	U	U	U	U
TPH(as Jet Fuel)	U	U	U	U	U	U	U	U	U
TPH(as Hydraulic Oil)	U	U	U	U	U	U	U	U	U
TPH(as 10W40 Motor Oil)	U	U	20 J	U	U	U	950	U	U
Propylene Glycol	U	U	U	U	U	U	U	U	U
Ethylene Glycol	U	U	U	U	U	U	U	U	U

QUALIFIERS
U: Compound analyzed for but not detected
J: Compound found at a concentration below the detection limit

TABLE 4-10 (continued)
NORTHROP GRUMMAN CORPORATION - HANGAR 7

HANGAR 7 SITE AREA
SOIL SAMPLING RESULTS
TPHCs, FUEL FINGERPRINT AND GLYCOL SCAN

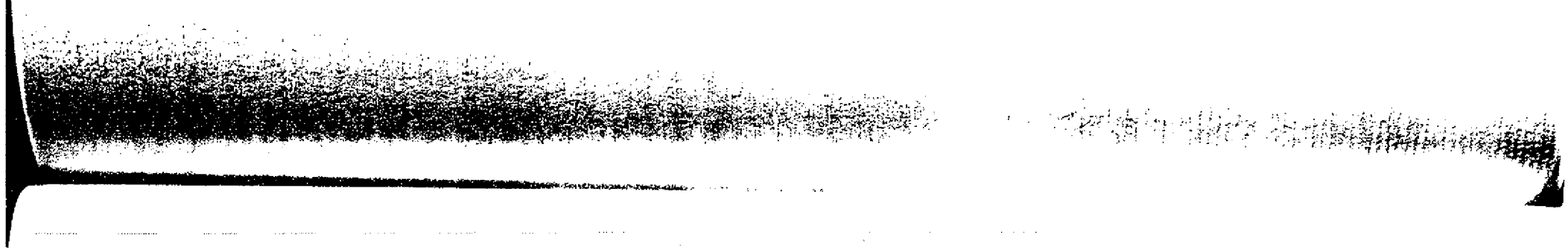
SAMPLE LOCATION	DW-6A	DW-6E	LP-1	LP-1	LP-2	LP-2	LP-3	LP-3	FB-2
SAMPLE DEPTH	17-19 FT	25-27 FT	18-20 FT	24-26 FT	18-20 FT	24-26 FT	20-22 FT	26-28 FT	—
DATE OF COLLECTION	8/29/96	8/29/96	9/6/96	9/3/96	9/6/96	9/6/96	9/6/96	9/6/96	9/4/96
DILUTION FACTOR	1	1	1	1	1	1	1	1	1
PERCENT SOLIDS	77	96	97	97	97	96	88	97	—
UNITS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/l)
Total Petroleum Hydrocarbons	310	28.0	U	U	22.6	U	152	19.6	U
Gasoline	U	U	U	U	U	U	U	U	U
TPH (as Gasoline)	U	U	U	U	U	U	U	U	U
Kerosene	U	U	U	U	U	U	U	U	U
TPH (as Kerosene)	U	U	U	U	U	U	U	U	U
#2 Fuel Oil	U	U	U	U	U	U	U	U	U
TPH (as #2 Fuel Oil)	U	U	U	U	U	U	180	U	U
#6 Fuel Oil	U	U	U	U	U	U	U	U	U
Lubricating Oil	U	U	U	U	U	U	U	U	U
TPH(as Jet Fuel)	U	U	U	U	U	U	U	U	U
TPH(as Hydraulic Oil)	U	U	U	U	U	U	U	U	U
TPH(as 10W40 Motor Oil)	420	U	U	U	U	U	150	U	U
Propylene Glycol	U	U	U	U	U	U	U	U	U
Ethylene Glycol	U	U	U	U	U	U	U	U	U

QUALIFIERS
U: Compound analyzed for but not detected

elevated concentrations of fuel-related constituents in DW-5 and DW-6 appears to warrant further investigation/remediation (see Section 5).

Table 4-10 also shows that TPHCs were detected in the leaching pool soil samples LP-2 and LP-3 at concentrations ranging from 19.6 mg/kg to 152 mg/kg (decreasing with depth). To determine if the TPHCs detected were attributable to fuel-related compounds, the soil samples were also analyzed for a fuel fingerprint. As shown on Table 4-10, fuel-related constituents were not detected in LP-1 or LP-2. The result form for the fuel fingerprint of sample LP-3 (20'-22') originally supplied by the laboratory indicated non-detects for all fuels. However, the raw data indicated "TPH (as #2 fuel oil)" at 180 mg/kg and "TPH (as 10W40 motor oil)" at 150 mg/kg. The laboratory was requested to resubmit a revised report sheet. The revised report sheet is included at the end of the "TPH 310-13 Report of Analysis" presented in Appendix B. This data suggests that the detected concentrations of TPHCs in sample LP-3 (20'-22') may be attributable to a prior fuel-related release. However, the detected concentration of TPHCs in this sample (152 mg/kg) does not appear to warrant further investigation or remediation. This is also supported by the fact that TPHCs were only detected at 19.6 mg/kg, and fuel-related constituents were not detected above method detection limits in the deeper sample LP-3 (26"-28") collected from this area.

Section 5



5.0 RECOMMENDATIONS

Based upon the findings and conclusions of the analytical sampling program associated with the Phase II investigation, the following discussion presents the recommendations of the Phase II Site Assessment.

Semivolatile Organic Compounds (SVOCs)

With regard to SVOCs, several areas exhibited concentrations of *individual* SVOCs above the criteria derived in Appendix A of NYSDEC's TAGM 4046. These areas include the following:

- Hangar 7 Building (Drum Storage Areas)
- Former Flight Emergency Center (Floor Drains)
- Hangar 7 Site Area (Leaching Pools)

Although soil samples associated with the preceding areas exhibited concentrations of certain *individual* SVOC constituents above the criteria derived in Appendix A of NYSDEC's TAGM 4046, the samples did not exhibit concentrations of *total* SVOCs above the criterion of 500,000 ug/kg for *total* SVOCs. As a result, further investigation or remedial activities with regard to the detected concentrations of SVOCs are not recommended in these areas.

Hangar 7 Exterior Drum Storage Area

As described in Section 4.1.1, "TPH (as 10W40 motor oil)" was detected at a concentration of 250 mg/kg in the subsurface soil sample DSA-1A (0-2 feet), which was advanced within the drum storage area. In addition, "TPH (as gasoline)" was detected in surface soil samples DSA-2 and DSA-3, which were collected in areas that receive storm water runoff from the drum storage area, at concentrations of 90 mg/kg and 57 mg/kg, respectively. The presence of these fuel-related constituents appears to be indicative of prior petroleum releases. As previously mentioned, oil staining was noted on the asphalt surrounding the drum storage area. As a result, it is

recommended that GAC follow its standard protocol of investigating and remediating petroleum spills in coordination with the NYSDEC.

Flight Emergency Center

As described in Section 4.1.2, "TPH as gasoline" was detected in subsurface soil samples FD-1A (0-2 feet) and FD-1B (2-4 feet), which were collected below the floor drain within the Flight Emergency Center, at concentrations of 360 mg/kg and 220 mg/kg, respectively. The FD-1B sample also contained 890 mg/kg of "TPH (as 10W40 motor oil)" In addition, "TPH (as #2 fuel oil)" was detected at 420 mg/kg in soil sample DW-7 (8-10 feet), which was collected below the invert of a dry well (a perforated 55-gallon drum) that previously received discharges from the floor drains. As a result, it is recommended that GAC follow its standard protocol of investigating and remediating spills in coordination with the NYSDEC.

Hangar 7 Site Area

As stated in Section 4.1.3, "TPH (as 10W40 motor oil)" was detected in dry well samples DW-5 and DW-6 (both at 17-19 feet below grade), at concentrations of 950 mg/kg and 420 mg/kg, respectively. The presence of these fuel-related constituents appears to be indicative of prior petroleum releases.

Based upon the above discussion, the prior industrial cleanouts undertaken in 1993 at DW-5 and DW-6 apparently did not remove all of the petroleum-contaminated soil below the pool inverts. Based upon a review of available information, it does not appear that these pools receive any discharges other than storm water runoff from the "tarmac" area of the adjacent runway. However, GAC representatives have indicated that the current occupants of the Hangar 7 site (the Nassau County Police Department) have previously and continue to utilize the adjacent areas for washing and maintenance (i.e., engine flush-outs) of helicopters. Therefore, it is recommended that measures be put in place to prevent discharges to these pools other than storm water runoff. It is also recommended that industrial cleanouts be undertaken at these pools to effectively remove the

maximum practical amount of underlying sediment/soil without undermining the structural integrity of the ring structures. Subsequent to the industrial cleanouts, it is recommended that additional endpoint samples be collected for laboratory analysis.

Appendix A

APPENDIX A

BORING LOGS

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GAC - Hangar 7 ph. II SA

Well/Boring No.: FD-1
Sheet 1 of 1
By: MR. Date: 9/28/96
Chk'd: _____ Date: _____

Drilling Contractor: Emingtan Env.
Driller: Wally Ralard
Drill Rig: CME-75
Sample Spoon I.D.: 2"
Date Started: 8/28/96

Geologist: M. Rauber
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140 #
Date Completed: 8/28/96

Borehole Completion Depth: 10'
Borehole Diameter: 8"
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	* FD-1 A	0-2'	18"	5-6-6-6	PID readings 45-P 25-S	0-6": Lt. Br/tan/orang fine+ SAND, stained, little subrnd qtz gravel - Moist
-1-						6"-18": Dk. Br. moist muddy material, some fine+ subrnd qtz gravel, wet
-2-						
-3-	* FD-1 B	2'-4'	13"	35-30-27-26	61 B-P 40 B-S	0-13": SAA for 0-6" w/ stained br./ blk.
-4-						
-5-	FD-1 C	4'-6'	11"	25-28 22-21	10-P 10-S	0-11" = SAA for 0-13"
-6-						
-7-	FD-1 D	6'-8'	3"	27-26 26-30	12-P 9-S	0-3": SAA for 0-11"
-8-						
-9-	FD-1 E	8'-10'	14"	32-28 29-33		0-14": SAA for 0-3"
-10						

BOTTOM of Bor @ 10'

Remarks: * Selected samples for lab analysis due to elevated PID readings & staining

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LC
Project Name: CAC - Hangar 7 Ph II SA

Well/Boring No.: FD-2
Sheet 1 of 1
By: MR Date: 9/28/96
Chk'd: _____ Date: _____

Drilling Contractor: Environmental Env.
Driller: Wally Rowland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 9/23/96

Geologist: M. Rauch
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140 #
Date Completed: 9/28/96

Borehole Completion Depth: 10'
Borehole Diameter: 8"
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	* FD-2 A	0-2'	14"	23-27 31-33	FID readings 0.8/0.8	0-12": Dk Br. /stained moist fine Sand, silty, little Subrnd qtz gravel, wet 12"-14": Lt-Br /tan/ orang fine Sand, some fine Subrnd qtz gravel, moist
-2-						
-3-	* FD-2 B	2'-4'	16"	28-27 23-25	0.2/0.2	0-3": SAA for 0-12" 3"-16": " " 12"-14"
-4-						
-5-	FD-2 C	4'-6'	15"	25-27 25-23	0/0	0-15": SAA for 3"-16"
-6-						
-7-	FD-2 D	6'-8'	13"	21-19 17-17	0/0	0-13": SAA for 0-15"
-8-						
-9-	FD-2 E	8'-10'	11"	20-22 22-19	0/0	0-11": SAA for 0-13'
-10						

Bottom of bore @ 10'

Remarks: * Selected for lab analysis due to elevated FID readings & staining

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: CAE - Hangar 7 ph. II SA

Well/Boring No.: FD-3
Sheet 1 of 1
By: MR Date: 8/22/96
Chk'd: _____ Date: _____

Drilling Contractor: Environ Env.
Driller: Wally Rowland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 8/22/96
Geologist: M. Rauber
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140#
Date Completed: 8/22/96

Borehole Completion Depth: 10'
Borehole Diameter: 8"
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	* FD-3 A	0-2'	9"	8-11 11-12	FID reading 86 / 6	0-9": Dk Br. stained moist silty mat. wet w/ tr. subrnd qtz gravel
-1-						
-2-						
-3-	FD-3 B	2'-4'	13"	17-13 10-15	D/A / 0	0-4": Dk Br. stained fine sand, little subrnd qtz. gravel, moist 4"-13": Lt. Br/tan/ orange fine SAND some fine subrnd qtz. gravel, relatively dry
-4-						
-5-	FD-3 C	4'-6'	10"	20-20 20-20	0 / 0	0-5": SAA for 0-4" 5"-10": " " 4"-13"
-6-						
-7-	FD-3 D	6'-8'	13"	17-18 19-20	0 / 0	0-10": SAA for 4"-13" 10"-13": Lt Br/tan silty material, moist tr. subrnd qtz gravel
-8-						
-9-	* FD-3 E	8'-10'	7"	14-16 17-13	0 / 0	0-7": SAA for 10"-13"
-10						Bottom of Bore @ 10'

Remarks: * selected for lab analysis due to FID reading & sample depth interval

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GAF - Hangar 7, Bethpage, NY.

Well/Boring No.: DSA-1
Sheet 1 of 1
By: MP Date: 8/29/96
Chk'd: _____ Date: _____

Drilling Contractor: Environ Env.
Driller: Wally Rowland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 8/29/96

Geologist: M. Rowan
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140#
Date Completed: 8/29/96

Borehole Completion Depth: 10'
Borehole Diameter: 8"
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	* DSA-1 A	0-2'	18"	12-13 15-15	FID reading 0/0	0-3": DK Br. f-m-c SAND, tr. f-c subrnd qtz gravel 3"-18": LT. Br./tan f-m-c sand, little silt, little f-m-c subrnd qtz. gravel
-1-						
-2-						
-3-	DSA-1 B	2'-4'	18"	17-18 18-19	0/0	0-18": SAA for 3"-18"
-4-						
-5-	DSA-1 C	4'-6'	11"	18-24 26-25	0/0	0-11": SAA for 0-18"
-6-						
-7-	DSA-1 D	6'-8'	12"	26-22 17-18	0/0	0-12": SAA for 0-11"
-8-						
-9-	* DSA-1 E	8'-10'	16"	19-18 16-16	0/0	0-15": SAA for 0-12"
-10	MS/MSD Sample					Bottom of Bore @ 10'

Remarks: * Selected for lab analysis due to sample depth intervals not FID readings

Water Level Measurement
_____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GAF - Hangar 7, Bethpage, NY

Well/Boring No.: ETD-1
Sheet 1 of 1
By: MR Date: 8/29/96
Chk'd: _____ Date: _____

Drilling Contractor: Empire Env.
Driller: Wally Rowland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 8/29/96

Geologist: M. Rawson
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140 #
Date Completed: 8/29/96

Borehole Completion Depth: 10'
Borehole Diameter: 8"
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
-0-	* ETD-1 A	0-2'	12"	7-6 9-13	Filt readings 0/0	0-12": Br./tan fmc sand, little fine subrnd qtz. gravel, moist
-1-						
-2-	ETD-1 B	2'-4'	13"	12-16 14-18	0/0	0-13": SAA for 0-12"
-3-						
-4-	ETD-1 C	4'-6'	11"	9-11 10-10	0/0	0-11": SAA for 0-13"
-5-						
-6-	ETD-1 D	6'-8'	9"	11-9 8-7	0/0	0-9": SAA for 0-11" w/ some fine subrnd qtz gravel, moist
-7-						
-8-	* ETD-1 E	8'-10'	14"	19-17 21-22	0/0	0-14": Br./tan/orange fine sand, tr.- subrnd qtz gravel, moist
-9-						
-10						Bottom of Bore @ 10'

Remarks: *Selected for lab analysis due to sample depth interval

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GAF - Hangar 7 Bethpage, NY

Well/Boring No.: DW-6
Sheet 1 of 1
By: MR. Date: 8/29/96
Chk'd: _____ Date: _____

Drilling Contractor: Empire Env.
Driller: Wally Rowland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 8/29/96

Geologist: M. Rauber
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140 #
Date Completed: 8/29/96

Borehole Completion Depth: 27'
Borehole Diameter: 8"
Ground Surface El.: 0
Depth to bottom of dry well = 17'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
17' 18' 19'	* DW-6 A	17'-19'	16"	12-18 17-21	Fid readings 0/0	Note: no sampling conducted from 0-17' start sampling @ bottom of dry well SAMPLE @ 17' 0-16": Lt. Br/tan f-m-c SAND, little f-m-c subrnd qtz gravel, tr- silt, moist Note: slight staining for 1st 3" - probably bottom of pool silt
20' 21'	DW-6 B	19'-21'	16"	17-16 15-15	0/0	0-16": SAA for 0-16"
22' 25'	DW-6 C	21'-23'	15"	23-22 25-27	0/0	0-15": Lt Br./Lt Tan f-m-c sand, tr- subrnd qtz gravel, moist
24' 25'	DW-6 D	23'-25'	21"	22-19 18-17	0/0	0-21": SAA for 0-15"
26' 27'	* DW-6 E	25'-27'	15"	23-22 26-24	0/0	0-15": SAA for 0-21" but slightly reddish tint f coarse sand w/ some f-m-c gravel also moist BOTTOM of Bore @ 27'

Remarks: * Sample selected for lab analysis due to sample depth interval not FID reading

Water Level Measurement
_____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL	Well/Boring No.: DW-5
Project Name: GAC - Hangar 7 Bethpage, NY.	Sheet 1 of 1
	By: MA Date: 8/29/96
	Chk'd: Date:

Drilling Contractor: Emington Env.		Borehole Completion Depth: 27'
Driller: Wally Rowland	Geologist: M. Dauber	Borehole Diameter: 8"
Drill Rig: CME-55	Drilling Method: 4 1/4" HSA	Ground Surface El.: 0
Sample Spoon I.D.: 2"	Drive Hammer Wt.: 140#	Depth to bottom of pool = 17'
Date Started: 8/29/96	Date Completed: 8/29/96	

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
17 - 19	* DW-5 A	17'-19'	13"	9-10 10-9	FID readings 7.0/0.6	0-3": Dk Br./Blk silty bottom of pool mat. very wet, 3"-13": Dk. Br./tan fine+ sand, some fine+ subrnd qtz gravel, moist
19 - 21	* DW-5 B	19-21'	12"	13-17 16-14	4.6/0.2	0-12": Lt. Br fine sand, little fine gravel moist
21 - 23	DW-5 C	21'-23'	15"	22-23 19-19	0.8/0	0-15": SAA for 0-12"
23 - 25	DW-5 D	23'-25'	17"	23-22 26-18	0.4/0	0-17": SAA for 0-15"
25 - 27	DW-5 E	25'-27'	17"	22-18 17-15	0.2/0	0-17": SAA for 0-17"

bottom of Bor @ 27'

Remarks: * Selected for lab analysis due to elevated FID readings

Water Level Measurement		
	Date	
	Date	
	Date	
	Date	

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GAF - Hangar 7 Ph. II SA
Bethpage, N.Y.

Well/Boring No.: DW-E4
Sheet 1 of ____
By: MR Date: 8/30/96
Chk'd: ____ Date: ____

Drilling Contractor: Environ Env.
Driller: Wally Rowland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 8/30/96
Geologist: M. Rauber
Drilling Method: 4¼" HSA
Drive Hammer Wt.: 140#
Date Completed: 8/30/96

Borehole Completion Depth: 27.5'
Borehole Diameter: 8"
Ground Surface El.: 0
depth to bottom = 17.5'

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6" TOTAL for 2'	HEADSPACE (PPM)	SAMPLE DESCRIPTION
17.5					Fid reading	
18.5	DW-4 A	17.5' - 19.5'	11"	35	0.2 / 0	0-5": Dk Br./Blk stained silty mat.) moist (bottom of dry well) 5"-11": Br/tan fmc sand, some fmc subrnd qtz. gravel, moist
19.5						
20.5	DW-4 B	19.5' - 21.5'	20"	70	0.1 / 0	0-20": Lt. Br/ tan fmc sand, tr.+ fmc subrnd qtz gravel, moist
21.5						
22.5	* DW-4 C	21.5' - 23.5'	18"	75	1.2 / 0.6	0-18": SAA for 0-20"
23.5						
24.5	DW-4 D	23.5' - 25.5'	22"	90	0 / 0	0-22": SAA for 0-18"
25.5						
26.5	* DW-5 E	25.5' - 27.5'	20"	90	1.2 / 0.6	0-20": SAA for 0-22"
27.5						

Bottom of Bore @ 27.5'

Remarks: * Sample selected due to elevated FID reading

Water Level Measurement ____ Date ____
____ Date ____
____ Date ____
____ Date ____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GAF - Hanson 7 Ph. II SA

Well/Boring No.: LP-3
Sheet 1 of 1
By: ME Date: 8/30/96
Chk'd: _____ Date: _____

Drilling Contractor: Environmental
Driller: Wally Howland
Drill Rig: CME-55
Sample Spoon I.D.: 2"
Date Started: 8/30/96

Geologist: M. Hanson
Drilling Method: 4 1/4" HSA
Drive Hammer Wt.: 140 lb
Date Completed: 8/30/96

Borehole Completion Depth: 26'
Borehole Diameter: 8"
Ground Surface El.: 0

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM)	SAMPLE DESCRIPTION
16 17 18	* LP-A	16'-18'	19"	17-18 19-20	Flo reading 0/0	0-19": Lt. Br/tan f-mc SAND, some Subrnd gtz gravel, tr- silt, moist
18 19 20	LP-B	18'-20'	18"	27-27 24-25	0.2/0	0-18": SAA for 0-19"
20 21 22	LP-C	20'-22'	16"	19-22 23-18	0/0	0-16": SAA for 0-18"
22 23 24	LP-D	22'-24'	20"	24-24 26-27	0/0	0-20": Lt. Br/tan f-mc sand, tr+ f-mc subrnd gtz. gravel, moist
24 25 26	* LP-E	24'-26'	19"	26-27 26-27	0/0	0-19". SAA for 0-20"

Bottom of Bore @ 26' below grade

Remarks: * Selected for lab analysis due to sample depth

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Hangar 7

Well/Boring No.: DW-1
Sheet 1 of 1
By: KSR Date: 9/3/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emington
Driller: Dennis/Wally Geologist: Keith Robins
Drill Rig: CME 75 Drilling Method: 4 1/4 HSA
Sample Spoon I.D.: 2 inch Drive Hammer Wt.: 140 lbs
Date Started: 9/3/96 Date Completed: 9/3/96

Borehole Completion Depth: 13 FT
Borehole Diameter: 8 inch
Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) OVA	SAMPLE DESCRIPTION
0						
1						
2						
3	1	3-5	12"	8,12, 20,25	0.0	(3'-5') 0-2" Gray-Brown coarse Sand and gravel 2"-12" Orange-Brown coarse sand and fine-medium gravel. (dry)
4						
5	2	5-7	18"	15,15, 23,27	0.0	(5'-7') Orange-Brown coarse to medium Sand, little-some gravel, trace brown silt. (dry)
6						
7	3	7-9	12"	11,14, 22,28	0.0	(7'-9') Brown-Orange coarse to medium ground gravel, gray brown silty clay, some coarse sand, gravel, damp.
8						
9	4	9-11	12"	24,26, 25,25	0.0	(9'-11') Brown-Orange coarse-medium grs Sand, trace-little gravel. (damp)
10	5	11-13	24"	20,27, 33,30	0.0	(11'-13') Light Tan-white-Brown, coarse Sand and subrounded gravel, poorly sorted, loose.
15						

Remarks: Soil samples (3-5), (11-13) selected for VOCs, SVOCs, TPHCs, fuels, glycol scan analysis

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL.

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Grumman Hunger 7

Well/Boring No.: DW-2
Sheet 1 of 1
By: KSR Date: 9/3/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emington
Driller: Dennis
Drill Rig: Earthprobe
Sample Spoon I.D.: 2inch
Date Started: 9/3/96
Geologist: Keith Robins
Drilling Method: Geoprobe Sampler
Drive Hammer Wt.: —
Date Completed: 9/3/96

Borehole Completion Depth: 14 Ft
Borehole Diameter: 2inch
Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) (OVA)	SAMPLE DESCRIPTION
0						
1						
2						
3						
4	1	4-6	18"	—	0.0	(4'-6') Brown medium sand grading into Tan medium-coarse sand, fine gravel. (dry)
5	2	6-8	12"	—	0.0	(6'-8') Dark Brown to Brown coarse to medium grtz Sand, little fine gravel, trace silt.
6						(8'-10') Brown Coarse Sand, little fine gravel. (dry)
7	3	8-10	15"	—	0.0	
8						(10'-12') Brown coarse to medium subrounded Sand, little fine gravel. (dry-damp)
9	4	10-12	12"	—	0.0	
10						(12'-14') Tan - Light Brown fine to medium sand.
11	5	12-14	15"	—	0.0	END OF BORING at 14 Feet

Remarks: Selected soil samples (4-6) (12-14) for lab analysis

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Grumman Hangar 7

Well/Boring No.: DW-3
Sheet 1 of 1
By: KSR Date: 9/3/96
Chk'd: _____ Date: _____

Drilling Contractor: John Errington
Driller: Dennis
Drill Rig: Earthprobe
Sample Spoon I.D.: 2 inch
Date Started: 9/3/96

Geologist: Keith Rubins
Drilling Method: Geoprobe Sampler
Drive Hammer Wt.: —
Date Completed: 9/3/96

Borehole Completion Depth: 14 FT
Borehole Diameter: 2 inch
Ground Surface El.: —

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) (OVA)	SAMPLE DESCRIPTION
0						
1						
2						
3						
4	1	4-6	12"	—	0.0	(4'-6') Brown coarse sand and gravel.
5						
6	2	6-8	8"	—	0.0	(6'-8') Brown – Light Brown medium to coarse Sand.
7						
8	3	8-10	16"	—	0.0	(8'-10') Brown coarse to medium Sand, Some fine subrounded gravel. (damp)
9						
10	4	10-12	15"	—	0.0	(10'-12') Light Brown – Brown medium – coarse sand, some little fine gravel. (dry – damp)
12	5	12-14	15"	—	0.0	(12'-14') Brown – Dark Brown medium to coarse Sand, little fine gravel. damp

Remarks: Soil samples (4-6) (12-14) selected for lab analysis

Water Level Measurement
END OF Boring AT 14 FT
_____ Date
_____ Date
_____ Date
_____ Date

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Hanger 7

Well/Boring No.: DW-7
Sheet 1 of 1
By: KSR Date: 9/3/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emington
Driller: Wally
Drill Rig: CME 75
Sample Spoon I.D.: 2inch
Date Started: 9/3/96

Geologist: Keith Robins
Drilling Method: 4 1/4 HSA
Drive Hammer Wt.: 140 Lbs
Date Completed: 9/3/96

Borehole Completion Depth: 14FT
Borehole Diameter: 8inch
Ground Surface El.:

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) (OVM)	SAMPLE DESCRIPTION
-4-	1	4-6	24"	9,13, 17,23	0.0	(4'-6') Dark Brown - Brown medium-coarse Sand, little fine gravel.
-6-	2	6-8	3"	15,19, 28,24	0.0	(6'-8') Brown coarse sand, cobbles, gravel
-8-	3	8-10	24"	25,29, 33,31	30.0 ppm	(8'-10') 0-12" Dark Brown coarse Sand (oil oder) 12"-14" Brown silt, Gray oil oder 14"-24" Brown orange Sand
-10	4	10-12	15"	23,28, 34,31	4 ppm	(10'-12') Brown - Orange Light Tan coarse Sand gravel, some qtz rock crushed.
14	5	12-14	15"	27,29, 34,33	2 ppm	(12'-14') Light Tan coarse Sand and crushed qtz gravel, poorly sorted.

Remarks:
Soil samples selected for lab analysis (8-10) (10-12) (12-14)

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Hangar 7

Well/Boring No.: RB-1
Sheet 1 of 2
By: KAR Date: 9/3/96
Chk'd: _____ Date: _____

Drilling Contractor: John Eminger
Driller: Dennis
Drill Rig: Earthprobe
Sample Spoon I.D.: _____
Date Started: 9/3/96

Geologist: Keith Robins
Drilling Method: Geoprobe Sampler
Drive Hammer Wt.: —
Date Completed: 9/3/96

Borehole Completion Depth: 32 FT
Borehole Diameter: 2 inch
Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) DVA	SAMPLE DESCRIPTION
0	1	0-2	24"	—	0.0	(0-2') Dark Brown coarse - medium sand, trace roots, gravel, rocks.
2						
4	2	5-7	24"	—	0.0	(5'-7') Light Tan - Brown coarse qtz Sand, fine gravel.
6						
8						
10	3	10-12	24"	—	0.0	(10'-12') Brown coarse - medium qtz Sand, trace fine gravel. (damp)
12						
14						
16	4	15-17	20"	—	0.0	(15'-17') Light Tan coarse qtz Sand some, fine gravel. (damp)
18						
20						

Remarks:

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL.

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-6L
Project Name: Hangar 7

Well/Boring No.: RB-1
Sheet 2 of 2
By: KSL Date: 9/3/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emmyton
Driller: Dennis Geologist: Keith Robins
Drill Rig: Earthprobe Drilling Method: Geoprobe Sampler
Sample Spoon I.D.: 2 inch Drive Hammer Wt.: _____
Date Started: 9/3/96 Date Completed: 9/3/96

Borehole Completion Depth: 32 FT
Borehole Diameter: 2 inch
Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) OVA	SAMPLE DESCRIPTION
20						
	5	20-22	18"	—	0.0	(20'-22') Tan - Light Brown fine-medium qtz Sand, trace gravel. (damp)
22						
24						
	6	25-27	24"	—	0.0	(25'-27') Light Brown - Tan fine to medium rounded Sand (damp)
26						
28						
30						
	7	30-32	20"	—	0.0	(30'-32') Light Tan fine - medium rounded qtz Sand. wet at
32						---▽- (31.6') water table ---
34						
						END OF Boring at 32 FT
36						
38						
40						

Remarks: Soil samples (5-7) (15-17) (30-32) Selected for Glycol Scan analysis

Water Level Measurement _____ Date _____ _____ Date _____ _____ Date _____ _____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: GRUMMAN HANGER

Well/Boring No.: DW-8
Sheet 1 of 1
By: KSE Date: 9/4/96
Chk'd: _____ Date: _____

Drilling Contractor: John Errington
Driller: Dennis
Drill Rig: CME 75
Sample Spoon I.D.: 2 inch
Date Started: 9/4/96

Geologist: Keith Robins
Drilling Method: 4 1/4 HSA
Drive Hammer Wt.: 140 LBS
Date Completed: 9/4/96

Borehole Completion Depth: 21 FT
Borehole Diameter: 8 inch
Ground Surface El.:

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) OVA	SAMPLE DESCRIPTION
10						
11	1	11-13	15"	16,18, 19,18	5 ppm	(11'-13') 0-3" Black sand, mucky, wet 3"-15" Tan coarse - fine Sand, some fine gravel. damp
12						
13	2	13-15	20"	14,19, 19,22	5 ppm	(13'-15') Tan - light Brown coarse to medium Sand and subrounded gtz gravel. damp, grading down into Brown-orange gravel, coarse sand
14						
15	3	15-17	15"	18,22 24,24	0.0	(15'-17') Brown - Orange course Sand and gravel, trace redish-brown silt, subrounded fine gravel. damp
16						
17	4	17-19	15"	20,22, 27,27	0.0	(17'-19') Brown - Light Brown medium to fine gtz Sand, trace fine - medium gravel, trace silt, trace pink gravel
18						
19						
20	5	19-21	18"	22,27 30,32	6 ppm	(19'-21') 0-12" Brown - Light orange coarse to medium Sand, some gravel 12"-18" Light Brown fine-medium Sand, (damp)
21						END OF Boring AT 21 FT
22						

Remarks:
Soil samples (11-13) (19-21) selected for VOCs, SVOCs, TPHCs, Fuels glycol scan analysis

Water Level Measurement
_____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Grumman Huntsville

Well/Boring No.: LP-1
Sheet 1 of 1
By: KSR Date: 9/6/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emington
Driller: Wally Geologist: Keith Kobin
Drill Rig: CME 75 Drilling Method: 4¼ HSA
Sample Spoon I.D.: 2 inch Drive Hammer Wt.: 140 Pounds
Date Started: 9/6/96 Date Completed: 9/6/96

Borehole Completion Depth: 26 FT
Borehole Diameter: 8 inch
Ground Surface El.: —

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) (OVM)	SAMPLE DESCRIPTION
0						(0-16') NO soil sampling conducted. Visual log — Brown-orange course sand and gravel; trace cobbles.
16	1	16-18	15"	12,14 12,17	0.0	(16'-18') 0-12" Tan course sand and gravel. (dry) 12"-15" Dark Brown f-m Sand, trace gravel. (damp)
18						
20	2	18-20	15"	19,17 21,22	0.0	(18'-20') 0-4" Light Tan fine-medium qtz Sand, trace subrounded gravel. 4"-15" Brown-Light Tan f-c Sand, some gravel, compacted, with Dark Brown-Reddish silt.
22	3	20-22	24"	23,24 25,25	0.0	(20-22) Light Brown to Dark Brown-Red course-medium Sand, abundant qtz gravel, poorly sorted, fine to medium Tan sand at end. (damp-moist)
24	4	22-24	12"	22,26 30,38	0.0	(22'-24') Light Tan fine-medium Sand, trace fine gravel, with horizontal banning. well sorted, darker brown sand, trace silt.
26	5	24-26	20"	22,23, 22,24	0.0	(24'-26') Tan course Sand and qtz gravel, white-Tan poorly sorted, loose.
28						
30						END OF Boring at 26 FT
32						
34						

Remarks: collected samples (18-20) (24-26) for lab analysis

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Gumman RANGER 7

Well/Boring No.: LP-2
Sheet 1 of 1
By: KSR Date: 9/6/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emlenton
Driller: Wally
Drill Rig: CME 75
Sample Spoon I.D.: 2 inch
Date Started: 9/6/96

Geologist: Keith Robins
Drilling Method: 4 1/4 HSA
Drive Hammer Wt.: 140 Pounds
Date Completed: 9/6/96

Borehole Completion Depth: 26 FT
Borehole Diameter: 8 inch
Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) OVA	SAMPLE DESCRIPTION
0						No soil sampling (0-16), adjacent to former leaching pool.
16	1	16-18	12"	15,17, 17,21	0.0	(16'-18') Brown - Light Tan coarse Sand, some fine-medium g/s gravel. (dry)
18	2	18-20	18"	19,20 22,22	0.0	(18'-20') Brown - Light orange coarse to medium round Sand and fine-medium gravel. (Crushed rock). (dry)
20	3	20-22	12"	24,22 23,26	0.0	(20-22') Light Brown - coarse Sand and subrounded gravel, trace medium to fine sand, poorly sorted. (dump)
22	4	22-24	18"	23,27 26,25	0.0	(22'-24') Light Tan - White fine to medium well graded sand, trace dark orange f-m sand, trace iron, tr. silt dry-dump
24	5	24-26	21"	25,23, 27,26	0.0	(24-26') Light Brown fine-coarse sand, little gravel, trace silt, trace reddish-brown silt, iron ore staining.
26						
28						
30						

END OF Boring at 26 FT

Remarks: Soil samples selected for (18-20) (24-26) for lab analysis

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL

BORING LOG

DVIRKA AND BARTILUCCI

Project No.: 1167-LL
Project Name: Grumman Hanger 7

Well/Boring No.: LP-3
Sheet 1 of 1
By: KSR Date: 9/6/96
Chk'd: _____ Date: _____

Drilling Contractor: John Emington
Driller: Wally
Drill Rig: CME 75
Sample Spoon I.D.: 2 inch
Date Started: 9/6/96

Geologist: Keith Robins
Drilling Method: 4 1/4 HSA
Drive Hammer Wt.: 140 lbs
Date Completed: 9/6/96

Borehole Completion Depth: 28 FT
Borehole Diameter: 8 inch
Ground Surface El.: _____

DEPTH (FT.)	SAMPLE NO.	SAMPLING INTERVAL	RECOVERY/ RQD	BLOWS/6"	HEADSPACE (PPM) (OVA)	SAMPLE DESCRIPTION
0						No soil sampling (0-18') inside leaching pool
20	1	18-20	—	12,14 14,14	0.0	(18-20') muck, black, gravel, trace sand
22	2	20-22	18"	17,17 19,16	0.0	(20-22') 0-12" Black coarse-medium Sand and gravel (slight sheen) 12"-18" Light Brown-orange fine Sand, moist-damp
23	3	22-24	20"	20,22 22,22	0.0	(22-24') Light Tan - Light Orange fine-medium Sand, little gravel. (moist)
25	4	24-26	15"	22,22, 23,24	0.0	(24-26') Light Tan - Brown coarse to medium gtz Sand, some fine-medium subrnd gtz gravel, poorly sorted. (moist-damp)
27	5	26-28	22"	24,25, 25,27	0.0	(26'-28') Light Brown - Tan coarse gtz Sand and medium size gravel, subrounded to subangular, poorly sorted. (damp)
28						END OF BORING AT 28 FT
29						
30						

Remarks: Collect soil samples at (20-22) and (26-28) for lab analysis

Water Level Measurement _____ Date _____
_____ Date _____
_____ Date _____
_____ Date _____

BL